

## SENATE STANDING COMMITTEE ON PROGRAM REVIEW

Regular Meeting  
Wednesday, September 22, 2021  
3:00 p.m. - 5:00 p.m.  
MS Teams Online

### AGENDA

1. Call to Order ..... Amy Jeon 3:00
2. Approval of Agenda
3. Approval of Minutes, June 23, 2021
4. Chair's Report ..... 3:05
  - 4.1. English Upgrading Program Review Timeline
5. New Business .....
  - 5.1. History External Review Report..... Amy Jeon 3:10
  - 5.2. Foundations in Design External Review Report ..... Amy Jeon 3:25
  - 5.3. Sustainable Agriculture Self-Study Report Rebecca Harbut, Mike Bomford, Elizabeth Worobec..... 3:40
6. Items for Discussion .....
  - 6.1. Notice of Election of Committee Chair ..... Amy Jeon 4:10
  - 6.2. New Program Review Guides ..... Lori McElroy 4:15
7. Manager's Report for OPA..... 4:55
8. Adjournment ..... 5:00

## SENATE STANDING COMMITTEE ON PROGRAM REVIEW

### MINUTES OF REGULAR MEETING

Wednesday, June 23, 2021

1:00 p.m. – 3:00 p.m.

MS Teams Online

Voting Member Quorum 9 members		
Aimee Begalka Shelley Boyd Fergal Callaghan Michael Cober Heather Cyr Donna Danielson Julia Denker	David Florkowski Lori McElroy Allison Richardson Melissa Swanink Leeann Waddington Michael Whitmore Jendy Wu	
		<b>Non-voting</b>
		David Burns - Chair Melike Kinik-Dicleli Steve Cardwell
<b>Regrets</b>	<b>Senate Office</b>	<b>Guests</b>
Marti Alger Alan Davis Akshat Garg Sandy Vanderburgh Stephen Yezerinac	Meredith Laird	Amy Jeon Sharon Leitch Sharmen Lee Heather Clark Andhra Goundrey

#### 1. Territorial Acknowledgement and Call to Order

The Chair opened the meeting with a Territorial Acknowledgement and called the meeting to order at 1:00 p.m.

#### 2. Approval of Agenda

Melissa Swanink moved the agenda be confirmed as presented.

The motion carried.

#### 3. Approval of Minutes May 19, 2021

Donna Danielson moved the minutes be accepted as circulated.

The motion carried.

#### 4. Chair's Report

The Chair welcomed Amy Jeon, Vice-Chair Elect, to the committee, and informed the members that she will act as chair for this committee until an election for a new chair is held in the fall.

David Burns thanked the members of the committee whose terms are coming to an end in August: Michael Cober, Michael Whitmore, Jendy Wu, and Donna Danielson. David Burns shared that publishing the proposed Program Review timelines to the committee assists in keeping the review on track and all participants informed of progress.

##### 4.1. Creative Writing Program Review Timeline

Lori McElroy informed the committee that the Creative Writing Department has already begun the review. The Chair requested that this timeline be updated to reflect that information.

#### **4.2. Physics for Modern Technology Program Review Timeline**

The committee received the timeline.

#### **4.3. Brewing and Brewery Operations Program Review Timeline**

The committee received the timeline.

### **5. New Business**

#### **5.1. HCAP Quality Assurance Plan**

David Burns introduced the Quality Assurance Plan documents and briefly reviewed the process of submissions to this committee, explaining that reviewers provide their feedback to the proponents on the first set of documents, proponents then consider the feedback and make changes to the documents prior to submitting revisions for the full committee to review and discuss.

Sharon Leitch described how student survey feedback is addressed within the department. She shared that students in the Health Care Assistant Program were some of the highest users of the Early Alert system at KPU, and that concerns raised by students at any time are regularly addressed within the department. The committee requested that the Plan include strategies to address mental health concerns and information about improvements to Indigenous Library Resources.

Sharon Leitch described the relationship-building efforts that have been made with First Nations Health and the program's plan to reach out in a more informal manner to achieve its goals, particularly with Assisted Living and for elders living with dementia. She confirmed that this certificate did not make students eligible for the international student supports that are available for diploma or baccalaureate programs.

Sharon Leitch highlighted the program's unique relationship with Surrey Memorial Hospital, as the only program in the province to provide experience on a nephrology unit. She shared ongoing efforts to secure partnerships with other institutions within the Fraser Health Authority. She described the program's ongoing discussions around teaching mode and the possibility of including more online and hyflex course offerings, as well as part-time learning to support students who are employed within the health care system as well as studying. The Faculty hopes to support the request for more lab space by moving some teaching into evenings and weekends. She highlighted the onboarding and mentoring for new faculty, as well as work on marketing for the program and ways to increase ongoing connections with alumni.

The committee requested more specific timelines to replace "post-Covid", for example in the timing of dual credit offerings. Sharon Leitch shared with the committee that dual credit courses were ready to be offered and their timing now depends on approval by the Richmond and Surrey School Districts.

Steve Cardwell shared information about working with the school districts for dual credit programming and thanked the program for their work on indigeneity and their responses to the reviewer feedback.

Julia Denker moved THAT the QAP plan be amended to include 1) a new step under strategy 4 that a standing item on “student experience, including student survey data, be maintained at future department meetings.” and 2) a new step under strategy 3 on “introducing new resources by Indigenous authors/voices”.

The motion carried.

Lori McElroy moved THAT the proponent add notes "dependent on school districts" for dual credit resumption and that minimum qualifications to be completed by Sept. 2022.

The motion carried.

Michael Whitmore moved to approve the Self-Study Report as amended.

The motion carried.

## **5.2. Fashion & Technology Self-Study Report**

David Burns thanked the reviewers for their thorough review and their supply of track changes directly into the document for the consideration of the proponents and thanked the proponents for their work to quickly and thoroughly address the feedback.

Heather Clark shared that a table had been added to the revised report to compare the three Fashion programs currently offered in Canada, that they had worked to use more concise language in the report while also working to capture information for future use by faculty members who will continue work on the Quality Assurance Plan.

Andhra Goundrey thanked the committee, the chair, and the Manager of OPA for their support through the Program Review process on the number of Wilson School of Design programs that have been in the program review process during this academic year.

Melissa Swanink moved to approve the Fashion and Technology Self-Study Report as presented.

The motion carried.

## **6. Items for Discussion**

None.

## **7. Manager's Report for OPA**

The committee received the written report. Melike Kinik-Dicleli shared that there are currently 30 programs under review, including 7 at the self-study stage, 3 in external review, 5 in quality assurance, and 15 in the QA reporting phase. She informed the committee that the FIND program external review is scheduled for June 29 and 30, Anthropology is scheduled for September, and Educational Assistant in October. She also shared that another 6 programs are scheduled to begin their program review process in 2021/22.

Melike Kinik-Dicleli thanked the members who will be leaving the committee and all members of the committee for their efforts. She also thanked Dr. Burns for his support in ensuring that program reviews continued to move forward during this academic year, despite a variety of challenges.

Lori McElroy shared with the committee that QAPA process audit has now been completed and posted and the Office of Planning and Accountability is making changes to the guides and templates with the assistance of the Teaching & Learning Commons, in an effort to improve the self-study process in particular. The revised guide and templates will be piloted through the summer with the goal of using them in all program reviews in academic 2021/22.

She thanked David Burns for all of his work with this committee, including his support of the previous chair and his efforts in chairing the committee. She recognized all members of the committee for their commitment to improving the quality of programs at the institution.

## **8. Adjournment**

The meeting adjourned at 2:14 p.m.

## SENATE STANDING COMMITTEE ON PROGRAM REVIEW

**Agenda Item: 4.1**

**Meeting Date: September 22, 2021**

**Presenter: Amy Jeon**

**Agenda Item**                      **English Upgrading Program Review Timeline**

Action Requested	Information
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Recommended Resolution	N/A
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**Senate Standing  
Committee Report**

For Senate Office Use Only

**Context &  
Background**

To ensure that program reviews are completed in a timely manner and that program review reports are based on relevant data, program reviews at KPU follow a timeline. All program reviews should be completed within 16 months from planning to the submission of the Quality Assurance Plan. Starting September 2020, the timelines for new program reviews are presented to the Senate Standing Committee on Program Review. Attached is the program review timeline for the English Upgrading Program.

**Key Messages**

N/A

**Consultations**

English Upgrading Program Review Team

**Attachments**

English Upgrading Program Review Timeline

**Submitted by**

*Melike Kinik-Dicleli, Manager of Quality Assurance, Office of Planning & Accountability*

**Date submitted**

*September 1, 2021*



## TIMELINE FOR PROGRAM REVIEW: ENGLISH UPGRADING PROGRAM

Finalized at the Senate Standing Committee on Program Review on DAY/MONTH/YEAR.

### **Program Review Team (in alphabetical order):**

- Chris Traynor, Mark Diotte, Danny Wrench, Bogdan Bryja, Sue Lee, Gillian Sudlow, Rachelle Hollaway, Sean Conway, Ian Stanwood

### **The Program Review Team will be responsible for the following:**

- Seek support from Teaching and Learning Commons (TLC) to conduct the curriculum review, if needed.
- Collaborate with OPA to provide the following:
  - Program-level outcomes;
  - Names and contact information of discipline/sector representatives to be included in discipline/sector surveys;
  - Names and contact information of faculty members to be included in faculty surveys;
  - Feedback on surveys which OPA will design and administer.
- Write reports using the templates provided and submit them according to the timelines endorsed by the SSCPR as presented below.
- Meet with the Dean/Associate Dean regularly so they can be apprised of the direction of the review.
- Provide the Dean/Associate Dean draft reports so the Dean/Associate Dean can provide feedback and responses as required.
- Attend SSCPR meetings to present reports (only one member of the team is required to attend though all are certainly welcome).

### **The Program Review Timeline consists of 7 phases:**

1. Getting Started
2. Curriculum Review
3. Data Collection
4. Self-Study Report Preparation
5. External Review
6. Quality Assurance Plan Development (needs to be signed off by the Dean and Provost)
7. Annual Follow-Up Reporting

Program Review should take approximately **16 months from beginning of Self-Study to the submission of the Quality Assurance Plan**. The first Annual Follow-Up Report should be submitted one year after the approval of the Quality Assurance Plan. The Annual Follow-Up Reporting continues until a program can demonstrate, to the satisfaction of the SSCPR, substantial completion of the Quality Assurance Plan.

The chart below provides a visual representation of the proposed timeline including elapsed time and report submissions.

Phase	Months																
	Apr* 2021	Sep 2021	Oct 2021	Nov 2021	Dec 2021	Jan 2022	Feb 2022	Mar 2022	Apr 2022	May 2022	June 2022	July 2022	Aug 2022	Sep 2022	Oct 2022	Nov 2022	Dec 2022
1. Getting Started																	
2. Curriculum Review																	
3. Self-Study Report Preparation																	
4. Data Collection																	
5. External Review																	
6. Quality Assurance Plan Development																	
August 2024																	
7. First Annual Follow Up Report																	

◆ Report submission months

\*Program review planning meeting took place on April 27, 2021.

Note: External Review Report is submitted by the External Review Team, not by the Program Review Team.

The tasks involved in each phase of the program review process are described on the following pages.



PHASE 1	Month/Year	Tasks
GETTING STARTED	April 27, 2021	<ul style="list-style-type: none"> <li>Manager, Quality Assurance and Chair of SSCPR met with Program Review Team to outline the purpose and process for program review and expectations for reports and timing.</li> </ul>
	August 2021	<ul style="list-style-type: none"> <li>Manager, Quality Assurance sends Program Review Team the guides and reporting templates.</li> </ul>
PHASE 2	Month/Year	Tasks
CURRICULUM REVIEW	September-October 2021	<ul style="list-style-type: none"> <li>Program Review Team conducts the curriculum review, which becomes part of the self-study report.</li> <li>If needed, support is available from Educational Consultants at the Teaching and Learning Commons. The Manager, Quality Assurance will provide an introduction.</li> </ul>
PHASE 3	Month/Year	Tasks
DATA COLLECTION	September 2021	<ul style="list-style-type: none"> <li>Manager, Quality Assurance sends Program Review Team the administrative data report needed for the Self-Study Report.</li> </ul>
	1 <sup>st</sup> week of November 2021	<ul style="list-style-type: none"> <li>Program Review Team provides program-specific questions they want to address in the review.</li> <li>Program Review Team provides program-level learning outcomes for Quality Assurance Team to include in surveys.</li> <li>Quality Assurance Team customizes surveys for students, alumni, faculty, discipline/sector and seeks feedback from Program Review Team.</li> <li>Program Review Team submits names and contact information of discipline/sector representatives and faculty members to be surveyed.</li> </ul>
	2 <sup>nd</sup> week of November 2021	<ul style="list-style-type: none"> <li>Quality Assurance Team launches surveys for students, alumni, faculty and discipline/sector representatives.</li> </ul>
	2 <sup>nd</sup> week of December 2021	<ul style="list-style-type: none"> <li>Quality Assurance Team provides survey data reports.</li> </ul>
PHASE 4	Month/Year	Tasks
SELF-STUDY REPORT PREPARATION	October 2021	<ul style="list-style-type: none"> <li>Program Review Team begins working on the Self-Study Report</li> <li>Program Review Team starts collecting relevant appendices for Self-Study Report.</li> </ul>
	March 2022	<ul style="list-style-type: none"> <li>Program Review Team completes draft of Self-Study report and sends to Dean.</li> </ul>
	April 27, 2022	<ul style="list-style-type: none"> <li>Program Review Team completes revisions to the Self-Study Report and submits to Senate Standing Committee on Program Review (SSCPR).</li> </ul>
	May 18, 2022	<ul style="list-style-type: none"> <li>SSCPR reviews Self-Study Report at the May 2022 meeting.</li> </ul>

PHASE 5	Month/Year	Tasks
EXTERNAL REVIEW SITE VISIT	April 2022	<ul style="list-style-type: none"> <li>Program Review Team sends names of potential external reviewers.</li> <li>SSCPR selects external reviewers.</li> </ul>
	May 2022	<ul style="list-style-type: none"> <li>Program Review Team, with the help of Manager, Quality Assurance, begins planning external review.</li> <li>Dean invites two external reviewers.</li> <li>SSCPR Chair appoints KPU faculty member to the panel.</li> </ul>
	June or July 2022	<ul style="list-style-type: none"> <li>External review site visit, with participation of Program faculty, students, alumni and PAC members, takes place.</li> </ul>
EXTERNAL REVIEW REPORT	August 2022	<ul style="list-style-type: none"> <li>External reviewers submit External Review Report.</li> </ul>
	September 2022	<ul style="list-style-type: none"> <li>SSCPR reviews External Review Report at the September 2022 meeting.</li> <li>Approved External Review Report is sent to Program Review Team and Dean.</li> </ul>
PHASE 6	Month/Year	Tasks
QUALITY ASSURANCE PLAN DEVELOPMENT	October 2022	<ul style="list-style-type: none"> <li>Program Review Team begins writing Quality Assurance Plan in consultation with the Dean.</li> </ul>
	December 2022	<ul style="list-style-type: none"> <li>Program Review Team and Dean meets with the Provost to discuss the Quality Assurance Plan.</li> </ul>
	January 2023	<ul style="list-style-type: none"> <li>Program Review Team submits Quality Assurance Plan to the SSCPR.</li> </ul>
	January 2023	<ul style="list-style-type: none"> <li>SSCPR reviews Quality Assurance Plan at the January 2023 meeting.</li> <li>Approved Quality Assurance Plan along with the Annual Follow-Up template and guide are sent to the Program Review Team.</li> </ul>
PHASE 7	Month/Year	Tasks
ANNUAL FOLLOW-UP REPORTING	January 2024	<ul style="list-style-type: none"> <li>Program Review Team submits Annual Follow-Up Report.</li> <li>SSCPR reviews Annual Follow-Up Report and decides whether the annual follow-up reporting should continue the following year.</li> </ul>

## SENATE STANDING COMMITTEE ON PROGRAM REVIEW

**Agenda Item: 5.1**

**Meeting Date:** September 22, 2021

**Presenter:** Amy Jeon

**Agenda Item**                      **History External Review Report**

Action Requested	Motion
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<b>Recommended Resolution</b>	THAT the Senate Standing Committee on Program Review accept the History External Review Report as attached.
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**Senate Standing Committee Report**                      For Senate Office Use Only

**Attachments**                      History External Review Report

**Submitted by**                      *Melike Kinik-Dicleli, Manager of Quality Assurance*

**Date submitted**                      *September 1, 2021*

REPORT: History External Review Report

DATE: 7 July 2021

**EXTERNAL REVIEW TEAM MEMBERS (THE “ERT”)**

Niall Christie, PhD

Jamie Lamont, Dip. Landscape Design Installation (KPU), ISA Cert. Arb.

Sally Mennill, PhD

**OVERALL ASSESSMENT OF THE SELF-STUDY REPORT**

**Criteria:** *The Self-Study Report provides a data-supported analysis of the program’s strengths, weaknesses, opportunities and challenges.*

**Standard for Assessing this Report:**

- The programmatic strengths and weaknesses identified in this report are supported by data and on-site findings;
- The Report has appropriate scope, as articulated by the Self-Study Guide;
- Recommendations are supported by data, a clear rationale and on-site findings.

**The External Reviewers:**

<b>Validate the Self-Study Report’s findings and recommendations</b>	
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**Rationale for this Determination:**

We find the self-study report to be an accurate portrayal of this outstanding history department. Faculty, students, alumni, and administrators are all justifiably proud to be part of this innovative and collegial program.

## REVIEWERS' VALIDATION OF THE CHAPTERS OF THE SELF-STUDY REPORT

### CHAPTER 2: Program Currency and Connections

**Criteria:** *This chapter adequately assesses program competitiveness and its connections to the discipline/sector. The assessment is supported by appropriate evidence and conclusions.*

#### Standard for Assessing this Chapter:

- The programmatic strengths and weaknesses identified in this chapter are supported by data and on-site findings;
- The chapter has appropriate scope, as articulated by the Self-Study Guide;
- Recommendations are supported by data, a clear rationale and on-site findings.

#### Additional Recommendations Identified by the ERT—include a rationale for the recommendation:

1. Provide course release for *all* faculty to give them the time to conduct their non-teaching activities.

Rationale: The pressures currently placed on the department's new Indigenous expert (see below) highlight a much wider issue in the department that will need to be addressed. Faculty are currently teaching 4/4 loads, while also conducting a wide range of additional service activities to promote and support the History program, maintain connections both within and outside the institution, create new course content, and pursue the research that is expected of university faculty. In its current form, this model is, frankly, unsustainable, and is likely to lead to increasing physical and mental strain on faculty. In a research university such as UBC, faculty in comparable programs teach a 2/2 load, which allows them the time to work on service and research activities alongside their teaching. A faculty member teaching a 4/4 load *simply does not have the time* to do this (at least, without placing a major strain upon themselves); indeed, time was identified as the most precious and lacking resource by faculty in discussions with the review team. If KPU is serious about being a university rather than a purely-teaching institution, it needs to reduce faculty teaching loads to enable them to engage in the other activities that they are expected to undertake.

2. Hire another faculty member who is an Indigenous expert, and at least two more full-time faculty with expertise outside the regions currently covered by the faculty. These hires should be *in addition to* the replacement of retiring faculty. Non-regular faculty should also be regularized.

Rationales: The student survey data, as well as the review team's meetings with current and former students, clearly indicate that the students want (a) more Indigenous history, and (b) courses studying the history of areas and content not currently covered by the program. With regard to the latter, requests include Latin American, African, and the Middle Eastern content. Expanding the department's offerings in this way would both speak to current student needs and expand the appeal of the program to prospective students.

As noted below, the department's expert in Indigenous history is currently expected to do work far in excess of a regular faculty load. Hiring a second expert in Indigenous histories, and providing both with course release to allow time to work on the various initiatives involved in Indigenization, would go a long way towards addressing this workload issue.

Finally, the regularization of non-regular faculty, in addition to fulfilling the moral requirement to provide a worker with a fair wage and job security, would greatly benefit the program. For students, knowing that a particular faculty member will be teaching on a continuous basis at KPU will greatly increase their confidence in the department providing consistent course offerings from year to year, as well as in the fact that they are receiving the best-quality teaching, as their instructor is not dividing their attention between multiple jobs in multiple institutions. For faculty, job security and liveable wages enable them to perform to the best of their abilities at their jobs, without the distractions that come with not having these or having to hold down unsustainable work levels in multiple jobs simply to make enough to live off. For departments, being able to offer full-time, secure jobs with living wages is vital when recruiting and retaining faculty, and thus facilitates the maintenance of the quality and consistency of their programs.

Note that KPU should enhance the budget of the department to cover the costs associated with the implementation of these recommendations.

**The External Reviewers:**

Validate the Chapter's findings and recommendations	
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**Rationale for this Determination:**

Both the departmental self-study report and the testimonies of faculty, alumni, and current students confirm that the History program at KPU is not merely keeping current but actually *at the cutting edge* of developments in history programs in Canada in a number of ways:

- The department is committed to de-colonizing in a manner that *goes beyond* token land-acknowledgements to actually critically examining how Indigenous content and ways of thinking can be incorporated into the program. Recent discoveries at residential schools across Western Canada have highlighted how important it is for Canadians to learn about and confront the issues raised by the experiences of Canada's Indigenous peoples. The recent hiring of a faculty expert in Indigenous history is a major part of this process, but this faculty member is currently having to manage a full-time teaching load as well as the necessary work on creating and articulating the program's new Indigenous content and other initiatives related to de-colonization. Support will be required to bring this down to a reasonable workload; see our recommendations (1) and (2) above.
- Like a number of other institutions, the department has also increasingly focused its offerings on thematic courses that address issues in world history. This is consistent with current trends at other institutions. This approach is also clearly appreciated by both current and former students, who see themselves increasingly as *world* citizens and are keen to gain expertise in this wider world that they wish to engage with. However, a number of students highlighted the need for the department to broaden its perspective to encompass more areas of the world; see our recommendation (2) above.
- The current pandemic, with its accompanying closures of campuses and consequent limiting of student access to printed resources, has clearly highlighted the need for more of these resources to be available on-line, as well as the need to adopt new ways of studying and presenting materials about history that take advantage of and speak to increasing use of digital technologies. Thus the department's use and crafting of digital resources (such as OERs), and its creative approach in various digital-based assignments used to assess student performance in courses, places it well ahead of the curve in its explorations of digital tools for studying history.

We were also extremely impressed with the department's approach to history *as an applied subject*. This not only includes ensuring that students gain transferable skills that will enable them to follow their chosen careers, but also encompasses the department's connections to and collaborations with both other programs at KPU (such as Asian Studies and Fashion Design) and other institutions such as museums and archives (which also provide hands-on experiences of actually using historical expertise for students). While most history departments engage in a certain amount of public outreach (for example in presenting public lecture series), KPU's History Department is maintaining a level of contact and collaboration that is unusually

impressive. It is worth recalling that the effort involved in sustaining such contacts falls primarily upon faculty who are doing this off the sides of their desks while teaching full loads. Again, see our recommendation (1) above.

It is also worth noting that the department has plans to further promote its program and expand its relations to the wider community. This is commendable, provided that the department receives sufficient support from KPU to make it viable without imposing even greater workload burdens on faculty.



### CHAPTER 3: Quality of Curriculum Design

**Criteria:** *This chapter adequately examines the quality of the program's curriculum and its current relevance to the discipline/sector. The assessment is supported by appropriate evidence and conclusions.*

#### Standard for Assessing this Chapter:

- The programmatic strengths and weaknesses identified in this chapter are supported by data and on-site findings;
- The chapter has appropriate scope, as articulated by the Self-Study Guide;
- Recommendations are supported by data, a clear rationale and on-site findings

#### Additional Recommendations Identified by the ERT—include a rationale for the recommendation:

1. Continue with de-colonization effort of curriculum and program structure, including global content, not just Canadian.

Rationale: The hiring of an expert in Canadian Indigenous content has added significant credibility and promise to this program. Other areas need similar effort in de-colonizing both content and approach to history. American and European histories can always use a de-centering of settler-colonialism, and as recommended elsewhere in this report, the addition of Latin American and African content areas should also serve to minimize the colonial approach to understanding history.

2. Per recommendation number one, continue moving away from geographic approach that features a centre/periphery structure and more towards trans-national and thematic approaches in program structure.

Rationale: The geographic portioning of history programs serves to reify colonial structures. Moving to a thematic approach, which this program has already begun to do, offers a more expansive understanding of historical thought. Courses on migration, health, global moments, the environment etc. allow for historical understanding beyond the Europe/Other dichotomy from which so many of us experienced during our education.

3. Consider adding a lower-level methods course in addition to the 4400 Capstone.

Rationale: students and alumni speak very highly of the innovative 4000-level Capstone course at KPU. All appreciate the practical skills gained in this course and alumni report that it gave them an advantage in graduate studies. A 100- or 200-level methods course as a precursor to this one would be a welcome addition to the program, offering lower-level students the chance to explore historiography, archival methods, and other practical applications in their earlier years of study.

4. In addition to the existing streams of historical study, consider adding an education stream. Many students and alumni identified themselves as headed for PDP or other education programs after their History degree. Creating a specified stream for them would be a useful program expansion.

**The External Reviewers:**

<b>Validate the Chapter's findings and recommendations</b>	
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**Rationale for this Determination:**

The self study report highlights numerous strengths and innovations from this History department. Ongoing efforts to decolonize are vital to the process of reconciliation and the hiring of an expert in local Indigenous histories is a significant step forward for the department and the university. It isn't enough, though. Not only because, as mentioned elsewhere, it is too much of a load for a new, probationary hire to bear no matter how competent they are, but also because Indigenization is a multi-faceted and lifelong process. More hires in the area of de-colonization, especially Global Indigenities, would be another step forward on this path towards reconciliation.

In a similar vein, we encourage the continuation of thematic- and trans-national foci in course development. The courses on martial arts, food, animals etc. are innovative and exciting and provide promise for a future where we don't study history in direct relation to European settler-colonialism. We look forward to seeing more of this type of innovation from this department.

Finally, the turn to digital history and its function in these extraordinary times is clearly creating new opportunities being taken up at the KPU History department. While the covid-19 pandemic may have moved our use and contribution to digital histories along at a more rapid pace than perhaps we might have wanted, it has shown us expanded understandings of how we can read, understand, and write history. KPU should continue along this process that they have so aptly begun.

#### CHAPTER 4: Quality of Instructional Design

**Criteria:** *This chapter adequately examines the quality of the program's instructional design and its current relevance to the discipline/sector. The assessment is supported by appropriate evidence and conclusions.*

**Standard for Assessing this Chapter:**

- The programmatic strengths and weaknesses identified in this chapter are supported by data and on-site findings;
- The chapter has appropriate scope, as articulated by the Self-Study Guide;
- Recommendations are supported by data, a clear rationale and on-site findings

**Additional Recommendations Identified by the ERT—include a rationale for the recommendation:**

1. Retain or even reduce the current caps of 35 on history courses in general, and 25 on seminar courses.

Rationale: As indicated below, the small-class experience was highlighted repeatedly by students as a major strength of the program. Students come to institutions with smaller class sizes because they recognize that they will receive more individual attention from instructors, which will help them to learn more effectively; thus raising these caps will have a negative impact on the student experience and may in the process deter students from choosing to study at KPU. History, in particular, is a subject that requires opportunities for in-class discussions and debate if it is to be taught effectively, which is not something that can be done as effectively in large classes.

2. Hire at least two more full-time faculty with expertise outside the regions currently covered by the faculty. These hires should be *in addition to* the replacement of retiring faculty.

While we recognize that we are repeating a recommendation made in the section on Chapter 2, above, this section of the Self-Study Report successfully re-emphasizes some of the reasons why these hires should be made. One of the major requests made by both current and former students is for more diverse coverage in courses. If KPU were to support the creation of new courses through the hiring of additional faculty with expertise in areas not currently covered by the department, this would greatly enhance the appeal of the program for prospective students and thus promote student recruitment. These hires should be made *in addition to* the replacement of retiring faculty, as the aim is to *expand*, not change, the department's current coverage.

**The External Reviewers:**

<p><b>Validate the Chapter's findings and recommendations</b></p>	
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**Rationale for this Determination:**

Both the data presented by the department and the testimonies of both current and former students demonstrate that the department's current approach to teaching is outstanding in meeting the needs and expectations of students. This has been achieved despite a number of difficulties that the department has faced (including two faculty retirements and the untimely death of a faculty member), and the department is to be highly commended for continuing to provide such high-quality education despite these challenges.

The department employs a number of methods for assessing the progress of students in their courses, and again is showing itself to be innovative in this regard. Essays, the mainstay of historical academic communication, are rightly here to stay, but the department has also been exploring various other options, in the process continuing to give students the tools that they need (and clearly appreciate) to be successful in the modern, increasingly-digital, world. The effectiveness of this is readily apparent in the success of students both in achieving high grades and finding fruitful employment after their time at KPU. Yet at the same time, the department is continuing to pursue ways to improve its program even further to promote both student recruitment and student success.

Again, one of the strengths of the program that is apparent in both the data and testimonies from current and former students is the experiential learning opportunities that it offers. The department is again ahead of the curve in having made these such an important part of its program, and in the process again promoting the importance of history *as an applied discipline*.

Another strength highlighted *repeatedly* in both data and testimonies is the value of the small-class experience. History is a discipline that is based on knowledge-exchange and debate, and hence it *cannot* be successfully studied without the opportunities to exchange ideas that small classes offer. In addition, the opportunity to be in a context where they will receive personal attention is a major reason why students choose institutions with low caps such as those currently used in the KPU History Program. The department's disappointment that the current caps are under threat is entirely justified; see our recommendation (1) above.

The department has effectively established an awareness of and taken note of student demand for greater diversity in courses, and has started taking steps to address this. However, it will need support from KPU in order to address this properly. See our recommendation (2) above.

We are also impressed with the satisfaction of both students and faculty with the quality of instruction and the wider experience of being part of the program that we see demonstrated in the data. At the same time, we are pleased to see that the department has proposed a number of recommendations that focus on improving and innovating instruction and recruitment, in order to strengthen the program.

## CHAPTER 5: Quality of Services, Resources and Facilities

**Criteria:** This chapter adequately assesses program resources, equipment, software, and facilities from both the student and instructor perspective. The assessment is supported by appropriate evidence and conclusions.

### Standard for Assessing this Chapter:

- The programmatic strengths and weaknesses identified in this chapter are supported by data and on-site findings;
- The chapter has appropriate scope, as articulated by the Self-Study Guide;
- Recommendations are supported by data, a clear rationale and on-site findings

### Additional Recommendations Identified by the ERT—include a rationale for the recommendation:

1. Investigate the disconnect between users and the bookstore.

Rationale: Faculty, alumni, and students all report a dysfunctional relationship with the bookstore. They find it is an impediment to their success at KPU. We recommend fixing this asap.

2. Maintain the functionality of the “History Pod,” and consider adding similar spaces at KPU’s other campuses.

Rationale: Literally every conversation the ERT had over the course of our review featured the functionality of this space. Faculty, students, alumni, administrators all speak highly of this space as an opportunity for building community cohesion that underscores the success of this program.

3. Maintain an External Advisory Committee for this program.

Rationale: Connecting students with the broader community will bring increased relevance to their education at KPU.

**The External Reviewers:**

<p><b>Validate the Chapter's findings and recommendations</b></p>	
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**Rationale for this Determination:**

The external review team agrees with the observations and recommendations expressed in Chapter 5 of the report. Students are more or less satisfied (83%) with the program resources, services and facilities with the exception of the bookstore. The External Review team meeting elicited these responses from current students “The bookstore is a mess and not very helpful”, “Buying online as it’s quicker and cheaper”. There is clearly a disconnect between the cost of textbooks, their availability (on time) and the support from within the bookstore itself. Opportunities need to be explored between the student disconnect and the value of the bookstore as a resource.

Faculty, current students and alumni all expressed how valuable The History Pod was and its importance to the learning environment. Lifelong friendships have been created there that have supported the students throughout their career pathways. Similarly, students can access mentors, faculty, senior students, and other resources by gathering in this space and in the process they are creating and fomenting the type of cohesion that keeps students at KPU. Several students and alumni mentioned that they had intended to transfer to SFU or UBC after second year, but the community cohesion kept them at KPU. It is in the best interest of the institution *and* the students that this space be maintained.

The external review committee would also like to stress the importance of a History External Advisory Committee. The department has indicated that it’s in the plans but has yet to start the process. This committee is essential to departmental strength and maintaining its ties with the various stakeholders and institutional partners. Other departments that have external advisory committees set up could provide valuable resources for the history department’s process.

## CONCLUDING COMMENTS

It was a pleasure to spend time visiting, learning about, and assessing this program. The KPU History faculty is a vibrant, innovative, and dedicated group of educators who clearly care about their work. We were particularly impressed by the group cohesion among faculty and enjoyed our time learning from them (we very much wished there were a pub event directly following our “site visit”). One thing is clear: it is this dedicated group of hard-working historians who bring their passion to the workplace every day that makes this program a continuing success. Students and alumni alike speak highly of their experiences at KPU History not only in terms of learning and understanding the subject matter but also in terms of building strong relationships and being part of a cohesive community. Every bit of input that we witnessed in our two days of meetings spoke to the positive experiences students have feeling connected to one another and to their instructors.

In planning for the future, we have highlighted issues such as Indigenization, digitization, continued community connection, and program expansion as the crucial components. It is clear that there are individuals in the department who are the driving force in the creation and maintenance of both cohesion and innovation. We urge *all* department members to take on these roles as they plan for retirement replacements and new additions as they expand the program. We also recommend future searches to include emphasis on Equity, Diversity, and Inclusion in order to make the program more accessible and current.

We similarly urge the University to consider the time constraints placed on faculty. A 4/4 teaching load is all-consuming and yet the expectations of service and research loom over the heads of all faculty. Teaching release for research projects, curriculum development, and service projects alike is needed to maintain such a functional, collegial department and to avoid faculty burnout and/or resentment.

We are aware that our recommendations throughout this report will at times require significant investments of budgetary resources by the KPU administration to bring them to fruition. However, we would urge the administration *in the strongest terms* to make these investments. The History Department at KPU is a model of excellence for departments throughout the province and Canada, and investments made in it by KPU would make it a major draw for students seeking a top-quality education.

We finish with our sincere thanks for the opportunity to visit, assess, and collaborate with our KPU colleagues.

**APPENDIX 1:**  
**SITE VISIT AGENDA**

*Provide the agenda for the Site Visit (e.g. the stakeholder groups with whom the ERT met)*

**Kwantlen Polytechnic University**  
**History Program**  
**External Review Virtual Site Visit Agenda**

June 17 & 18, 2021  
Via Microsoft Teams

Thanks to External Reviewers:  
Sally Mennill, PhD  
Niall Christie, PhD

Jamie Lamont, Dip. Landscape Design Installation (KPU), ISA Cert. Arb.

Day 1: Thursday, June 17, 2021

9:00 - 9:50	Introductions and Interview with Program Chair
9:50 - 10:00	Break
10:00 - 11:00	Meet with Program Faculty
11:00 - 11:10	Break
11:10 - 12:10	Meet with Students
12:10 - 12:20	Break
12:20 - 13:00	Meet with Dean

Day 2: Friday, June 18, 2021

9:30 – 10:30	Meet with Alumni
10:30 - 10:40	Break
10:40 - 11:30	Meet with University Services Panel (Library Services and Faculty Advising)
11:30 - 11:40	Break
11:40 - 12:20	Final Meeting with Program Chair
12:20 - 12:30	Break
12:30 - 13:00	External Review Team meets to discuss findings and coordinate their review.



### REPORT: History External Review Report

#### OVERALL ASSESSMENT:

Reviewer #1: The External Review reflects positively on the excellent work taken on by the department members. The External Report is highly complimentary referring to the "outstanding history department" and further indicating that, "faculty, students, alumni, and administrators are all justifiably proud to be part of this innovative and collegial program." Congratulations to all!

Reviewer #2: This is a thorough and well written report validating the SSR. The Report provides additional recommendations with rationales regarding time constraints on faculty (eg: work load and conditions, class size), hiring of more faculty, and regularizing of faculty.

#### The Report:

- ☒ Reviewer #1 & #2: Recommend for approval by the SSCPR as is
- ☐ Recommend for approval by the SSCPR pending suggested actions (see below)
- ☐ Recommend for rejection by the SSCPR

#### MAJOR ISSUES AND SUGGESTED ACTIONS:

While External Review Reports are not returned to the External Review Team for revisions, Reports may contain major issues which the SSCPR should address. These issues could include (but are not limited to): a) recommendations that go beyond the scope of program review; b) names or other identity information.

Complete the table below ONLY if you have identified major issues in the Report. Identify actions the SSCPR should take to address these issues. Suggested actions could include (but are not limited to): a) redacting names or other identity information; b) providing an SSCPR Response that provides the External Review Team's recommendations in context. Add or remove rows in the table below as needed.

Issue	Suggested Action for the SSCPR
p.3 References to job security and livable wage are important points and maybe true, but do not seem to fit within the scope of this review: "For faculty, job security and liveable wages enable them to perform to the best of their abilities at their jobs, without the distractions that come with not having these or having to hold down unsustainable work levels in multiple jobs simply to make enough to live off."	
p.3 Recommendations to hire additional faculty – especially in support of Indigeneity are important considerations for the entire Academy.	Consider making this a recommendation for the upcoming budget process.
p.4 It should be noted that while students studying remotely were limited in their physical access to library resources, the campuses and the libraries were never closed. The current pandemic, with its accompanying closures of	

Issue	Suggested Action for the SSCPR
<b>campuses</b> and consequent limiting of student access to printed resources	
p.6 In addition to the existing streams of historical study, <b>consider adding an education stream.</b>	Suggest that the Faculty explore and consider recommending a move towards offering teacher education at KPU.
p.7 Indigenization is a multi-faceted and lifelong process. More hires in the area of de-colonization, especially <i>Global Indigeneities</i> , would be another step forward on this path towards reconciliation.  We encourage the continuation of thematic- and trans-national foci in course development	These are helpful and positive recommendations and possibly supported through cross-disciplinary studies. Such directions should be fostered and encouraged.
p.8 Support the creation of new courses through the hiring of additional faculty with expertise in areas not currently covered by the department,	While the recommendation is to hire additional faculty, bringing in new faculty as others move on or retire will hopefully diversify and expand the expertise.
p.9 What is the <b>dysfunctional relationship with the bookstore?</b>	Suggest that the <b>disconnect</b> be clarified and hopefully resolved.
<b>History Pod</b>	Make recommendations to the University Space Committee and provide ongoing input to the implementation of the campus master plan.
<b>External Advisory Committee</b>	Good suggestion - Assume this is referring to a <i>Program Advisory Committee</i> . Wonder why there isn't one in place?

### MINOR EDITS (Spelling, syntax, word choice and other mechanical issues).

Please list corresponding page numbers. Minor edits are NOT discussed at the SSCPR meeting. Add or remove rows as needed.

Minor Edits (page #)

## SENATE STANDING COMMITTEE ON PROGRAM REVIEW

**Agenda Item: 5.2**

**Meeting Date:** September 22, 2021

**Presenter:** Amy Jeon

**Agenda Item** Foundations in Design External Review Report

Action Requested	Motion
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<b>Recommended Resolution</b>	THAT the Senate Standing Committee on Program Review accept the Foundations in Design External Review Report as attached.
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**Senate Standing Committee Report** For Senate Office Use Only

**Attachments** FIND External Review Report

**Submitted by** *Melike Kinik-Dicleli, Manager of Quality Assurance*

**Date submitted** *September 1, 2021*

REPORT: Foundations in Design External Review Report

DATE: July 31<sup>st</sup>, 2021

**EXTERNAL REVIEW TEAM MEMBERS (THE “ERT”)**

MeEesa Lorette  
Craig Badke  
Larry Rhodenizer

**OVERALL ASSESSMENT**

**SELF-STUDY REPORT**

*Criteria: The Self-Study Report provides a data-supported analysis of the program’s strengths, weaknesses, opportunities and challenges.*

**Standard for Assessing this Report:**

- The programmatic strengths and weaknesses identified in this report are supported by data and on-site findings;
- The Report has appropriate scope, as articulated by the Self-Study Guide;
- Recommendations are supported by data, a clear rationale and on-site findings.

**The External Reviewers:**

<b>Validate the Self-Study Report’s findings and recommendations</b>	
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**Rationale for this Determination:**

Overall, the review committee felt the Self-Study Report was well balanced, comprehensive, well supported, and identified many of the key areas for improvement in the FIND program.

The review committee has put together notes from the review process and interviews that acknowledge the core strengths of the program while recommending additional areas of improvement or focus that complement the study. These comments will appear in each of the individual chapter discussions and conclusions of this report.

## REVIEWERS' VALIDATION OF THE CHAPTERS OF THE SELF-STUDY REPORT

### CHAPTER 2: Program Currency and Connections

*Criteria: This chapter adequately assesses program competitiveness and its connections to the discipline/sector. The assessment is supported by appropriate evidence and conclusions.*

#### Standard for Assessing this Chapter:

- The programmatic strengths and weaknesses identified in this chapter are supported by data and on-site findings;
- The chapter has appropriate scope, as articulated by the Self-Study Guide;
- Recommendations are supported by data, a clear rationale and on-site findings.

#### Additional Recommendations Identified by the ERT—include a rationale for the recommendation:

#### The External Reviewers:

Validate the Chapter's findings and recommendations	
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#### Rationale for this Determination:

The Self-Study Report positioned the FIND program well among its peer competitors and identified its core roll and function within KPU as a program that facilitates entry for students who either are unsure of their preferred disciplinary path or as a stepping stone for students who did not initially meet the entry requirements for direct entry.

The core strength of the FIND Program is the openness of access and inclusiveness the program facilitates by provide a pathway into design for students who might not have had the opportunity, access to programs, or encouragement to do so in their education or life prior to coming to KPU.

The Self-Study Report also identified several areas of improvement. From the interviews and committee discussions with admin, faculty, staff, and alumni, the following issues stood out as areas for improvement that would benefit students going through the FIND program:

#### Credit transfer and elective issues

The credential recognition discussed on page 9 of the Self Study Report states that 6 credits can be used towards a student's degree after completing the FIND foundation year. Both faculty and alumni identified significant issues with credit transferability when students enter a discipline after FIND, with many not being able to identify any transferable credits upon completion of the program.

Areas for improvement identified include:

- having access to more design-based or discipline-based elective options for FIND students that might be transferable upon completion of their foundation year and could potentially allow a more

personalized and flexible path into their chosen disciplines.

- current electives offered minimal choices which were not always seen as relevant to design studies
- evaluating the flexibility of the program to allow personalized pathways within a cohort model. It was also identified by faculty and admin that there are significant structural challenges to balance open access and course cap sizes and faculty availability within the current cohort model.
- More access to transferrable credits might make the FIND path more desirable path for undecided students and might avoid possible stigmatization of the program as an 'extra-year' for those that did not get accepted on their first attempt.

### **Inclusion and Access**

#### **Dual credit discussion**

Highlighted in the report and faculty discussion is how dual-access programs could be strengthened and employed to help fill class sizes and elective options to provide more flexibility for FIND beyond its cohort model. Promotion and strengthening of this program present an opportunity for outreach to students that have not had access or exposure to design in their secondary education, with possible program benefits for FIND students to be able to take more electives.

#### **Decolonization discussions**

##### **Skwxwú7mesh (Squamish) First Nation Field School**

For promoting inclusion and access, the review committee commends the conception and approach of the KPU collaboration with the Skwxwú7mesh (Squamish) First Nation in 2019/2020. The faculty listening workshops, and efforts to decolonize the two-semester program to learn from and design a program of study with the host nation, served to reorientate how design is and could be taught differently, acknowledge the voices and histories often left out of conventional design pedagogy, and the different types of collaborations that are possible and necessary for design to work with communities and de-centre their emphasis on design's European Modernist roots.

This care driven approach to revamp curriculum that was facing indigenous students was seen as a significant and important learning experience for the faculty that were involved, which challenged many of their core understandings of design practice and pedagogy and its impact in marginalized and underrepresented communities.

The committee applauds and recognizes the significance of Squamish Field School as an innovative model of outreach and sincerely hopes that a sustainable funding source can be found to reintroduce this program on an ongoing basis with the Squamish, other host nations, and other communities, and not have it left as a one-off experience.

### CHAPTER 3: Quality of Curriculum Design

***Criteria:** This chapter adequately examines the quality of the program's curriculum and its current relevance to the discipline/sector. The assessment is supported by appropriate evidence and conclusions.*

#### Standard for Assessing this Chapter:

- The programmatic strengths and weaknesses identified in this chapter are supported by data and on-site findings;
- The chapter has appropriate scope, as articulated by the Self-Study Guide;
- Recommendations are supported by data, a clear rationale and on-site findings

#### Additional Recommendations Identified by the ERT—include a rationale for the recommendation:

#### The External Reviewers:

Validate the Chapter's findings and recommendations	
---	--

#### Rationale for this Determination:

During discussions with Alumni and Faculty, it is clear that FIND program is very positive experience for students and the cohort model, limited class sizes, project-based, hands-on and collaborative learning, offers an engaging and immersive learning environment. The open access to instructors and peers was such that alumni felt comfortable raising ideas and discussing complex issues such as racism, social justice, and sustainability.

#### Further Discussions Recommendations

Some discussions did arise over the KPU virtual visit in regards to how some instructors often preface bold assertive students who are able to respond rapidly in group settings. Not all students are comfortable in these situations, in particular those who are working on the English proficiency. Care should be taken to provide multiple ways of participating and allowing students time to discuss and prepare answers so that all student voices feel valued and acknowledged as they seek to gain proficiency.

#### Admissions and portfolio assessment as a possible exclusionary barrier to entry into FIND

The review committee agrees with the initiatives to move away from portfolio review as a central part of FIND admissions. Important to this discussion are questions about:

- what does a folio at this level actually capture as indication of interest and potential of candidates entering a school that will be teaching them design and making skills?
- what communities and people get left out when a portfolio is required?
- what interests and values do we want to see emphasized in potential candidates?
- how do we evaluate potential as good citizens of the world and critical thinking vs incoming skills?
- how do we challenge assumptions about who or what makes a good designer?

#### Decolonization and Anti-racism

The review committee would like to emphasize that decolonization of design history and pedagogy should not be limited to indigenous-facing curriculum and that all design and education, as part of reconciliation, anti-racist, anti-colonial, and anti-oppression movements, will benefit from challenging the colonial histories and practices that design education has been traditionally centred upon in western education institutions. In

addition, it is noted by both the report and the committee review, that decolonization and anti-racism needs to be a central priority for all of education and design in particular. The review committee and the report acknowledge that this work is in its infancy, ongoing, and challenging.

KPU admirably has formed an anti-racism task force, has an elder in residence, and the hiring of indigenous staff and liaisons in key positions for the school is positive and important, but care must also be taken as the institution looks to address anti-racism, reconciliation, and decolonization that this work does not disproportionately fall upon IPOC staff and students. All faculty have to take the lead and do the work to learn and challenge their own bias and understandings within their curriculum and support their students differently. Significant support must also be provided by the administration with the necessary resources, training workshops, and tools for faculty. Without these changes, IPOC students who take up full time studies at KPU, might not find the same level of representation and support as found in the Squamish school initiative.



## CHAPTER 4: Quality of Instructional Design

***Criteria:** This chapter adequately examines the quality of the program's instructional design and its current relevance to the discipline/sector. The assessment is supported by appropriate evidence and conclusions.*

### Standard for Assessing this Chapter:

- The programmatic strengths and weaknesses identified in this chapter are supported by data and on-site findings;
- The chapter has appropriate scope, as articulated by the Self-Study Guide;
- Recommendations are supported by data, a clear rationale and on-site findings

### Additional Recommendations Identified by the ERT—include a rationale for the recommendation:

#### The External Reviewers:

<b>Validate the Chapter's findings and recommendations</b>	
--	--

#### Rationale for this Determination:

The review committee was impressed with the array of facilities that the new custom design campus provides. In addition, the small cohort sizes, specialized faculty, and dedicated and expert staffing of facilities, allows KPU to provide an immersive hands-on learning environment.

The self-study report identified the strengths of this environment for the FIND program as well as outlines a few barriers and places for improvement for FIND students.

#### Shop, Studio, and software access

Alumni and some faculty identified the following areas that made it more difficult for FIND students to fully participate in their studies.

#### Barriers identified:

- No dedicated studio space for FIND students
- Difficulty with software licensing and access to computer labs
- No dedicated shop time or support for the FIND cohort.

Only being able to access shops and labs during open access times was seen as limiting the experience of FIND students for projects and skill building. A lack of dedicate shop access and technical support meant that FIND students only have access to a reduced range of equipment and support for their project specific needs.

Having dedicated shop access, skills and safety orientation for FIND students would go a long way to improving their campus and learning experience as so much of their work is hands on projects.

## CHAPTER 5: Quality of Services, Resources and Facilities

**Criteria:** *This chapter adequately assesses program resources, equipment, software, and facilities from both the student and instructor perspective. The assessment is supported by appropriate evidence and conclusions.*

### Standard for Assessing this Chapter:

- The programmatic strengths and weaknesses identified in this chapter are supported by data and on-site findings;
- The chapter has appropriate scope, as articulated by the Self-Study Guide;
- Recommendations are supported by data, a clear rationale and on-site findings

### Additional Recommendations Identified by the ERT—include a rationale for the recommendation:

#### The External Reviewers:

Validate the Chapter's findings and recommendations	
---	--

#### Rationale for this Determination:

##### Support for students and wellness

KPU has an array of support services and processes in place for students in need of academic, physical or mental health and well-being accommodations and the staff of those services feel supported by the administration. Feedback from faculty, alumni, and support services suggest that additional support and staffing would benefit these structures to make them more effective and accessible. As well, to foster awareness and care for students, and avoid stigmatization and further harm to students in need of assistance, regular yearly faculty orientation workshops were discussed in the review. As faculty are often the front line for care of students, such short orientation workshops from support services on how faculty can access support, and an understanding of the ongoing demand for and needs of students requiring these services, could help faculty more easily connect students with the supports they need.

##### Language of wellness/stigmatization

As art and design institutions attract a higher proportion of people who feel marginalized or outside of normative societal structures, in addition to increased staffing and training for faculty on accessing services, the review committee recommends that extra care is needed to support these populations and attention to institutional language and micro-aggressions needs to be addressed and updated on a regular and ongoing basis with more inclusive terminology to lessen stigmatization and othering for mental health issues, learning differences, language differences, as well as non-binary and differently-abled persons.

##### Decolonization of resources

##### Library guides - Making anti-colonial and anti-racist resources and literature more present.

Faculty, staff, and alumni felt that the Library Services across the KPU was well staffed and resourced with access to a wide array of resources, journals and media, and had the ability to acquire materials as needed. Students and Faculty are also well support with online library resource guides.

The review committee would like to encourage furthering the ongoing decolonial and anti-racist work to decentre resources and online course guides, which will benefit all programs including FIND. Rethinking our

assumptions about what is canon in design studies and what kinds of histories we preface in the resources we provide is the first step, but care should also be taken to the way such resources are presented to, and accessed by, faculty and students. When the Modernist Eurocentric canon is presented as a stand-alone guide, it can reinforce hierarchies of power, information, and preferred histories and understandings. Presenting decolonized and other resources, such as queer, indigenous, and global south sources, alongside or integrated into design history and practice resource lists will help students and faculty integrating such resources into their curriculum and studies.

The review committee also recommends having dedicated and visible links to anti-racist teaching and learning resources for anti-racist classrooms, which will also help faculty as they make changes and space to support BIPOC faculty and students.

## **CONCLUDING COMMENTS**

The review panel would like to commend KPU and the review committee on the care and openness of the Self-Study Report. It was well researched and supported and identified accurately the strengths and areas for improvement that will help improve the educational experience and well-being of FIND students.

We are impressed by the conception of the FIND program, its faculty, its support staff, its facilities, and the important service it provides for students entering design studies. The FIND program is an important accessible pathway for students who have not had the benefit of, access to, or encouragement to pursue design studies prior to coming to KPU, as well as those who are unsure of which discipline they wish to pursue. This is an inclusive program with a caring administration and faculty who understand the importance of supporting a diversity of voices and life experiences in both faculty and students and the benefits that will have them in their life and career as well as its significance to the field of design itself.

We would also like to thank the organizers of our visit and the wonderful faculty, staff, and students that we met.

We are happy to validate the findings of the report, its scope of study, and its recommendations.



**APPENDIX 1: REMOTE SITE VISIT AGENDA**

**Kwantlen Polytechnic University  
Foundations in Design Program  
External Review Remote Site Visit Agenda**

June 29 & 30, 2021  
Via Microsoft Teams

Thanks to External Reviewers:

MeEesa Loret  
Craig Badke  
Larry Rhodenizer

Day 1: June 29, 2021

9:00 - 9:50	Introductions and Interview with Program Chair
9:50 - 10:00	Break
10:00 - 11:00	Meet with Program Faculty
11:00 - 11:10	Break
11:10 - 12:10	Meet with Alumni
12:10 - 12:20	Break
12:20 - 13:00	Meet with Dean

Day 2: June 30, 2021

9:30 – 10:30	Meet with School of Design Faculty of other Design Programs
10:30 - 10:40	Break
10:40 - 11:30	Meet with University Services Panel (Library Services and Faculty Advising)
11:30 - 11:40	Break
11:40 - 12:20	Final Meeting with Program Chair
12:20 - 12:30	Break
12:30 - 13:00	External Review Team meets to discuss findings and coordinate their review.

REPORT: Foundations in Design (FIND) External Review Report

**OVERALL ASSESSMENT:**

*Please provide a brief assessment of the External Review Report under review and an overall recommendation.*

Reviewer #1: The external review (aside from the various minor edits detailed below) thoroughly engages with the program's self-study. It is appropriate in scope and content.

**The Report:**

- ☒ Reviewer #1 & #2: Recommend for approval by the SSCPR as is
- ☐ Recommend for approval by the SSCPR pending suggested actions (see below)
- ☐ Recommend for rejection by the SSCPR

**MAJOR ISSUES AND SUGGESTED ACTIONS:**

While External Review Reports are not returned to the External Review Team for revisions, Reports may contain major issues which the SSCPR should address. These issues could include (but are not limited to): a) recommendations that go beyond the scope of program review; b) names or other identity information.

Complete the table below ONLY if you have identified major issues in the Report. Identify actions the SSCPR should take to address these issues. Suggested actions could include (but are not limited to): a) redacting names or other identity information; b) providing an SSCPR Response that provides the External Review Team's recommendations in context. Add or remove rows in the table below as needed.

Issue	Suggested Action for the SSCPR

**MINOR EDITS (Spelling, syntax, word choice and other mechanical issues).**

Please list corresponding page numbers. Minor edits are NOT discussed at the SSCPR meeting. Add or remove rows as needed.

Minor Edits (page #)
Page 2 line two of rationale: should be "role" not "roll"
Page 2 second paragraph of rationale: "by providing" should replace "by provide"
Page 3 under "decolonization" para. 1: "reorient" not "reorientate"
Page 3 under "decolonization": the second sentence needs rewording: no "and after workshops, add a comma after "program"? This would make the list in the first part of the sentence make sense. Perhaps break into two sentences as follows: "The faculty listening workshops, efforts to decolonize the two-semester program, and efforts to learn from and design a program of study with the host nation served to reorient how design is and could be taught differently, acknowledge the voices and histories often left out of conventional design pedagogy, acknowledge the different types of collaborations that are possible and necessary for design to work with communities, and de-centre their emphasis on design's European Modernist roots.
Page 3 under "decolonization": care-driven should be hyphenated
Page 3: 'that was facing'? wording

Minor Edits (page #)
Page 4 under rationale: is a very positive
Page 4 under rationale (same sentence): for students, and ... offer
Page 4 under further discussions: discussions did arise during
Page 4 under further discussions: is "preface" the right word here?
Page 4 under further discussions: those who are working on their English...
Page 4: under "decolonization": no comma after "anti-oppression movements"
Page 5: it is noted by both... no comma before "that" and "need" not "needs"
Page 5: I think this should say BIPOC not IPOC
Page 5: "provided by administration, including..."
Page 5: again, BIPOC not IPOC
Page 5: full-time studies (should be hyphenated) also no comma after KPU
Page 6: custom-designed campus
Page 6: no comma after "expert staffing of facilities"
Page 6: allow not allows
Page 6: identifies the strengths
Page 6: colon after the sentence that starts off "shop, studio, etc."
Page 7 under Library guides: sentence is not parallel
Page 7: I'm confused by the final sentence here... rather than "decentre resources" I think it means that resources should include the anti-racism work? Or "anti-racist work included in resources and online course guides"? I think the suggestion is that there is work to decolonize the guides, but it looks like its "decentring" the guides themselves.
Page 8: "but care should also be taken in the way..."
Page 8 under Concluding: "researched and supported, and it..."

## SENATE STANDING COMMITTEE ON PROGRAM REVIEW

**Agenda Item: 5.3**

**Meeting Date:** September 22, 2021

**Presenter:** Rebecca Harbut, Mike Bomford, Elizabeth Worobec

**Agenda Item**                      **Sustainable Agriculture Self-Study Report**

Action Requested	Motion
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<b>Recommended Resolution</b>	THAT the Senate Standing Committee on Program Review accept the Sustainable Agriculture Self-Study Report as attached.
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**Senate Standing Committee Report**                      For Senate Office Use Only

**Attachments**                      Sustainable Agriculture Self-Study Report  
Sustainable Agriculture Self-Study Report Appendices

**Submitted by**                      *Melike Kinik-Dicleli, Manager of Quality Assurance*

**Date submitted**                      *September 1, 2021*



## **PROGRAM REVIEW: Self-Study** ***Sustainable Agriculture***

**Date Submitted:** August 30, 2021

**Program Name:** Sustainable Agriculture

**Program Review Team Members:** Dr. Rebecca Harbut and Dr. Mike Bomford



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# Chapter 1. Program Overview

## Program Description

Kwantlen Polytechnic University's Sustainable Agriculture program offers a Bachelor of Applied Science in Sustainable Agriculture. The program addresses complex issues related to sustainability such as; climate change, regenerative agriculture, sustainable food systems, policy, food security, social justice, and sustainable economics. The program utilizes experiential learning, is applied science focused, and provides opportunities to engage with issues that are currently facing our food system both globally and regionally. The program is housed in the Faculty of Science and Horticulture and the foundation of the curriculum is based in science but students are encouraged to take courses in other programs that build on their own experience, interests and expertise. The program was designed this way to ensure students are provided with the opportunity to gain interdisciplinary skills and understanding which will be required to address the complex challenges of the 21<sup>st</sup> century. The food system intersects with all aspects of society, has regional and global reach and the development of a sustainable food system is perhaps one of the most critical issues of our time.

The program is built on a set of core values that inform the vision, mission, curriculum, partnerships and program competencies. These core values represent a unique perspective that our program brings to the sector. These values are:

- Sustainability is imperative
- Good, wholesome, nutritious food is a basic human right
- Co-creation of knowledge fosters citizen engagement and positive change
- Pursuit of accuracy and truthfulness are critical for constructive discourse
- Science is enriched by honoring diverse perspectives and ways of knowing

In alignment with these values, our courses, faculty and learning experiences expose our students to the diverse aspects of society that interface with food system issues. The curriculum allows them to engage with food production at all levels from practice to policy. This program is focused on empowering students to have the foundational knowledge required to understand what a sustainable food system could look like and give them the experience and confidence to be leaders that facilitate “change from the ground up”.

**Program type:** Undergraduate

**Credential offered:** Bachelor of Applied Science in Sustainable Agriculture (120 credits)

**Admission requirements:** Students pursuing a Bachelor of Applied Science in Sustainable Agriculture must be admitted to the Faculty of Science and Horticulture.

**Options, specializations:** There are currently no options or specializations

**Laddering and transferability:** There is currently no laddering or transferability

**Campuses where the program is offered:** Richmond Campus

**Academic unit(s) responsible for the program:** Faculty of Science and Horticulture

**Number of staff and faculty (part-time and full-time)**

Full-time	3
Contract (NR2)	4
Full-time staff (Farm Manager)	1
Seasonal staff (Farm Assistants – April-Oct)	2
Seasonal student farm assistants (partially grant supported)	1-2

### **Vision Statement**

We foster the development of a sustainable food system that is place-based, community-focused; nurtures diversity in scale, markets, and cropping systems; and serves, engages, and empowers all.

### **Mission Statement**

We provide integrated education, applied research, and community engagement programming to advance sustainable food systems.

### **Tag Line**

‘Change from the ground up’

### **Brief History of the Program**

The Sustainable Agriculture program was approved by Senate in 2011 and the first intake of students occurred in 2012 with the first graduates completing their degree in 2016. The program was developed out of the Institute for Sustainable Food Systems at KPU which carries out research and extension programming in sustainable food systems. The degree was developed out of an identified need for a program that trained agricultural practitioners that understood both the larger challenges and opportunities related to

sustainability, but also the practical skills of sustainable food production and agroecosystem management. While there are several agricultural universities in Canada, KPU is unique in its focus on sustainable, regional food production systems. The program was developed with the following goals:

- Address community needs identified by the provincial government and municipal councils in relation to local-regional, agri-food systems and food security.
- Address institutional priorities embedded in Kwantlen's polytechnic mission and mandate.
- Model innovative agricultural practices of sustainable food production and post-production functions.
- Inspire a new generation of leaders in forging the advancement of a sustainable society.

Since the program launched in 2012, the programs capacity to deliver these goals has been realized through the hiring of full time and NR1 faculty, through partnerships that have been fostered with the community, industry and local governments and through a CFI award submitted by faculty which provided \$1.2 million towards the development of a dedicated space for program offices, a research lab and the infrastructure at the farm.

When the program launched in 2012, there were no faculty appointed to the program. The first AGRI courses were taught by Dr. Kent Mullinix, Director of the Institute for Sustainable Food Systems and the lead in designing the program. The program hired the first full-time faculty member in 2013 and currently has 3 full-time faculty in the program all of whom have doctoral degrees in food production, production agriculture expertise, research and extension experience. In order to deliver our courses, which are designed to run in accordance with the annual food production cycles, all faculty teach in all three semesters. The program relies on NR1 faculty to teach several of our courses; including soil science, animal production, economics and business. Both the NR1 and regular faculty also teach our labs as we do not have any dedicated lab instructors.

The farm is managed by a full time Farm Manager who is responsible for overseeing the farm operations, support teaching and research activities and supervising farm staff.

#### *Teaching & Research Facilitates*

There are three main research and teaching facilities that support the delivery of the degree:

- 1) The Gilbert Rd. Orchard. In 2012, the city of Richmond agreed to allow KPU to farm an eight acre parcel of municipally-owned land managed by the Parks and Recreation Department. This land provides teaching space and also provides graduates of the degree program (and individuals who complete the ISFS Farm School outreach program) with an incubator plot where they can develop their agricultural business. This land is now leased by ISFS but the Sustainable Agriculture program continues to use it.
- 2) KPU Farm at Garden City Lands. In 2016, KPU and the City of Richmond signed a lease agreement for a 20 acre parcel of land on the Garden City Lands. This site has become the main farm for the program and has been extensively developed into a certified

organic farm. Funding for the establishment of the farm was secured by faculty through a CFI grant which provided federal, provincial and KPU funding.

- 3) Seed Lab. As part of the CFI grant, the department was able to build and purchase equipment for a seed lab to support a growing seed industry in British Columbia. This lab is used in the delivery of several courses and is also shared with the Biology Department.

### *Program Revisions*

In 2014, a program revision was approved by senate (Appendix 1) with the following purpose and rationale:

#### Proposed Changes:

1. Revise language to follow new Proposed Calendar layout.
2. Reduce number of core required courses in years 1 and 2

#### Rationale:

2. The BASc in Sustainable Agriculture had the first intake of students in 2012 and we now have students registered in year one, two and three courses

The proposed revisions to the program have come in response to feedback from enrolled and prospective students, advisors and faculty as well as the desire to provide students with flexibility to tailor their degree to match their career aspirations. This flexibility would also allow students the option of completing a minor without adding excessive course load. Many of our students are not able to carry the prescribed course load and as a result are projected to require additional semesters to the 4 year (8 semesters) program.

The reasons for these revisions are:

- To provide students with greater flexibility to make it reasonable to complete the degree in 4 years.
- To provide students with the option to choose an additional area of emphasis through the completion of a minor (i.e. Minor in Policy Studies in Sustainability)

### **External Accreditation**

Our program is not currently accredited through any external organization, however the KPU Farm at Garden City Lands is certified through the B.C. Association for Regenerative Agriculture, which is accredited by the Certified Organic Association of B.C. We have had some of our students gain accreditation through the B.C. Agrologists association, however, the program has not been accredited through this association. As a production agriculture program, the possibility of gaining accreditation should be pursued.

### **Scope of the Review**

This is the first review of the Sustainable Agriculture program. While there were some revisions to the program in 2014, (Appendix 1) there have not been any major changes to the program. Over the last several years, we have gained experience, had input from our students and further defined our program with the development of our values, mission and

vision. We have also expanded our capacity to deliver a much more engaged and practical learning experience with the development of the KPU Farm and the Farmers Market. Over the years, we have identified some disconnects and deficiencies in our program. The foundation of the program is based on a very traditional agricultural science framework. As we have considered what competencies and skills we want our students to gain and the diversity of our student population, it has become clear that the curriculum needs to be redesigned. We believe our program should facilitate a transformative educational experience that will empower our students to be the leaders needed to build the food systems of their future.

In order to accomplish this, we have chosen to focus our review on the following:

- Evaluation of all courses and their connection to student competencies, skills and learning outcomes.
- Evaluation of the experiential learning opportunities throughout the program
- Examine the connections with our community and industry partners
- Evaluate the program outcomes through the experience of our graduates
- Evaluate the student outcomes and competencies through the lens of education for sustainable development.
- Evaluation of Departmental capacity and growth of the program

## Chapter 2. Program Currency and Connections

### Competitive Context

There are currently no other programs in the province that provide a similar degree that requires all students to engage in a research project and a 12-month courses series of applied learning on the farm.

UFV, Department of Agriculture

UFV offers a Bachelor of Agriculture Science, Horticulture Major. This degree is focused on the main agricultural sectors found in the Fraser Valley; dairy, greenhouse production and vegetable production. This program is a more traditional agriculture program and tends to focus more on conventional production practices rather than an Agroecological approach with a sustainable food systems perspective. UFV also offers a wide range of diplomas and certificates on focused topics such as; berry production, field vegetable production, integrated pest management, livestock production.

UBC, Faculty of Land and Food Systems

UBC offers a degree in Applied Biology with a major in Sustainable Agriculture and Environment. This degree is built on an applied biology foundation and provides students with the opportunity to select restricted electives that meet their interests in agriculture and food systems. The electives are largely focused on soils, pest management and plant/post-harvest physiology. There is also an opportunity to select the summer internship at the UBC Farm to gain hands-on experience. There are many similarities between this program and KPU's, however there are also some key differences:

- UBC is a core science degree, not applied science degree and therefore requires a greater focus on basic science courses.
- KPU students are all required to enroll in a 12-month agroecosystems course series to ensure they have experience with the full cycle of farm production, not only the summer season
- KPU students are all required to carry out a research project
- KPU has a greater focus on crop production courses with a focus on organic production methods

### Program's Connections to its Advisory Board

When the program was first established, the program advisory board was shared with the advisory board of the Institute for Sustainable Food Systems. This board was involved in the program as it developed and during the first few years of the program assisting in the hiring of the first two faculties. However, over time the advisory board has become more focused on the work of ISFS and the program became a lower priority. A separate program



advisory board has been needed, but has not yet been established. Potential board members have been identified and invited to join.

The establishment of an engaged and active advisory committee is a high priority.

## Program's Connections to the Discipline/Sector

The sector that Sustainable Agriculture supports, alternative/sustainable agriculture, is a growing component of B.C.'s agricultural sector. It is centered around small to medium sized farms that often have diverse cropping systems, are certified organic or adhere to organic standards and serve local markets. Most of the industry members are primary producers which is reflected in our survey responses, however there are a growing number of supporting jobs in retail and distribution and consulting. (Table 1). Due to the social justice component of sustainability, there are a number of non-profit organizations that we work with and play a critical role in our connection with the community. One of the areas that has grown significantly the last several years is the seed sector with many growers either focusing on the seed production or including it in their cropping scheme.

Table 1. Identification of sector partners. Discipline/Sector Survey, Feb. 2021

Which sector best describes your organization or business? Select all that apply	Percentage
Agricultural Supply Retailer (ie. Seeds, equipment, fertilizers, etc.)	15%
Agricultural Services Provider (i.e. pest management/scouting services)	8%
Primary Production	54%
Food retail and food service (i.e. farmers market, grocery store, restaurant)	15%
Agricultural Consultant	8%
Food and Beverage processing	8%
Research	8%
Education	8%
Government (i.e. BC Ministry of Agriculture, Agriculture and Agrifood Canada)	8%
Other (Please Specify)	15%
Total	13

Other (Please Specify): Non-profit, Local chain ag-tech; automated onsite commercial-scale food & livestock feed technologies

One of the challenges within the sector is that it has historically been a diverse group of farmers, many of whom are not represented by an industry group or organization. There has not been a post-secondary institution that has engaged in research or training focused on the sector. As a result, the sector does not have a culture of collaboration with Universities or government and does not have an overarching industry association that represents them. This sector does, however, have a tradition of peer mentorship and has fostered a sense of community between many of the growers.

As this sector continues to grow and become a larger part of BC's agriculture sector, the Ministry of Agriculture (MOA) has recognized the challenge to ensure that this sector has appropriate representation and support. They have hired specialists to provide support and have reached out to Universities to explore the best way to serve this sector. Both Sustainable Agriculture and ISFS have been working with the MOA, other post-secondary institutions and the sector to explore how KPU can contribute through research and training.

All of the faculty in Sustainable Agriculture have experience and training in agricultural extension work and have been actively engaged in training and research with the agriculture sector in BC and it has been clearly demonstrated that there is a demand from the sector, however the faculty are limited by the workload associated with the farm and teaching obligations.

Sustainable Agriculture has a strong connection to the organic agriculture sector in British Columbia as the core of our program is teaching organic production systems. We have been members of the Certified Organic Association of B.C. for several years. Our connection with the sector is both through our academic program and through the KPU Farm which is a member as a certified organic farm. KPU has contributed to the annual conference through student attendance and presentation of student posters and faculty have presented in various seminars.

Our students are required to complete an internship and this has also fostered a stronger connection with the sector.

## **Program's Connections to Other KPU Academic Units**

Sustainable Agriculture is a very unique program at KPU, so there is no overlap with other programs. There is, however, often confusion about the relationship between the School of Horticulture and Sustainable Agriculture, and the ISFS Farm School Outreach program and the Sustainable Agriculture degree. This confusion occurs both within KPU and outside of KPU. It is necessary to build a strong identity for the Sustainable Agriculture program so that it is clear to both internal and external partners who we are and how we relate to other programs. We believe this will also provide a good foundation for developing more meaningful connections with other programs.

The Sustainable Agriculture program is a credentialed bachelor program focused on sustainable, land-based food production with a focus on organic production systems. The ISFS Farm School is a non-credentialed, outreach program that provides opportunity for people to develop their skills in sustainable food production. There is no credential associated with Farm School and it does not fall under KPU's teaching programs. The School of Horticulture has programs that are also focused on food production, however they are focused on greenhouse production and non-food crops such as ornamental crops and turf. In addition to production, they also have the urban ecosystems program and plant protection. These two programs are complementary to ours and we have had the opportunity to provide courses such as our research series and agroecosystems series to Horticulture students and

have collaborated in the development of a beekeeping course which is taken by both horticulture and Sustainable Agriculture students. The distance between the Langley and Richmond campus is the greatest challenge to increased collaboration.

When the program first began, it was very strongly tied to the Policy Studies in Sustainability (POST) program and the Environmental Protection Technology (EPT) program as they shared a focus on sustainability and offered a broader base for our students. This has been an enriching connection for both the students and faculty. The full realization of the connection between the programs has been limited due to the geographical challenges of the courses being on three different campuses. As our program is based on the Richmond campus it is challenging for students to commute between these campuses. While there has been a willingness to offer sections of courses in Richmond, the number of Sustainable Agriculture students has been too low to justify this. Our desire to maintain this connection resulted in one of KPU's first mixed mode delivery course enabling Richmond students to attend the lecture in Surrey via a video link that they could view together in a Richmond classroom. There are several programs at KPU that we would like to foster deeper connections with including, School of Business, Horticulture, and Arts. We are optimistic that Sustainable Agriculture can contribute service courses to the broader KPU community that provide students with opportunities to deepen their understanding of sustainability. Given the lessons learned through COVID and our increased capacity for online learning, there may be new opportunities to effectively increase our collaborations with other programs.

The most recent collaboration Sustainable Agriculture has had is our contribution to the new graduate certificate in food systems which is offered through the Faculty of Arts with Dr. Kent Mullinix as the coordinator.

Service courses currently offered by other departments in the Sustainable Agriculture Program:

Year 1

BIOL 1110: Intro Biology I

BIOL 1210: Intro Biology II

ENGL 1100: Intro to University Writing

One of:

ENIV 1106: Environmental Chem I

CHEM 1110: The Structure of Matter

One of:

PHIL 1110: Confronting Moral Issues: Intro to Ethics

PHIL 1112: Environmental Ethics

POST 1100: Sustainability: Analysis and Ethics

Year 2:

BIOL 2322: Ecology

MATH 1115: Statistics I

One of:

POLI 1120: Canadian Government and Politics

POLI 1125: Intro to Political Science  
POST 2100: Sustainability and Government

It should be noted that these service/prerequisite courses make up a large portion of students 1<sup>st</sup> and 2<sup>nd</sup> year and as a result, the students have minimal connection and interaction with the Sustainable Agriculture department in these first two years. This has been identified by both students and faculty as an area that needs to be addressed.

### **Connection to Institute for Sustainable Food Systems (ISFS)**

ISFS is a research and outreach institute at KPU that shares a focus and vision with the Sustainable Agriculture program. There are several points of intersect with the department that include; sharing farm resources and expertise, providing internship opportunities for the Sustainable Agriculture students, collaboration on the graduate certificate (offered through Faculty of Arts) and research projects. There is potential to develop a deeper collaboration with ISFS on outreach initiatives and teaching. There is currently no connection between the Farm School, which is a non-credentialed ISFS outreach program, and our department. We feel it would benefit students and faculty to foster this connection.

### **Campus Food Services**

While campus food services is not an academic unit, they serve an important role on campus and student experience. Fostering a relationship with the food services provides an opportunity for KPU to demonstrate its commitment to sustainability, provides KPU students with healthy food and allows the Sustainable Agriculture students the opportunity to gain experience working with a food service provider. The recently awarded food services contract at KPU articulates the desire to have more locally sourced foods on campus and Sustainable Agriculture is excited to expand on this initiative. Our farm manager is actively with the food services on facilitating this partnership.

### **Contribution to KPU's Sustainability Initiatives**

The Sustainable Agriculture faculty and staff are very proud to be part of a university that has articulated its sincere commitment to sustainability. There are many aspects of the Vision 2023 document that we can contribute to, but one goal in particular is exemplified through our program:

*B2. Goal: We will foster environmental sustainability through our offerings, research and operations Progress on this goal will be made by:*

- *Offering formal education programs and courses that address sustainability*
- *Conducting research that addresses sustainability issues*
- *Ensuring our operations are environmentally sustainable*

The Sustainable Agriculture program is an excellent example where the thought of these goals meets action. Through the KPU Farm and our program, we are able to model sustainability for our community and engage with them about issues of land, food and environment. The KPU Farm at Garden City Lands is a high profile location that has the potential to bring high recognition to KPU's Sustainable Agriculture Program and KPU in

general. The Sustainable Agriculture team is looking forward to working with other ‘arms’ of the institution to optimize the impact that we can have. Sustainable Agriculture has also had a representative on the University Sustainability Community.

## **Program’s Articulation and Credential Recognition Processes**

### **Transfer Credit and Prior Learning Recognition**

The process of receiving credit for some of our service courses at KPU has been a challenge for many of our transfer students. We have often had to advocate for our students to receive credit for several of our service courses. Within the Sustainable Agriculture program, we strive to recognizing previous work as much as possible while ensuring the student can demonstrate that they have achieved the learning outcomes required. It is our belief that it is the core concepts and outcomes of the course that need to be met, not the detailed content of the course. There appears to be little consistency between programs at KPU as to how transfer credit is assigned and students are often left feeling frustrated and confused by the process. This may be due to inconsistency of using content vs. learning outcomes to assess the course for credit.

Prior learning assessment has been carried out in a few cases with students that have come to us either from the KPU Farm School (which is a non-credentialed program) or have had their own farm experience. With prior learning assessment, it is also critical for students to demonstrate that they have achieved the required learning outcomes for the course(s).

### **Articulation Agreements**

Currently, we do not have articulation agreements with other schools. However, there are some two-year technical colleges in the Pacific Northwest that may be appropriate to develop agreements with that will allow students to complete their bachelor degree. There may also be an opportunity to provide experiential learning courses for students at UBC and SFU through our summer agroecosystems course. We are also interested in pursuing exchange opportunities for students in Sweden at Svenska Lansbruk Universitet (SLU) and the Waterford Institute in Ireland.

We have had an ongoing partnership with the Delta School District where we have offered courses for dual credit and in partnership with the Delta School Division Farm Roots program.

As other universities are increasingly becoming interested in providing courses and programs related to sustainable agriculture, it is critical that we ensure they are aware of our courses and the potential for articulation and transfer. As courses are reviewed and revised, they should be resent to schools with agriculture programs to request review for transfer credit.

The ISFS Farm School is a non-credentialed program that is provided as an outreach program to the community. Participants in the program often join to expand their understanding of sustainable food production. Currently, there is no connection between

the Farm School and the Sustainable Agriculture programs. There may be a possibility to explore an agreement based on prior learning between the Farm School and Sustainable Agriculture for those that complete the Farm School and would like to pursue credentialed training in Sustainable Agriculture. The complexities of linking a non-credentialed program need to be considered to achieve this.

## **Program's Public Information and Community Outreach**

Sustainable Agriculture is deeply committed to informing the public about sustainability issues in our food system and has found several ways to reach out to the community, although it is often not exclusively to inform about our program. We have developed partnerships with several non-profit organizations including the Richmond Food Bank, Richmond Food Security Society, Fresh Roots and Farm Roots to support their work and amplify the message about sustainability in our food system. We have been able to gain recognition for our program in the community through working with them. The partnership with Farm Roots and Fresh Roots has allowed us to reach high school students and inform them about our program. Our involvement in the Certified Organic Association has allowed us to connect with potential employers and service groups. Our partnership with West Coast Seeds has led to the opportunity to have a large display at the PNE at no cost.

Our most effective outreach to high school students has been through our dual credit programs in the high schools, though we have not had the capacity to expand this. There is a great deal of interest from the schools, however we do not have the capacity to teach the courses. Many of our students are mature students that have previous careers or have already completed a post-secondary degree. This diverse group of potential students has been more difficult to connect with and is largely reached through our website and our social media. Our faculty and students spend a lot of time and effort on our social media outreach and this has become an effective, but time consuming tool for outreach that has potential to be used more.

The program website is underdeveloped and under-utilized. Given our social media presence it would be very beneficial to improve the website that visitors get directed to. Currently, our faculty do not have access to edit our website which has led to some inefficiency as we need to go through marketing for everything.

Public information and community outreach about the program is currently not adequate. Sustainable Agriculture continues to be a unique program in Canada, but it has not been able to attract the number of students expected. Our interactions with students at the UBC Farm internship program has shown us that we are not promoting our program sufficiently. We have had many interactions with students at other institutions and community members that have had no idea we exist. Much more needs to be done to get the information about our program out to potential students. The challenge that we face is that the faculty workloads are too high to allow time to do the marketing and promotion

required, including holding info sessions and workshops that would raise awareness of the program. Currently, the faculty and staff are struggling to achieve the work that must be done to meet student expectations with no time left over for other important aspects such as working with the marketing department, community workshops and outreach.

## **Student Demand for the Program**

Canada has a rich history in agricultural education with every province having an agricultural university, many of which were founded in the late 1800s and early 1900s. In British Columbia, the Faculty of Agricultural Sciences at UBC was one of the university's three founding faculties. This Faculty provided agricultural training for many decades, however, due to declining enrollment, they changed their name to Land and Food Systems and moved away from teaching production agriculture. Changes like this have been observed in many universities across Canada with attempts to redefine themselves. An article in University Affairs that was published in Feb. 2020 summarizes the shifts that have been seen in agriculture programs. (<https://www.universityaffairs.ca/features/feature-article/agriculture-programs-change-with-the-times/>) This article highlights many of the trends, and notably only mentions the established agricultural schools. This demonstrates the challenge KPU faces in starting a new agriculture program and the additional effort that must be taken to gain recognition as an agricultural university.

KPU's program has a significant advantage in that it did not have to redefine itself, but was built from the beginning as an agriculture program that reflects today's challenges and opportunities facing society. Our students appreciate the fact that our program was created with the current context in mind and all of our faculty are deeply committed to sustainability. As universities across Canada have shifted their marketing and focus, they have seen increased enrollments, however, we have not seen this increase at KPU.

## Enrollments

Enrollment in the Sustainable Agriculture program has increased over the last five years, with an increase of 11%. Despite this increase, there has been a decrease in the number of students who have declared Sustainable Agriculture as their major. This may be due to the fact that many of our students do not declare as Sustainable Ag. Majors until late in the program. This is often due to many of them working towards meeting prerequisites that are needed or a lack of knowledge of the need to declare. Student numbers in our courses have had a higher increase than those in the program which is due to a higher number of students from other majors taking our courses as electives or to fulfill other program requirements such as POST or ENVI which include AGRI courses in their programs. The increased interest in taking our courses as electives is an indication of the growing interest in sustainability in the general student population.

**Table 2. FTE Headcount<sup>1</sup> by Academic Year: Sustainable Agriculture and Faculty of Science & Horticulture Undergraduate Courses**

	2015/16	2016/17	2017/18	2018/19	2019/20	% Change <sup>2</sup>
Sustainable Agriculture	66	62	86	103	89	35%
Faculty of Science & Horticulture	3,341	3,563	3,876	4,104	3,646	9%

**Table 3: FTE Headcount by Academic Year: Sustainable Agriculture<sup>3</sup>**

	2015/16 <sup>4</sup>	2016/17	2017/18	2018/19	2019/20	%Change
Sustainable Agriculture Total <sup>5</sup>	38	43	43	38	42	11%
Intended	11	22	25	25	26	136%
Major	28	22	21	14	19	-32%

The main challenge that has faced our program is the ability to communicate who we are and what we are about to both the KPU community and potential students outside of KPU. The trends we are seeing in other institutions suggests that we should be seeing higher increases in enrollment, but there remains little recognition of our program. As one UBC student that was attending the 2019 Seed Gathering hosted by KPU put it, *“How did I not know this program was here!? I would have enrolled in this program if I knew about it as it is more what I was looking for!”* This sentiment has been shared several times and indicates that there is much more that needs to be done to get the information about our

<sup>1</sup> Headcount used for FTE calculations. This includes students enrolled in the course from the Stable Enrolment date, including those who later withdrew from the course.

<sup>2</sup> % Change refers to change between 2015/16 to 2019/20.

<sup>3</sup> Data for Intended and Major headcounts in Sustainable Agriculture are reported separately.

<sup>4</sup> Effective September 2015 and onwards, KPU has now admitted new students to a Faculty instead of a program and these new students are being reported under the ‘undeclared’ credential category until they meet program declaration requirements (exception are students enrolled in a limited entry program).

<sup>5</sup> To avoid double counting students, Sustainable Agriculture total is a unique headcount for the year, not the sum of Intended and Declared counts.



program out to potential students. Despite the fact that we were one of the first programs available to students focused on sustainable agriculture, we remain unknown in the broader community. Our main limitation has been a lack of resources for marketing. As a program we have been building our capacity and our faculty have been bearing additional workload to develop the farms, work with the City of Richmond to foster the relationship that has allowed us to gain access to the 20 acres of farmland on Garden City, and develop the program as it grows and conduct some limited research. Our faculty have also maintained an active social media presence, but there has been little time left for other marketing efforts by the faculty. The marketing department has had some campaigns, but they have been minimal due to the funding and the ability for Sustainable Agriculture faculty to commit additional time to assist. It has been a constant struggle to have marketing understand the essence of our program and Sustainable Agriculture is constantly confused with the ISFS Farm School. There is little recognition that the Farm School is a non-credentialed outreach program and Sustainable Agriculture is a completely separate, credentialed program.

### Student Demographics

Sustainable agriculture has always attracted more mature students to the program and has, in most years, had a higher percentage of females enrolled. This is consistent with the trends we are seeing in the sustainable agriculture sector where there has been an increase in women engaged in agriculture than has been the case in the past.

**Table 4. Profile of Sustainable Agriculture Students by Academic Year**

Student Profile	2015/16	2016/17	2017/18	2018/19	2019/20
FTE Headcount	38	43	43	38	42
% Female	61%	49%	49%	55%	55%
% 22 years or younger	24%	31%	33%	29%	41%
% International	5%	14%	19%	18%	17%

It is difficult to compare enrollment with other institutions as there are not many others that have programs that identify as sustainable agriculture programs and therefore the data may suggest a smaller number of students than is the case.

**Table 5 Number of Students Enrolled in Bachelor-level Sustainable Agriculture Programs at B.C. Public Post-Secondary Institutions**

	2013/14	2014/15	2015/16	2016/17	2017/18
Total	58	65	51	49	45

*Describe students' reasons for choosing the program.*

Based on the survey responses, the reasons that most students choose the program were; emphasis on sustainability and opportunities for hands-on learning. Students also indicated that small class sizes were an important factor.

## Summary and Recommendations

### Program Strengths:

- The Sustainable Agriculture Program is a unique program that is empowering students to address the increasingly urgent needs within our food system.
- Our program is based in our values which are shared by faculty and staff
- In a time where society's connection to land and food has become dangerously weak, we are able to provide students and our community with the opportunity to reconnect, learn and envision a sustainable future where healthy ecosystems and good, wholesome food are essential for sustainable communities.
- With the addition of the KPU Farm at Garden City Lands, we have become an increasingly recognized and important part of the community and have new opportunities to engage with the community through our farm, the KPU Farmers Market and new outreach programs.

As a new program, we have worked hard to lay a foundation upon which we can build a lasting and impactful program. While a building phase is part of the growth process, it is critical that we now focus on gaining recognition, establishing ourselves as one of Canada's innovative agriculture programs, and become recognized for the unique perspective and type of learning we provide.

### Recommendations:

**Recommendation 2.1** Re-establish the Sustainable Agriculture Advisory Committee

**Recommendation 2.2** Create a stronger identity for Sustainable Agriculture at the Richmond campus as a separate and unique program at KPU. This could be done through signage, a stronger presence of our produce at the cafeteria and more opportunities for all KPU students and community members to engage with the KPU Farm and terrace garden.

**Recommendation 2.3** Review AGRI courses to identify opportunities to open up courses to be accessible to all KPU students to engage in sustainability focused learning. This will also aid in low fill rates in courses.

**Recommendation 2.4** Consider possible avenues to develop a stronger connection with the KPU School of Business. This may be in conjunction with changes to the Sustainable Agriculture curriculum as discussed in Chapter 3

**Recommendation 2.5** Review other agriculture programs to determine if new opportunities for transfer credit may exist.

**Recommendation 2.6** Conduct review of agriculture programs in the U.S. Pacific Northwest and Canada to identify schools which may be suitable to establish articulation agreements and exchange opportunities with.

**Recommendation 2.7** Explore the possibility of being added to the 'approved diploma programs' list of the BC Institute of Agrologists

**Recommendation 2.8** Explore the demand and opportunity for an online high school dual credit course that would be easily accessible to students from all school districts in B.C. (This recommendation would require that additional teaching faculty be added to the program as we currently do not have capacity to teach more courses)

**Recommendation 2.9** Increase outreach through social media and website to share information about the program.

The staff and faculty in the department manage social media accounts for the department. We have often included student voices in our social media as well. It would be very helpful to have a better website, that we are able to edit, that reflects who we are and what we do so that we can direct people to that site.

**Recommendation 2.10** Provide workshops to KPU staff involved in marketing and recruitment.

**Recommendation 2.11** Generate recognition for the program regionally, nationally and internationally

## Chapter 3. Quality of Curriculum Design

### Assessment of the Curriculum

#### *Overview of the Program*

The Sustainable Agriculture program was designed to be an applied program focused on training students to have the practical skills and knowledge to contribute to the development of a more sustainable food system. The desire is to build on the students' own experience, interests and skills to empower them to address the complex challenges and embrace the exciting opportunities the future holds.

It is our goal to provide a transformative learning experience that will empower and equip students to not only know the technical aspects of sustainable food production, but understand the complex context of today's world. A core component of the program is to facilitate the student's exploration of concepts of social justice, equity, and ecological sustainability and to examine how their own journey intersects with these critical components. It is our desire that each student is able to develop a picture of what their contribution to a more sustainable society might look like.

#### *Program Competencies*

When the program was developed, there were no clearly defined program competencies, the program was developed with a focus on learning outcomes:

- Advance sustainable food system development through community engagement.
- Apply principles of sustainability to agriculture and food systems.
- Critique existing and emerging agricultural paradigms from social, economic and environmental perspectives.
- Understand interrelationships between food systems, community and human well-being.
- Mitigate climate change and adapt food systems to a changing climate.
- Apply agroecological principles to agricultural production.
- Design, conduct, analyze and critique natural and social scientific research.
- Recognize and represent diverse perspectives and ways of knowing.
- Manage a sustainable agriculture business.

Review of these competencies has led the faculty to develop a new set of program competencies that better reflect our program. We suggest the following program competencies be considered:

- Understand interrelationships between agriculture, food systems, environment, and human well-being.
- Recognize and represent diverse perspectives and ways of knowing.

- Critique existing agriculture and food system paradigms from social, economic and environmental perspectives.
- Craft visions for a sustainable future for agriculture and food systems, and chart paths towards that vision.
- Promote changes to agriculture and food systems that mitigate climate change and adapt agriculture and food systems to a changing climate.
- Design and conduct experimental research, and analyze and critique natural and social scientific research.
- Apply agroecological principles to farming.
- Understand the foundations of sustainable agriculture business.

### *Essential Skills*

- *Written communication*: Throughout the program, students are given opportunities to develop their written communication skills in various formats. In the first year, they are encouraged to engage in reflective journal writing to consider why they have come to this program and what they hope to get out of their experience. This is important to do in the beginning of the program so that the students can focus their efforts and plan their time at KPU to build the specific skills. Scientific writing skills are developed throughout the program and culminates in the completion of a final research report.
- *Oral communication* – Class discussion is a major component of our program and students are provided guidance early in the program on how to engage in effective, productive and respectful group discussions. This informal oral communication is a critical skill that influences their ability to engage in group work, problem resolution and other collaborative activities. Formal oral communication skills (i.e. giving a presentation) are also developed throughout the program and in their final year, they give a formal presentation of their research projects at our research seminar which is joint with other departments and open to external partners.
- *Group collaboration* Group projects are carried out in many of our courses and group collaboration skills are applied during their agroecosystems series where the cohort must plan and execute a farm plan for a 12-month cycle on our teaching and research farm.
- *Critical analysis* – One of the foundational aspects of our program is the critical analysis of our existing food system. Throughout the program students are challenged to consider the state of our food systems and how it has come to be.
- *Problem resolution* – As the students spend a full 12-month period engaged in the management and maintenance of the farm, they are often in a situation that they need to resolve an issue that has arisen. They may be faced with situations such as a technical issue with the crop management software, challenges dealing with customers at the market, or problems related to crop production. Students are encouraged to work through and resolve these challenges.

- *Learn on your own.* Students are given opportunities to develop and conduct their own research project. They also work independently on the farm and are often in the situation where they are working independently.
- *Reading and comprehension.* The program has several opportunities where students are asked to read, reflect and share their understanding of different types of written work.

### *Learning Outcomes*

**Graduates of the Bachelor of Applied Science in Sustainable Agriculture will acquire skills to:**

- Advance sustainable food system development through community engagement
- Apply principles of sustainability to agriculture and food systems
- Critique existing and emerging food systems paradigms from social, economic and environmental perspectives
- Understand interrelationships between food systems, community and human well being
- Mitigate climate change and adapt food systems to a changing climate
- Apply agroecological principles to agricultural production
- Design, conduct, analyze and critique natural and social scientific research
- Recognize and represent diverse perspectives and ways of knowing
- Manage a sustainable agriculture business

These learning outcomes require revision as several are vague and not easily attainable or measurable. With the suggested revision of the program competencies and the recommendation to review the course progression, these learning outcomes must be revised to better align with the competencies and provide more concrete understanding of what the program outcomes will be. This must be done in conjunction with a revision of the curriculum discussed below.

### *Credential-Level Specifications*

There is currently only the degree level credential, however, given the response from students it is suggested that the possibility of developing additional credentials be explored. This may include a diploma level credential in the 2+2 format, micro-credentials and/or program tracks that would allow students to focus on a specific aspect of sustainable agriculture and food systems.

### *Degree-Level Standards (if applicable)*

- Depth and breadth of knowledge;
  - Sustainable Food Systems is a complex area and requires an understanding of a broad range of topics including social equity and justice, ecology, plant science, production systems, and economics. The program strives to expose students to all these different concepts, while providing sufficient depth to have marketable skills in food production. The current curriculum divides most courses into two categories; 1) high level/systems level issues and 2) more in-depth courses focused on a specific area (i.e. fruit production, pest management, business management).

The program is designed to help students understand how the elements of our food system function together and contribute to a sustainable food system

- Knowledge of methodologies and research; a 12-month research course series is required of all students where they gain experience with dealing
- Application of knowledge; The program is very applied and provides opportunities for students to demonstrate their learning on the farm and through their research projects.
- Communication skills; Students are provided with many opportunities to share their own work as well as sharing from other sources of information.
- Awareness of limits of knowledge; A major component of our program is to understand the complexity of knowledge and that there are multiple ways of knowing. We are all limited in our knowledge and should strive to be lifelong learners. This awareness creates an openness to gaining insights from others and exploring other ways of knowing.
- Professional capacity/autonomy. Our students are required to do an internship in the area they intend to pursue a career. They are responsible for finding their own internship opportunities (guidance is provided).

#### *Admissions and Prerequisites*

Many of the prerequisites required for the program are foundational science prerequisites that most science programs require. Over the years of offering the program, however, we have found that several of the prerequisites are creating barriers to success. In some cases, the completion of prerequisites has prevented students from carrying on and they have left the program. One particular prerequisite has had poor student success and we have recommended to students that they take an online course at TRU to meet the requirement and then signed a prerequisite waiver to allow the student to continue.

We believe there is a need to conduct a thorough review of the courses in year 1 and 2 to ensure that the course learning outcomes are contributing to our student success.

The survey results indicate a lower degree of satisfaction with the prerequisites which is consistent with the feedback we have heard in our own interactions with students.

Overall, students appear to be satisfied with the relevance of the curriculum to their career goals and there was a high degree of satisfaction with the level of ability required to succeed. This is affirming as we strive to make the program accessible to as many students as possible and want students to succeed in their studies.

**Table 6. student satisfaction with ability of program to prepare them for their career, Student Survey, Feb. 2020.**

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Relevance of program curriculum to my career goals	0%	0%	9%	45%	45%	11

2	Prerequisites that prepare me for more advanced courses	0%	0%	18%	64%	18%	11
3	Level of ability required to succeed in the program	0%	0%	9%	9%	82%	11
4	Range of courses offered each term	0%	18%	18%	36%	27%	11
5	The preparation I am receiving to achieve the career I want	0%	0%	9%	27%	64%	11

### Student Satisfaction

Students indicated a fairly high level of satisfaction with the program's ability to prepare them to perform program competencies. However, there are three competencies that had lower rates of satisfaction. The ability to 'mitigate climate change and adapt food systems to a changing climate' had lower rates of satisfaction. This is perhaps an overwhelming competency and difficult to feel prepared for, however it suggests that we may need to provide learning opportunities to better understand the challenge of climate change and how to effect change. The other two competencies that were listed as lower were the ability to 'Recognize and represent diverse perspectives and ways of knowing' and 'Manage a sustainable agriculture business'. Having the ability to have students engage in the farm finances more directly may provide an opportunity for them to develop a better sense of what is involved in a farm business. However, this would require a different approach to the Farm as it is currently integrated with the department budget. Increasing the indigenous content and perspectives in our program may contribute to better understanding of different ways of knowing.

**Table 7. Satisfaction of students in preparation to perform program competencies. Student Survey, Feb. 2020**

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Advance sustainable food system development through community engagement	10%	0%	10%	20%	60%	10
2	Apply principles of sustainability to agriculture and food systems	0%	0%	10%	10%	80%	10
3	Critique existing and emerging agricultural paradigms from social, economic and environmental perspectives	0%	0%	20%	10%	70%	10
4	Understand interrelationships between food systems, community and human well being	0%	0%	20%	10%	70%	10



5	Mitigate climate change and adapt food systems to a changing climate	0%	10%	10%	30%	50%	10
6	Apply agroecological principles to agricultural production	0%	0%	10%	50%	40%	10
7	Design, conduct, analyze and critique natural and social scientific research	0%	0%	20%	30%	50%	10
8	Recognize and represent diverse perspectives and ways of knowing	0%	30%	10%	20%	40%	10
9	Manage a sustainable agriculture business	0%	10%	30%	20%	40%	10

### Essential Skill Development

There was a range of responses to the satisfaction with how the program is helping students develop their essential skills with some dissatisfaction on written communication and group collaboration. There were no further comments so it is unclear what aspect of these skills was unsatisfactory.

**Table 8. Satisfaction of students in preparation to perform essential skills. Student Survey, Feb. 2020**

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Written communication	0%	10%	30%	20%	40%	10
2	Oral communication	0%	0%	20%	30%	50%	10
3	Group collaboration	0%	10%	10%	20%	60%	10
4	Critical analysis	0%	0%	20%	40%	40%	10
5	Problem resolution	0%	0%	30%	30%	40%	10
6	Learn on your own	0%	0%	10%	40%	50%	10
7	Reading and comprehension	0%	0%	10%	40%	50%	10

The overall satisfaction with the curriculum is lower than what we would like to see. Based on the comments, students would like more breadth and depth of agricultural topics and a greater inclusion of indigenous perspectives in the program. We have also had consistent feedback that students would like to have more hands-on experience in the program.

**Table 9. Overall student satisfaction with the program. Student survey, Feb. 2020**

#	Overall, how satisfied are you with KPU's Sustainable Agriculture program curriculum (the academic content taught in the program)?	Percentage
1	Very dissatisfied	0%
2	Somewhat dissatisfied	10%

3	Neither satisfied nor dissatisfied	20%
4	Somewhat satisfied	20%
5	Very satisfied	50%
	Total	10

## Faculty Satisfaction with the Curriculum

The majority of faculty are somewhat or very satisfied with the ability of the program to prepare students in the stated competencies. However, there was some dissatisfaction with the ability of our students to 'design, conduct, analyze and critique natural and social scientific research, and to 'manage a sustainable agriculture business'. The dissatisfaction with these is consistent with other feedback received from faculty. There was a concern raised regarding the lack of social science research instruction and experience and also a concern that the amount of business training is not adequate to prepare students to manage a business.

As the faculty have discussed these results, it has become clear that these program competencies require refinement in conjunction with the revision of the program curriculum.

**Table 10. How satisfied are you with how KPU's Sustainable Agriculture program is preparing students to do the following? (Faculty Survey Report, Feb. 2021)**

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Advance sustainable food system development through community engagement	0%	0%	14%	71%	14%	7
2	Apply principles of sustainability to agriculture and food systems	0%	0%	0%	29%	71%	7
3	Critique existing and emerging agricultural paradigms from social, economic and environmental perspectives	0%	0%	0%	43%	57%	7
4	Understand interrelationships between food systems, community and human well being	0%	0%	0%	57%	43%	7
5	Mitigate climate change and adapt food systems to a changing climate	0%	0%	14%	57%	29%	7
6	Apply agroecological principles to agricultural production	0%	0%	14%	57%	29%	7
7	Design, conduct, analyze and critique natural and social scientific research	0%	14%	14%	29%	43%	7

8	Recognize and represent diverse perspectives and ways of knowing	0%	0%	29%	57%	14%	7
9	Manage a sustainable agriculture business	0%	14%	14%	29%	43%	7

Most faculty are somewhat to very satisfied with the program's ability to help students develop the articulated essential skills. There was one faculty member who felt unsatisfied with the development of critical analysis, problem resolution and ability to learn on their own.

**Table 11. How satisfied are you with how KPU's Sustainable Agriculture program is preparing students in the development of essential skills? (Faculty Survey Report, Feb. 2021)**

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Written communication	0%	0%	43%	29%	29%	7
2	Oral communication	0%	0%	29%	29%	43%	7
3	Group collaboration	0%	0%	43%	14%	43%	7
4	Critical analysis	0%	14%	0%	43%	43%	7
5	Problem resolution	0%	14%	14%	43%	29%	7
6	Learn on your own	0%	14%	14%	29%	43%	7
7	Reading and comprehension	0%	0%	29%	43%	29%	7

Overall, faculty are very proud to be part of the program and are deeply committed to the success of this unique program. The programs key strength is the focus on sustainability and empowering change makers through transformational learning experiences. However, the faculty have identified some aspects of the curriculum that need to be addressed. Concerns raised in the survey include the small number of regularized faculty and reliance on contract instructors as well as the availability and breadth of courses. These concerns echo student feedback about the program. The faculty feel the program is able to train students to gain an understanding of the foundational principles of sustainable food systems, however, there are key practical components of agricultural production that are not adequately covered. Our faculty have tried to address this with the addition of new courses, but are limited in their ability to offer these courses due to time and budget constraints. This has led to frustration in both the faculty and student body. A review of learning outcomes has revealed that most courses are trying to cover too much content and there are both overlaps and gaps in the program. There is an urgent need to refine the learning outcomes and evaluate the course progression to ensure students have a cohesive experience throughout the program. One of the challenges identified by the faculty is that some of the 1<sup>st</sup> and 2<sup>nd</sup> year courses currently require a significant portion of program credits, but may not be optimized to prepare students for subsequent courses or provide students with hands-on experience in agriculture in their first two years.

**Table 12. Overall, how satisfied are you with how KPU's Sustainable Agriculture program curriculum? (Faculty Survey Report, Feb. 2021)**

#	Overall, how satisfied are you with KPU's Sustainable Agriculture program curriculum?	Percentage
1	Very dissatisfied	0%
2	Somewhat dissatisfied	14%
3	Neither satisfied nor dissatisfied	14%
4	Somewhat satisfied	43%
5	Very satisfied	29%
	Total	7

## **Career/Further Education Preparedness**

### *Career Pathways*

Our students come to the program with a broad range of experience and interests, and this is reflected in the types of careers our alumni have pursued. This broad range of employment types were anticipated when the program was developed, and the program curriculum reflects a desire to provide breadth to the students, however, alumni feedback has indicated that it would be beneficial to have more hands-on experience with production systems that we currently have on the KPU Farm as well as having more exposure to the existing agricultural sector. The core of the program is to train people who have a strong foundation in sustainable food production, and we believe this is important to maintain. Students and alumni have indicated they would like earlier exposure to hands on activities and more opportunities to engage with production systems, both at the KPU Farm and in the broader agricultural community. It would be desirable to be able to tailor student's degree to focus on the career they want to pursue. This may be accomplished through the development of different student tracks.

### *Alumni Preparedness for Work/Further Education*

80% of our students that are employed have found work as agricultural consultants or have pursued research paths in agriculture and 20% are employed in primary food production. There are also students that have pursued careers in related fields such as lab technician at the Ministry of Forestry, and an educational assistant in the Jesuit order. Many of our students who would like to pursue a career in primary production are limited in their ability to access land. It is possible there would be more students engaged in primary production if they had access to land in the area. Our students have access to incubator plots upon graduation to try to alleviate the challenge of land access, we would like to further develop this program as it is currently underutilized by our students.

30% of the alumni respondents have gone on to pursue master's degrees. Students have gone on to study at McGill University (Masters in Natural Resource Sciences - Soil

Ecology), University of Manitoba (Masters - Plant Science), Loyola University, Chicago (MA in Social Philosophy)

Overall, alumni are very satisfied with the ability of the program to prepare them for the competencies that related to higher level thinking and understanding of sustainable food systems. There were lower levels of satisfaction in the ability to prepare them for the business aspects of sustainable food systems. This is consistent with the concerns of faculty that the program does not have enough courses allocated to the management of agricultural business.

**Table 13. How well do you feel the program prepared you for the following? (Sustainable Agriculture Program Review, Alumni Survey, Feb. 2021)**

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Advance sustainable food system development through community engagement	0%	0%	10%	40%	50%	10
2	Apply principles of sustainability to agriculture and food systems	0%	0%	0%	30%	70%	10
3	Critique existing and emerging agricultural paradigms from social, economic and environmental perspectives	0%	0%	0%	30%	70%	10
4	Understand interrelationships between food systems, community and human well being	0%	0%	0%	20%	80%	10
5	Mitigate climate change and adapt food systems to a changing climate	0%	0%	20%	20%	60%	10
6	Apply agroecological principles to agricultural production	0%	0%	0%	20%	80%	10
7	Design, conduct, analyze and critique natural and social scientific research	0%	0%	0%	20%	80%	10
8	Recognize and represent diverse perspectives and ways of knowing	0%	0%	10%	30%	60%	10
9	Manage a sustainable agriculture business	0%	10%	40%	10%	40%	10

Overall, alumni were very or somewhat satisfied with the ability of the program to develop the AVED's essential skills.

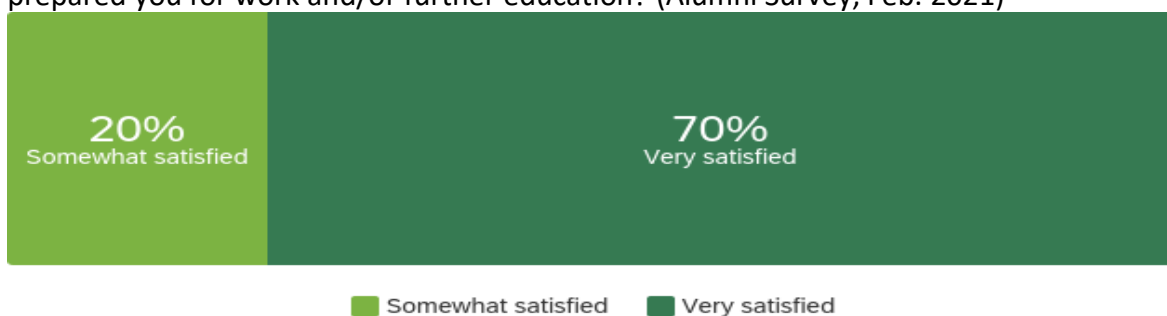
**Table 14. How satisfied are you with the programs ability to equip you with the following essential skills? (Sustainable Agriculture Program Review, Alumni Survey, Feb. 2021)**

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Written communication	0%	0%	10%	50%	40%	10
2	Oral communication	0%	0%	10%	40%	50%	10
3	Group collaboration	0%	0%	0%	60%	40%	10
4	Critical analysis	0%	0%	0%	40%	60%	10
5	Problem resolution	0%	0%	10%	40%	50%	10

6	Learn on your own	0%	0%	10%	30%	60%	10
7	Reading and comprehension	0%	0%	10%	40%	50%	10

90% of alumni that responded to the survey indicated that they were satisfied with the ability of the program to prepare them for their work or further schooling (Fig 1).

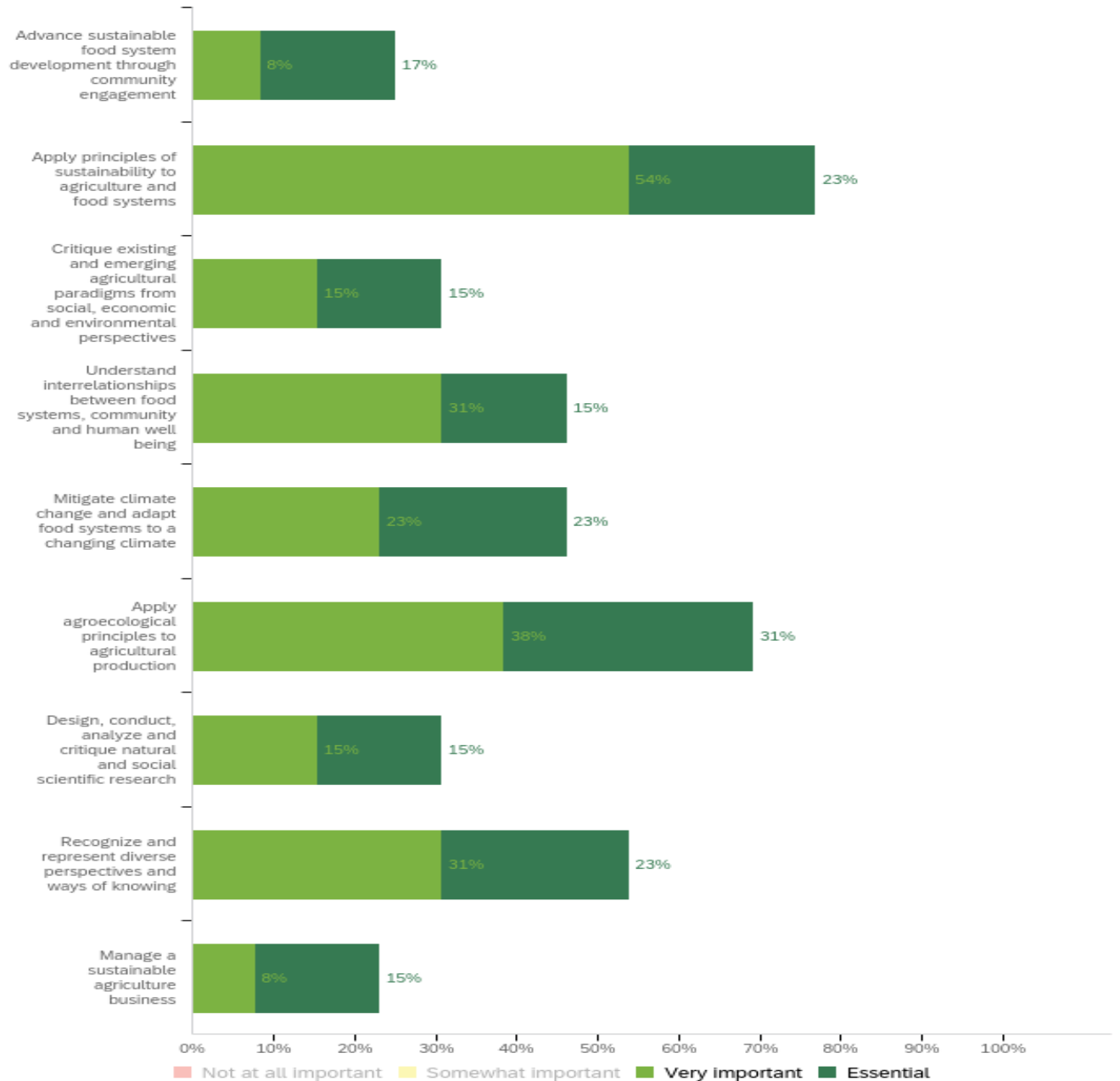
Fig. 1. Overall, how satisfied were you with how KPU's Sustainable Agriculture program prepared you for work and/or further education? (Alumni Survey, Feb. 2021)



### *Discipline/Sector Feedback*

The discipline respondents indicated that the ability to 'Apply principles of sustainability to agriculture and food systems' and 'Apply agroecological principles to agricultural production' were the two most relevant competencies. Many of the other competencies were rated as less important. The suggested competencies will be vetted with the discipline partners to determine if they better align with what they feel students should be equipped with.

**Fig. 2 Considering the needs and expectations of your organization, how important is it for an entry-level employee to be able to demonstrate the following?**



Several of the discipline respondents indicated that physical ability and tolerance of working in different weather conditions and the knowledge of crop production were critical for graduates to possess. There is a clear desire to have graduates that have the knowledge and capability to carry out the practical work on a farm.



**Table 15. What other skills, training or knowledge should an entry-level applicant have to be hired into your organization?**

physical ability to work in the fields in all but most extreme weather conditions
A strong work ethic, drive to learn, be curious, and strive to be better. Be open to learning from everyone in the organization. Solid project management skills.
interest in growing not just managing
Understanding of business processes and principles.
Knowledge of plants and their pests would be preferred.
You've identified key areas already, which I'm pleased to see. I always draw on the current scientific textbook knowledge of students and recent graduates, which we - as working researchers, don't encounter from day to day.
driver's license, software skills (e.g. traceability software, group communication applications, time tracking applications)
General hands on knowledge of growing in either a farm setting or large home garden
Crop Planning skills, Excel; communications & marketing skills, social media & website maintenance
know how to move their body efficiently. able to work in all weather conditions. balance quality and speed in tasks.
Curiosity, willingness to learn, not be attached to ideology that it prevents them from learning about reality at the farm-level.

The program provides the sector with students that have an understanding of the unique challenges and opportunities that exist in the sustainable agriculture sector and have many skills to get started in the discipline. However, based on the feedback there is room to expand on the amount of time and exposure students get to different production techniques as well as a deeper understanding of the broader agricultural context and discipline.

## Curriculum Development and Review Processes

Our faculty are constantly working to improve our curriculum and courses to ensure our students are ready for their future endeavors. As this program is both unique and new, there is no precedent for what should be included in such a program. As a result, we continue to strive to meet the balance between the theory and practice, big ideas and detailed information. We have done one major revision of the curriculum which was focused on streamlining and have modified some of our courses to better reflect the needs of the discipline as well as respond to student feedback. The curriculum has been largely influenced by students, especially in the third and fourth year of the program.

## Summary and Recommendations

Overall the program is meeting the needs and expectations of students, but there are some key aspects that are in need of revision. The main challenge that the curriculum faces is the amount and focus of the content and that students do not engage with the program in a meaningful way and are not on the KPU Farm until the 3<sup>rd</sup> and 4<sup>th</sup> year. We have a range of students with different interests and yet only one program track. As a result, the program touches on a range of topics, but does not offer students the ability to delve deeper into their area of interest. To address this, we are recommending the following:

Recommendations:

**Recommendation 3.1** Revise program competencies in consultation with Advisory committee.

**Recommendations 3.2** Revise the learning outcomes to align with the program competencies and potential program revisions. (i.e. learning outcomes that align with proposed 'track' options)

**Recommendation 3.3** Examine the existing courses and course progression to determine if courses contribute to program competencies and learning outcomes and provide adequate hands-on learning.

**Recommendation 3.4** Identify opportunities for 1<sup>st</sup> and 2<sup>nd</sup> year students to have more experiential/hands-on learning and interaction with the program and farm.

**Recommendation 3.5** Explore the possibility of having specializations (i.e. business, production, policy) within the degree to allow for students to focus their studies.

**Recommendation 3.6** Explore the possibility of a new certificate that will follow the 2+2 format.

**Recommendation 3.7** Explore the possibility of offering micro-credentials.

## Chapter 4. Quality of Instructional Design

### Delivery Modes

The program utilizes a wide range of delivery modes, including classroom, lab, teaching farm, field trips and some online delivery since COVID.

Having diversity in our student population is a goal we strive for and we often work individually with students to identify how to build on their own past experience and to understand the best way to allow them to grow. Some physical and mobility differences may be more difficult to accommodate in our agroecosystems course, but we have not had the opportunity to explore what this may look like.

As much of our teaching occurs on a working farm, physical safety is a critical issue. All students are required to complete a safety training course in which they learn about the farm equipment, sun safety and how to safely work with others in a farm environment. We partner with AgSafe, an organization committed to agricultural safety that provides teaching resources and courses to our students.

### Experiential learning opportunities

Our program has several opportunities for experiential learning, although it is currently focused on the third and fourth year students. There are three main program aspects that provide opportunities.

The Research course series is a total of 9 credits that allow students to gain experience with research design, analysis and execution. They are able to choose a research project that is focused on a topic of interest to them in and in some cases, work with a discipline partner.

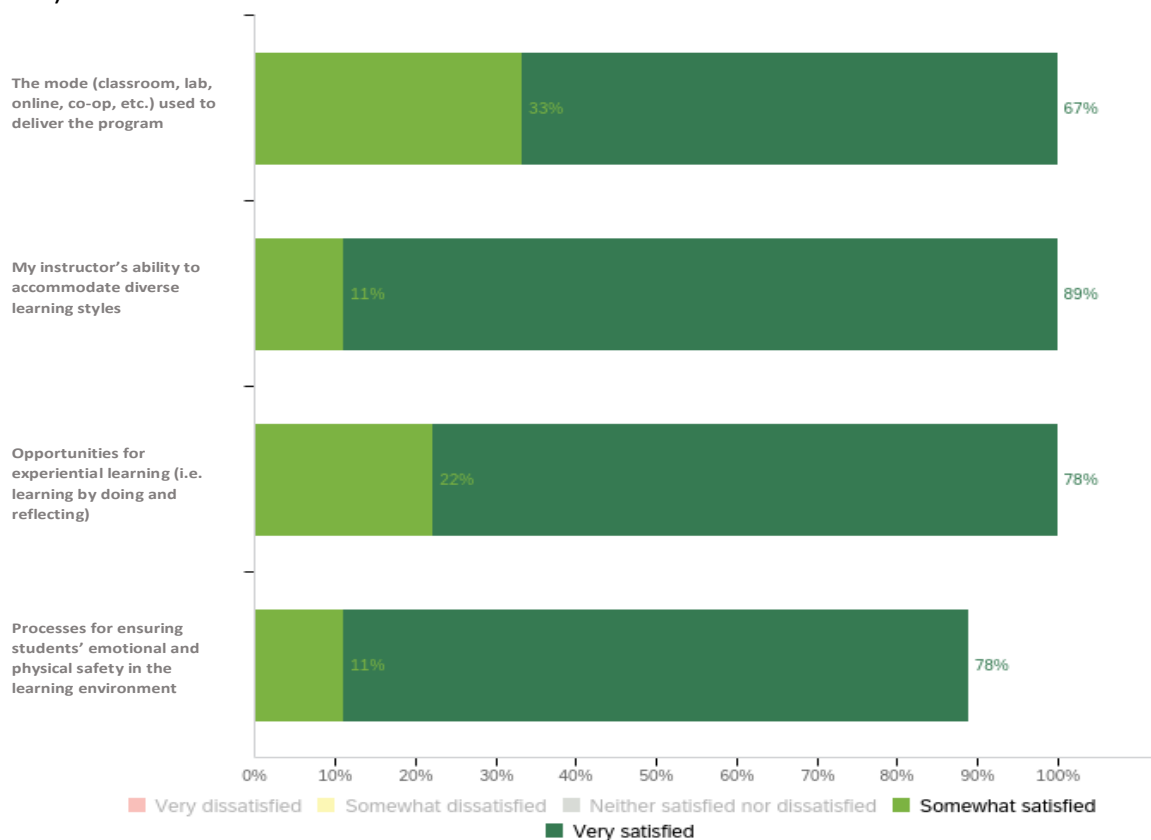
The Agroecosystems course series is centered around the planning and management of the teaching and research farm. Students are actively engaged in a full 12-month cycle on the farm starting in January with crop planning and seed ordering. During this series, they learn to use farm equipment, manage a farmer's market stand and interact with customers, manage crops and carry out operations related to the farm.

Each student is required to complete an Internship Course where they complete a minimum of 120 hours. The program has standing relationships with some discipline partners that have spaces available for our students, however, many students find their own opportunities. The program uses a contract that is signed by the supervisor, student and faculty which outlines expectations for learning and communication plans. The students and supervisors then also fill out a survey at the end of their experience.

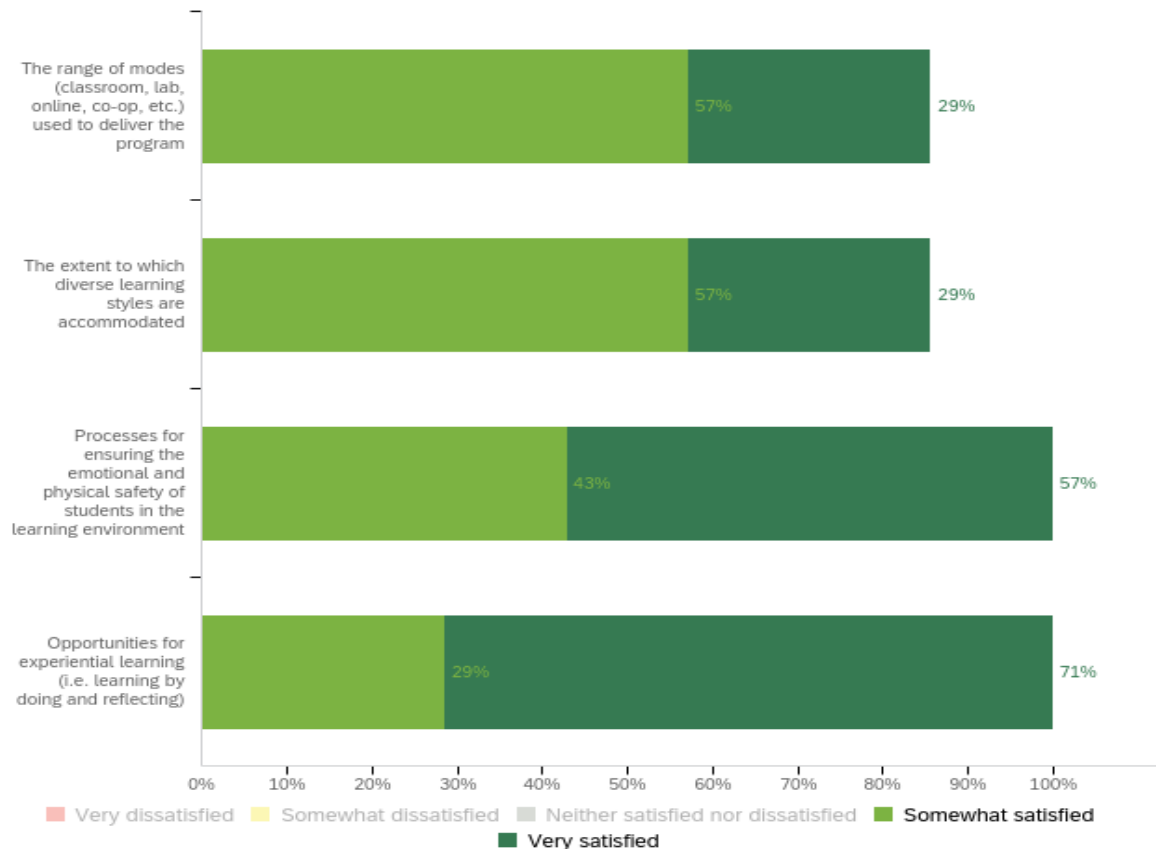
In addition to these courses, instructors strive to include experiential learning opportunities in other courses. The student and alumni feedback received indicated that this type of learning is extremely helpful and appreciated and there was a strong desire to have of these types of opportunities.

Overall, students are satisfied with the program delivery and our ability to accommodate different learning styles and needs. The satisfaction of faculty was a little lower than students, particularly with regard to the mode of delivery and the ability to accommodate diverse learning styles.

**Figure 3. Overall, how satisfied were you with the program delivery? (Student Survey, Feb. 2021)**



**Figure 4. Faculty satisfaction with how the program is delivered. Faculty Survey, Feb. 2021**



## Assessment Methods

Review of the course outlines revealed that many of the courses had similar lists of assessment methods, however, the utilization of these methods was highly dependent on the instructor. Many of our courses have a large project associated with it, and often they are group projects. Students feedback indicated that they were overall satisfied with the assessment, however, there were sometimes too many large projects and that small, weekly assignments may ease some of the pressure at the end of the semester and assist with retention of knowledge and assessment. (Student Survey, July 2020).

It is necessary to review the overall assessment strategy of the program and ensure that the different projects are appropriate in size and are perhaps more connected. There is a desire to utilize e-portfolios in the program to assist with the development of a more effective assessment strategy in the program.

Students in their final year carry out a research project that they have to present to the entire faculty and industry members, they are also engaged in the agroecosystems course series in which they are effectively assessed for many of the competencies as they are required to perform them on the farm and as they engage in their research project. While these are effective assessment methods, it would be beneficial to have a better

way to assess students throughout the program and allow them to demonstrate their learning in more unique and personalized ways. E-portfolios can facilitate this type of assessment.

As the first two years of the program are predominantly service courses from other departments, there are often very different assessment strategies and standards used. We have received a lot of student feedback that this wide range of assessments is frustrating. Within the AGRI courses, the assessment standards and strategies are more similar.

## Student Experience

### *Grade Distribution*

Grade distribution in the program demonstrates a very high degree of success. At least 87% of students have reached a C or higher in the programs cumulative grade distribution over the last five years. This is above the average for all the students in the Faculty of Science and Horticulture.

### *Retention and Graduation Rates*

Sustainable Agriculture students are progressing through the program in approximately three to 6 years. This is comparable to rates of other Bachelor programs at KPU (Table 16). There is a fair amount of discrepancy as some students are coming in with substantial amounts of transfer credit while others are new to post-secondary.

**Table 16. Median Years to Graduate:<sup>6</sup> Sustainable Agriculture and Faculty of Science (FSH). (Administrative Data Report, Sustainable Agriculture, Jan. 2021)**

	2015/16	2016/17	2017/18	2018/19	2019/20
Sustainable Agriculture	4.0	2.8	4.3	5.9	3.5
FSH Bachelors Degree	4.0	2.8	4.9	4.9	5.9

Graduation rates over the last 5 years have remained stable, but are lower than the number of students enrolled. There have been a number of students that have struggled with completing prerequisites and frustration with the frequency of some of the required courses. These factors may be contributing to lower completion rates.

**Table 17. Student survey response to questions as they relate to program as a whole (Student Survey, July 2020)**

Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
Frequency with which course prerequisites are offered	11%	22%	11%	33%	22%	9

Availability of the courses I need to complete the program in a timely manner	0%	44%	11%	0%	44%	9
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Students in the first two years of the program have also struggled to feel connected to the program as the majority of their time is spent in courses offered by other departments and may not have much opportunity to connect with other Sustainable Agriculture students. This lack of connection to the program in the first two years may result in students not completing the degree.

### *Student Outcomes*

Sustainable Agriculture achieved positive outcomes for most of the Ministry of Education targets. The two outcomes that had the lowest scores of 75% and 80%, respectively, 'the usefulness of their knowledge and skills in performing their jobs' and the 'satisfaction students felt with their education'. This response is consistent with some of the comments shared in the student survey which indicated that students felt the program needed more practical training and a broader set of agriculture course options.

Once again, this data suggests that there is a need to re-evaluate the courses that are required, especially in the first two years to ensure that there is sufficient time in the program to cover agriculture content more thoroughly and provide students with more opportunities to gain practical experience.

### *Student Satisfaction with Instruction*

Student survey responses indicated that overall, students are very satisfied with the instruction received with 89% of 8 respondents indicating they were very satisfied or satisfied.

## **Faculty Experience**

### *Expertise and Qualifications*

All faculty in the Sustainable Agriculture program, both regular and contract, have PhDs in related fields and considerable experience in their discipline. One of the unique characteristics of our program is that all our faculty are deeply committed to sustainability and the need to re-envision our food system and train leaders to face the challenges that lie ahead.

Our three full-time faculty all have had experience working in the US Extension Service and have many years of experience both teaching and carrying out participatory research with agricultural members.

### **Dr. Rebecca Harbut**

Joined Sustainable Agriculture program 2013

Specializations: Fruit Production, Plant Physiology, Crop Ecology

Rebecca Harbut is a native of British Columbia and is delighted to have returned to BC after spending several years in Ontario and the US. Rebecca received both her BSc and MS degree from the University of Guelph in Ontario and then completed her PhD in Horticulture at Cornell University in Ithaca, NY where she conducted research on fruit crops. Most recently, Rebecca was a faculty member in the Department of Horticulture at the University of Wisconsin where she developed a fruit research and extension program. Rebecca was the first faculty hired in the Sustainable Agriculture program at KPU in 2013. Since returning to BC she has been funded by the BC Cranberry industry (\$250,000) to carry out research and provide extension services. She has also served as an adjunct faculty at UBC's Land and Food Systems where she has supervised master's degree students. Rebecca has specialized in fruit production and sustainable production systems such as high tunnels.

#### **Dr. Michael Bomford**

Joined Sustainable Agriculture program 2014

Specializations: Organic Farming, Agriculture and Energy, Ecologically-Based Pest Management

Mike has taught in KPU's Sustainable Agriculture program since 2014. Before returning to BC, he spent 10 years at Kentucky State University (KSU), leading research, extension, and teaching programs related to organic agriculture, with an emphasis on small farms. He completed his PhD at West Virginia University, conducting companion planting research on a newly-certified organic farm. He grew up the son of a District Agriculturalist among the expansive grain farms of BC's Peace River region and earned degrees in plant science and agricultural pest management at UBC and SFU.

A passionate teacher, Mike helped launch a new Sustainable Agriculture degree program at the University of Kentucky in 2006; followed by a new Master of Science in Environmental Studies at KSU in 2010; and a new Bachelor of Agriculture, Food and Environment degree at KSU in 2012. In 2013 he was given his College's Outstanding Teacher award and the USDA's Honor Award for Excellence.

Mike is very interested in the intersection between food and energy. He has explored energy consumption and greenhouse gas emissions associated with farming and food systems, and experimented with renewable energy production techniques for small farms. His teaching responsibilities at KPU include the senior series in Agroecosystem Management, and courses in Vegetable Production, Ecologically-Based Pest Management, and Agriculture and Energy. He also guides a full-year series of Research courses for senior students.

#### **Dr. Alex Lyon**

Joined Sustainable Agriculture program 2020

Specialization: Seeds and Plant Breeding, Agrobiodiversity, Sociology of Agriculture

Alex Lyon is an agroecologist who applies interdisciplinary approaches to complex questions in agriculture and food systems, embedding natural science in social and cultural contexts. Some of her core education and outreach interests are the environmental and cultural significance of seeds and crop genetic diversity, and the role of plant breeding in



resilient and sustainable food production. She holds a B.A. in Anthropology from Smith College (2004) and an M.S. in Agroecology from the University of Wisconsin-Madison (2009) where her research focused on the role of farmer knowledge in sustainable pasture management. During her Ph.D. in Environment and Resources, also at UW-Madison (2015), Alex began working on seed systems and crop improvement for organic agriculture using on-farm and community-engaged research in a multi-university project that involved farmers, seed companies, and plant breeders from across the northern United States. She continued this work in British Columbia as a Postdoctoral Fellow with the University of British Columbia's Centre for Sustainable Food Systems (2015 – 2020). Working with organic vegetable farmers and community partners across Canada, Alex developed the Canadian Organic Vegetable Improvement (CANOVI) project which supported participatory plant breeding and on-farm variety trials to develop regionally adapted varieties for organic production.

Beginning at KPU in 2020, Alex will be teaching courses in Sustainable Agriculture for the 21st Century, Agriculture and Food Systems, Food Systems Field Analysis, and World Trends in Agriculture, as well as co-teaching the Agroecosystems Management series.

Full CV's attached in Appendix 7

#### *Faculty Satisfaction with Instruction*

Overall the faculty were satisfied with the program and were happy to be part of such a dedicated team of instructors. There was an appreciation for the ability to teach at the KPU Farm and have access to such an excellent facility.

There is, however a concern over the workload and the small number of full-time faculty and staff in the program. Faculty are often unable to implement important changes to help the program grow due to the non-teaching work required. The farm manager is also unable to adequately develop the farm as he is often taking time to assist with instruction and training on the farm. There is a critical need to recognize the lack of capacity in the program we strongly feel that the program will not be able to develop until it has addressed this issue.

Some significant concerns that were raised included:

- Inability to offer all the courses due to funding limitations and teaching load for the faculty
- Lack of courses that cover some essential components of agriculture such as genetics and breeding, agronomy, advanced pest management, business management. Due to only having three full time faculty, it is very difficult to teach all of these topics
- Reliance on only three full time faculty to teach a very diverse set of courses.
- Reliance on contract faculty to teach many of our core courses in the program. It is very difficult to build a cohesive curriculum and experience for students when several core courses are taught by contract instructors that are otherwise not engaged in the program.
- No lab staff to assist with the farm lab and science lab instruction.

## Summary and Recommendations

Both the contract and regular faculty are deeply committed to the program and have always worked above and beyond the required duties to see the program succeed. This can be seen in the types of work our faculty do, from maintenance work on the farm, promotion and marketing through social media and work on the website, securing grants and overseeing the development of the KPU Farm at Garden City Lands. There is no doubt about their commitment. There is, however, serious concern about the sustainability of the current workload our faculty and staff hold as a result of these non-teaching duties. This same issue is seen in the work of our farm manager who is currently carrying out the role of farm manager, but also providing significant amounts of instruction to our students. It has been a struggle for both staff and faculty to find the time to take holidays as there is not enough personnel to cover for each other while away.

It is essential that we address this issue as soon as possible. A high priority is to hire a Lab Instructor that would assist with teaching at the farm, and lab courses such as the soils and plant science courses. This would allow the farm manager to focus on managing the farm and the work crews and ensure that students are provided with the instruction required. This would also alleviate some of the faculty work load as they currently assist with the farm work to support the farm manager.

### **Recommendations**

**Recommendation 4.1** Improve the opportunities for students in all years of the program to engage in experiential learning and have increased access to the KPU Farm. (Short term)

**Recommendation 4.2** Utilization of e-portfolios to improve and coordinate assessment throughout the program (Medium term)

**Recommendation 4.3** Improve retention and graduation rates through earlier engagement with students in the program that are only taking service courses and prerequisites. Ensure that they have the opportunity to participate at the KPU Farm within their first semester. (short-term)

**Recommendation 4.4** Increase the number of full-time faculty so that a wider range of agriculture courses are able to be offered consistently. Having additional faculty will also assist with the workloads that are currently very high on the full-time faculty due to non-teaching work such as research, farm maintenance, marketing and promotion, and administrative/committee work. (long-term)

**Recommendation 4.5** Hire a full-time lab instructor to assist with instruction on the farm, student's safety training, soil and plant science lab preparation. (short-term)

## Chapter 5. Quality of Services, Resources and Facilities

### Description of Program Resources, Services and Facilities

Sustainable Agriculture is a unique agriculture program and has largely developed our own learning resources or gathered learning packages. The library has been critical in allowing us to provide our students with learning materials at little to no cost through the utilization of e-books, and ensuring they have hardcopies of materials we utilize. The library staff, particularly Celia Brinkerhoff, have been exceptional at sourcing new materials and finding requested materials.

#### *Administrative Support*

Many of our students have utilized the learning center for assistance with some of their first and second year courses, particularly the Math and Biology courses. As faculty, we have, on several occasions, referred students to counselling services and utilized the first alert system on campus.

Our experience with the registrar's office has been challenging at times as we have had to assist several students as they try to navigate the admissions and credit transfer process. We have also had challenges with the advising on campus as several students have found themselves talking to advisors that do not know anything about the Sustainable Agriculture program. We have also had a constant change in our program advisors, so it has been difficult to establish a good understanding and connection with advising. While we clearly depend on these services, we have felt that our program has been underserved and not well understood.

#### *Facilities*

The Sustainable Agriculture faculty have committed significant amounts of time to acquire, fund and build first class teaching and research facilities.

##### 1) KPU Farm at Garden City Lands

The Garden City Lands are 55 hectares (136 acres) of municipally-owned land in the Agricultural Land Reserve, just 200 meters east of KPU's Richmond campus.

Sustainable Agriculture leases eight hectares (20 acres) of the site for a Teaching and Research Farm. The farm highlights diversified, sustainable, regenerative, and organic production practices adjacent to the population centre of downtown Richmond. Students study and practice at the farm while working toward their Bachelor of Applied Science in Sustainable Agriculture.

Interesting aspects of the farm include:

- 3.3 ha (8 acres) of organic farmland, certified by the BC Association for Regenerative Agriculture;
- A solar-heated dome greenhouse;
- Three moveable high tunnels; and
- An innovative approach to carbon-negative farming at the edge of a former peat bog.

As this is a working farm, there are several specialized equipment required:

- 2 tractors
- Pick up truck
- Refrigerated trailer for produce transport
- Multiple tractor implements
- Walk-behind BCS tractor
- Farm utility vehicle
- Extensive irrigation systems (both in-ground and above ground)
- Weather stations
- Processing facility
- Hand tools

Organic produce from the farm is sold at the Kwantlen Street Farmers Market and through KPU's campus cafeterias. Food is also donated to the Richmond Food Bank.

#### 2) Seed lab at the Richmond campus

KPU Seed Program was developed to partner with British Columbia seed sector to foster the growth of the province's organic seed industry, provide research-based information and services to enable sustainable production practices, and develop seed quality assessment systems to improve quality and quantity of BC's organic seed supply

British Columbia has Canada's largest market for organic and ecological seed, with \$7.79 million in annual sales. BC seed producers are not meeting provincial demand for high-quality organic seed. The organic seed industry has potential to be a vibrant agricultural sector with appropriate support.

The KPU Seed Lab is available to assist seed growers with testing and cleaning seed lots which will enable seed growers to improve seed quality and production efficiency. This seed lab also provides students with the opportunity to learn about seed physiology and how to use analytical equipment.

#### 3) Terrace gardens on the South side of the campus

The Richmond campus terrace gardens offer an accessible, high-visibility, growing space. Students working toward their Bachelor of Applied Science in Sustainable Agriculture use the garden to grow high-value crops suited to small-scale production, including lettuce, spinach, and other salad greens. The garden's well-drained soils and warm micro-climate allow production of cool-season crops through much of the fall and spring semesters.

#### 4) Orchard at Gilbert Road

The KPU Orchard is a 3.3 hectare (8 acre) farm at the south end of Gilbert Road, on the South Arm of the Fraser River that is leased by ISFS. The site includes certified organic teaching and research land used for fruit and vegetable production by students in the Richmond Farm School, and by students completing their Bachelor of

Applied Science in Sustainable Agriculture. It is also home to KPU's Richmond incubator farms, where program graduates can trial their farm business plans while mentoring each other.

### **Student Satisfaction with Program Resources, Services and Facilities**

Students consistently indicated that the KPU Farm is a major strength of the program and there were many requests to increase the amount of time students could spend at the farm during the course of the degree.

There was little satisfaction from the students with regards to the registrar's office and academic advising. The following two comments provided in the survey represent comments the faculty often hear from students:

*"Most academic advisors know nothing about the program so it is necessary to visit a professor which many new students don't know and end up having to extend their degrees by a year or so to obtain all the required classes."*

*"The Registrar's Office is an administrative nightmare. I've been to 7 different institutions and KPU is by far the worse. [Name redacted] was excellent at resolving problems but the intransigence and lack of accountability from other staff left me to twist in the wind. The Registrar's Office does a disservice to any and all recruitment being done by the University and had I not been as stubborn and patient as I was, I would have walked away. I wouldn't be surprised to hear of other students who decided to study elsewhere. Zero stars. Otherwise I loved studying Sust Ag at KPU and would recommend the program to anyone. Five stars."*

It is necessary to address the lack of knowledge about the program within the Registrar's office and the advising office.

### **Faculty Satisfaction with Program Resources, Services and Facilities**

The Sustainable Agriculture faculty and staff are very proud of the facilities that they have been able to develop. The majority of equipment and capital infrastructure has been acquired primarily through the faculties' efforts. A major challenge has been the lack of support from the facilities services in the development of the farm. It has been a challenge to have the KPU Farm considered as part of the university's facilities. It has required significant effort by the faculty to engage the administrative staff in the development and management of the agriculture facilities, particularly the KPU Farm at Garden City Lands. As a result, the work load of project management, site maintenance and safety has fallen to the Sustainable Agriculture faculty and staff. In recent months there has been increased engagement in the farm, however progress remains slow and it unclear how facilities will

support the farm. It is essential the University begin to see the KPU Farm as one of the university's facilities, not just a faculty project.

### **Summary and Recommendations**

**Recommendation 5.1** Provide training and education for the staff in the registrar's office and academic advising to help them better understand the program and the curriculum.

**Recommendation 5.2** Clearly define management and financial responsibilities of the Sustainable Agriculture program and the Facilities.

# Chapter 6. Conclusions and Recommendations

## Summary of Conclusions

### Program Strengths:

- The Sustainable Agriculture Program is a unique program that is empowering students to address the increasingly urgent needs within our food system.
- Our program is based in our values which are shared by faculty and staff.
- In a time where society's connection to land and food has become dangerously weak, we are able to provide students and our community with the opportunity to reconnect, learn and envision a sustainable future where healthy ecosystems and good, wholesome food are essential for sustainable communities.
- With the addition of the KPU Farm at Garden City Lands, we are becoming an increasingly recognized and important part of the community and have new opportunities to engage with the community through our farm, the KPU Farmers Market and new outreach programs.

As a new program, we have worked hard to lay a foundation upon which we can build a lasting and impactful program. Agriculture programs are complex and require significant investment to ensure that there are appropriate facilities to provide quality instruction that allows students to develop the competencies and skills required to succeed. As KPU has never had a credentialed field production agriculture program, there was a significant amount of building of resources required to ensure the program has what it needs. During the first 7 years of the program the faculty have dedicated a significant amount of time to building relationships with the City of Richmond to secure farmland, acquiring funding to build a seed lab, and purchase farm equipment and infrastructure at the farm. This has required an exceptional amount of effort and time from the faculty in addition to the teaching obligations. While a building phase is part of the growth process, it is critical that we now focus on establishing ourselves as an agriculture program and become recognized for the unique perspective and type of learning we provide. The program is at a point at which we must invest in marketing and promotion and staffing to ensure that the significant progress that has been made is not lost.

## List of Recommendations

### Recommendations:

#### **Program Currency and Connections:**

**Recommendation 2.1** Re-establish the Sustainable Agriculture Advisory Committee

**Recommendation 2.2** Create a stronger identity for Sustainable Agriculture at the Richmond campus as a separate and unique program at KPU. This could be done through signage, a stronger presence of our produce at the cafeteria and more opportunities for all KPU students and community members to engage with the KPU Farm and terrace garden.

**Recommendation 2.3** Review AGRI courses to identify opportunities to open up courses to be accessible to all KPU students to engage in sustainability focused learning. This will also aid in low fill rates in courses.

**Recommendation 2.4** Consider possible avenues to develop a stronger connection with the school of business. This may be in conjunction with changes to the Sustainable Agriculture curriculum as discussed in Chapter 3.

**Recommendation 2.5** Review other agriculture programs to determine if new opportunities for transfer credit may exist.

**Recommendation 2.6** Review agriculture programs in the U.S. Pacific Northwest and Canada to identify schools which may be suitable to establish articulation agreements and exchange opportunities with.

**Recommendation 2.7** Explore the possibility of gaining accreditation through the Agrologists of BC.

**Recommendation 2.8** Explore the demand and opportunity for an online high school dual credit course that would be easily accessible to students from all school districts in B.C. (This recommendation would require that additional teaching faculty be added to the program as we currently do not have capacity to teach more courses).

**Recommendation 2.9** Increase outreach through social media and website to share information about the program itself. The staff and faculty in the department manage social media accounts for the department. We have often included student voices in our social media as well. It would be very helpful to have a better website that reflects who we are and what we do so that we can direct people to that site.

**Recommendation 2.10** Provide workshops to KPU staff involved in marketing and recruitment.

**Recommendation 2.11** Generate recognition for the program regionally, nationally and internationally.

#### **Program Curriculum:**

**Recommendation 3.1** Revise program competencies and gather input from Advisory committee

**Recommendations 3.2** Revise the learning outcomes to align with the program competencies and potential program revisions. (i.e. learning outcomes that align with proposed 'track' options)



**Recommendation 3.3** Examine the existing courses and course progression to determine if courses contribute to program competencies and learning outcomes and provide adequate hands-on learning.

**Recommendation 3.4** Identify opportunities for 1<sup>st</sup> and 2<sup>nd</sup> year students to have more experiential/hands-on learning and interaction with the program and farm.

**Recommendation 3.5** Explore the possibility of having specializations (i.e. business, production, policy) within the degree to allow for students to focus their studies.

**Recommendation 3.6** Explore the possibility of a new certificate that will follow the 2+2 format

**Recommendation 3.7** Explore the possibility of offering micro-credentials

**Instructional Design:**

**Recommendation 4.1** Improve the opportunities for students in all years of the program to engage in experiential learning and have increased access to the KPU Farm.

**Recommendation 4.2** Utilization of e-portfolios to improve and coordinate assessment throughout the program

**Recommendation 4.3** Improve retention and graduation rates through earlier engagement with students in the program that are only taking service courses and prerequisites. Ensure that they have the opportunity to participate at the KPU Farm within their first semester.

**Recommendation 4.4** Increase the number of full-time faculty so that a wider range of agriculture courses are able to be offered consistently. Having additional faculty will also assist with the workloads that are currently very high on the full-time faculty due to non-teaching work such as research, farm maintenance, marketing and promotion, and administrative/committee work.

**Recommendation 4.5** Hire a full-time lab instructor to assist with instruction on the farm, students safety training, soil and plant science lab preparation. (short-term)

**Facilities and Services:**

**Recommendation 5.1** Provide training and education for the staff in the registrar's office and academic advising to help them better understand the program and the curriculum.

**Recommendation 5.2** Clearly define management and financial responsibilities of the Sustainable Agriculture program and the Facilities.

## Chapter 7. Responses from the Dean/Associate Dean

### Program Overview

*What do you see as the program's greatest accomplishments over the last 5 years?*

This degree was launched in 2012 with first graduates convocating in 2016. This alone is a great accomplishment for a new degree. The program continues to attract a steady number of students and successfully fills a gap in BC, and perhaps even Canada.

The program is slowly gaining awareness within the external community, thanks to the diligence of the faculty, and graduates are finding applicable employment and further post-secondary education opportunities.

This program has greatly benefited from highly respected lead instructors who are known for their expertise and connections to the industry and community.

*Does the program adequately fulfill the purpose for which it was intended? If not, how can it be improved?*

This program was designed to fill gaps in the academic programming in BC. This has been successfully achieved.

The review team has proposed several tweaks to the program, including increasing the hands-on components in the first two years, partnering with the School of Business to explore program links, and investigating new modes of delivery such as microcredentials.

*How does the program's curriculum support the following:*

- *graduates' pursuit of meaningful employment and further education*
- *the viability and continued development of the program*

Graduates' pursuits:

There are many opportunities for students to obtain hands-on experiential learning built into the upper level courses with plans to extend this to first and second year courses. Having the KPU Farm, Seed Lab and Terrace Gardens provides an excellent learning environment for students.

New graduates are finding meaningful employment and opportunities to further their post-secondary education.

Program viability and development:

Overall the program is solid but some changes, as outlined in the recommendations, are warranted. These include streamlining the early years, including more practical learning in the early years and exploring a business-focused stream.

Opening up more courses to non-degree students will increase enrolments.

Introducing Indigenous leanings and ways into core courses is important.

*What challenges and opportunities for growth should the program consider based on the following?*

- *student demand (past, present and future)*
- *comparable programs at competing institutions*
- *trends and changing contexts in the discipline/sector*

Student demand:

The Program Review Committee has described the ongoing challenges very well with viable solutions. Ensuring that there is a strong understanding of the merits of the program both at KPU and externally is key. This can be addressed internally by ongoing education of central advising staff and recruitment staff and externally via marketing and general word of mouth. This is unique program that addresses pressing real work issues and should be marketed as such.

Obtaining BC Agrologist accreditation is important and will attract more students.

Working with the School of Business on new streams or micro-credentials should build demand.

Opening up key courses to non-degree students will boost enrolments and likely lead to more interest in the program overall.

Dual credit opportunities with school divisions should be revitalized and a laddering path from the non-credit Farm Schools should be investigated.

Comparable programs:

The KPU degree is unique and as such really has no direct competition. The main issue is recruiting new students, not retention as most complete their degree at KPU.

Trends/changes in sector:

This program has been very successful in nimbly altering content to fit the new trends. All faculty are experts in their given areas and ensure their students receive the most current materials. The plans to develop a stream in agri-business or sustainable economics is on point with what is happening in the field (no pun intended) today.

*What plans (departmental, faculty and institutional) are in place for program growth and development?*

Implement changes outlined in this Program Review.

Place emphasis on program marketing.

Investigate High School dual credit and Farm School laddering pathways.

*What resources, institutional support, and/or external support would help address the program's plans for growth and development?*

Increased funding to hire lab staff.

The program has state-of-the art learning environments (KPU Farm, Seed Lab) however what it needs in a boost to the number of students. This can be done by further outreach

into the schools and at events with support from the Future Student's Office, KPU International and all levels of marketing.

*Collectively, what qualifications and other human resources are required so the program will be able to make the changes required to improve and remain current?*

A BCGEU lab instructor will be needed along with seasonal farm staff (which can be current students).

Assistance from KPU Special Advisor on Indigenous Leadership, Innovations and Partnerships.

*What areas should the program focus on for the short range (< 6 months), mid-range (6 mo. – 2 years), and long range (>2 years) program directions and improvement?*

Short range:

Reboot the External Program Advisory Committee.

Implement proposed changes to program structure and curriculum.

Develop a recruitment and marketing plan and begin recruitment and outreach.

Medium range:

Begin process for BC Agrologist accreditation.

Set up high school dual credit courses.

Develop plan for laddering from Farm Schools into the degree.

Revise curriculum to include Indigenous learnings and ways.

Long range:

Forge relationship with School of Business to develop new programming in Agri-business or related areas.

## **External Connections and Support**

*How could the program improve its connections with external groups (e.g. the discipline/sector, high schools, alumni, professional associations, other institutions)?*

Reboot the External Program Advisory Committee.

Liaise with high school regarding dual credit options.

Seek BC Agrologist accreditation.

## **Final Comments**

*What else do you think is important to add about the program that is not covered in the previous questions?*

I would like to extend congratulations to the AGRI Program Review Committee for compiling an excellent, fulsome, comprehensive and honest report. I would also like to thanks OPA for their assistance with surveys and data analysis.

I support all the recommendtions put forward in this report.

I will advocate for more course sharing between programs comparable to the beekeeping course which is shared by AGRI and HORT.

## **Chapter 8. Appendices for Self-Study Report**

Provided in separate document.

**PROGRAM REVIEW: Self-Study**  
***Sustainable Agriculture***  
***APPENDIX***

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## APPENDIX 1: Program Revision Senate Memo

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TO: Faculty of Science and Horticulture Curriculum Committee

CC:

FROM: Rebecca Harbut and Kent Mullinix, Sustainable Agriculture

DATE: February 21, 2014

SUBJECT: Revisions to BASc Sustainable Agriculture

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Sustainable Agriculture requests approval for the following changes to the Bachelor of Applied Science in Sustainable Agriculture as described below. If approved, the changes will be effective for September 2014.

### Proposed Changes:

- Reduce number of required courses in the core program has been reduced from 121 credits (109 core + 9 elective) to minimum 120 credits (87 core + 32 elective)
- Create 3 emphasis options; professional agriculture, sustainable policy and science.

### Rationale:

The BASc in Sustainable Agriculture had the first intake of students in 2012 and we now have students registered in year one and two courses. Sustainable agriculture and food systems is an area of interest which attracts students with diverse backgrounds and diverse career aspirations. We have observed this diversity in our current student population and in prospective students and have recognized the need to revise our program to accommodate and attract students with diverse backgrounds, interests and career aspirations.

The proposed revisions to the program have come in response to feedback from enrolled and prospective students as well as the desire to provide students with the option of completing a minor without adding excessive course load. Many of our students are not able to carry the prescribed course load and as a result are projected to require additional semesters to the 4 year (8 semesters) program.

The reasons for these revisions are:

- To provide students with greater flexibility to make it reasonable to complete the degree in 4 years.
- To provide students with the option to choose an area of emphasis in Science, Professional Agriculture or Sustainable Policy through recommended electives or completion of a minor.

### Transition for Enrolled Students

Students that are currently enrolled in the program will not be affected by these changes as all courses they have taken so far will count towards their degree.

CURRENT CALENDAR COPY	PROPOSED CALENDAR COPY
-----------------------	------------------------

<div>PROGRAM ADMISSION REQUIREMENTS</div> <div>General university admission requirements apply to this program including the undergraduate-level English Proficiency Requirement.</div>	<div>PROGRAM ADMISSION REQUIREMENTS</div> <div>General university admission requirements apply to this program including the undergraduate-level English Proficiency Requirement.</div>																																																																		
<div>PROGRAM REQUIREMENTS (CHANGES HIGHLIGHTED)</div> <div>The Bachelor of Applied Science in Sustainable Agriculture consists of 121 credits of course work</div> <div>BASC SUSTAINABLE AGRICULTURE DEGREE REQUIREMENTS:</div> <div>Year 1</div> <div>32 core credits</div> <div>All of:</div> <table><tr><td>AGRI 1150</td><td>Sustainable Agriculture for the 21st Century</td><td>3 credits</td></tr><tr><td>BIOL 1110</td><td>Introductory Biology I</td><td>4 credits</td></tr><tr><td>ENVI 1106</td><td>Environmental Chemistry I</td><td>4 credits</td></tr><tr><td>GEOG 1101</td><td>Human Geography</td><td>3 credits</td></tr><tr><td>AGRI 1299</td><td>Food System Field Analysis</td><td>1 credit</td></tr><tr><td>BIOL 1210</td><td>Introductory Biology II</td><td>4 credits</td></tr><tr><td>ENVI 1206</td><td>Environmental Chemistry II</td><td>4 credits</td></tr><tr><td>ENGL 1100</td><td>Introduction to University Writing</td><td>3 credits</td></tr></table> <div>And one of:</div> <table><tr><td>MATH 1112</td><td>Pre-Calculus Algebra</td><td>3 credits</td></tr><tr><td>MATH 1117</td><td>Environmental Mathematics</td><td>3 credits</td></tr></table> <div>And one of:</div> <table><tr><td>POST 1100</td><td>Sustainability: Analysis and Ethics</td><td>3 credits</td></tr><tr><td>PHIL 1110</td><td>Confronting Moral Issues: Introduction to Ethics</td><td>3 credits</td></tr><tr><td>PHIL 1112</td><td>Environmental Ethics</td><td>3 credits</td></tr></table> <div>YEAR 2</div> <div>32 core credits</div> <div>All of:</div>	AGRI 1150	Sustainable Agriculture for the 21st Century	3 credits	BIOL 1110	Introductory Biology I	4 credits	ENVI 1106	Environmental Chemistry I	4 credits	GEOG 1101	Human Geography	3 credits	AGRI 1299	Food System Field Analysis	1 credit	BIOL 1210	Introductory Biology II	4 credits	ENVI 1206	Environmental Chemistry II	4 credits	ENGL 1100	Introduction to University Writing	3 credits	MATH 1112	Pre-Calculus Algebra	3 credits	MATH 1117	Environmental Mathematics	3 credits	POST 1100	Sustainability: Analysis and Ethics	3 credits	PHIL 1110	Confronting Moral Issues: Introduction to Ethics	3 credits	PHIL 1112	Environmental Ethics	3 credits	<div>PROGRAM REQUIREMENTS (CHANGES HIGHLIGHTED)</div> <div>The Bachelor of Applied Science in Sustainable Agriculture consists of 120 credits of course work</div> <div>BASC SUSTAINABLE AGRICULTURE DEGREE REQUIREMENTS:</div> <div>Year 1</div> <div>31 credits (22 core + 9 elective)</div> <div>All of:</div> <table><tr><td>AGRI 1150</td><td>Sustainable Agriculture for the 21st Century</td><td>3 credits</td></tr><tr><td>BIOL 1110</td><td>Introductory Biology I</td><td>4 credits</td></tr><tr><td>ENVI 1106</td><td>Environmental Chemistry I</td><td>4 credits</td></tr><tr><td>AGRI 1299</td><td>Food System Field Analysis</td><td>1 credit</td></tr><tr><td>BIOL 1210</td><td>Introductory Biology II</td><td>4 credits</td></tr><tr><td>ENGL 1100</td><td>Intro to University Writing</td><td>3 credits</td></tr><tr><td>POST 1100</td><td>Sustainability: Analysis and Ethics</td><td>3 credits</td></tr></table> <div>And three electives* (6 credits)</div> <div>See lists below</div> <div>*students without appropriate math pre-requisites for Math 1115 must use elective to satisfy them.</div> <div>YEAR 2</div> <div>31 credits (22 core+9 elective)</div> <div>All of:</div> <table><tr><td>AGRI 2190</td><td>Plant Science</td><td>3 credits</td></tr><tr><td>MATH 1115</td><td>Statistics I*</td><td>3 credits</td></tr></table>	AGRI 1150	Sustainable Agriculture for the 21st Century	3 credits	BIOL 1110	Introductory Biology I	4 credits	ENVI 1106	Environmental Chemistry I	4 credits	AGRI 1299	Food System Field Analysis	1 credit	BIOL 1210	Introductory Biology II	4 credits	ENGL 1100	Intro to University Writing	3 credits	POST 1100	Sustainability: Analysis and Ethics	3 credits	AGRI 2190	Plant Science	3 credits	MATH 1115	Statistics I*	3 credits
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<u>AGRI 2190</u>	Plant Science	3 credits	<u>AGRI 2220</u>	Soil Science	4 credits
<u>BIOL 2322</u>	Ecology	4 credits	<u>AGRI 2230</u>	Sustainable Human Economy	3 credits
<u>PHYS 1400</u>	Energy, Environment, Physics	3 credits	<u>AGRI 2240</u>	Ecologically Based Pest Management	3 credits
<u>GEOG 2250</u>	The City	3 credits	<u>AGRI 2250</u>	Agriculture and Food Systems	3 credits
<u>MATH 1115</u>	Statistics I	3 credits	<u>POST 2100</u>	Sustainability and Government	3 credits
<u>AGRI 2220</u>	Soil Science	4 credits	<b>And three electives (9 credits)</b> See lists below		
<u>AGRI 2230</u>	Sustainable Human Economy	3 credits			
<u>AGRI 2240</u>	Ecologically Based Pest Management	3 credits			
<u>AGRI 2250</u>	Agriculture and Food Systems	3 credits			
<b>And one of:</b>			<b>YEAR 3</b>		
<u>POST 2100</u>	Sustainability and Government	3 credits	30 credits (24 core + 6 elective)		
<u>POLI 1120</u>	Canadian Government and Politics	3 credits	<b>All of:</b>		
<u>POLI 1125</u>	Introduction to Political Science	3 credits	<u>AGRI 3225</u>	Experimental Design and Analysis	3 credits
<b>YEAR 3</b>			<u>AGRI 3290</u>	Agro-Ecosystems Management I	3 credits
30 credits (27 core + 3 elective)			<u>AGRI 3390</u>	Agro-Ecosystems Management II	6 credits
<b>All of:</b>			<u>AGRI 3398</u>	Crop Physiology and Ecology	3 credits
<u>AGRI 3225</u>	Experimental Design and Analysis	3 credits	<u>AGRI 3399</u>	Research Project I	3 credits
<u>AGRI 3260</u>	Animal Agriculture	3 credits	<b>Two of:</b>		
<u>AGRI 3270</u>	Olericulture	3 credits	<u>AGRI 3270</u>	Olericulture	3 credits
<u>AGRI 3280</u>	Pomology	3 credits	<u>AGRI 3280</u>	Pomology	3 credits
<u>AGRI 3290</u>	Agro-Ecosystems Management I	3 credits	<u>AGRI 3260</u>	Animal Agriculture	3 credits
<u>AGRI 3390</u>	Agro-Ecosystems Management II	6 credits	<b>And two electives (6 credits):</b> See lists below		
			* <b>Note:</b> Courses in Year Three follow the agricultural season and progression of agricultural practices.		

AGRI 3398	Crop Physiology and Ecology	3 credits	<b>YEAR 4</b> 27 credits (18 core + 9 electives) <b>All of:</b>  AGRI 3135    Business of Agriculture    6 credits AGRI 4190    Agro-Ecosystems Management III    3 credits AGRI 4298    World Trends in Agriculture    3 credits AGRI 4299    Research Project II    3 credits AGRI 4295    Internship    3 credits  <b>And three electives (9 credits)</b> See lists below  <b>Note:</b> One of the elective courses must be a 3000 or 4000 level non-AGRI course.
AGRI 3399	Research Project I	3 credits	
<b>And one elective (3 credits):</b>  <b>* Note:</b> Courses in Year Three follow the agricultural season and progression of agricultural practices.			
<b>YEAR 4</b> 27 credits (18 core + 9 electives)  <b>All of:</b>  AGRI 3135    Business of Agriculture    6 credits AGRI 4190    Agro-Ecosystems Management III    3 credits AGRI 4298    World Trends in Agriculture    3 credits AGRI 4299    Research Project II    3 credits AGRI 4295    Internship    3 credits  Three elective† courses (numbered 1100 or higher of 3 or more credits)    9 credits  <b>†Note:</b> One of the elective courses must be an ENGL course or a course meeting writing-intensive guidelines.			
			<b>Recommended Electives for Professional Agriculture Emphasis:</b>  AGRI 3270    Olericulture    3 credits AGRI 3280    Pomology    3 credits AGRI 3260    Animal Agriculture    3 credits
			<b>Recommended Electives for Science Emphasis:</b>  ENVI 1206    Environmental Chemistry II    4 credits PHYS 1400    Energy, Environment, Physics    3 credits BIOL 2322    Ecology    4 credits BIOL 2321    Cell Biology    4 credits BIOL 2320    Genetics    4 credits BIOL 2421    Cellular Biochemistry    3 credits BIOL 2330    Microbiology    3 credits BIOL 2421    Cellular Biochemistry    3 credits CHEM 1105    Intro Chemistry    4 credits CHEM 1110    Structure of Matter    4 credits

	<b>Recommended Electives for Policy Emphasis</b>		
	(Courses listed will count towards a Minor in Policy Studies)		
	<u>POST 3110</u>	Applied Policy Seminar I	3 credits
	<u>POST 4110</u>	Applied Policy Seminar II	3 credits
	<u>POST 4150</u>	Psychology & Sustainability	3 credits
	<b>Breadth Electives</b>		
	Breadth electives (9 credits) may come from fields or courses in any school at KPU. These may include:		
	<u>GEOG 1101</u>	Human Geography	3 credits
	<u>GEOG 2250</u>	The City	3 credits
	<u>POLI 1120</u>	Canadian Government and Politics	3 credits
	<u>POLI 1125</u>	Introduction to Political Science	3 credits
	CHEM 1105	Intro Chemistry	4 credits
	CHEM 1110	Structure of Matter	4 credits

## APPENDIX 2: Administrative Data

### INTRODUCTION

This report presents data for the Bachelor of Applied Science in Sustainable Agriculture self-study report.

The section pertinent to chapter 2 of the self-study presents (1) enrolment trends, (2) Sustainable Agriculture enrolment in BC, (3) demographic profile of students, and (4) seat trends.

The section pertinent to chapter 4 of the self-study presents (1) grade distributions (2) graduation counts and (3) findings of BC Student Outcomes Survey.

There are 17 numbered exhibits. Each exhibit presents data to address a particular issue in the self-study report.

Footnotes provide important information about the data sources and definitions.

## DATA FOR CHAPTER 2 OF THE SELF STUDY: PROGRAM CURRENCY AND CONNECTIONS

### STUDENT DEMAND FOR THE PROGRAM

#### ENROLMENT TRENDS<sup>1</sup>

Has demand for Sustainable Agriculture courses been changing over the last five years? How does demand for Sustainable Agriculture courses compare with demand for Faculty of Science & Horticulture undergraduate courses over the same period?

**Exhibit 1: FTE Headcount<sup>2</sup> by Academic Year: Sustainable Agriculture and Faculty of Science & Horticulture Undergraduate Courses**

	2015/16	2016/17	2017/18	2018/19	2019/20	% Change <sup>3</sup>
Sustainable Agriculture	66	62	86	103	89	35%
Faculty of Science & Horticulture	3,341	3,563	3,876	4,104	3,646	9%

Has demand for the Sustainable Agriculture program changed over the last five years? How does it compare with demand for Faculty of Science & Horticulture undergraduate programs over the same period?

**Exhibit 2: FTE Headcount by Academic Year: Sustainable Agriculture<sup>4</sup>**

	2015/16 <sup>5</sup>	2016/17	2017/18	2018/19	2019/20	%Change
Sustainable Agriculture Total <sup>6</sup>	38	43	43	38	42	11%
Intended	11	22	25	25	26	136%
Major	28	22	21	14	19	-32%

<sup>1</sup> All data reported in this section was obtained from the Enrolment dashboard 2019-20, which is available at <https://our.kpu.ca/sites/sem/data/SitePages/Home.aspx>

<sup>2</sup> Headcount used for FTE calculations. This includes students enrolled in the course from the Stable Enrolment date, including those who later withdrew from the course.

<sup>3</sup> % Change refers to change between 2015/16 to 2019/20.

<sup>4</sup> Data for Intended and Major headcounts in Sustainable Agriculture are reported separately.

<sup>5</sup> Effective September 2015 and onwards, KPU has now admitted new students to a Faculty instead of a program and these new students are being reported under the 'undeclared' credential category until they meet program declaration requirements (exception are students enrolled in a limited entry program).

<sup>6</sup> To avoid double counting students, Sustainable Agriculture total is a unique headcount for the year, not the sum of Intended and Declared counts.

**Exhibit 3: FTE Headcount by Academic Year: Faculty of Science & Horticulture Programs**

	2015/16	2016/17	2017/18	2018/19	2019/20	% Change
Faculty of Science & Horticulture Total <sup>7</sup>	2,186	2,591	3,256	2,795	2,672	22%

**Definitions**

FTE Headcount Headcount used for FTE calculations. This includes students who withdrew from the course.

**SUSTAINABLE AGRICULTURE ENROLMENT IN B.C.<sup>8</sup>****How do KPU Sustainable Agriculture enrolment trends compare with overall enrolment trends in B.C.?**

Exhibit 4 presents the number of students enrolled in Bachelor-level Sustainable Agriculture programs at B.C. public post-secondary institutions.

**Exhibit 4: Number of Students Enrolled in Bachelor-level Sustainable Agriculture Programs at B.C. Public Post-Secondary Institutions**

	2013/14	2014/15	2015/16	2016/17	2017/18
<b>Total</b>	58	65	51	49	45

**DEMOGRAPHIC PROFILE OF STUDENTS<sup>9</sup>****Has the demographic profile of Sustainable Agriculture students changed over the last five years?****Is the gender distribution in the Sustainable Agriculture program equitable?****Exhibit 5: Profile of Sustainable Agriculture Students by Academic Year**

Student Profile	2015/16	2016/17	2017/18	2018/19	2019/20
FTE Headcount	38	43	43	38	42
% Female	61%	49%	49%	55%	55%
% 22 years or younger	24%	31%	33%	29%	41%
% International	5%	14%	19%	18%	17%

<sup>7</sup> Faculty of Science & Horticulture total includes undeclared Faculty of Science & Horticulture students.

<sup>8</sup> All data reported below was obtained from the STP Enrolment dashboard 2017-18. STP refers to the B.C. Student Transitions Project, which tracks students in the public post-secondary education system. Data are coded by Classification of Instructional Program (CIP). To identify Bachelor-level Sustainable Agriculture programs, CIP code 1.0308 and credential category of Bachelor's degree were used.

<sup>9</sup> All data reported in this section was obtained from the Enrolment dashboard 2019-20, which is available at <https://our.kpu.ca/sites/sem/data/SitePages/Home.aspx>.



How does the demographic profile of Sustainable Agriculture students compare with that of the Faculty of Science & Horticulture undergraduate students over the same period?

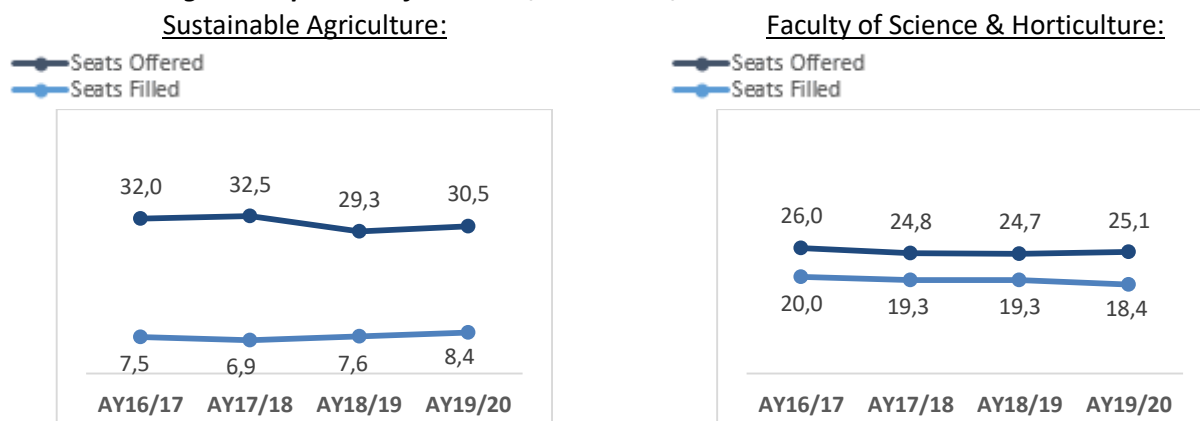
**Exhibit 6: Profile of Faculty of Science & Horticulture Students by Academic Year**

Student Profile	2015/16	2016/17	2017/18	2018/19	2019/20
<i>FTE Headcount</i>	2,186	2,591	3,256	2,795	2,672
% Female	49%	53%	58%	55%	56%
% 22 years or younger	70%	73%	78%	76%	75%
% International	10%	18%	38%	36%	35%

## SEAT TRENDS<sup>10</sup>

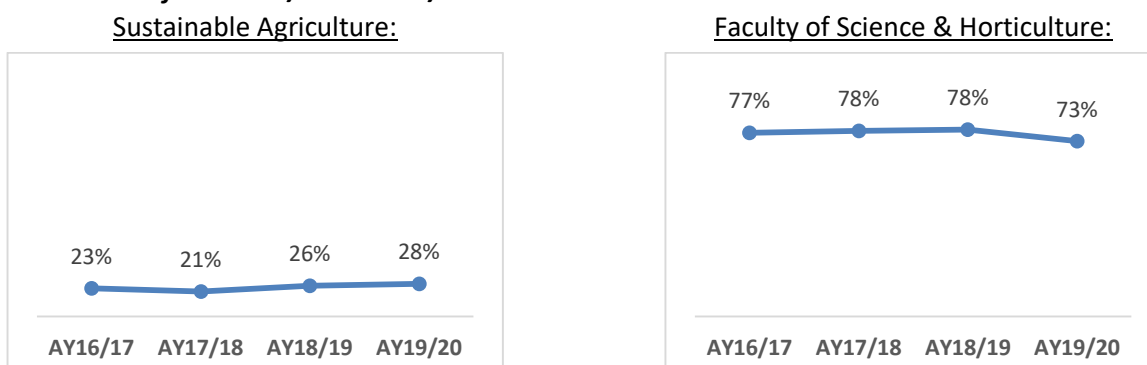
Has there been a change in average seats per class<sup>11</sup> in Sustainable Agriculture courses? How do they compare with Faculty of Science & Horticulture undergraduate courses?

**Exhibit 7: Average Seats per Class from 2016/17 to 2019/20:**



Has there been a change in fill rates in Sustainable Agriculture courses? How do they compare with Faculty of Science & Horticulture undergraduate courses?

**Exhibit 8: Fill Rate from 2016/17 to 2019/20:**



## Definitions

Seats Offered	Maximum number of seats available in a unit (section, course, department, faculty- depends on the menu selection)
Seats Filled	Number of seats taken in the unit (section, course, department, faculty- depends on the menu selection)

<sup>10</sup> All data reported in this section was obtained from the Seat Statistics dashboard 2019-20, which is located at <https://our.kpu.ca/sites/sem/data/SitePages/Home.aspx>.

<sup>11</sup> The new class size target is 25.

Average Seats Offered Per Class    Computed as Seats Offered / Count of Classes

Average Seats Filled Per Class    Computed as Seats Filled / Count of Classes

Fill Rate    Computed as Seats Taken / Seats Offered.  
A measure of % capacity utilization.

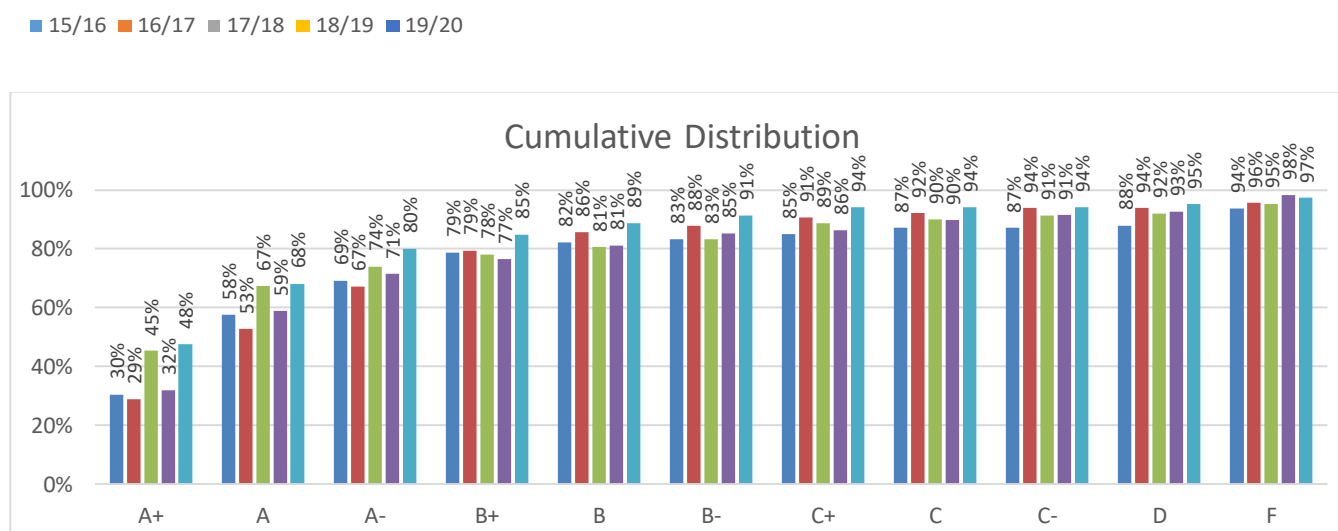
## DATA FOR CHAPTER 4 OF THE SELF-STUDY: QUALITY OF INSTRUCTIONAL DESIGN

### STUDENT EXPERIENCE

#### GRADE DISTRIBUTIONS<sup>12</sup>

Are an adequate number of students in Sustainable Agriculture courses receiving a grade of C and above? How do they compare with the students in Faculty of Science & Horticulture undergraduate courses?

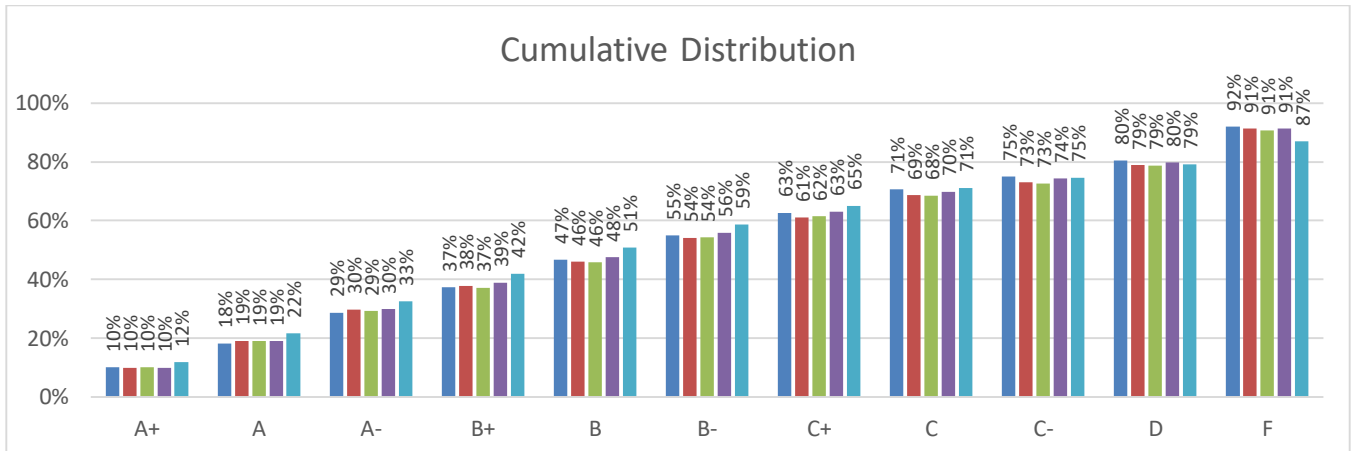
**Exhibit 9: Cumulative Grade Distribution for Sustainable Agriculture Courses from 2015/16 to 2019/20**



**Exhibit 10: Cumulative Grade Distribution for Faculty of Science & Horticulture Undergraduate Courses from 2015/16 to 2019/20**

■ 15/16 ■ 16/17 ■ 17/18 ■ 18/19 ■ 19/20

<sup>12</sup> All data reported in this section was obtained from the Grade Distribution dashboard 2019-20, which is available at <https://our.kpu.ca/sites/sem/data/SitePages/Home.aspx>.

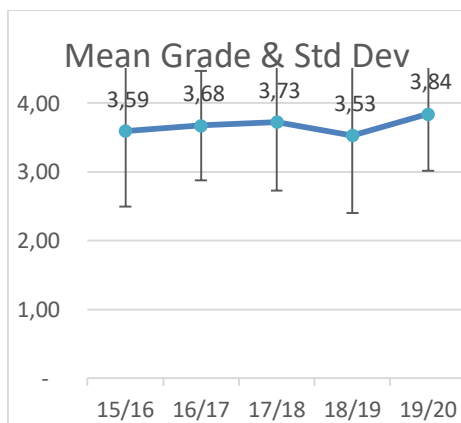


Does the repeat rate in Sustainable Agriculture courses indicate an issue? How does it compare with the repeat rate of Faculty of Science & Horticulture undergraduate courses?

Does the DFW rate in Sustainable Agriculture courses indicate an issue? How does it compare with the DFW rate in Faculty of Science & Horticulture undergraduate courses?

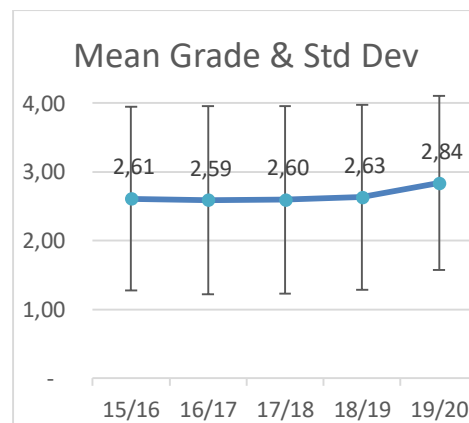
**Exhibit 11: Grade Data for Sustainable Agriculture and Faculty of Science & Horticulture Undergraduate Level Courses from 2015/16 to 2019/20**

Sustainable Agriculture:

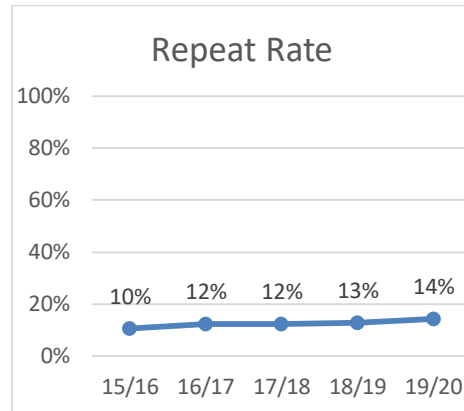
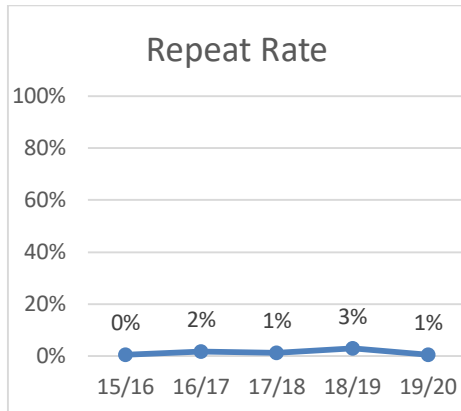


Sustainable Agriculture:

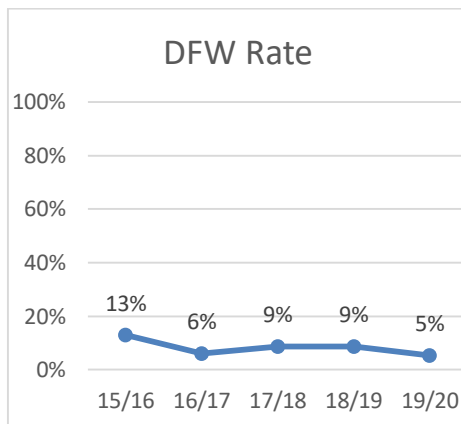
Faculty of Science & Horticulture:



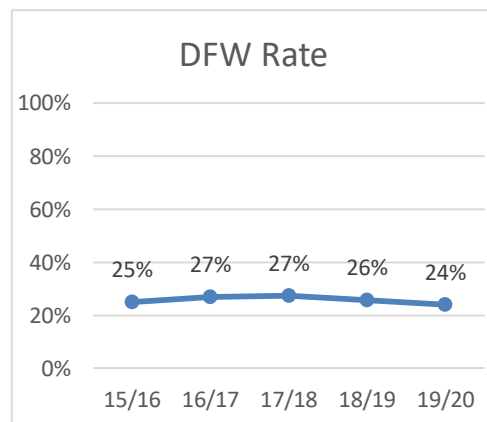
Faculty of Science & Horticulture:



Sustainable Agriculture:



Faculty of Science & Horticulture:



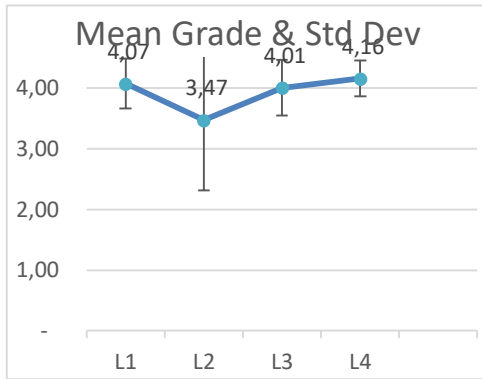
Are there any issues with Sustainable Agriculture students' performance at each level? How do they compare with Faculty of Science & Horticulture undergraduate courses?

***Exhibit 12: Grade Data for Sustainable Agriculture and Faculty of Science & Horticulture Courses for 2019/20 across Undergraduate Levels***

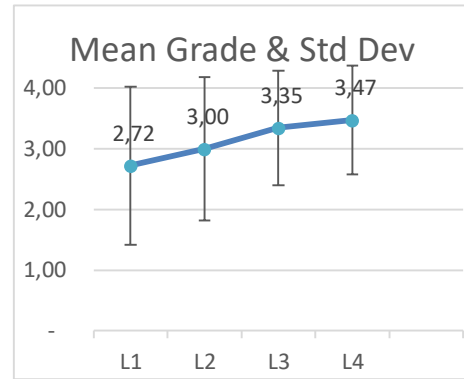
Sustainable Agriculture:<sup>13</sup>

Faculty of Science & Horticulture:

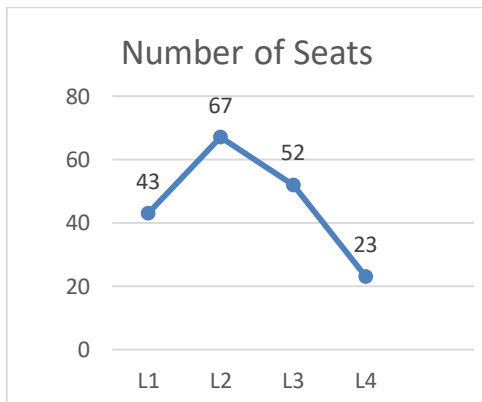
<sup>13</sup> Note that variations in sample size can affect the mean scores.



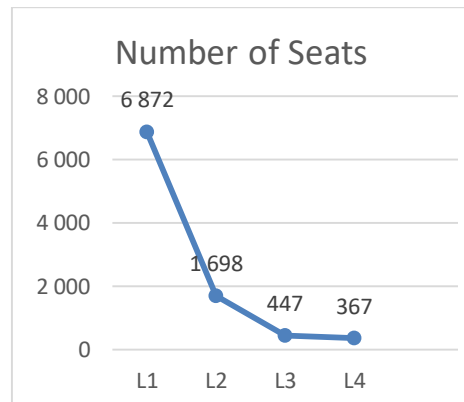
Sustainable Agriculture:



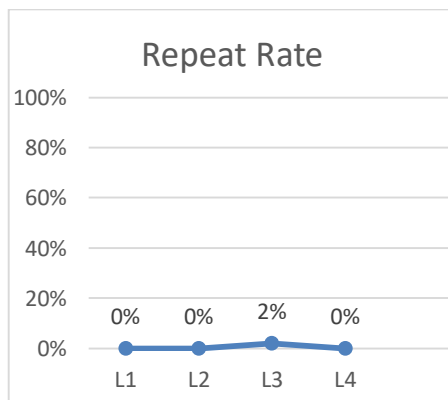
Faculty of Science & Horticulture:



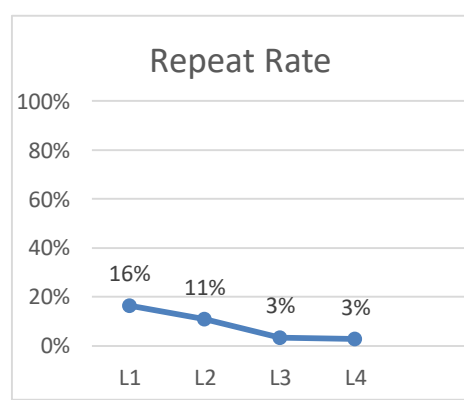
Sustainable Agriculture:



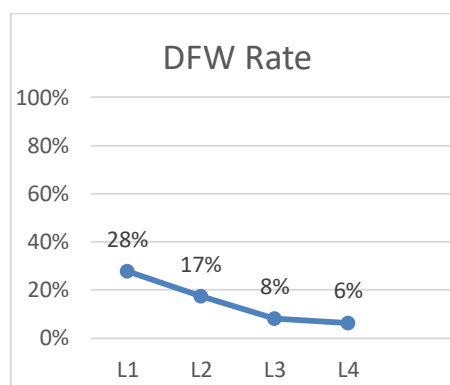
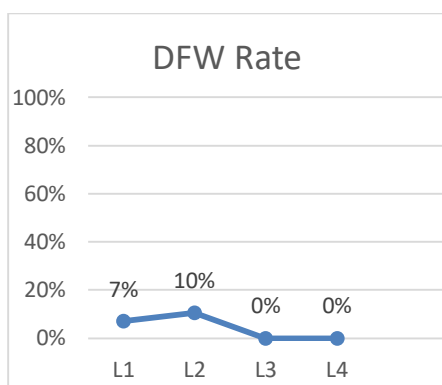
Faculty of Science & Horticulture:



Sustainable Agriculture:



Faculty of Science & Horticulture:



## Definitions

<b>Grade</b>	For courses with numeric grade mode, this is the letter grade (A+ through F) assigned to a student based on achievement in a course.
<b>Mean Grade</b>	The average grade of students in the selected courses, based solely on the numerical grade equivalent of a letter grade. A weighted average is used, such that larger classes have a larger influence on the computed mean.
<b>Cumulative Distribution</b>	The number of students who receive a particular letter grade (A+ through F) plus those who receive a higher grade, as a percentage of the total number of students with a grade or a W/WE. Useful for estimating the proportion of passing students based on any specific grade requirement.
<b>DFW Rate</b>	<p>% of students who received a grade of D or F or withdrew from the course.</p> <p>Percentage is calculated based on number of students with a grade or a W/WE or DEF (Deferred). A common metric used to identify courses with high rates of poor student performance.</p>
<b>Enrolment</b>	Number of students assigned a grade or W/WE (Withdraw) or DEF (Deferred), except those marked as AUD (Audit). These are not unique students since they are allowed to repeat and take multiple courses. Students include those who have withdrawn from their class, but does not include those who dropped the class before the Stable Enrolment Date. To protect privacy, this dashboard does not display grade information for courses with less than 5 students.
<b>Repeat Rate</b>	Students who repeat a course, that is, have taken the course previously. Percentage is calculated based on number of students with a grade or a W/WE or DEF.

## GRADUATION COUNTS<sup>14</sup>

Has there been a change in the number of Sustainable Agriculture graduates over time? How does it compare with Faculty of Science & Horticulture in general?

**Exhibit 13: Graduate Headcount by Academic Year: Sustainable Agriculture**

	2015/16	2016/17	2017/18	2018/19	2019/20
Bachelor of Applied Science	4	6	7	3	5

**Exhibit 14: Graduate Headcount by Academic Year: Faculty of Science & Horticulture**

	2015/16	2016/17	2017/18	2018/19	2019/20
Total <sup>15</sup>	219	181	205	228	256
Associate Degree	32	44	36	30	46
Bachelors Degree	12	14	38	39	35
Certificate	52	41	42	43	24
Citation	66	27	32	39	38
Diploma	95	67	68	93	126

Are Sustainable Agriculture students completing the program within a reasonable time? How does it compare with Faculty of Science & Horticulture in general?

**Exhibit 15: Median Years to Graduate:<sup>16</sup> Sustainable Agriculture**

	2015/16	2016/17	2017/18	2018/19	2019/20
Bachelor of Applied Science	4.0	2.8	4.3	5.9	3.5

**Exhibit 16: Median Years to Graduate: Faculty of Science & Horticulture**

	2015/16	2016/17	2017/18	2018/19	2019/20
Associate Degree	4.2	3.5	3.2	3.0	3.2
Bachelors Degree	4.0	2.8	4.9	4.9	5.9
Certificate	2.1	0.9	1.1	0.9	1.3
Citation	0.5	1.2	0.6	1.2	1.4
Diploma	2.6	2.9	2.5	2.4	2.2

### Definitions

**Graduate Headcount** Count of unique students who have earned a KPU credential. Breakdown values may not add up to total or 100% because a student can earn multiple credentials in different categories within the same academic year.

**Credential** Specific academic award granted upon completion of Program, such as "Associate of Arts Degree" vs "Associate of Science Degree".

<sup>14</sup> All data reported in this section was obtained from the Credentials dashboard AY 2019-20, which is available at <https://our.kpu.ca/sites/sem/data/SitePages/Home.aspx>.

<sup>15</sup> To avoid double counting students, total graduate headcounts presented in Exhibit 14 are unique headcounts of students for the year, not the sum of the credential counts.

<sup>16</sup> The data in Exhibits 15 and 16 present the median number of years students took to receive their first credential.



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**Median**

A computed "middle" number in a set of numbers when sorted by value, such that 50% of the values are higher and 50% are smaller than this number. The Median is preferred over the Mean when the distribution of numbers contains a few extreme values. Extreme values will distort the Mean in that direction, whereas the Median is not affected by extreme values.

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## STUDENT OUTCOMES<sup>17</sup>

There are 7 measures that Ministry of Advanced Education, Skills & Training uses to assess each institution with respect to the outcomes students achieve within 2 years of graduation. A description of each follows. Ministry has a target for each measure.

<b>Unemployed</b>	Unemployment rate of KPU's graduates (of those in the labour market)
<b>Employed</b>	Proportion of former students who are employed
<b>Related Job</b>	Proportion of former students employed in a related field of study
<b>Usefulness</b>	Proportion of former students who reported satisfaction in the usefulness of their knowledge and skills in performing their jobs
<b>Satisfaction</b>	Proportion of former students' who reported satisfaction with their education
<b>Quality</b>	Proportion of former students' who assessed their quality of instruction positively
<b>Skill Development</b>	[Former] student assessment of their skill development at KPU. An overall average for all skills is provided, plus the results for each skill

### Are we achieving the Ministry's targets? Are the graduates getting jobs in a related field?

The results are not shown because less than five program graduates responded to the Baccalaureate Graduates Survey between 2017 and 2019.

### Exhibit 17: Student Outcomes Measures - KPU Sustainable Agriculture Average Scores Compared with Ministry Targets

Measures	Average Student Outcome Scores for KPU Sustainable Agriculture (2017-2019)	Ministry Target
<i>Respondents</i>	<b>6</b>	
Unemployment	0.0%	≤ 7.5%
Employed	80%	
Related Job	75%	
Usefulness	75%	≥ 90%
Satisfaction	83%	≥ 90%
Quality	100%	≥ 90%
Skill Development	97%	≥ 85%
<i>Write Clearly and Concisely</i>	80%	≥ 85%
<i>Speak Effectively</i>	100%	≥ 85%
<i>Read and Comprehend Materials</i>	100%	≥ 85%
<i>Work Effectively with Others</i>	100%	≥ 85%
<i>Analyze and Think Critically</i>	100%	≥ 85%
<i>Resolve Issues or Problems</i>	100%	≥ 85%
<i>Learn on your Own</i>	100%	≥ 85%

:

<sup>17</sup> All data reported in this section was obtained from the Student Outcomes dashboard 2015-19, which is available at: <https://our.kpu.ca/sites/sem/data/SitePages/Home.aspx>.



## APPENDIX 3: Sustainable Agriculture Program Review - Alumni Survey Results

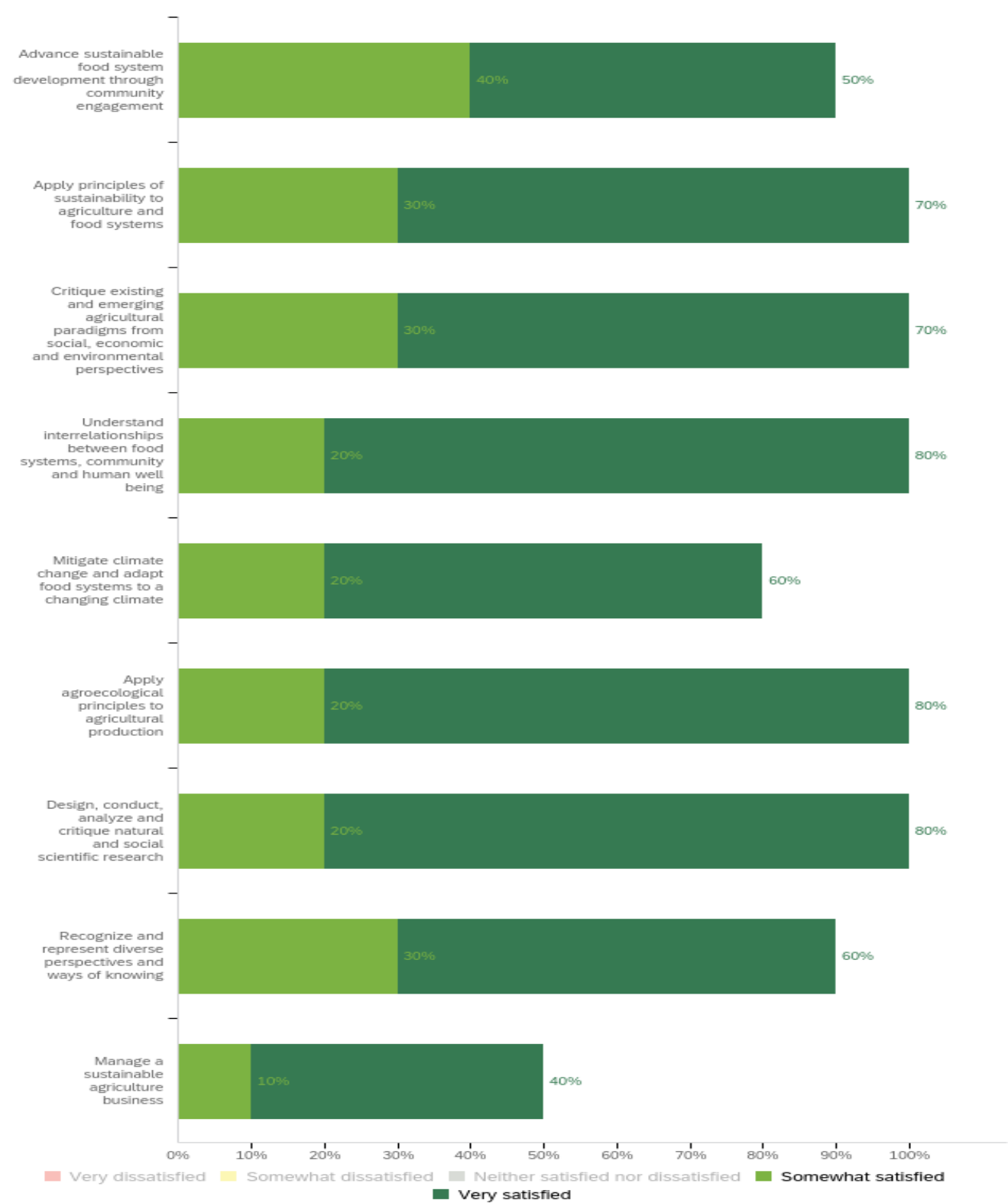
The alumni survey was sent to 25 Sustainable Agriculture alumni. A total of 10 alumni responded. The response rate is 40%.

Note: The data includes open-ended comments. In order to preserve integrity and objectivity, OPA does not do value-judgment editing (i.e. we do not fix spelling errors, syntax issues, punctuation, etc.). Comments are included verbatim – with one exception: if individuals or courses are named, OPA redacts the name of the instructor or course. This rule applies to whether the comment is good, bad or indifferent.

### Q1 When did you complete this credential?

#	When did you complete this credential?	Percentage
1	2020	10%
2	2019	20%
3	2018	20%
4	2017	10%
5	2016	40%
6	2015	0%
	Total	10

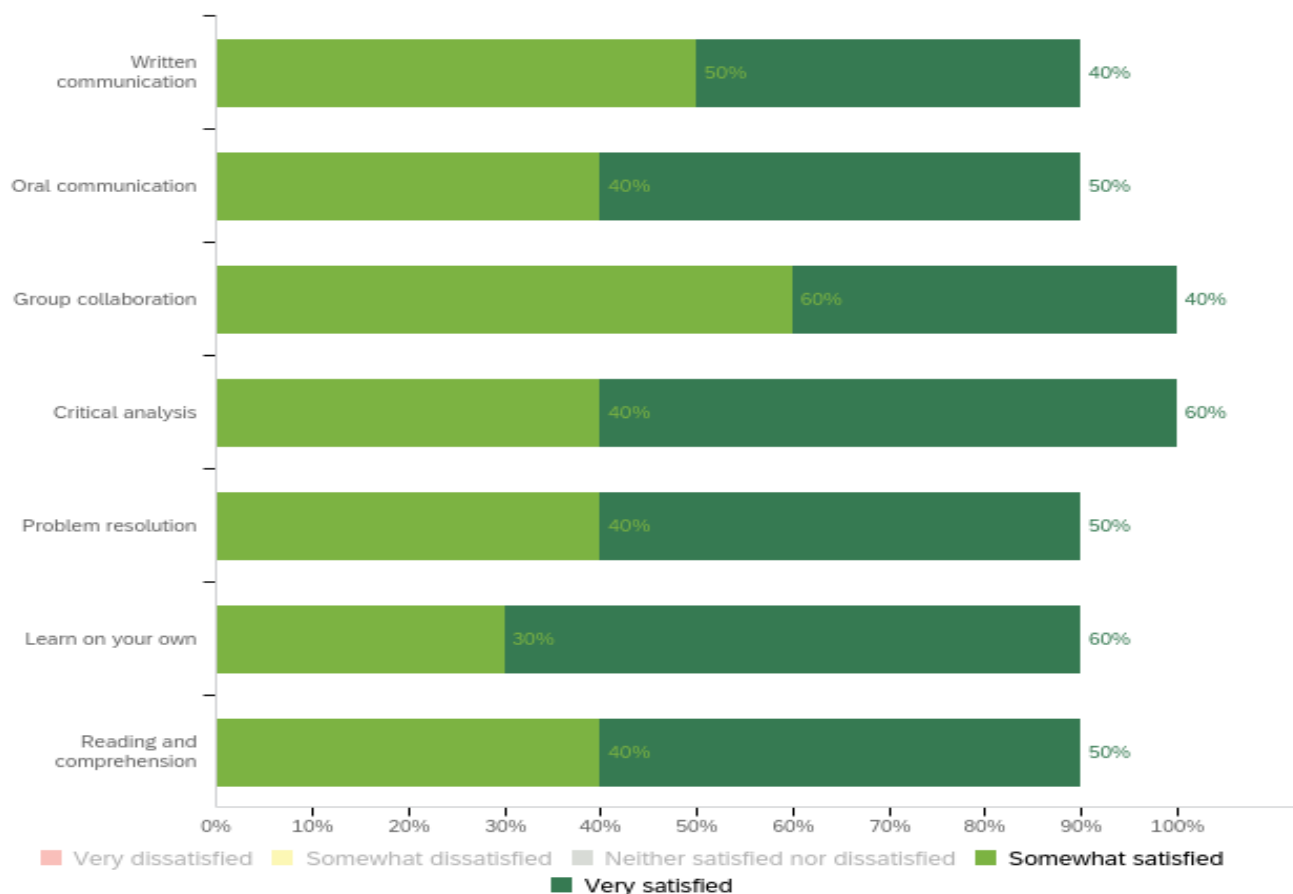
## Q2 - How satisfied are you with how KPU’s Sustainable Agriculture program prepared you to do the following?



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Advance sustainable food system development through community engagement	0%	0%	10%	40%	50%	10
2	Apply principles of sustainability to agriculture and food systems	0%	0%	0%	30%	70%	10
3	Critique existing and emerging agricultural paradigms from social, economic and environmental perspectives	0%	0%	0%	30%	70%	10
4	Understand interrelationships between food systems, community and human well being	0%	0%	0%	20%	80%	10
5	Mitigate climate change and adapt food systems to a changing climate	0%	0%	20%	20%	60%	10
6	Apply agroecological principles to agricultural production	0%	0%	0%	20%	80%	10
7	Design, conduct, analyze and critique natural and social scientific research	0%	0%	0%	20%	80%	10
8	Recognize and represent diverse perspectives and ways of knowing	0%	0%	10%	30%	60%	10
9	Manage a sustainable agriculture business	0%	10%	40%	10%	40%	10

### Q3 - How satisfied are you with how KPU's Sustainable Agriculture program helped you develop the following essential skills?



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Written communication	0%	0%	10%	50%	40%	10
2	Oral communication	0%	0%	10%	40%	50%	10
3	Group collaboration	0%	0%	0%	60%	40%	10
4	Critical analysis	0%	0%	0%	40%	60%	10
5	Problem resolution	0%	0%	10%	40%	50%	10
6	Learn on your own	0%	0%	10%	30%	60%	10
7	Reading and comprehension	0%	0%	10%	40%	50%	10

**Q4 - If there was a particular topic/area that was missing from KPU's Sustainable Agriculture program that would have helped you prepare for related work or further study, please tell us about it.**

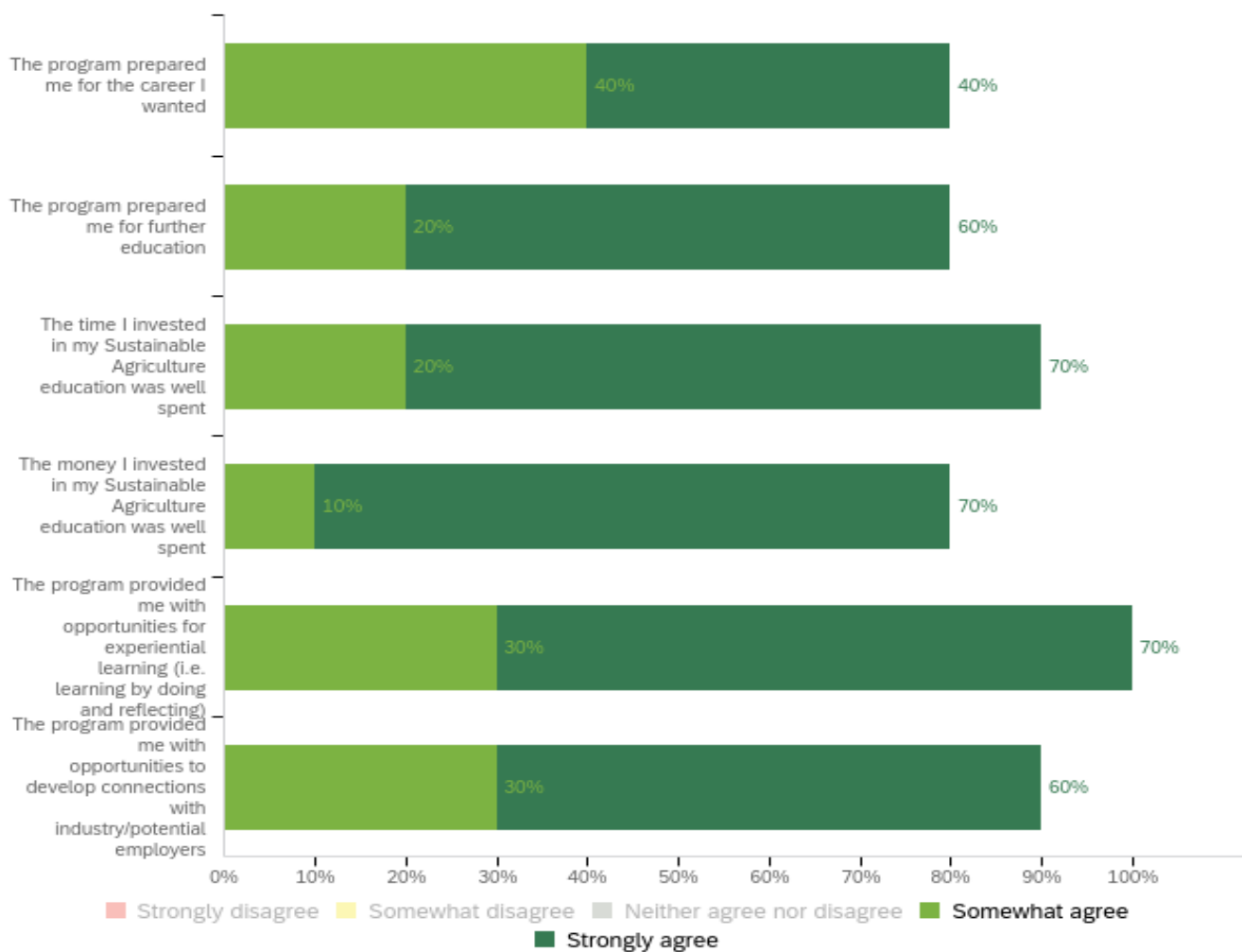
Focus less on theory, more on career preparation

More animal agriculture!

specific best techniques/practices for production. ie. most efficient way to harvest and wash Kale.

It would have been helpful to have experience in building a complete crop plan and then following through with plantings according to the crop plan, as well as designing and setting up the irrigation system.

## Q5 - Thinking of KPU's Sustainable Agriculture program as a whole, to what extent would you agree with the following?



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Question	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree	Total
1	The program prepared me for the career I wanted	0%	10%	10%	40%	40%	10
2	The program prepared me for further education	0%	0%	20%	20%	60%	10
3	The time I invested in my Sustainable Agriculture education was well spent	0%	0%	10%	20%	70%	10
4	The money I invested in my Sustainable Agriculture education was well spent	0%	10%	10%	10%	70%	10
5	The program provided me with opportunities for experiential learning (i.e. learning by doing and reflecting)	0%	0%	0%	30%	70%	10
6	The program provided me with opportunities to develop connections with industry/potential employers	0%	0%	10%	30%	60%	10



### Q6 - Overall, how satisfied were you with how KPU's Sustainable Agriculture program prepared you for work and/or further education?



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories. Use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Overall, how satisfied were you with how KPU's Sustainable Agriculture program prepared you for work and/or further education?	Percentage
1	Very dissatisfied	0%
2	Somewhat dissatisfied	0%
3	Neither satisfied nor dissatisfied	10%
4	Somewhat satisfied	20%
5	Very satisfied	70%
	Total	10

### Q7 - Thinking of KPU’s Sustainable Agriculture program as a whole, please highlight the strengths of the program.

- Great instructors, small class sizes, interesting class sizes. Lots of diversity of perspectives and concepts were introduced.
- passion/knowledge/experience of instructors
- Great focus on understanding food system as a whole, alongside the practical hands-on skills associated with operating a small-scale vegetable operation.
- The passion of faculty and staff to create a more just and equitable sustainable food system carries the program forward. Furthermore, the program is really strong in connecting with community collaborators and bringing in real-world experience and wisdom into the classroom.
- Hands on learning; research class is great; lots of opportunities to network at events; approachable faculty; very flexible to student needs
- A broad amount of practical production skills/ hands on experience. The ability to critique and analyze food systems. Small class sizes, personalized instruction with instructors that are passionate about the topics.
- Holistic education, passionate instructors, program is highly relevant to the crucial time we are in with climate change. Program prepares students for a range of careers post graduation.
- The teachers were very passionate and knowledgeable and the program has a good balance of multidisciplinary content. The program also provides great opportunities for community involvement and networking.
- The people! The professors have really poured their heart and soul into this program, it is very apparent and infectious

## Q8 - Thinking of KPU's Sustainable Agriculture program as a whole, please highlight the areas for improvement.

Didn't feel it really prepared me for a career - the program was great, but was stuck somewhere between a more theoretical traditional BSc program and a vocational program (seemed like the program had an identity crisis of sorts).

needs more institutional support (from KPU)

Now that I have moved to the Canadian Prairies, worked in agriculture here, and experienced a Masters degree in Prairie agriculture, I sometimes feel that my Kwantlen undergrad strayed a little bit away from teaching the skills that are required to work as an agronomist in the general agriculture industry. While the philosophies and concepts that were addressed in my Kwantlen undergrad are relevant and absolutely critical to the future of sustainable agriculture, now that I have moved to the Prairies, an area dominated by "big Ag", I sometimes feel as though I lack some basic skills to work in the industry.

Areas for improvement: - Diversifying Faculty. - More practical experience (which I have seen happen given development of Garden City lands - Fantastic!) - How to market degree in the workforce. The program excels at covering many general fields; but how to communicate it's value and importance to employers has been challenging. Is it a science degree, business, arts, or what? It is a little to ambiguous and often is an opportunity as a conversation starter than clear. - Is there a way to make an education stream in the program? Perhaps that is a unique opportunity for the program.

For such a broad subject area, the program provides a very high level overview of agriculture. Certain areas would benefit from more in depth detailed instruction.

The program could be pushing sustainability and regenerative boundaries by exploring more regenerative farming practices. For example, there could be different fields managed with different levels of tillage and/or intercropping. New farmers on small farms are increasingly exploring no-till practices, so it would be helpful for students to get more experience with those practices. It would also be helpful for the program to allow students to gain experience in the farm planning process, such as crop planning and irrigation management, especially for students seeking farm manager positions post-graduation. In addition, I found the [Course Name Redacted] and [Course Name Redacted] classes to be almost the same. Even some of the PowerPoint presentations were the same.

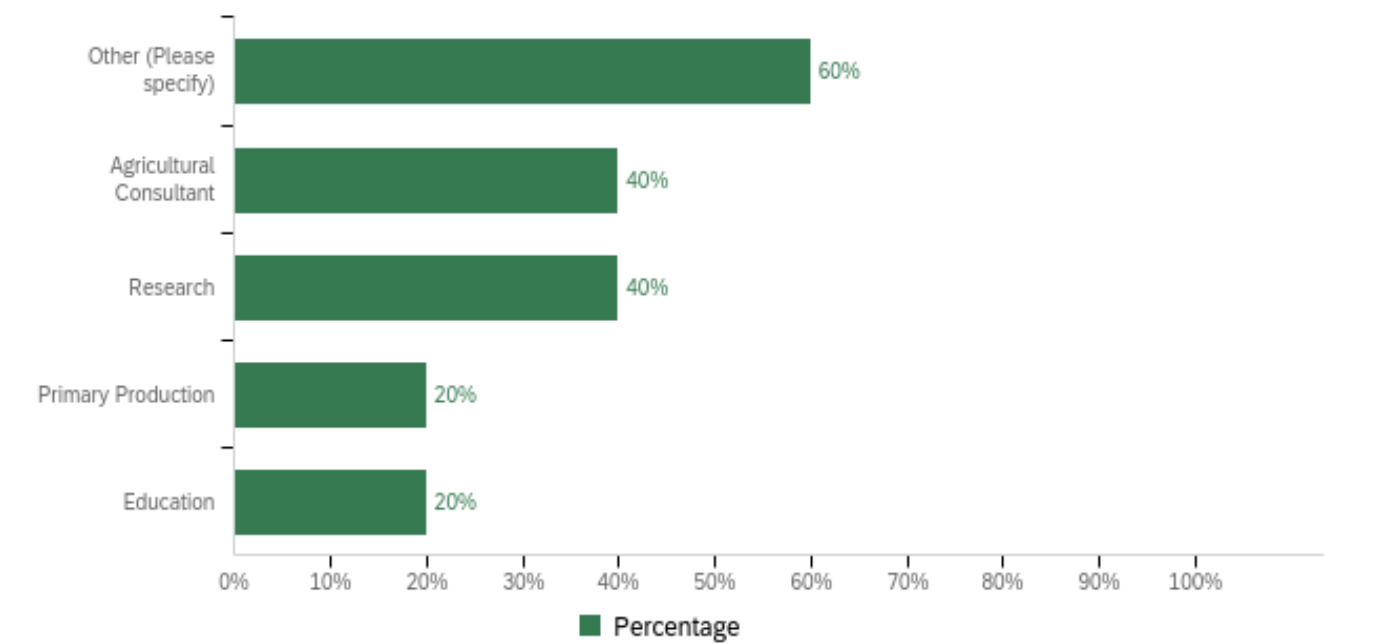
## Q9 - Are you currently employed?

#	Are you currently employed?	Percentage
1	Yes	50%
2	No	50%
	Total	10

## Q10 - Which of the following best describes your current employment situation?

#	Which of the following best describes your current employment situation?	Percentage
1	In a full-time regular position	80%
2	In a part-time regular position	0%
3	In a contract position	20%
4	In a casual or temporary position	0%
	Total	5

Q11 - In which of the following sectors are you currently employed? Please select all that apply.



#	In which of the following sectors are you currently employed? Please select all that apply. - Selected Choice	Percentage
1	Other (Please specify)	60%
2	Agricultural Consultant	40%
3	Research	40%
4	Primary Production	20%
5	Education	20%
6	Agricultural Supply Retailer (ie. Seeds, equipment, fertilizers, etc.)	0%
7	Agricultural Services Provider (i.e. pest management/scouting services)	0%
8	Food retail and food service (i.e. farmers market, grocery store, restaurant)	0%
9	Food and Beverage processing	0%
10	Government (ie. BC Ministry of Agriculture, Agriculture and Agrifood Canada)	0%
	Total	5

Q11\_TEXT - Other (Please specify)

Clergyman

Ministry of Forests

Organic Accreditation

Q12 - What is your current position?

Educational Assistant - Jesuit

Cone and Seed Technician

Field Manager & Accreditation Shadow Director

Research and Development Grower

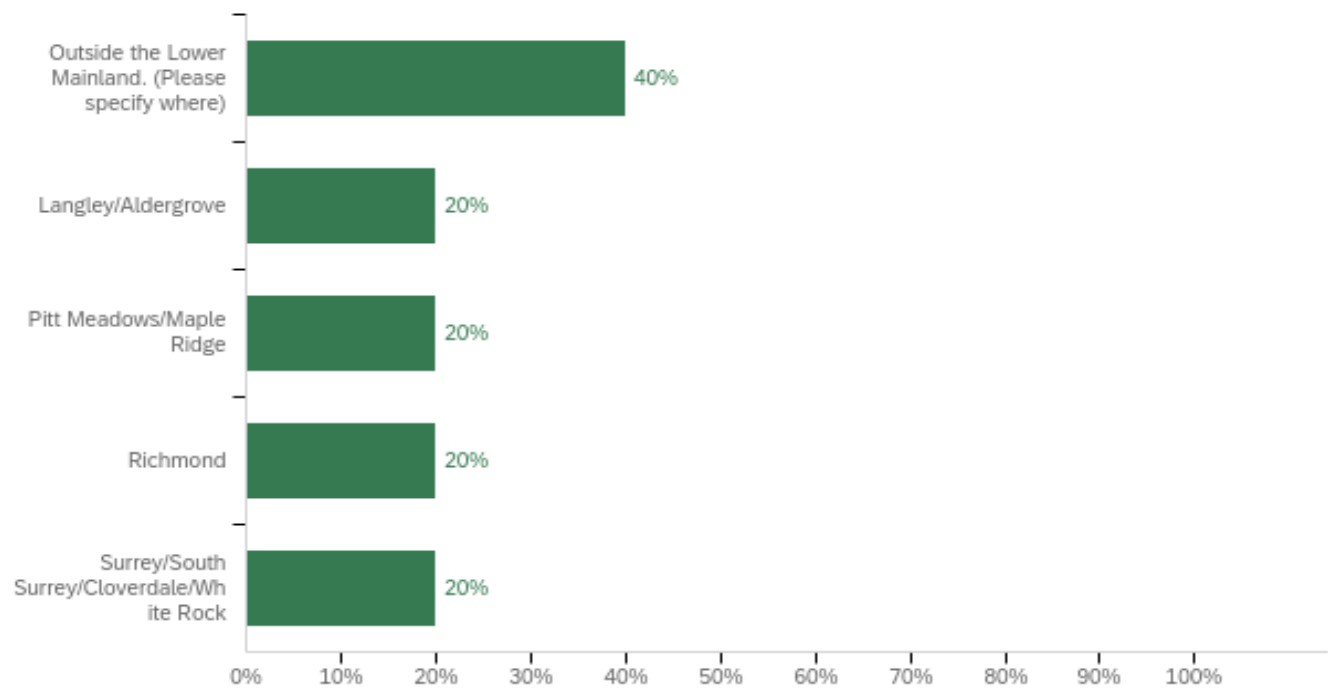
**Q13 - Could you specify the organization where you are currently employed? This information will help us better determine KPU graduates’ career trajectories.**

Society of Jesus and St. Paul's High School

Linden Lane Farms & Certified Organic Associations of BC

CubicFarms- Agriculture Technology Sector

**Q14 - Where is the organization located? Please select all that apply.**



#	Where is the organization located? Please select all that apply. - Selected Choice	Percentage
1	Outside the Lower Mainland. (Please specify where)	40%
2	Langley/Aldergrove	20%
3	Pitt Meadows/Maple Ridge	20%
4	Richmond	20%
5	Surrey/South Surrey/Cloverdale/White Rock	20%
6	Burnaby/New Westminster	0%
7	Coquitlam/Port Coquitlam/Port Moody	0%
8	Delta (North Delta, Ladner, Tsawwassen)	0%
9	Abbotsford/Mission/Chilliwack	0%
10	Vancouver	0%
11	North Vancouver/West Vancouver	0%
	Total	5



## Q14\_TEXT - Outside the Lower Mainland. (Please specify where)

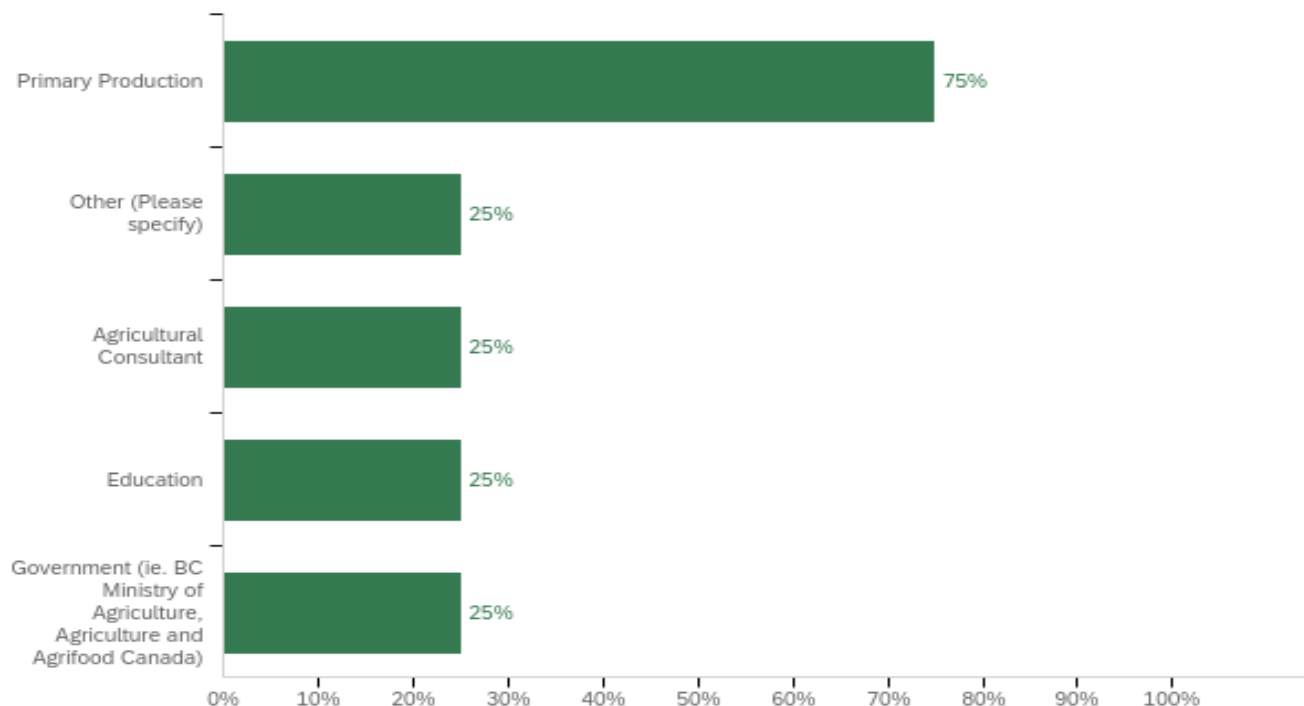
Winnipeg, MB

Krestova & Vernon

## Q15 - Were you previously employed?

#	Were you previously employed?	Percentage
1	Yes	80%
2	No	20%
	Total	5

## Q16 - In which of the following sectors were you previously employed? Please select all that apply.



#	In which of the following sectors were you previously employed? Please select all that apply. - Selected Choice	Percentage
1	Primary Production	75%
2	Other (Please specify)	25%
3	Agricultural Consultant	25%
4	Education	25%
5	Government (ie. BC Ministry of Agriculture, Agriculture and Agrifood Canada)	25%
6	Agricultural Supply Retailer (ie. Seeds, equipment, fertilizers, etc.)	0%
7	Agricultural Services Provider (i.e. pest management/scouting services)	0%
8	Food retail and food service (i.e. farmers market, grocery store, restaurant)	0%
9	Food and Beverage processing	0%

10		Research	0%
		Total	4

Q16\_TEXT - Other (Please specify)

Non-profit organization

**Q17 - Have you pursued further education since completing KPU's Sustainable Agriculture program?**

#	Have you pursued further education since completing KPU's Sustainable Agriculture program?	Percentage
1	Yes	30%
2	No	70%
	Total	10

**Q18 - Please list the name of the program and the institution where you enrolled after completing KPU's Sustainable Agriculture program.**

McGill University

Masters - Plant Science, University of Manitoba

MA in Social Philosophy at Loyola University Chicago

**Q19 - What is the highest credential you have earned or are currently earning since completing KPU's Sustainable Agriculture program?**

#	What is the highest credential you have earned or are currently earning since completing KPU's Sustainable Agriculture program? - Selected Choice	Percentage
1	Diploma	0%
2	Associate's Degree	0%
3	Bachelor's Degree	0%
4	Professional designation (Please specify)	0%
5	Other (Please specify)	0%
6	Master's Degree	100%
7	Doctorate	0%
	Total	3

### Q20 - How satisfied are you with the opportunities you have to stay connected to KPU’s Sustainable Agriculture program?



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories. Use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	How satisfied are you with the opportunities you have to stay connected to KPU’s Sustainable Agriculture program?	Percentage
1	Very dissatisfied	0%
2	Somewhat dissatisfied	0%
3	Neither satisfied nor dissatisfied	50%
4	Somewhat satisfied	30%
5	Very satisfied	20%
	Total	10

### Q21 - What can KPU’s Sustainable Agriculture program do to build better connections with alumni?

- Do not wish to stay connected as alumni
- Invite them to speak at lectures
- Reunions, coordinate tours of alumni's workplaces for current students and Alumni. Provide a "where are they now" highlights of alumni. Provide opportunities for alumni to present/meet with current students to discuss their current employment.
- Newsletter updates about current program/students/ISFS/alumni updates. Circulate job opportunities. Get togethers

### Q22 - How do you identify your gender?

#	How do you identify your gender?	Percentage
1	Male	40%
2	Female	60%
3	Non-Binary	0%
4	Prefer not to answer	0%
	Total	10





**Q23 - What is your age group?**

#	What is your age group?	Percentage
1	18-24	0%
2	25-29	60%
3	30-39	40%
4	40 and older	0%
5	Prefer not to answer	0%
	Total	10

# APPENDIX 4: Sustainable Agriculture Program Review - Student Survey Results

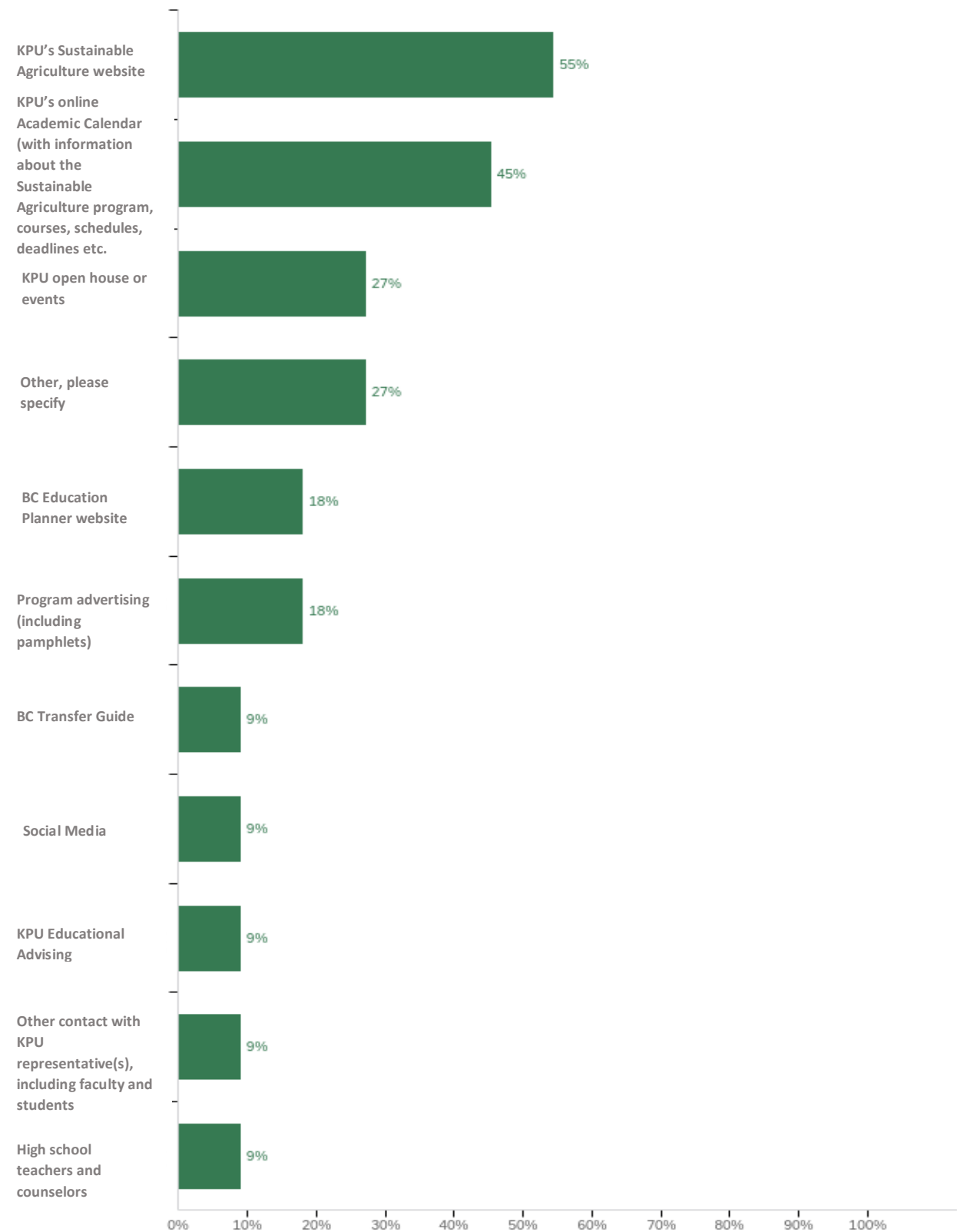
The student survey was sent to 43 students who had completed 6 or more credits in Sustainable Agriculture courses. A total of 11 students responded. The response rate is 25%.

Note: The data includes open-ended comments. In order to preserve integrity and objectivity, OPA does not do value-judgment editing (i.e. we do not fix spelling errors, syntax issues, punctuation, etc.). Comments are included verbatim – with one exception: if individuals or courses are named, OPA redacts the name of the instructor or course. This rule applies to whether the comment is good, bad or indifferent.

## Q1 - What is your intended or declared major?

biology
intended horticulture
Horticulture
The faculty of science and horticulture
Sustainable Agriculture
Sustainable Agriculture
sustainable agriculture
Sustainable Agriculture
Sustainable agriculture
Sustainable Agriculture
Sustainable Agriculture

**Q2 - Which of the following sources of information did you use to learn about KPU's Sustainable Agriculture program? Please select all that apply.**



#	Answer	%	Count
1	BC Education Planner website	18%	2
2	BC Transfer Guide website	9%	1
3	Program advertising (including pamphlets)	18%	2
4	Social media	9%	1
5	KPU's Sustainable Agriculture website	55%	6
6	KPU's online Academic Calendar (with information about the Sustainable Agriculture program, courses, schedules, deadlines, etc.)	45%	5
7	KPU open house or events	27%	3
8	KPU Educational Advising	9%	1
9	My visit to KPU	0%	0
10	Visit by KPU representative to my high school	0%	0
11	Other contact with KPU representative(s), including faculty and students	9%	1
12	High school teachers/counsellors	9%	1
13	Other (Please specify)	27%	3
	Total		11

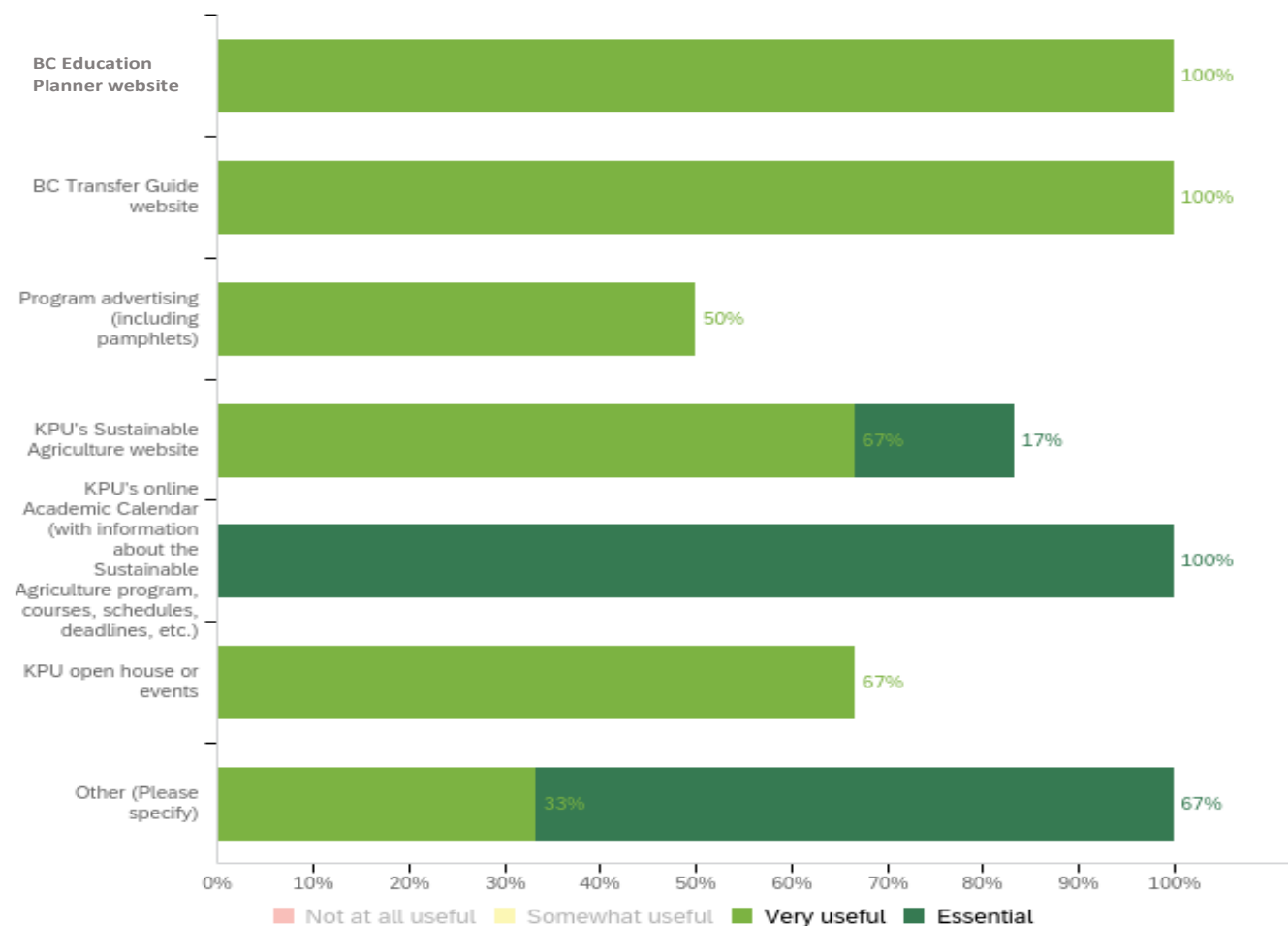
## Q2\_TEXT - Other (Please specify)

A coworker who was in the program recommended I look into it

**[Instructor name redacted]** discussed it when I took a class from him that was originally just going to be used as an elective

**[Instructor name redacted]**

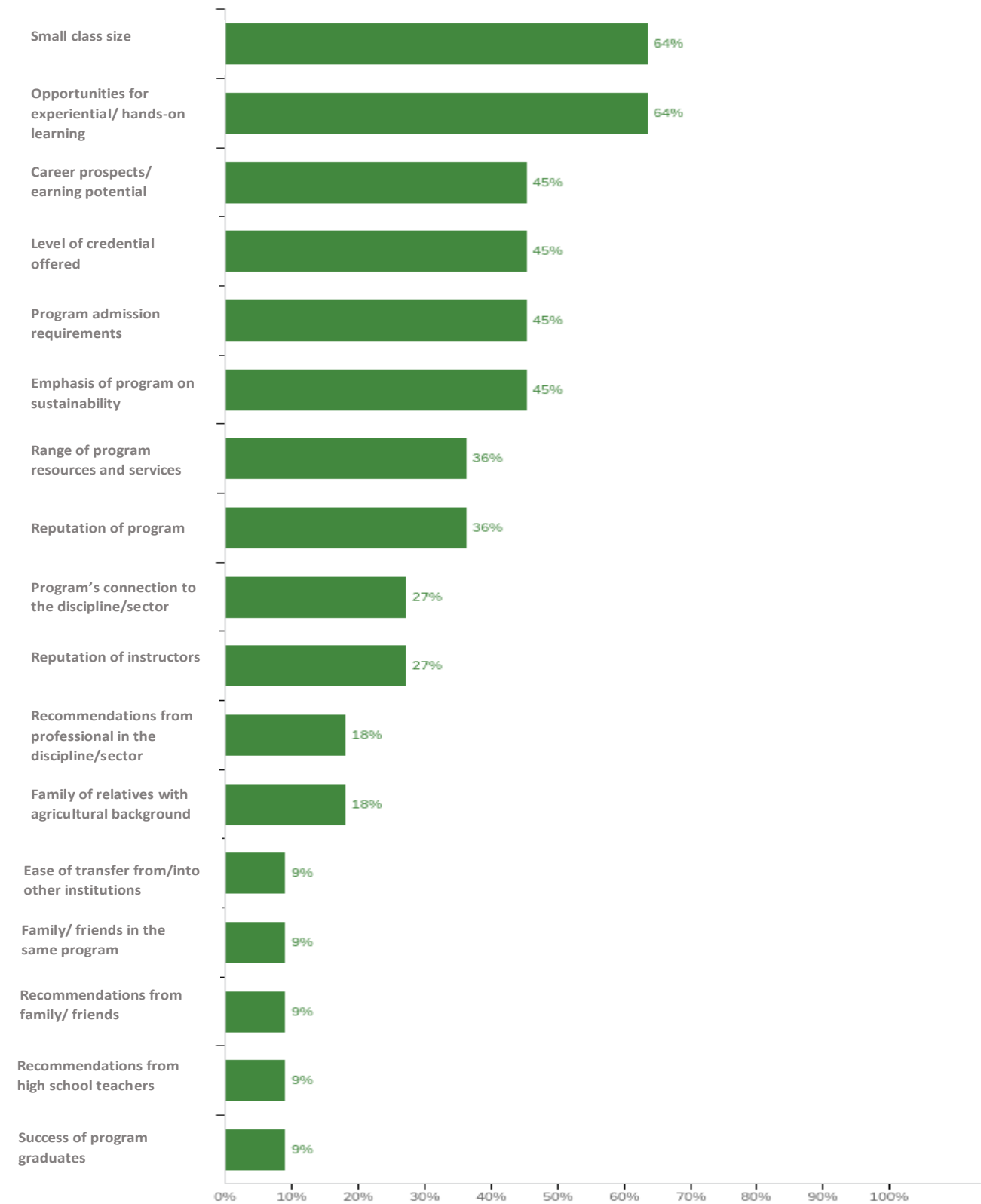
### Q3 - How useful were each of these sources of information?



Note that 'Not at all useful' and 'Somewhat useful' categories are excluded from the chart. Use the frequency table below to review the proportion of 'Not at all useful' versus 'Somewhat useful' responses.

#	Question	Not at all useful	Somewhat useful	Very useful	Essential	Total
1	BC Education Planner website	0%	0%	100%	0%	2
2	BC Transfer Guide website	0%	0%	100%	0%	1
3	Program advertising (including pamphlets)	0%	50%	50%	0%	2
4	Social media	0%	100%	0%	0%	1
5	KPU's Sustainable Agriculture website	0%	17%	67%	17%	6
6	KPU's online Academic Calendar (with information about the Sustainable Agriculture program, courses, schedules, deadlines, etc.)	0%	0%	0%	100%	5
7	KPU open house or events	0%	33%	67%	0%	3
8	KPU Educational Advising	0%	100%	0%	0%	1
9	My visit to KPU	0%	0%	0%	0%	0
10	Visit by KPU representative to my high school	0%	0%	0%	0%	0
11	Other contact with KPU representative(s), including faculty and students	0%	100%	0%	0%	1
12	High school teachers/counsellors	0%	100%	0%	0%	1
13	Other (Please specify)	0%	0%	33%	67%	3

**Q4 - Which of the following influenced your decision to enroll in KPU's Sustainable Agriculture program? Please select all that apply.**



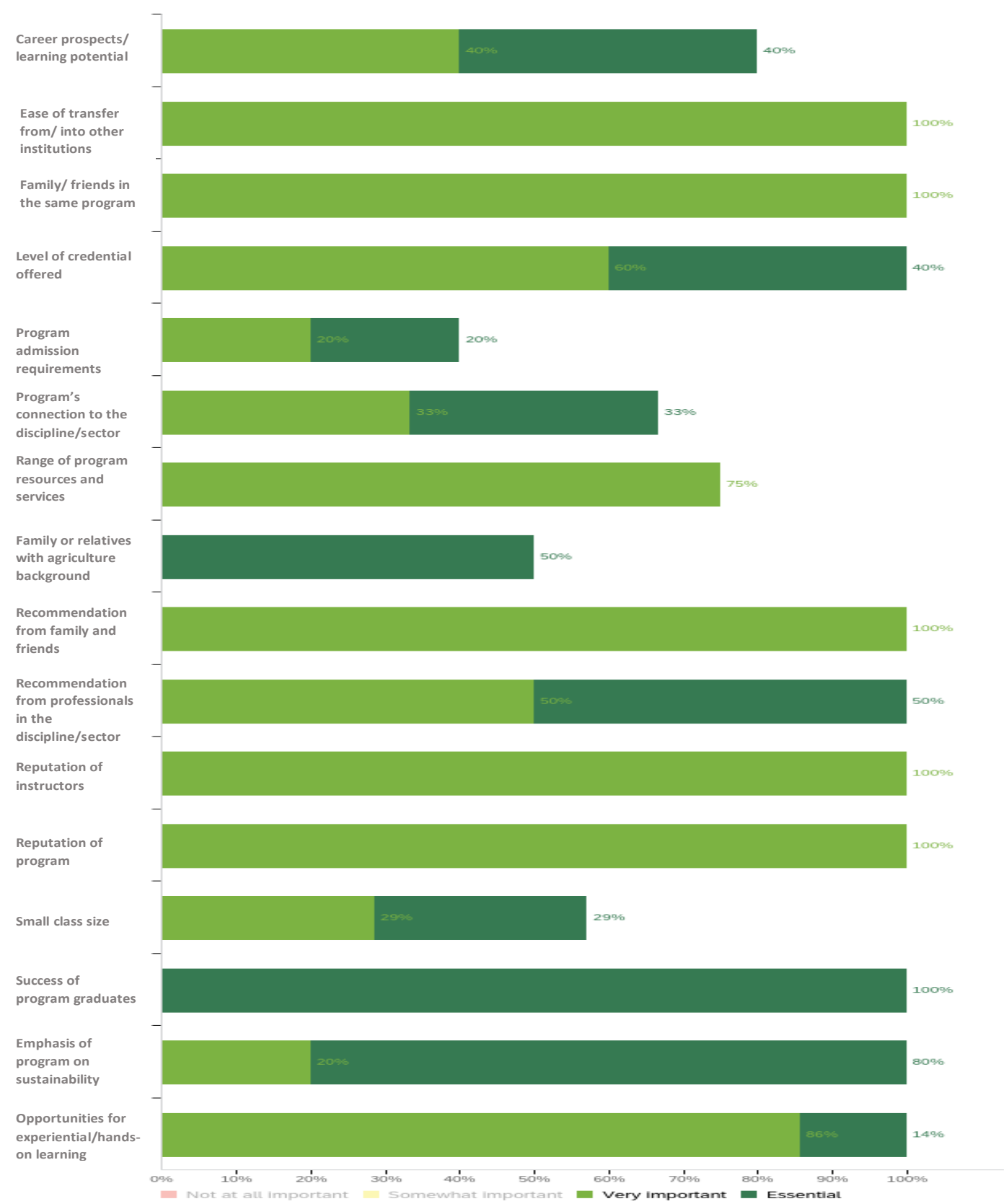
#	Answer	%	Count
1	Career prospects/earning potential	45%	5
2	Ease of transfer from/into other institutions	9%	1
3	Family/friends in the same program	9%	1
4	Level of credential offered	45%	5
5	Program admission requirements	45%	5
6	Program's connections to the discipline/sector	27%	3
7	Qualifications for programs of advanced study (e.g. graduate school)	0%	0
8	Range of program resources and services	36%	4
9	Recommendations from family/friends	9%	1
10	Recommendations from high school teachers	9%	1
11	Recommendations from professionals in the discipline/sector	18%	2
12	Reputation of instructors	27%	3
13	Reputation of program	36%	4
14	Small class size	64%	7
15	Success of program graduates	9%	1
16	Other (Please specify)	0%	0
17	Emphasis of program on sustainability	45%	5
18	Opportunities for experiential/hands-on learning	64%	7
19	Family or relatives with agricultural background	18%	2
	Total		11

#### Q4\_TEXT - Other (Please specify)

No responses.



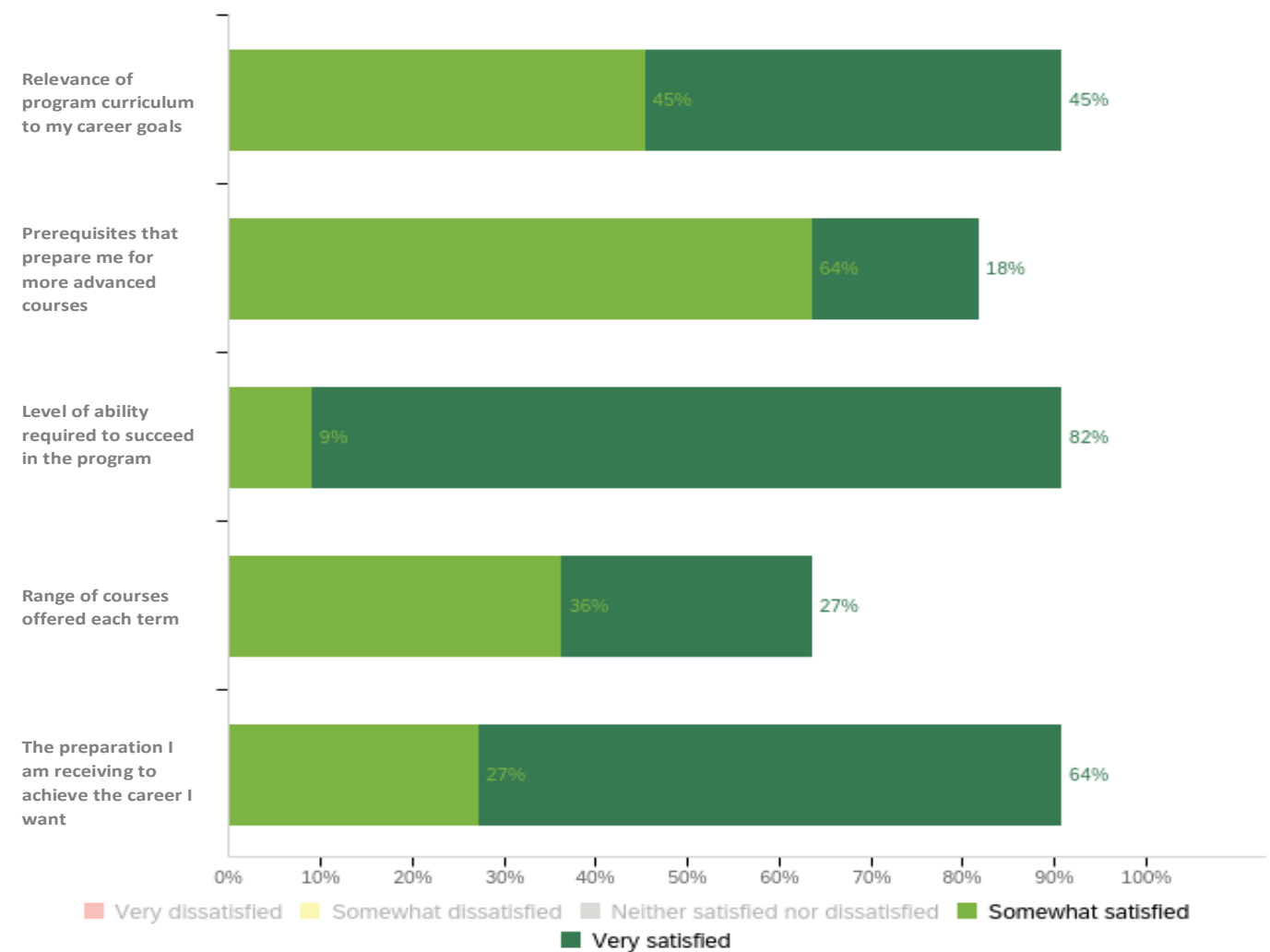
# Q5 - How important was each of the following in your decision to enroll in KPU's Sustainable Agriculture program?



Note that 'Not at all important' and 'Somewhat important' categories are excluded from the chart. Use the frequency table below to review the proportion of 'Not at all important' versus 'Somewhat important' responses.

#	Question	Not at all important	Somewhat important	Very important	Essential	Total
1	Career prospects/earning potential	20%	0%	40%	40%	5
2	Ease of transfer from/into other institutions	0%	0%	100%	0%	1
3	Family/friends in the same program	0%	0%	100%	0%	1
4	Level of credential offered	0%	0%	60%	40%	5
5	Program admission requirements	20%	40%	20%	20%	5
6	Program's connections to the discipline/sector	0%	33%	33%	33%	3
7	Qualifications for programs of advanced study (e.g. graduate school)	0%	0%	0%	0%	0
8	Range of program resources and services	0%	25%	75%	0%	4
9	Family or relatives with agricultural background	0%	50%	0%	50%	2
10	Recommendations from family/friends	0%	0%	100%	0%	1
11	Recommendations from high school teachers	0%	100%	0%	0%	1
12	Recommendations from professionals in the discipline/sector	0%	0%	50%	50%	2
13	Reputation of instructors	0%	0%	100%	0%	3
14	Reputation of program	0%	0%	100%	0%	4
15	Small class size	0%	43%	29%	29%	7
16	Success of program graduates	0%	0%	0%	100%	1
17	Emphasis of program on sustainability	0%	0%	20%	80%	5
18	Opportunities for experiential/hands-on learning	0%	0%	86%	14%	7
19	Other (Please specify)	0%	0%	0%	0%	0

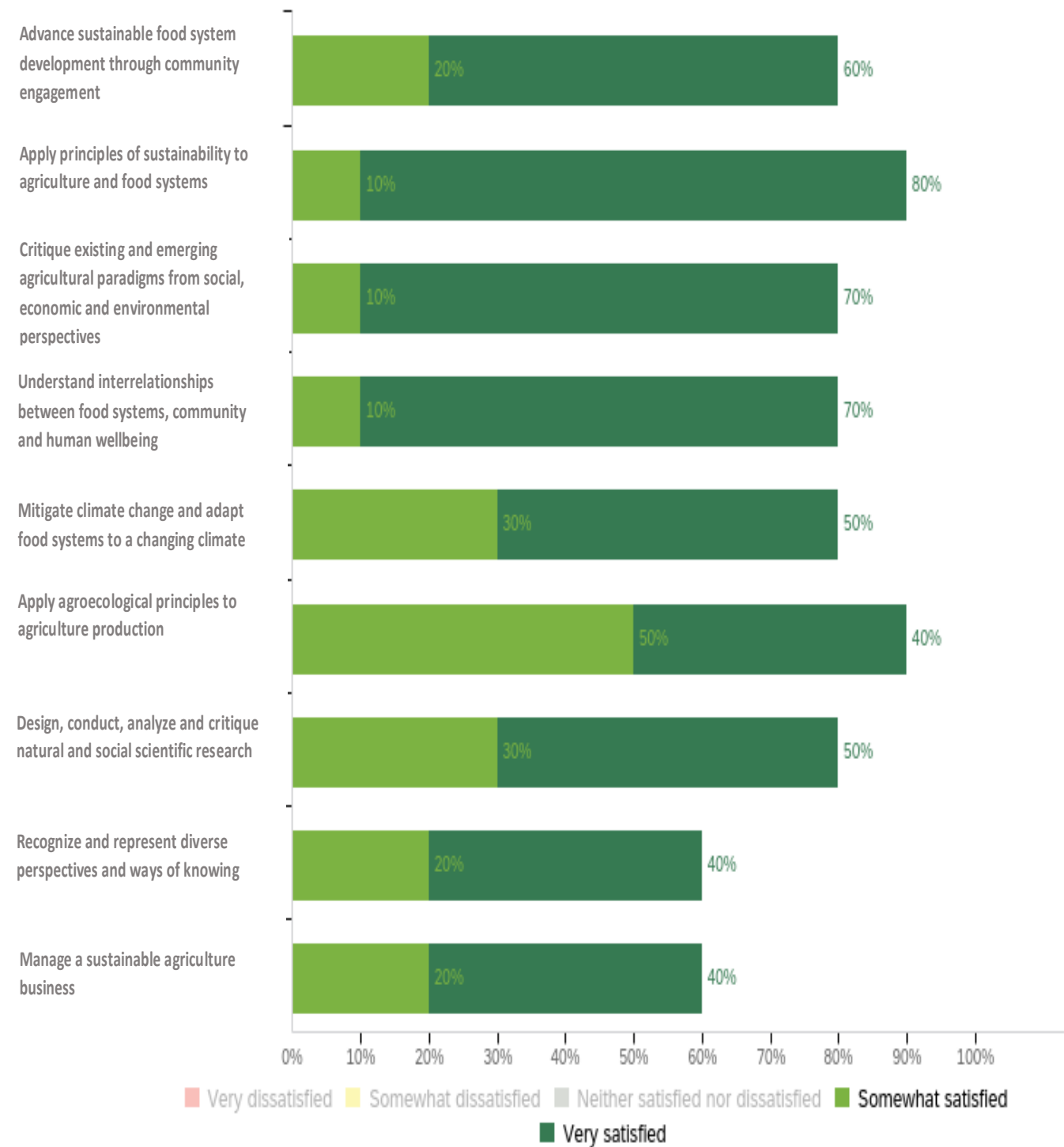
# Q6 - Thinking of KPU's Sustainable Agriculture program as a whole, how satisfied are you with the following?



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Relevance of program curriculum to my career goals	0%	0%	9%	45%	45%	11
2	Prerequisites that prepare me for more advanced courses	0%	0%	18%	64%	18%	11
3	Level of ability required to succeed in the program	0%	0%	9%	9%	82%	11
4	Range of courses offered each term	0%	18%	18%	36%	27%	11
5	The preparation I am receiving to achieve the career I want	0%	0%	9%	27%	64%	11

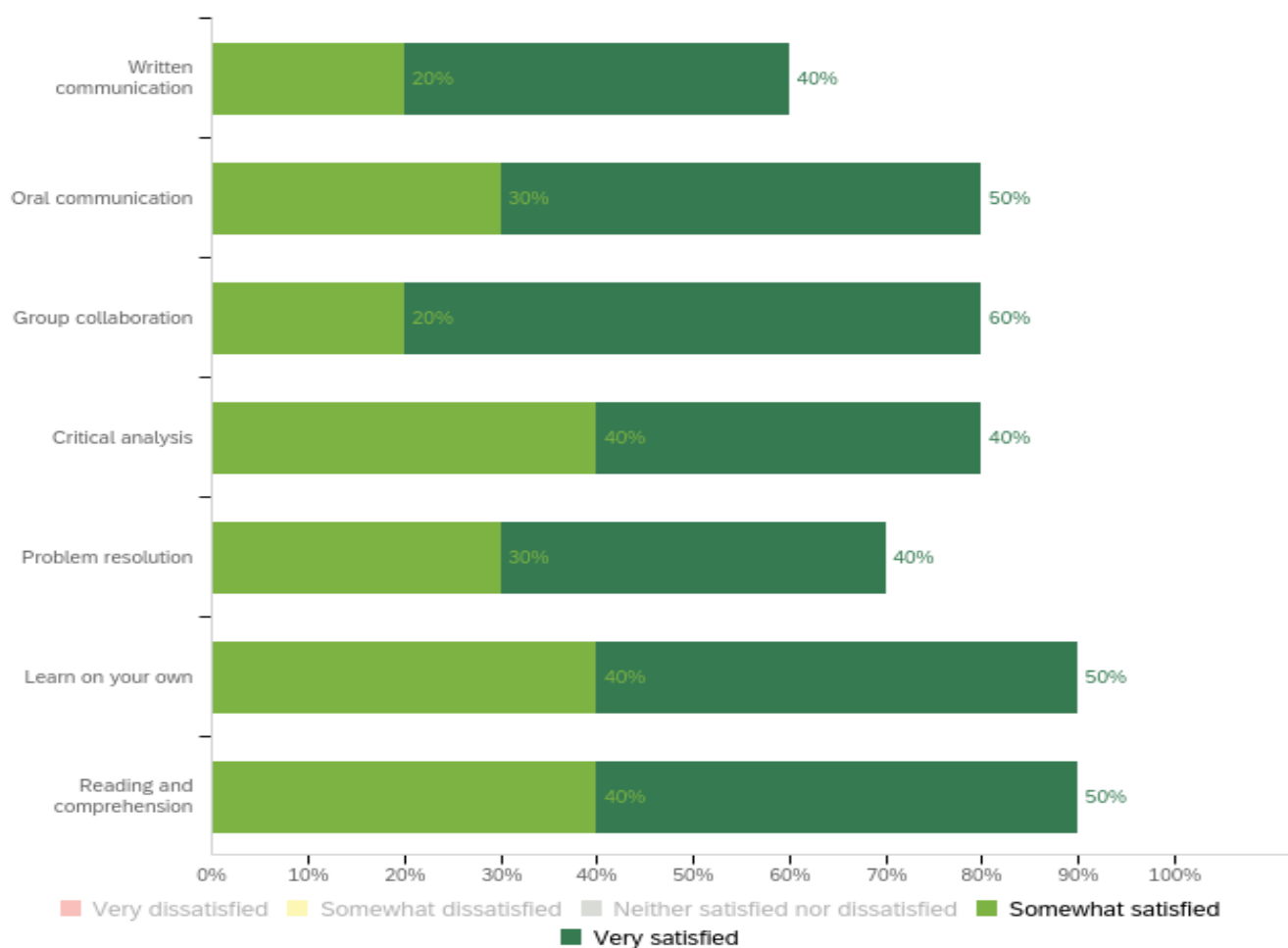
# Q7 - How satisfied are you with the way KPU’s Sustainable Agriculture program is preparing you to do the following?



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Advance sustainable food system development through community engagement	10%	0%	10%	20%	60%	10
2	Apply principles of sustainability to agriculture and food systems	0%	0%	10%	10%	80%	10
3	Critique existing and emerging agricultural paradigms from social, economic and environmental perspectives	0%	0%	20%	10%	70%	10
4	Understand interrelationships between food systems, community and human well being	0%	0%	20%	10%	70%	10
5	Mitigate climate change and adapt food systems to a changing climate	0%	10%	10%	30%	50%	10
6	Apply agroecological principles to agricultural production	0%	0%	10%	50%	40%	10
7	Design, conduct, analyze and critique natural and social scientific research	0%	0%	20%	30%	50%	10
8	Recognize and represent diverse perspectives and ways of knowing	0%	30%	10%	20%	40%	10
9	Manage a sustainable agriculture business	0%	10%	30%	20%	40%	10

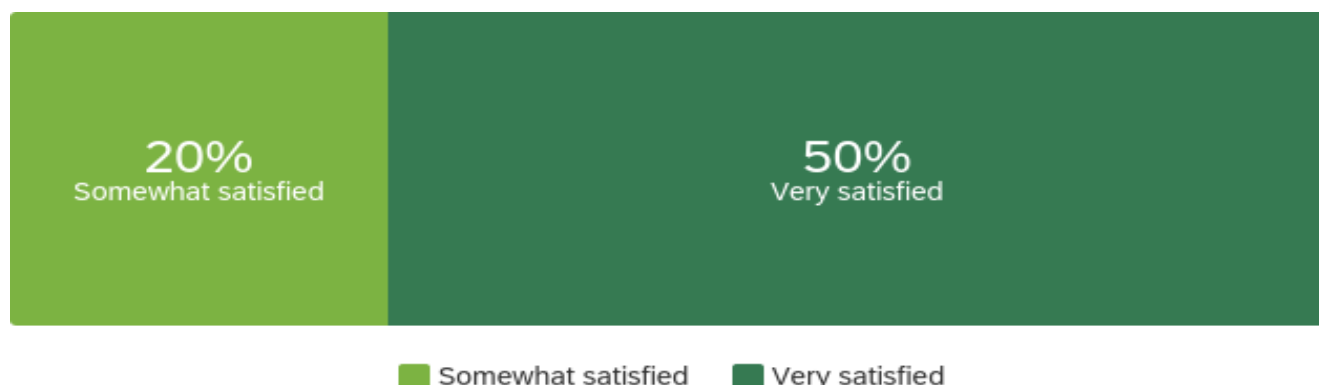
## Q8 - How satisfied are you with the way KPU's Sustainable Agriculture program is helping you develop the following skills?



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Written communication	0%	10%	30%	20%	40%	10
2	Oral communication	0%	0%	20%	30%	50%	10
3	Group collaboration	0%	10%	10%	20%	60%	10
4	Critical analysis	0%	0%	20%	40%	40%	10
5	Problem resolution	0%	0%	30%	30%	40%	10
6	Learn on your own	0%	0%	10%	40%	50%	10
7	Reading and comprehension	0%	0%	10%	40%	50%	10

### Q9 - Overall, how satisfied are you with KPU's Sustainable Agriculture program curriculum (the academic content taught in the program)?



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Overall, how satisfied are you with KPU's Sustainable Agriculture program curriculum (the academic content taught in the program)?	Percentage
1	Very dissatisfied	0%
2	Somewhat dissatisfied	10%
3	Neither satisfied nor dissatisfied	20%
4	Somewhat satisfied	20%
5	Very satisfied	50%
	Total	10

**Q10 - Thinking of KPU's Sustainable Agriculture program's curriculum as a whole, please highlight the strengths of the program.**

---

The diversity of students with different background and different practises of agriculture in their nations.

---

Excellent profs who are passionate about what they teach. The science based parts of the program are very strong.

---

Incredible emphasis on the principles of agroecology and the imperative of collaboration in the community. Hands-on courses, although due to corona some of that practical experience had to be removed.

---

With the flexibility that this program provides I believe that you have to put hard work in to get the most out of the program, but with that I think it attracts the right type of students that are willing to put in the work.

---

-hands-on learning, great professors, small class size, good range of courses

---

[Instructor name redacted], [Instructor name redacted], the soils class

---

Applicable information and always trying to find a way that is sustainable to solve a problem

**Q11 - Thinking of KPU's Sustainable Agriculture program's curriculum as a whole, please highlight the areas for improvement.**

---

Need of more practical experience than the in class lectures.

---

I believe that learning traditional knowledge from indigenous food systems would be valuable. Additionally, learning about discrimination in the food system. We talk about migrant workers and women in agriculture but beyond that we seldom discuss minorities.

---

I think [Course names redacted] could be combined as the same class, while [Course names redacted] should be required courses.

---

More focus on soil science technicalities, done simultaneously with a practical element to supplement and demonstrate the concept in action. Perhaps spend more time practicing the principles of sustainable agriculture disciplines (agroforestry, permaculture) beside or instead of just the theoretical aspects that are learned in class.

---

I think that there needs to be a bigger focus on Indigenous practices and how to engage with communities (especially marginalized ones) to get them to care about sustainable agriculture. The program is great because you leave with a base level of knowledge about sustainable agriculture, but it kind of seems like you have to minor in something to get the most out of it as far as career prospects. If a student is interested in the science route they should minor in Plant Health and if the community structure route they minor in Policy Studies (I am in my 2nd year so this may not be correct and I may cover more that I thought was lacking in 3rd and 4th year).

---

-offering courses more often/ over more terms

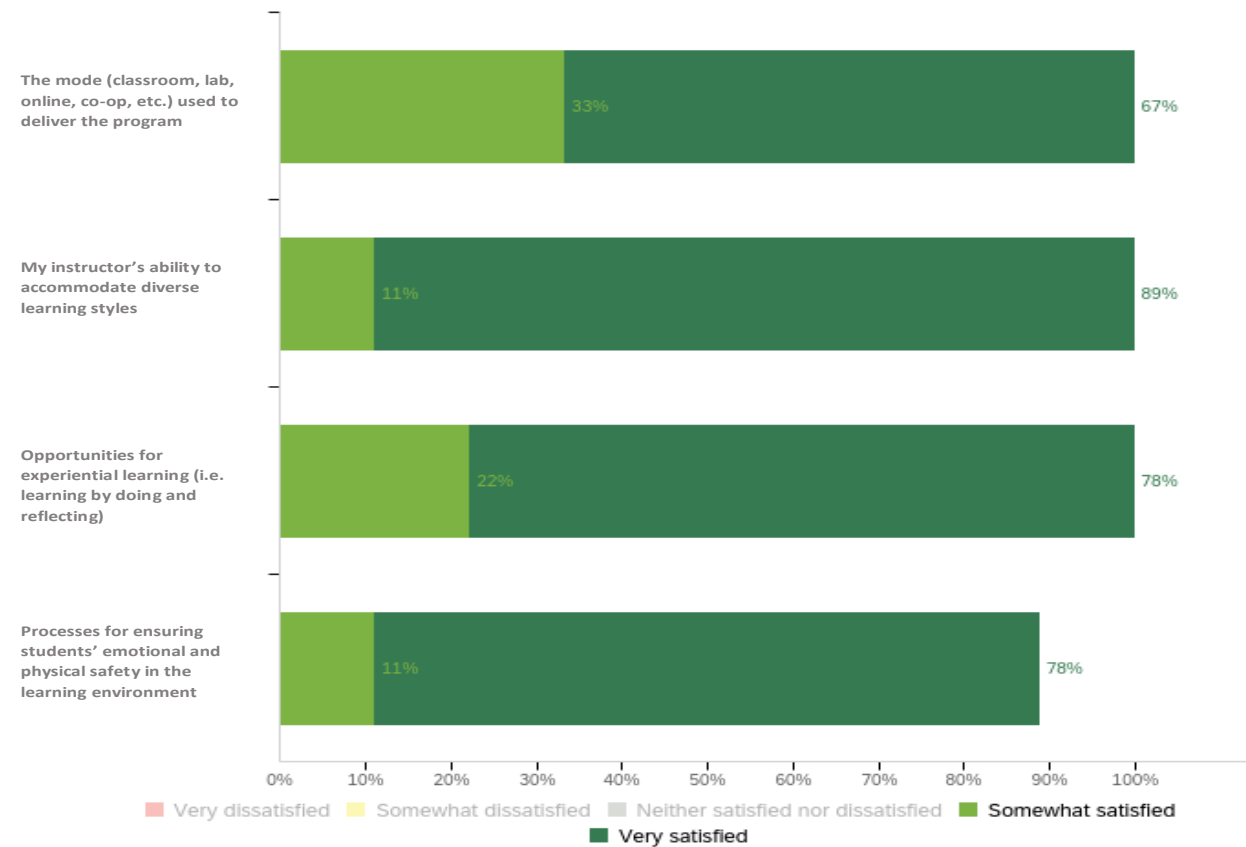
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I'm not the biggest fan of the non-science classes. A lot of them repeated information. They should be reduced in favour of harder science classes.

---

Class schedule and class availability

Q12 - Thinking of how the program is delivered, how satisfied are you with the following?

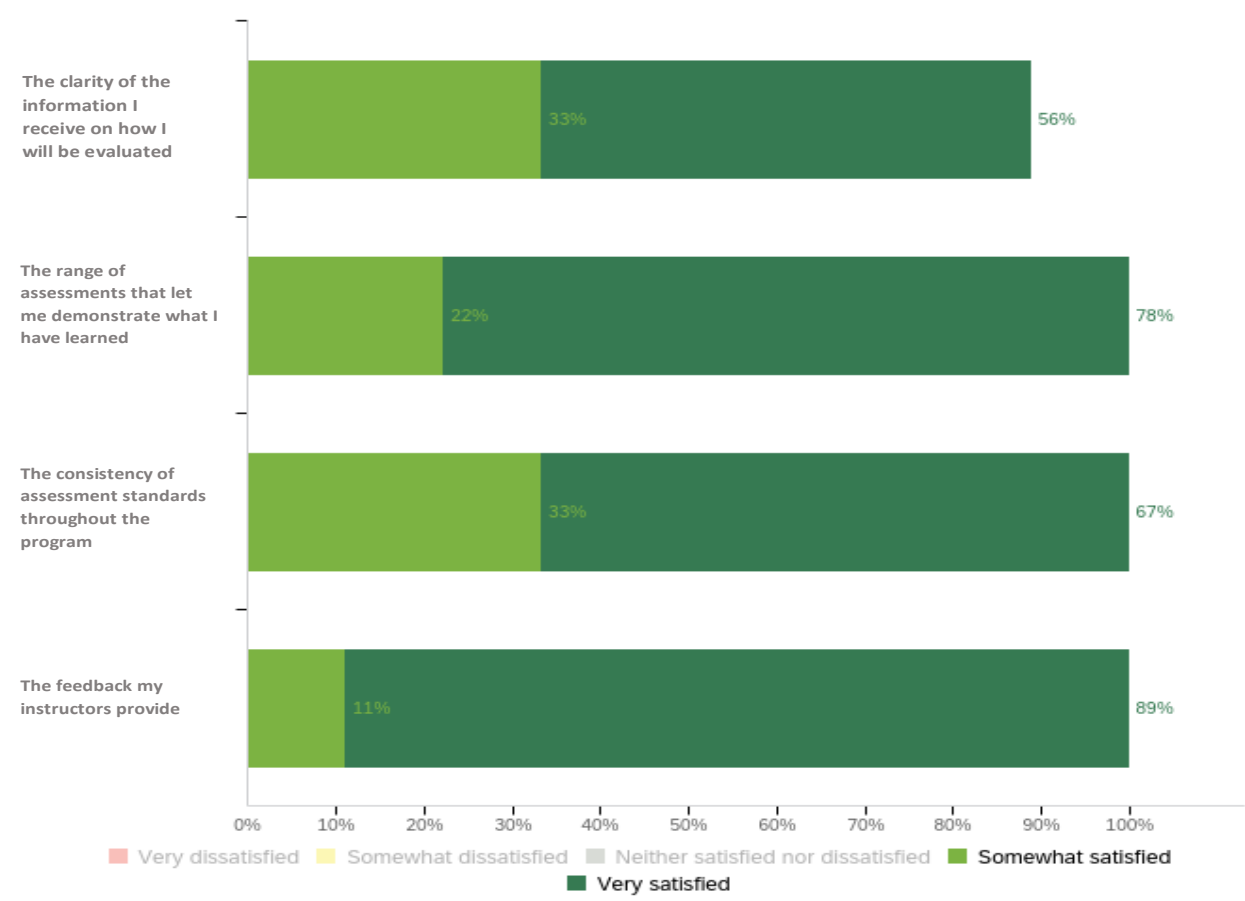


Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	The mode (classroom, lab, online, co-op, etc.) used to deliver the program	0%	0%	0%	33%	67%	9
2	My instructors' ability to accommodate diverse learning styles	0%	0%	0%	11%	89%	9
3	Opportunities for experiential learning (i.e. learning by doing and reflecting)	0%	0%	0%	22%	78%	9
4	Processes for ensuring students' emotional and physical safety in the learning environment	0%	0%	11%	11%	78%	9



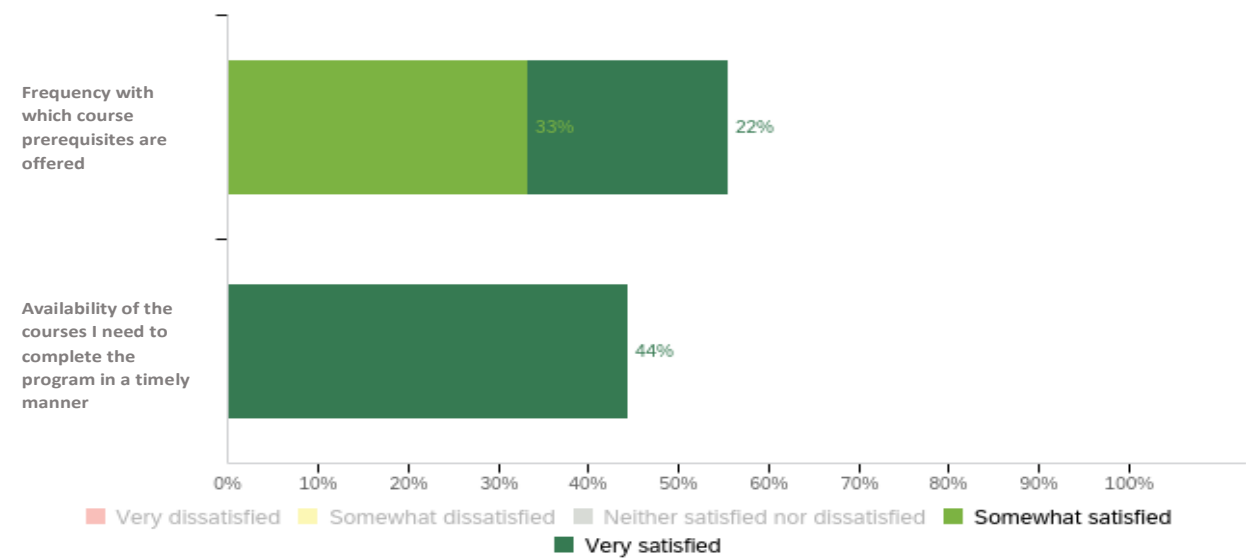
# **Q13 - Thinking of how learning is assessed in the program as a whole, how satisfied are you with the following?**



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	The clarity of the information I receive on how I will be evaluated	0%	11%	0%	33%	56%	9
2	The range of assessments that let me demonstrate what I have learned	0%	0%	0%	22%	78%	9
3	The consistency of assessment standards throughout the program	0%	0%	0%	33%	67%	9
4	The feedback my instructors provide	0%	0%	0%	11%	89%	9

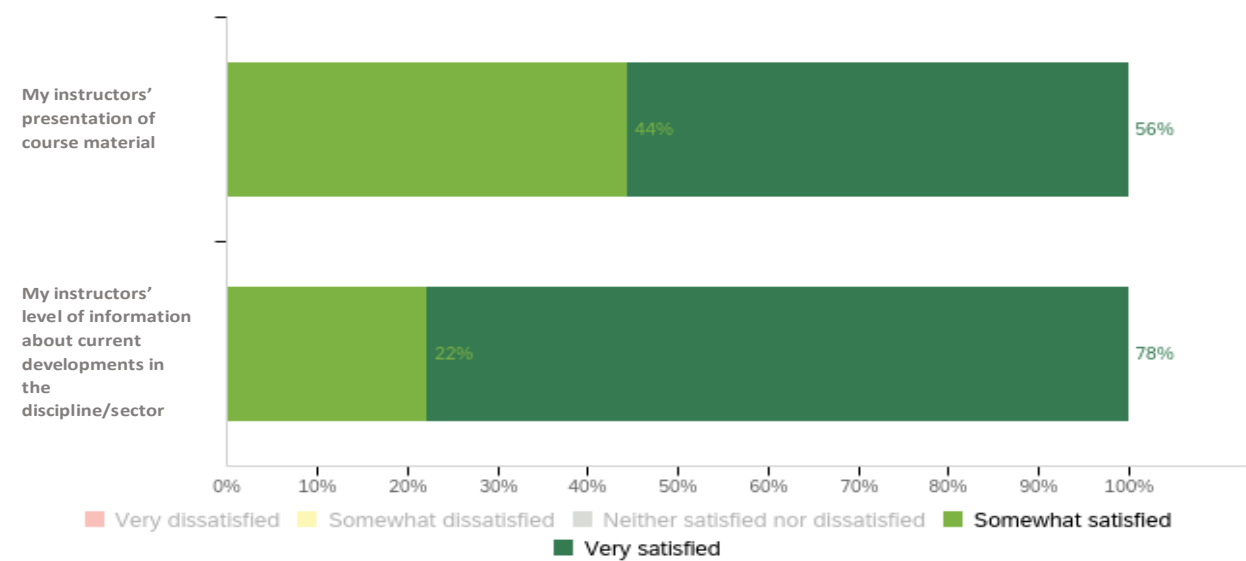
# **Q14 - Thinking of KPU's Sustainable Agriculture program as a whole, how satisfied are you with the following?**



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Frequency with which course prerequisites are offered	11%	22%	11%	33%	22%	9
2	Availability of the courses I need to complete the program in a timely manner	0%	44%	11%	0%	44%	9

### Q15 - Thinking of the instruction you have received throughout the program, how satisfied are you with the following?



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	My instructors' presentation of course material	0%	0%	0%	44%	56%	9
2	My instructors' level of information about current developments in the discipline/sector	0%	0%	0%	22%	78%	9

### Q16 - Overall, how satisfied are you with the instruction you have received in KPU's Sustainable Agriculture program?



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Overall, how satisfied are you with the instruction you have received in KPU's Sustainable Agriculture program?	Percentage
1	Very dissatisfied	0%
2	Somewhat dissatisfied	11%
3	Neither satisfied nor dissatisfied	0%
4	Somewhat satisfied	22%
5	Very satisfied	67%
	Total	9

**Q17 - Thinking of how instruction is delivered across the program as a whole, please highlight the strengths of the program.**

instructors are very knowledgeable and approachable.

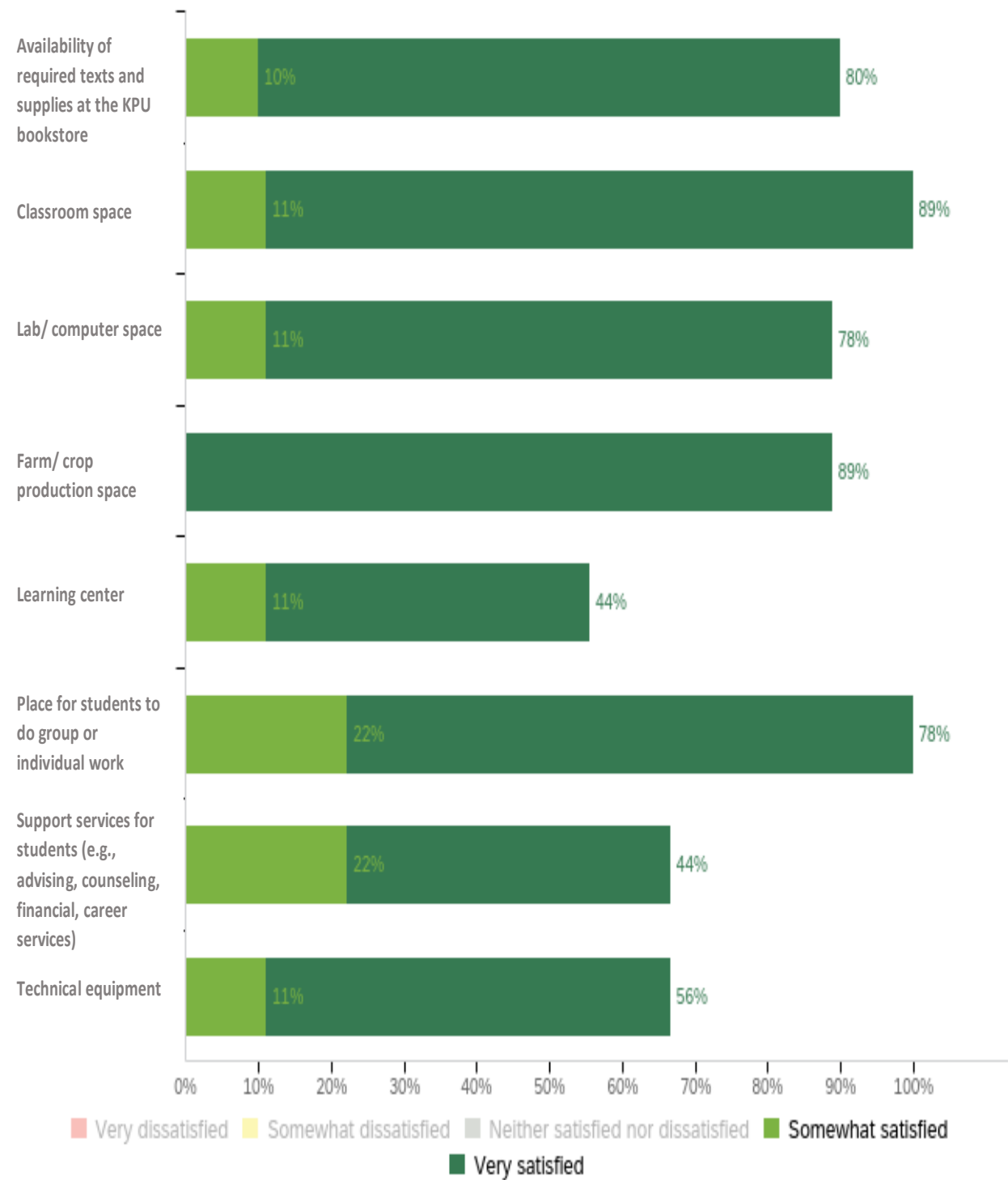
I think that the professors all work hard to accommodate different types or learning styles and capabilities. They are always open and request feedback from students which is very helpful.

**Q18 - Thinking of how instruction is delivered across the program as a whole, please highlight the areas for improvement.**

To show more of the dualities of agriculture, for example, we must discuss and develop ideas on how to move towards more sustainable and resilient systems. Besides criticizing the conventional system, we could also talk about why it was thought to be necessary, what can be salvaged from those practices, and lead a smoother transition.

I sometimes think more small weekly assignments would help information stick better.

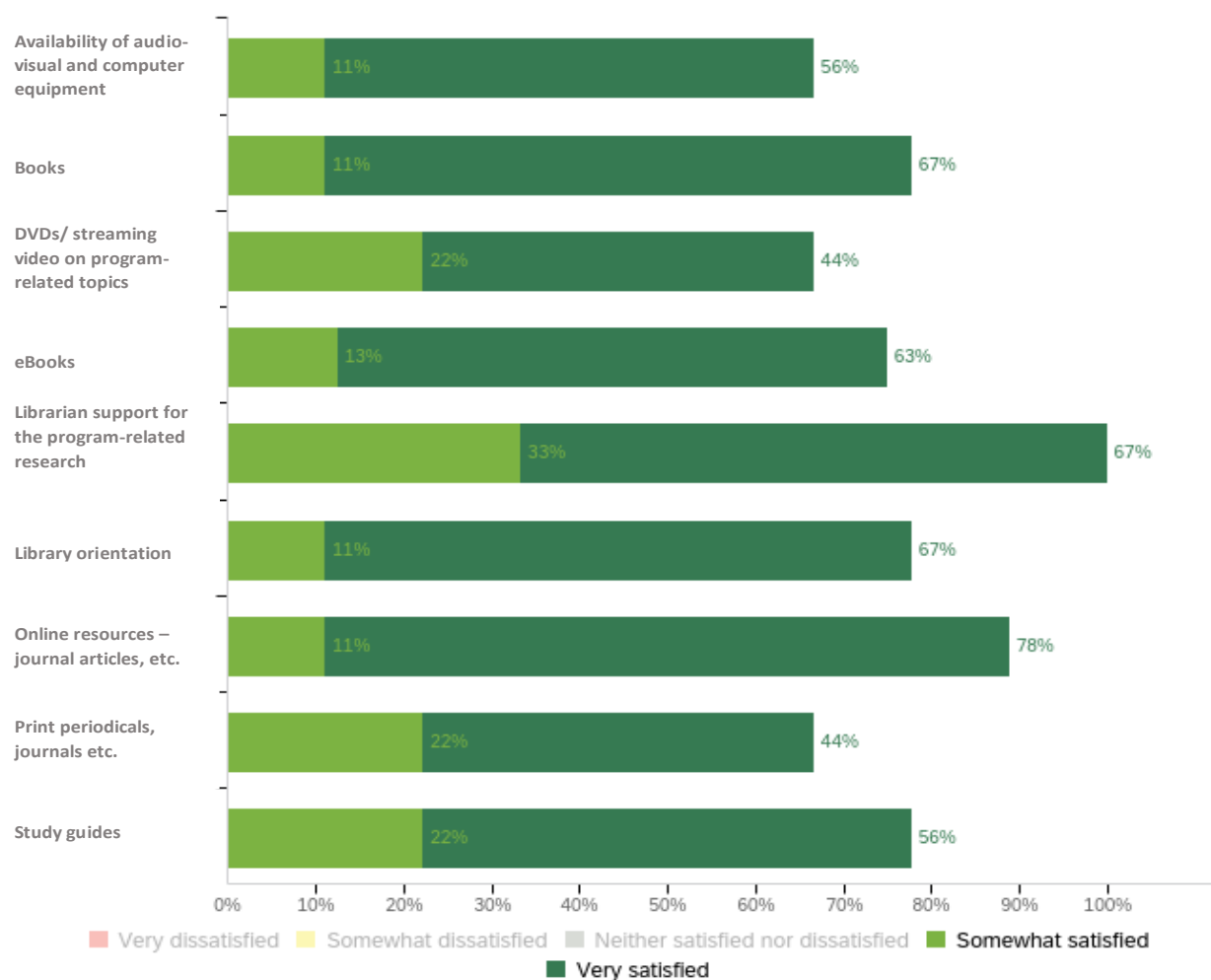
# **Q19 - How satisfied are you with the following as they apply to KPU's Sustainable Agriculture program?**



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Availability of required texts and supplies at the KPU bookstore	0%	0%	10%	10%	80%	10
2	Classroom space	0%	0%	0%	11%	89%	9
3	Lab/computer space	0%	0%	11%	11%	78%	9
4	Farm/crop production space	0%	0%	11%	0%	89%	9
5	Learning Centre	0%	0%	44%	11%	44%	9
6	Places for students to do group or individual work	0%	0%	0%	22%	78%	9
7	Support services for students (e.g., advising, counseling, financial, career services)	0%	0%	33%	22%	44%	9
8	Technical equipment	0%	0%	33%	11%	56%	9

## Q20 - How satisfied are you with the following library resources as they apply to KPU's Sustainable Agriculture program?



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Availability of audio-visual and computer equipment	0%	0%	33%	11%	56%	9
2	Books	0%	0%	22%	11%	67%	9
3	DVDs/streaming video on program-related topics	0%	0%	33%	22%	44%	9
4	eBooks	0%	0%	25%	13%	63%	8
5	Librarian support for program-related research	0%	0%	0%	33%	67%	9
6	Library orientation	0%	0%	22%	11%	67%	9
7	Online resources - journal articles, etc.	0%	0%	11%	11%	78%	9
8	Print periodicals, journals, etc.	0%	0%	33%	22%	44%	9
9	Study guides	0%	0%	22%	22%	56%	9

**Q21 - How satisfied are you with the resources, services and facilities offered through KPU's Sustainable Agriculture program?**



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	How satisfied are you with the resources, services and facilities offered through KPU's Sustainable Agriculture program?	Percentage
1	Very dissatisfied	11%
2	Somewhat dissatisfied	0%
3	Neither satisfied nor dissatisfied	11%
4	Somewhat satisfied	22%
5	Very satisfied	56%
	Total	9

**Q22 - Thinking of the program's resources, services and facilities, please highlight the strengths of the program.**

the farm is one of them, as well as the instructors.
Every AGRI class I have participated in has provided textbooks or not required them. Every required class that is not AGRI but included in the program has had reasonably priced textbooks and supplies.
Access to farm

**Q23 - Thinking of the program's resources, services and facilities, please highlight the areas for improvement.**

More use of the farm and orchard facilities in terms of classroom time
--



Q24 - In general, how satisfied are you with your experience in KPU's Sustainable Agriculture program?



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	In general, how satisfied are you with your experience in KPU's Sustainable Agriculture program?	Percentage
1	Very dissatisfied	0%
2	Somewhat dissatisfied	13%
3	Neither satisfied nor dissatisfied	0%
4	Somewhat satisfied	0%
5	Very satisfied	88%
	Total	8

Q25 - Thinking of the program as a whole, please highlight the strengths of the program.

The professors are amazing, passionate, caring and supportive. They create very welcoming and comfortable learning environments where students are not fearful of making mistakes, asking/answering questions, etc. As well, all of them are always very available for students to speak with outside of the class which is very helpful.

Hands-on experience, getting to carry out your own research project, and understanding the processes behind that endeavor.

The teaching staff is the best part of the program, they are helpful, understanding, and inspiring in what they do. They do their best to provide a wide range of learning styles to get their point across. They are fair graders and work with us as a team. I have thoroughly enjoyed the program as a whole and think it is very worthwhile for what I want my future career to develop in to. We are encouraged to be part of a community, join SASA, and help our other students to the best of our ability. I'm extremely glad that I chose KPU and this program as I have never felt that I have belonged to a group of students so well while attending university.

Q26 - Thinking of the program as a whole, please highlight the areas for improvement.

The program could diversify some of the course content or include more diverse courses as part of the degree requirements. Including Indigenous guest speakers, professors, courses (like Indigenous Studies courses as requirements), or expanding current content to cover more of the history of the land we are learning to farm. I feel like this is something that is really missing as part of this degree.

Overall, to experiment more with alternative farming methods as part of the imparted teachings. More practical teaching along with theory.

I think it would be beneficial for there to be more classes each semester OR, alternatively, some better academic advising. Most academic advisors know nothing about the program so it is necessary to visit a professor which many new students don't know and end up having to extend their degrees by a year or so to obtain all the required classes.

The Registrar's Office is an administrative nightmare. I've been to 7 different institutions and KPU is by far the worse. [Name redacted] was excellent at resolving problems but the intransigence and lack of accountability from other staff left me to twist in the wind. The Registrar's Office does a disservice to any and all recruitment being done by the University and had I not been as stubborn and patient as I was, I would have walked away. I wouldn't be surprised to hear of other students who decided to study elsewhere. Zero stars. Otherwise I loved studying Sust Ag at KPU and would recommend the program to anyone. Five stars.

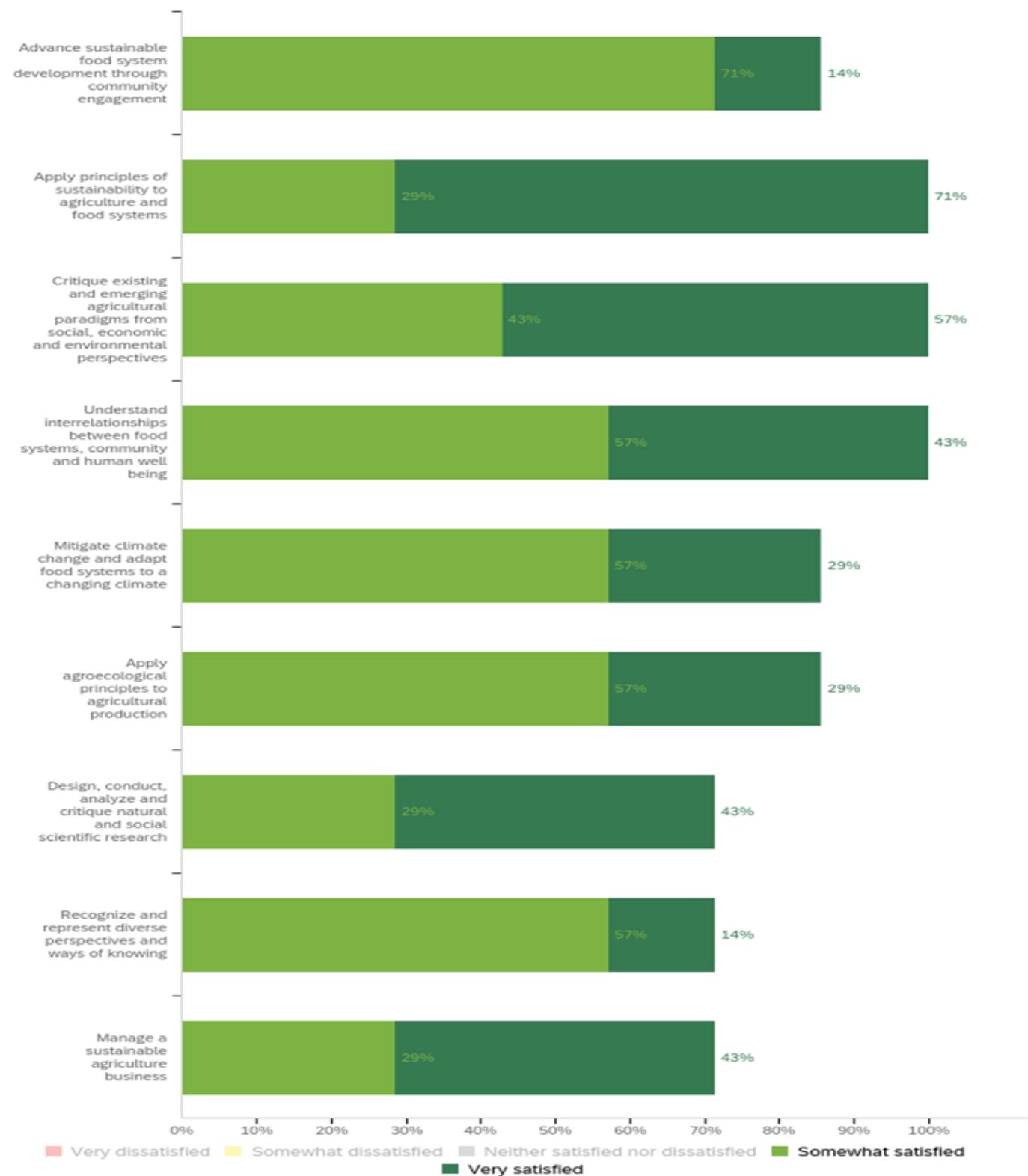
## APPENDIX 5: Faculty Survey Results

### *Sustainable Agriculture Program Review - Faculty Survey Results*

The faculty survey was sent to 10 Sustainable Agriculture faculty members. A total of 7 faculty members responded. The response rate is 70%.

Note: The data includes open-ended comments. In order to preserve integrity and objectivity, OPA does not do value-judgment editing (i.e. we do not fix spelling errors, syntax issues, punctuation, etc.). Comments are included verbatim – with one exception: if individuals or courses are named, OPA redacts the name of the instructor or course. This rule applies to whether the comment is good, bad or indifferent.

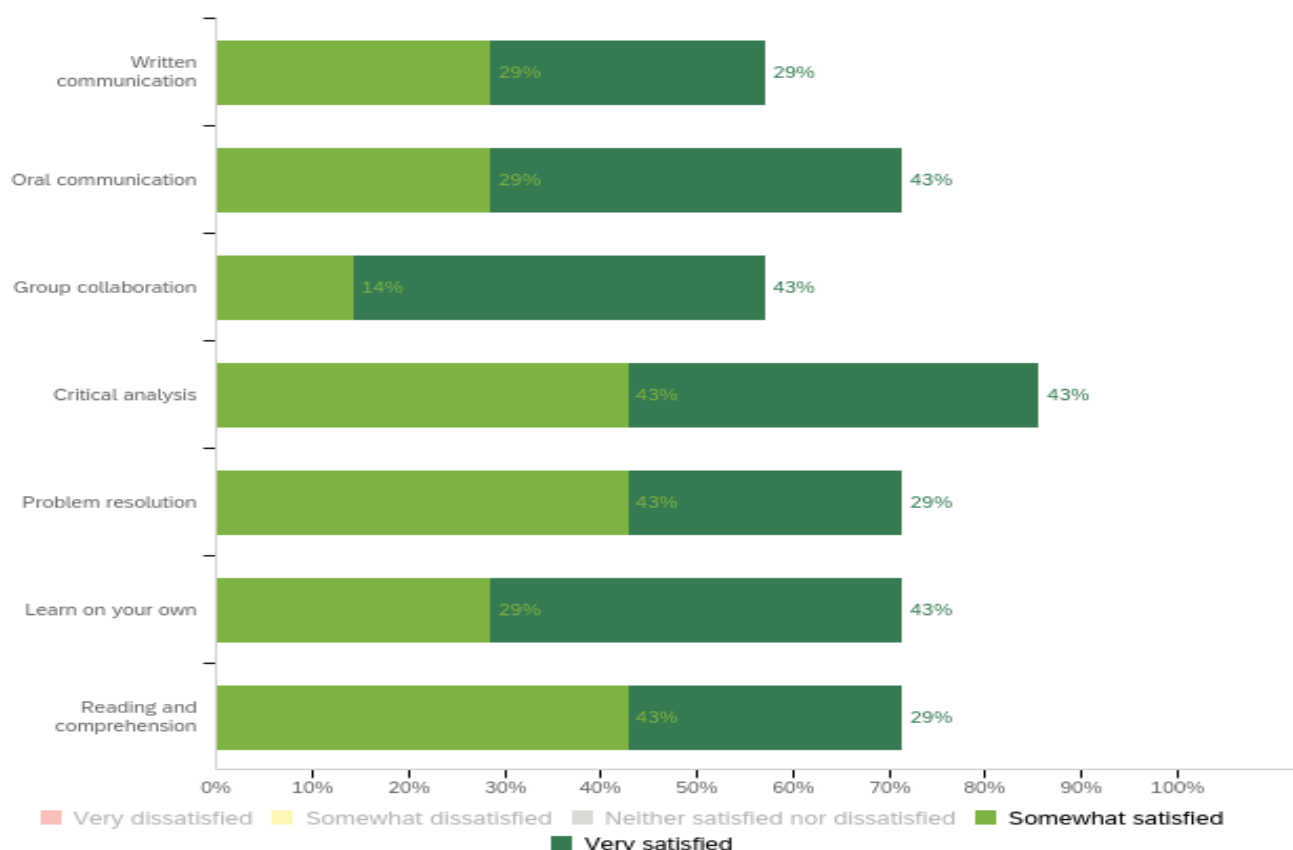
# Q1 - How satisfied are you with how KPU’s Sustainable Agriculture program is preparing students to do the following?



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Advance sustainable food system development through community engagement	0%	0%	14%	71%	14%	7
2	Apply principles of sustainability to agriculture and food systems	0%	0%	0%	29%	71%	7
3	Critique existing and emerging agricultural paradigms from social, economic and environmental perspectives	0%	0%	0%	43%	57%	7
4	Understand interrelationships between food systems, community and human well being	0%	0%	0%	57%	43%	7
5	Mitigate climate change and adapt food systems to a changing climate	0%	0%	14%	57%	29%	7
6	Apply agroecological principles to agricultural production	0%	0%	14%	57%	29%	7
7	Design, conduct, analyze and critique natural and social scientific research	0%	14%	14%	29%	43%	7
8	Recognize and represent diverse perspectives and ways of knowing	0%	0%	29%	57%	14%	7
9	Manage a sustainable agriculture business	0%	14%	14%	29%	43%	7

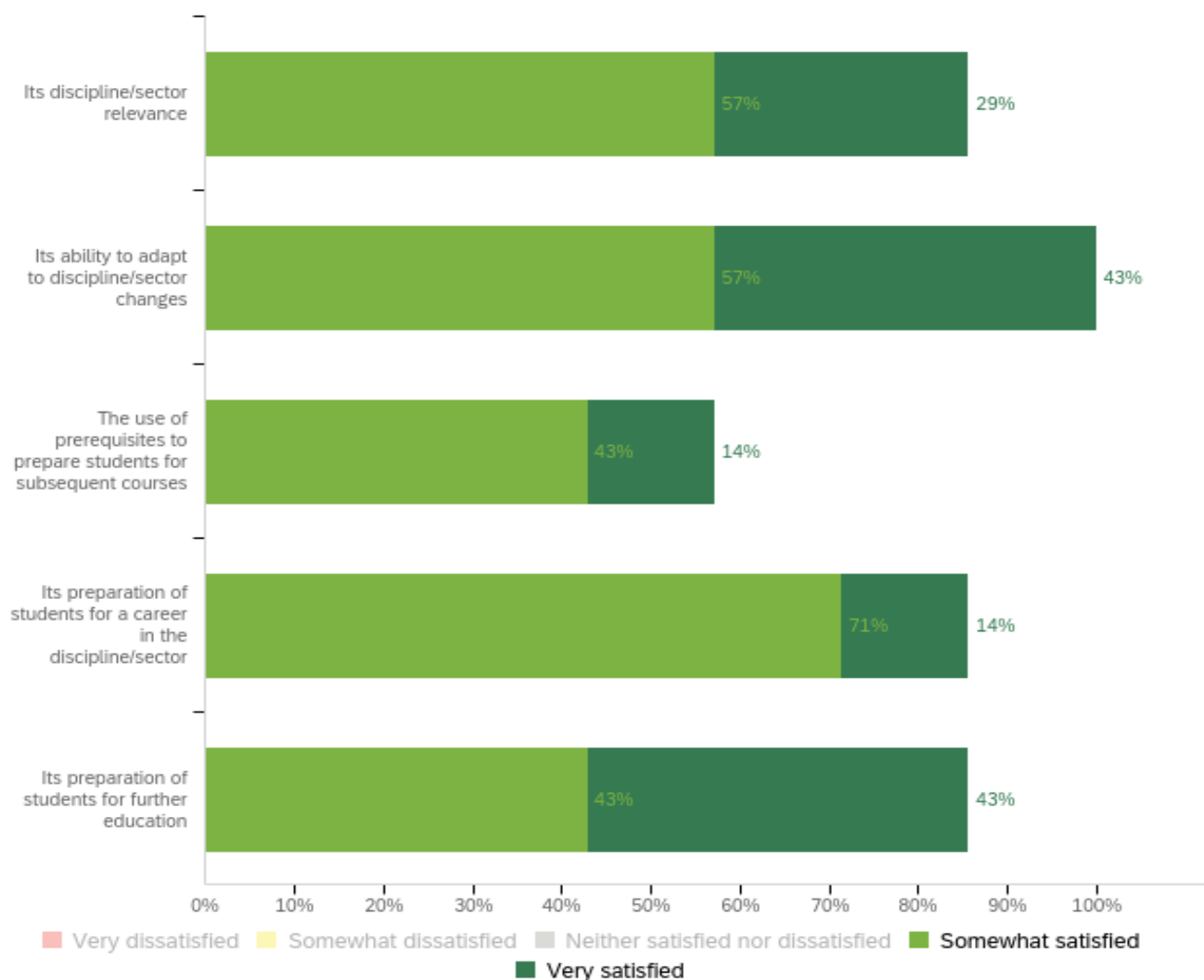
## Q2 - How satisfied are you with how KPU's Sustainable Agriculture program is helping students develop the following essential skills?



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Written communication	0%	0%	43%	29%	29%	7
2	Oral communication	0%	0%	29%	29%	43%	7
3	Group collaboration	0%	0%	43%	14%	43%	7
4	Critical analysis	0%	14%	0%	43%	43%	7
5	Problem resolution	0%	14%	14%	43%	29%	7
6	Learn on your own	0%	14%	14%	29%	43%	7
7	Reading and comprehension	0%	0%	29%	43%	29%	7

### Q3 - How satisfied are you with the following aspects of the program's curriculum?



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Its discipline/sector relevance	0%	0%	14%	57%	29%	7
2	Its ability to adapt to discipline/sector changes	0%	0%	0%	57%	43%	7
3	The use of prerequisites to prepare students for subsequent courses	0%	14%	29%	43%	14%	7
4	Its preparation of students for a career in the discipline/sector	0%	0%	14%	71%	14%	7
5	Its preparation of students for further education	0%	0%	14%	43%	43%	7

#### Q4 - Overall, how satisfied are you with KPU's Sustainable Agriculture program curriculum?



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories. Use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Overall, how satisfied are you with KPU's Sustainable Agriculture program curriculum?	Percentage
1	Very dissatisfied	0%
2	Somewhat dissatisfied	14%
3	Neither satisfied nor dissatisfied	14%
4	Somewhat satisfied	43%
5	Very satisfied	29%
	Total	7

#### Q5 - Thinking of KPU's Sustainable Agriculture program curriculum as a whole, please highlight the strengths of the program.

Hands on, practical, strong relationships between faculty and students, faculty work together well towards short-term and long-term goals, connected with the community.

Learning from hands-on experience is great. A diverse range of skillsets is provided by instructors and contract instructors.

very applied and provides students the opportunity to tailor their learning experience towards their skills and interests. Provides a unique and needed perspective on our food system which will allow our graduate to be leaders in fostering change in society. courses are designed to actively engage students in their learning and values their contribution to learning and the programs development

Teaching farm very close to university campus. Well educated and dedicated lead faculty

Applied research, systems thinking, problem solving

Interdisciplinary. Combination of theory and hands-on experiential learning. Promotes critical analysis.

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excellent passionate educators, good resources

## Q6 - Thinking of KPU's Sustainable Agriculture program curriculum as a whole, please highlight the areas for improvement.

Course progression could be more cohesive, overall curriculum learning goals could be more transparent to students. Could work to incorporate more diverse voices and ways of knowing about agriculture and food.

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Feedback to students about their progress (was one item that students would tell me, they wanted to hear more from instructors). The [Course Name Redacted] course not being a requisite seems to be an oversight. As the [Instructor Redacted] and obviously biased towards the importance of soils, I don't think the program connected on the philosophies of soil health adequately. Students enjoyed the soils courses immensely and in 2020 there were at least 6 students that wanted to do the advanced course but, it was not offered to them as it was not a requisite, and funding was low. I found out that the course was not running that term from my students, not from my department. Communication between instructors could have been better.

---

there are critical components important to food systems that are lacking (crop breeding and genetics; agronomy; more time for pest management). There is a lack of instruction on agroecology in the program, though it is woven into all of our courses, it would be beneficial to have more classes focused on agroecology. There are components of the curriculum that we have reoccurring complaints from students about (particularly math and biology) There is a disconnect between the delivery of these courses and our program in terms of pedagogy and while these courses provide a good foundation for students continuing in biology, the outcomes do not seem to be effective in preparing students for subsequent courses in sust ag. These courses represent a significant credit load and work load which may be more effectively allocated by having courses that provide mathematical and biological concepts in a more applied manner using pedagogies that are more consistent with the rest of the program. Another common complaint from students is that there is not enough hands-on classwork in the first two years of the program. Though there are a few introductory courses in the first two years and students can be involved in the student group and volunteer efforts, students crave a more tangible connection with the program through their course work in their first two years.

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Could increase breadth of regularized instructors. Reliance on just two regular faculty is risky for the program should one or both not be available to teach for whatever reason.

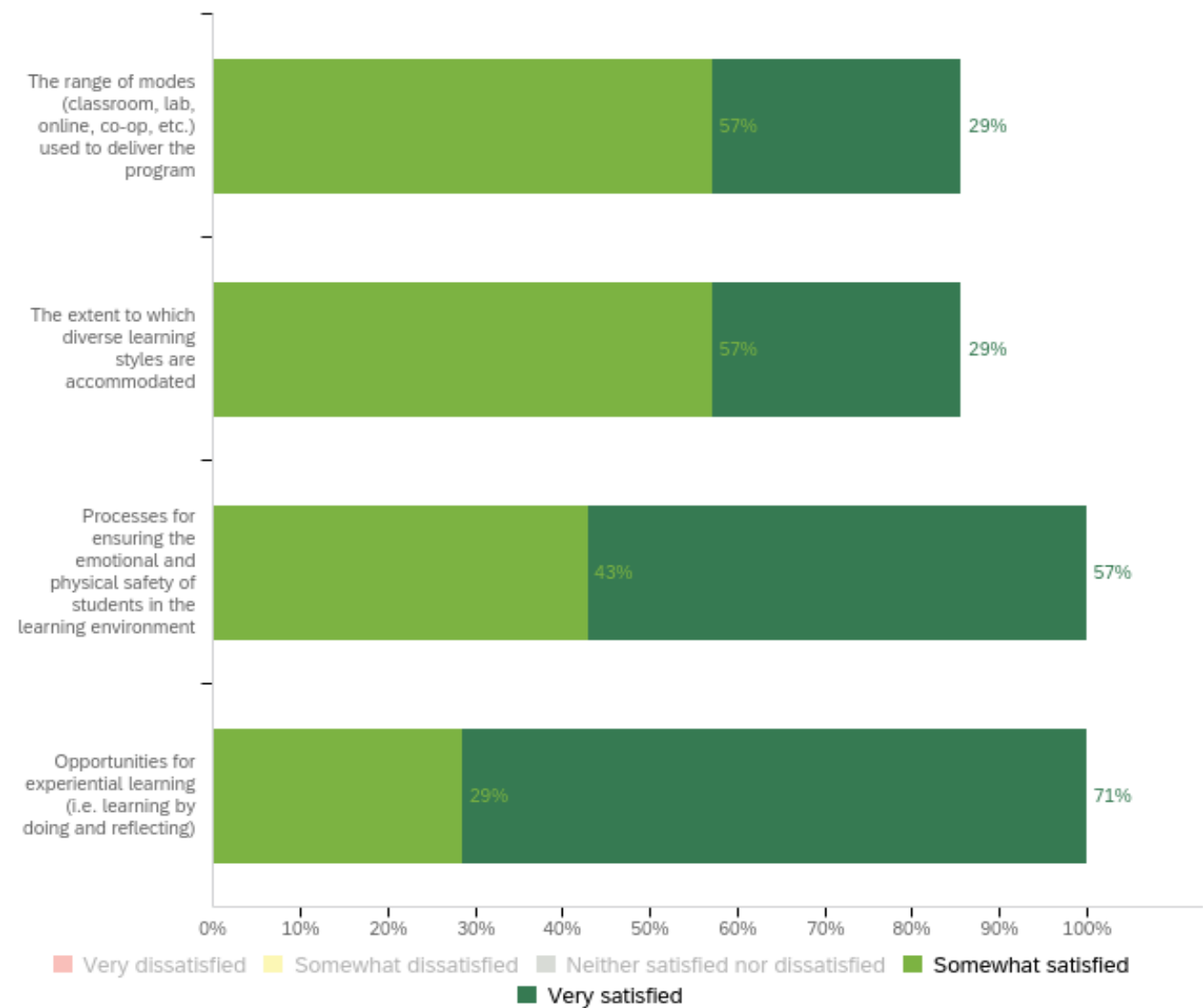
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I fear the program is geared toward a scale and model of agricultural production that isn't economically, socially or mentally sustainable. More emphasis on social science research and indigenization.

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Idk

Q7 - Thinking of how the program is delivered, how satisfied are you with the following?



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	The range of modes (classroom, lab, online, co-op, etc.) used to deliver the program	0%	0%	14%	57%	29%	7
2	The extent to which diverse learning styles are accommodated	0%	0%	14%	57%	29%	7
3	Processes for ensuring the emotional and physical safety of students in the learning environment	0%	0%	0%	43%	57%	7
4	Opportunities for experiential learning (i.e. learning by doing and reflecting)	0%	0%	0%	29%	71%	7



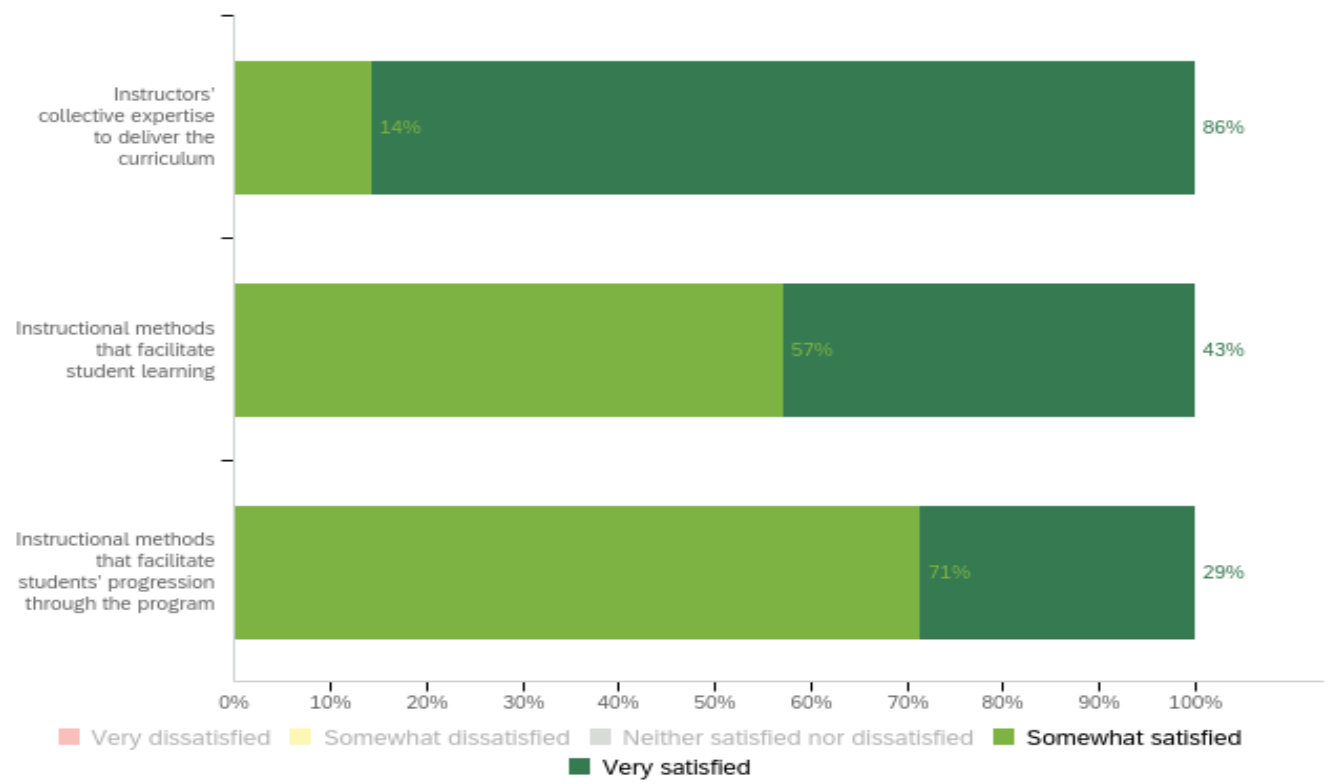
**Q8 - Considering the KPU's Sustainable Agriculture program’s assessment methods as a whole, how satisfied are you with the following?**



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories. Use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	The extent to which students are provided clear information on how they will be evaluated	0%	0%	29%	71%	0%	7
2	The extent to which assessment methods support program competencies and learning outcomes	0%	0%	14%	57%	29%	7
3	The extent to which assessment methods allow students to demonstrate their attainment of program competencies and learning outcomes	0%	0%	14%	43%	43%	7
4	The extent to which assessment standards are consistent throughout the program	0%	14%	29%	43%	14%	7

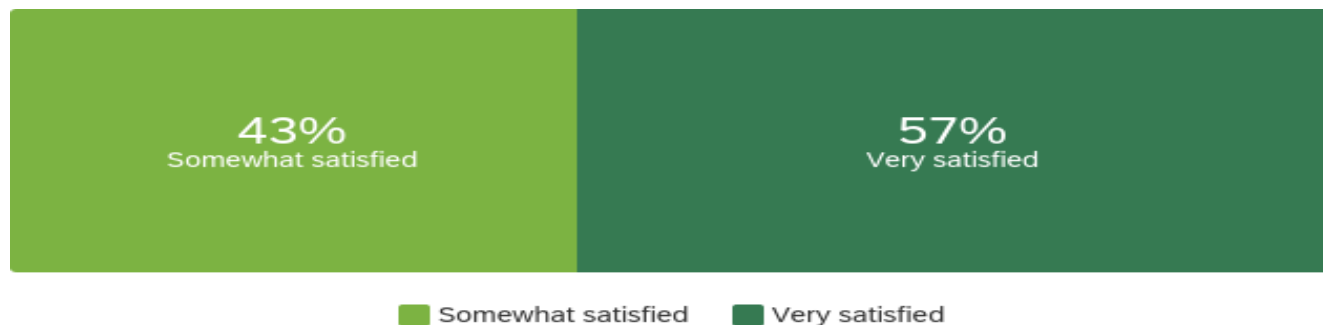
### Q9 - Considering how instruction is delivered across the KPU’s Sustainable Agriculture program as a whole, how satisfied are you with the following?



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Instructors' collective expertise to deliver the curriculum	0%	0%	0%	14%	86%	7
2	Instructional methods that facilitate student learning	0%	0%	0%	57%	43%	7
3	Instructional methods that facilitate students' progression through the program	0%	0%	0%	71%	29%	7

## Q10 - Overall, how satisfied are you with the instruction delivered across the program?



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories. Use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Overall, how satisfied are you with the instruction delivered across the program?	Percentage
1	Very dissatisfied	0%
2	Somewhat dissatisfied	0%
3	Neither satisfied nor dissatisfied	0%
4	Somewhat satisfied	43%
5	Very satisfied	57%
	Total	7

## Q11 - Thinking of how instruction is delivered across the program as a whole, please highlight the strengths of the program.

The instructor knowledge base and experience is excellent. The field set up at garden city is now well equipped. Proximity to the university is excellent. Potential issues that may come up from farming this kind of land may be problematic but part of the learning experience.

Instructors in the sustainable agriculture field are very passionate and have extensive experience in the field. We have instructors that are willing to try new approaches and are committed to student success. Many of our courses integrate experiential learning and provides students the opportunity to highlight their abilities. Instructors in some of our services courses also provide a diversity of perspectives and expertise. The internship and research courses provides students with the opportunity to focus on building their desired skill set and to develop a network in the field which can assist them in their career

Courses are well suited to subject of sustainable agriculture and prepare students for future careers.

Students know their instructors and have direct, ongoing interaction with them.

Passionate teachers with a range of knowledge and experience.

## Q12 - Thinking of how instruction is delivered across the program as a whole, please highlight the areas for improvement.

I haven't been there for a while, like I mentioned I wasn't contracted for [Course Name Redacted] in January and with Covid I did not teach this September. So, I feel it is difficult to have a great knowledge of how the program is running during these times. Areas for improvement; I can only pass comment on my own courses but I would suggest more focus on soil health and managing soils that are requiring remediation and increasing carbon levels through soil organic matter would be of great value to the students. Organic practices that increase soil organic matter, and maintain organic matter, reduction of tillage practices.

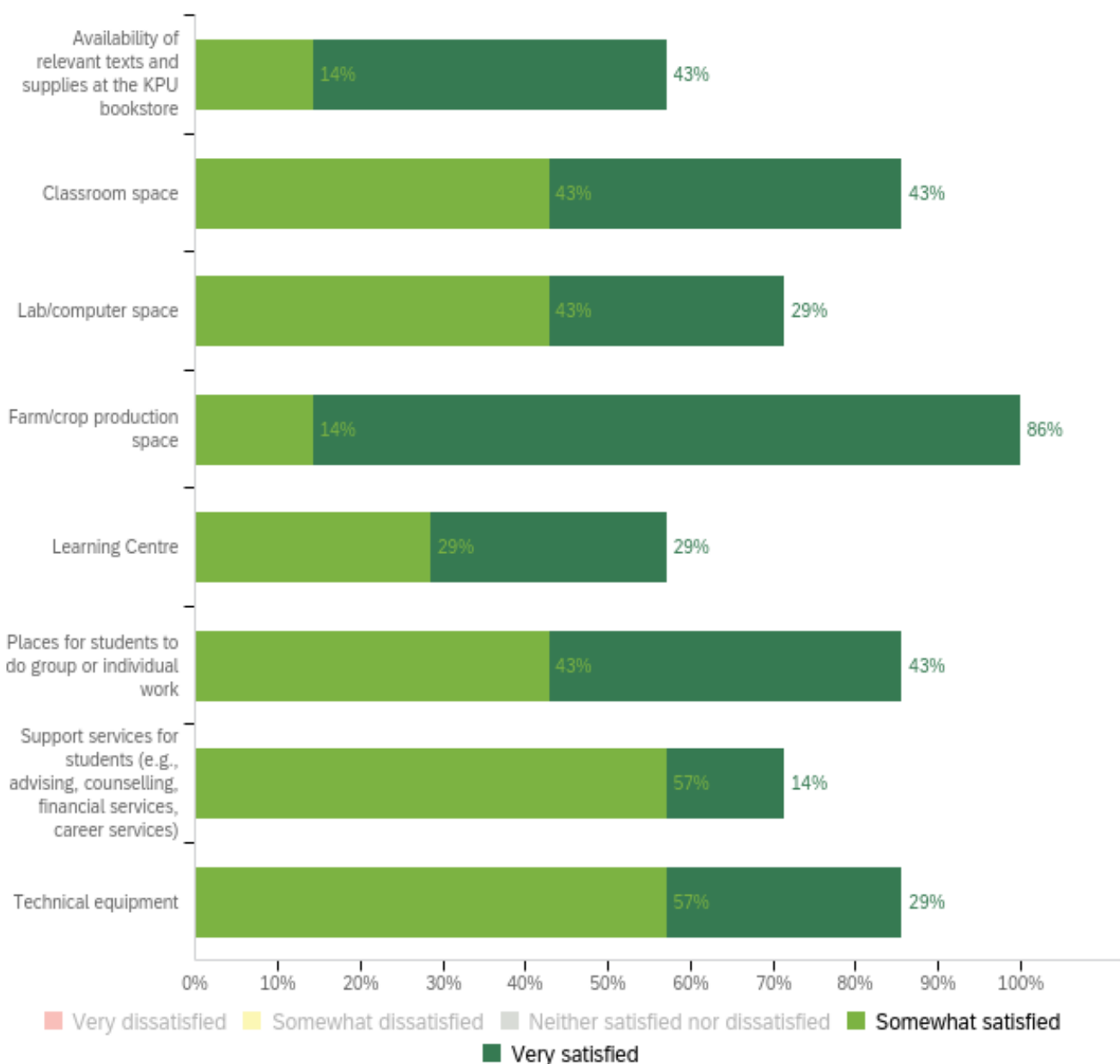
Our greatest challenge seems to be in finding the balance between having a manageable credit load while providing students with the flexibility and opportunity to tailor their program and ensuring the critical components of agroecology are taught. The first two years of the program have been a challenge as there is a heavy load of prereq courses that are services courses. While these courses cover essential content for other programs, they seem to be allocating a disproportionate amount of time to outcomes that are not necessary for our program. It is during this first two years that our students are often complaining that there is a lack of connection between their coursework and the program. There also seems to be a distinct difference in instructional approaches between some of our services courses and our program courses.

Program is still young and growing. Regular instructors will definitely help the program flourish.

Lack of communication with contract faculty

Need more consistent evaluation, clearly linked to program outcomes, with improved ability to document student learning over the course of the program.

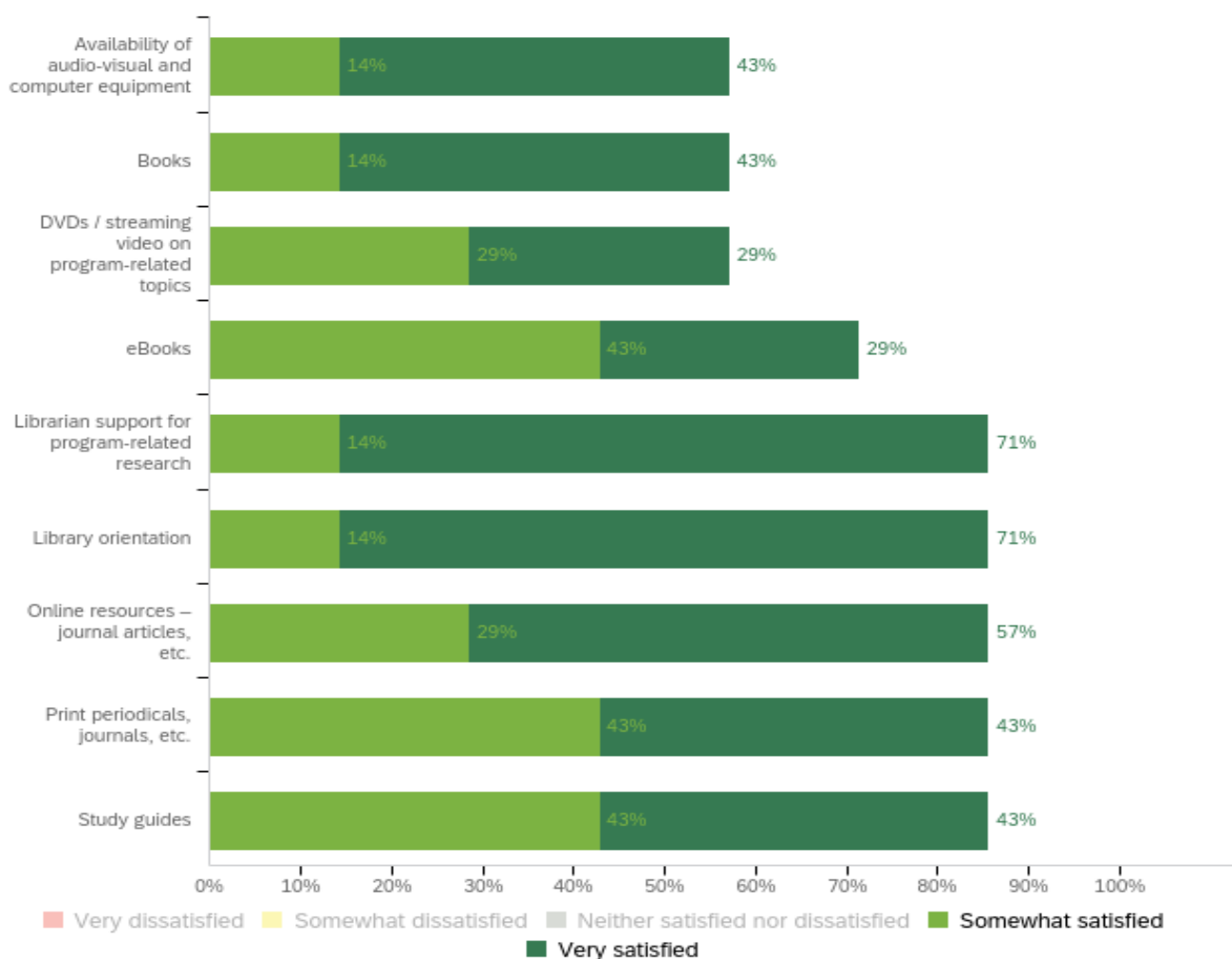
### Q13 - How satisfied are you with the following as they apply to KPU's Sustainable Agriculture program?



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Availability of relevant texts and supplies at the KPU bookstore	0%	14%	29%	14%	43%	7
2	Classroom space	0%	0%	14%	43%	43%	7
3	Lab/computer space	0%	14%	14%	43%	29%	7
4	Farm/crop production space	0%	0%	0%	14%	86%	7
5	Learning Centre	0%	0%	43%	29%	29%	7
6	Places for students to do group or individual work	0%	0%	14%	43%	43%	7
7	Support services for students (e.g., advising, counselling, financial services, career services)	0%	14%	14%	57%	14%	7
8	Technical equipment	0%	0%	14%	57%	29%	7

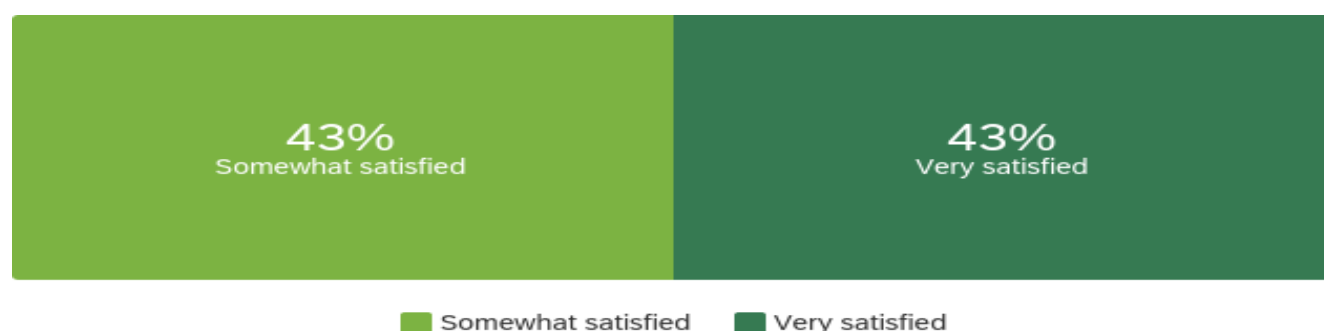
## Q14 - How satisfied are you with the following library resources as they apply to KPU's Sustainable Agriculture program?



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items. For items with low positive percentages, use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Availability of audio-visual and computer equipment	0%	0%	43%	14%	43%	7
2	Books	0%	0%	43%	14%	43%	7
3	DVDs / streaming video on program-related topics	0%	0%	43%	29%	29%	7
4	eBooks	0%	0%	29%	43%	29%	7
5	Librarian support for program-related research	0%	0%	14%	14%	71%	7
6	Library orientation	0%	0%	14%	14%	71%	7
7	Online resources – journal articles, etc.	0%	0%	14%	29%	57%	7
8	Print periodicals, journals, etc.	0%	0%	14%	43%	43%	7
9	Study guides	0%	0%	14%	43%	43%	7

**Q15 - Overall, how satisfied are you with the resources, services and facilities that are specific to the KPU's Sustainable Agriculture program?**



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories. Use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	Overall, how satisfied are you with the resources, services and facilities that are specific to the KPU's Sustainable Agriculture program?	Percentage
1	Very dissatisfied	0%
2	Somewhat dissatisfied	14%
3	Neither satisfied nor dissatisfied	0%
4	Somewhat satisfied	43%
5	Very satisfied	43%
	Total	7

**Q16 - Thinking of the program’s resources, services and facilities, please highlight the strengths of the program.**

Zero textbook costs where possible is wonderful for the students, lab is well equipped after securing some wonderful grant funding.

Our program has worked very hard to develop a 20 acre farm on garden city lands and a 5 acre orchard in partnership with the City of Richmond. These farms have been a critical asset to our program and would not be possible without the city's collaboration. This provides our students with an opportunity to be intimately involved with the development and operations of a working farm. We also have the ability to interact with our community in Richmond in a very tangible way and this facility is fostering relationships with the local schools and other non-profits. The seed lab, which was funded by a CFI grant that was secured by the faculty and supported by KPU is an important resource, and will be a valuable facility for the seed industry in BC and provide important connections for our students with an emerging sector while providing experience in using lab equipment. Our office space that was funded by the CFI grant has been a critical working space for faculty and students and has become a hub of activity and an important meeting space and social space for our students. We have also developed a terrace market garden on campus which has become a favorite spot for many members of our campus community and for our neighbors. Our library and its librarians are AMAZING! As we are a relatively new discipline for KPU, we do not have an extensive resource collection, but the librarians are always responsive to our requests and are proactive in bringing new resources to our attention. [Name Redacted] has been an outstanding support for us and we are very grateful for all the supports the library provides to our program.

Very attentive library specialist

The farms are a tremendous asset - particularly the KPU farm at the Garden City Lands.

**Q17 - Thinking of the program’s resources, services and facilities, please highlight the areas for improvement.**

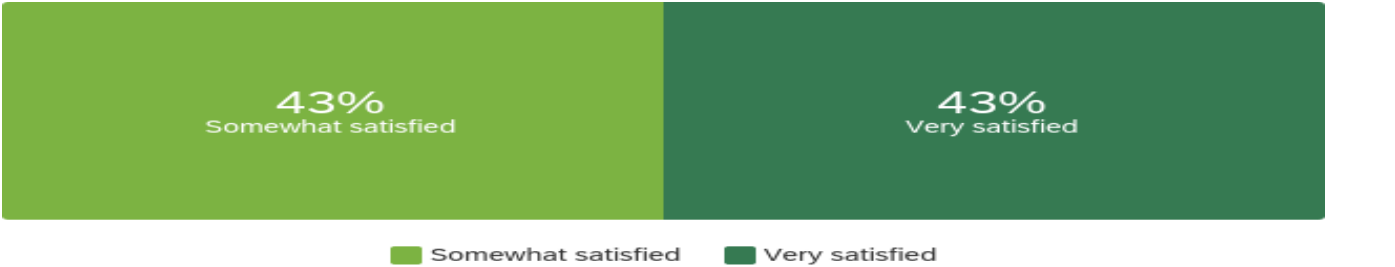
Not currently up to date on the equipment but as of the end of 2019 the lab was filling up with lots of seed-based equipment. Soil equipment could be revised for the expectation of larger classes.

Sustainable Agriculture has been very proactive in developing facilities necessary for our program. We have found funding and partners to assist with this. There has been a challenge with the connection with facilities to identify our sites as part of the KPU campus. This has begun to improve over the last year, but requires additional focus to ensure that the farms are institutionally recognized as part of the campus. Lab space is an ongoing concern as we are significantly limited on space. Currently, we have to carry out 'clean lab' and 'dirty lab' work in the same space. Classroom space on the richmond campus has proven challenging and we have often been allocated to classrooms in the old design wing that are in need of updating. Campus food in richmond also continues to be unsatisfactory and source of many student complaints! We are optimistic that the new food services contract will improve the quality of food and the food services commitment to local procurement.

The disconnect from the Langley Horticulture program is a brutal error in the program's design.

Students have reported frustration with course counseling.

**Q18 - In general, how satisfied are you with your experience in KPU’s Sustainable Agriculture program?**



Note that "neutral" and "negative" categories are excluded from the chart, leaving only the "positive" categories. Use the frequency table below to review the proportion of "neutral" versus "negative" responses.

#	In general, how satisfied are you with your experience in KPU's Sustainable Agriculture program?	Percentage
1	Very dissatisfied	0%
2	Somewhat dissatisfied	0%
3	Neither satisfied nor dissatisfied	14%
4	Somewhat satisfied	43%
5	Very satisfied	43%
	Total	7

## Q19 - Thinking of the program as a whole, please highlight the strengths of the program.

See previous comments

I feel extremely fortunate to be a member of the sustainable agriculture team at KPU. My time here has been very enriching due to the opportunity to work with highly qualified peers that are passionate and share a vision for the important role universities have in fostering sustainable societies. This team has worked cohesively to build a program that we hope will be a model for what a community-embedded university looks like and the impact that it can have in society. The commitment to experiential learning ensures that our program remains connected with and accountable to our stakeholders and community. This program provides students with a high quality education that prepares them for their career through developing their skills and expertise, fostering their interests and passion, and providing them with a network outside of KPU. I believe this program effectively empowers students to be engaged citizens that understand the challenges society is facing. Their experience at KPU allows them to develop tools, understanding and commitment to do the hard work of fostering a more sustainable future. Though there is lots of room for improvement, I feel that the program is growing and has been a leader in what agricultural education needs to look like moving forward.

The faculty are excellent and have an incredible vision.

Focus on decentralized, human-scale farms and food systems. Engaged teachers. Opportunities for research experience. Promotes critical thought and inquiry. Attracts diversity of committed and engaged students.

## Q20 - Thinking of the program as a whole, please highlight the areas for improvement.

See previous comments

As we are a young program, there is lots of room for improvement. 1) Faculty size - while we have an excellent set of faculty in our department, we are heavily dependant on a small set of amazing contract instructors. We are constantly at risk of not being able to deliver core components of our program as they require expertise we do not have in our full time faculty. For example, we have no expertise in animal agriculture, agronomy, agricultural economics, or soil science. These are core components to an agriculture program. we have heard several times from students that they wish there was more expertise in animal agriculture (our instructor moved to the interior in 2018 and we have not been able to find an equivalent replacement willing to teach on contract) and agronomy (we have never had this expertise in our department). This tenuous situation is a challenge due to the risk of not being able to deliver courses, but also to the limited engagement that contract instructors have with the department as a whole. Much of our students experience is based in experiential learning, which requires that instructors are highly engaged in their learning and this is limited with contract instructors as they are not typically available to students beyond their teaching time. We also have research projects that students engage in and they do not have the opportunity to carry out research projects with these instructors due to their limited time. 2) research - our full time faculty are all actively engaged in research with our students, however there is limited ability to carry out significant research due to the time constraints. We are hopeful that this will be improved as a result of KPU's consideration and pursuit of a research policy that will provide space and time for research to be carried out as it is a critical part of our program and relationships with partners.

The program really needs to proactively understand models for sustainable systems in the sector. This includes sustainable business and production models. The program is under-resourced in terms of faculty.

Need more students so that all courses can be offered frequently, and path to graduation will be clear and open. General science prerequisites can be a difficult hurdle for some students to clear in order to get to applied Sust Ag courses.

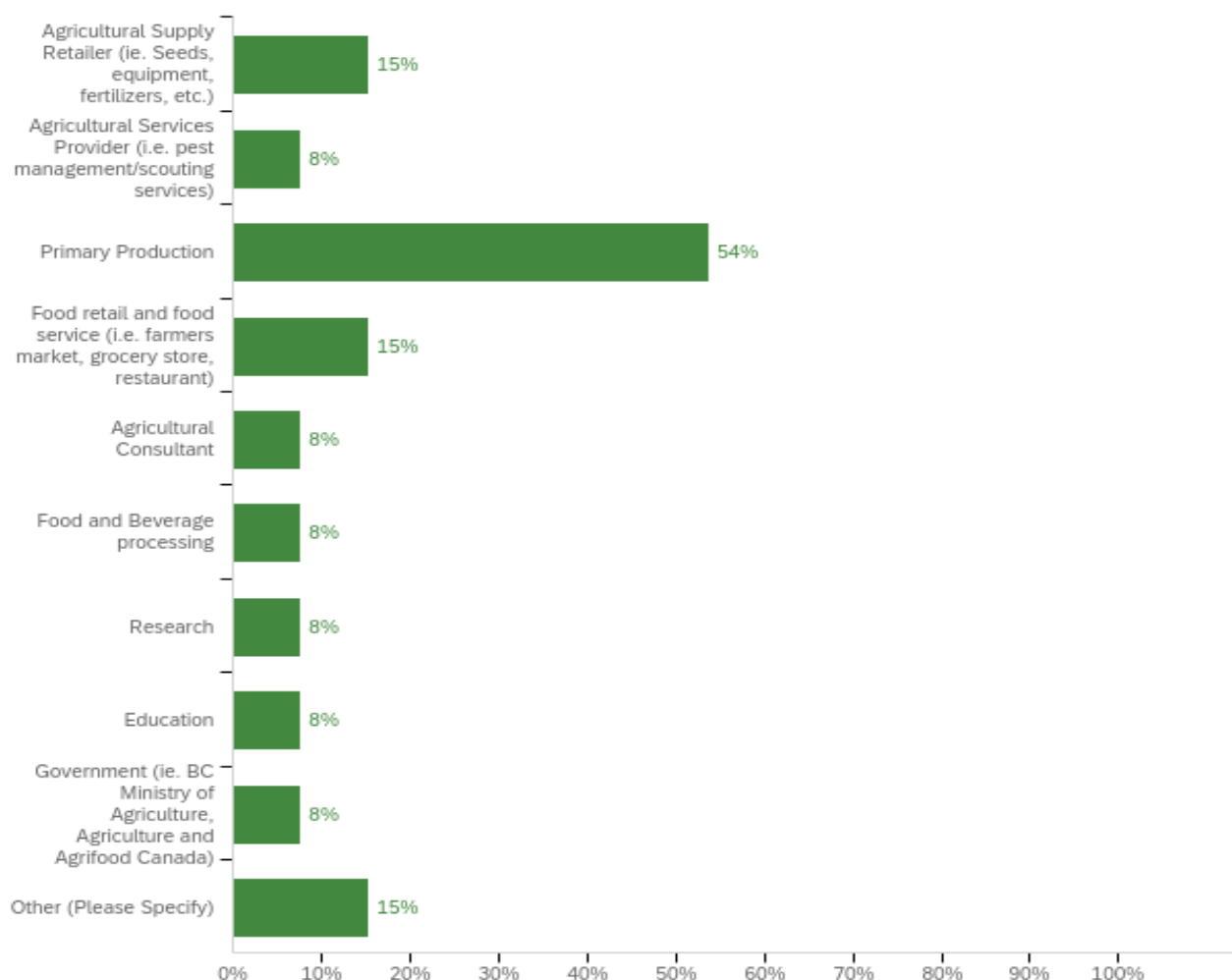


## APPENDIX 6: Discipline/Sector Survey Results

The discipline/sector survey was sent to 31 Sustainable Agriculture discipline/sector representatives. A total of 13 representatives responded. The response rate is 42%.

Note: The data includes open-ended comments. In order to preserve integrity and objectivity, OPA does not do value-judgment editing (i.e. we do not fix spelling errors, syntax issues, punctuation, etc.). Comments are included verbatim – with one exception: if individuals or courses are named, OPA redacts the name of the instructor or course. This rule applies to whether the comment is good, bad or indifferent.

### Q1 - Which sector best describes your organization or business? Select all that apply.



#	Which sector best describes your organization or business? Select all that apply. - Selected Choice	Percentage
1	Agricultural Supply Retailer (ie. Seeds, equipment, fertilizers, etc.)	15%
2	Agricultural Services Provider (i.e. pest management/scouting services)	8%
3	Primary Production	54%
4	Food retail and food service (i.e. farmers market, grocery store, restaurant)	15%
5	Agricultural Consultant	8%
6	Food and Beverage processing	8%
7	Research	8%
8	Education	8%

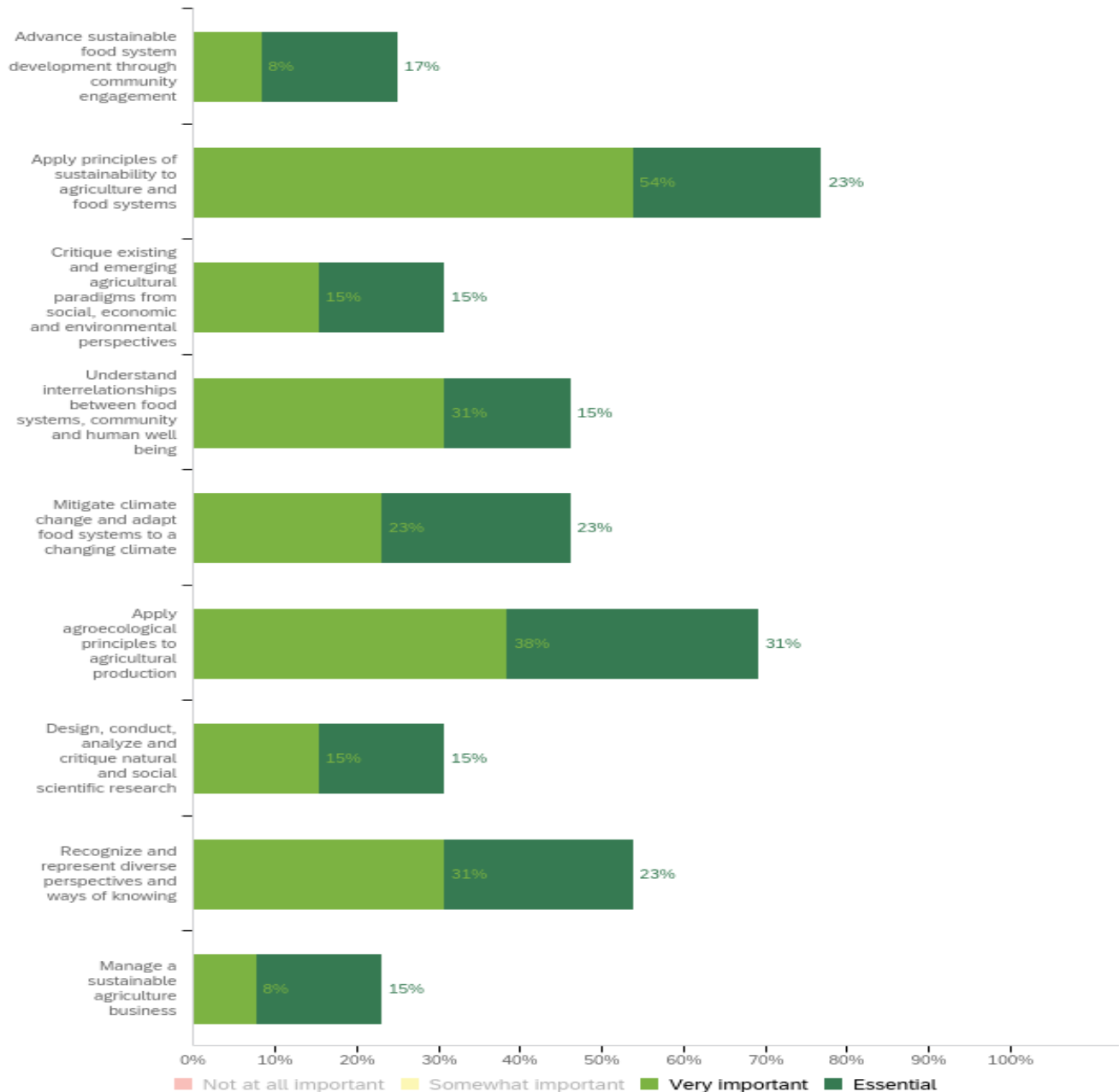
9	Government (ie. BC Ministry of Agriculture, Agriculture and Agrifood Canada)	8%
10	Other (Please Specify)	15%
	Total	13

## Q1\_TEXT - Other (Please Specify)

Non-profit

Local chain ag-tech; automated onsite commercial-scale food & livestock feed technologies

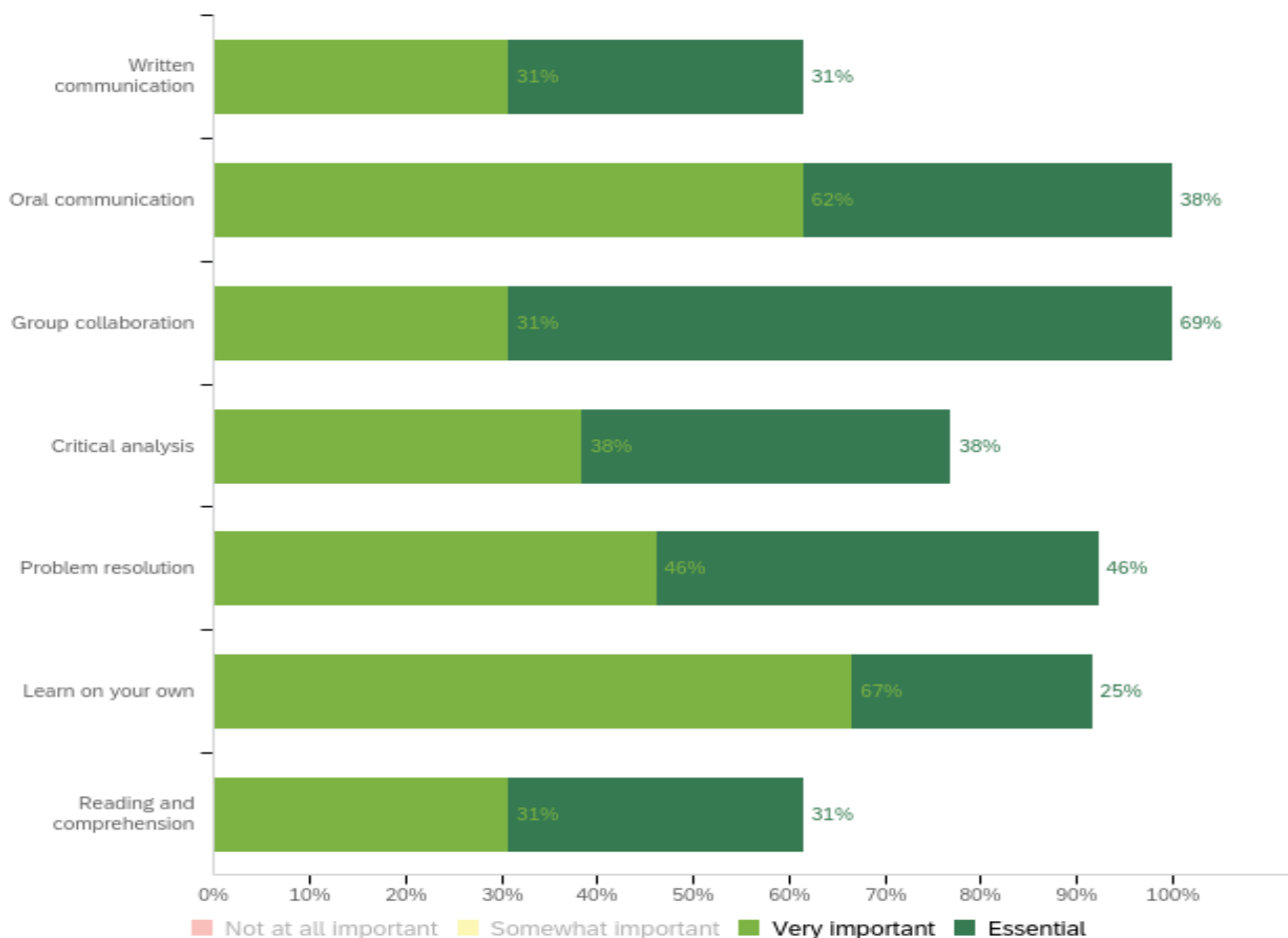
## Q2 - Considering the needs and expectations of your organization, how important is it for an entry-level employee to be able to demonstrate the following?



Note that "Not at all important" and "Somewhat important" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items.

#	Question	Not at all important	Somewhat important	Very important	Essential	Total
1	Advance sustainable food system development through community engagement	8%	67%	8%	17%	12
2	Apply principles of sustainability to agriculture and food systems	0%	23%	54%	23%	13
3	Critique existing and emerging agricultural paradigms from social, economic and environmental perspectives	23%	46%	15%	15%	13
4	Understand interrelationships between food systems, community and human well being	8%	46%	31%	15%	13
5	Mitigate climate change and adapt food systems to a changing climate	23%	31%	23%	23%	13
6	Apply agroecological principles to agricultural production	8%	23%	38%	31%	13
7	Design, conduct, analyze and critique natural and social scientific research	38%	31%	15%	15%	13
8	Recognize and represent diverse perspectives and ways of knowing	8%	38%	31%	23%	13
9	Manage a sustainable agriculture business	15%	62%	8%	15%	13

**Q3 - Considering the needs and expectations of your organization, how important is it for an entry-level employee to be able to demonstrate the following skills?**



Note that "Not at all important" and "Somewhat important" categories are excluded from the chart, leaving only the "positive" categories to enable quick comparisons between items.

#	Question	Not at all important	Somewhat important	Very important	Essential	Total
1	Written communication	0%	38%	31%	31%	13
2	Oral communication	0%	0%	62%	38%	13
3	Group collaboration	0%	0%	31%	69%	13
4	Critical analysis	0%	23%	38%	38%	13
5	Problem resolution	0%	8%	46%	46%	13
6	Learn on your own	0%	8%	67%	25%	12
7	Reading and comprehension	0%	38%	31%	31%	13

## Q4 - What other skills, training or knowledge should an entry-level applicant have to be hired into your organization?

physical ability to work in the fields in all but most extreme weather conditions

A strong work ethic, drive to learn, be curious, and strive to be better. Be open to learning from everyone in the organization. Solid project management skills.

interest in growing not just managing

Understanding of business processes and principles.

Knowledge of plants and their pests would be preferred.

You've identified key areas already, which I'm pleased to see. I always draw on the current scientific textbook knowledge of students and recent graduates, which we - as working researchers, don't encounter from day to day.

driver's licence, software skills (e.g. traceability software, group communication applications, time tracking applications)

General hands on knowledge of growing in either a farm setting or large home garden

Crop Planning skills, Excel; communications & marketing skills, social media & website maintenance

know how to move their body efficiently. able to work in all weather conditions. balance quality and speed in tasks.

Curiosity, willingness to learn, not be attached to ideology that it prevents them from learning about reality at the farm-level.

## Q5 - What are the emerging trends in the sector that KPU Sustainable Agriculture students should be prepared for?

small scale, locally-based, ecologically sound farming, KPU needs to reach out to lobby governing bodies to address barriers to such operations such as reconciliation with First Nations, commodification of land, escalating prices,

Many students leave a degree program expecting that they could run their own business without fully appreciating the experience required and the time it takes to develop competencies in these areas.

While somewhat out of my field, I believe the following are emerging trends: i) plant-based protein sources ii) food biotechnology to serve increasing vegetarian and vegan diets iii) food sovereignty models to buffer against erratic global trade patterns iv) modes of action of biological pesticides (we know they work to a degree, but need better clarity on how they work so we can exploit the 'how' (this is in my field))

electrification of farm equipment, additional software tools in the workplace, monitoring and communication about impacts of agriculture

New technological developments in gardening and small farming, new tools, new ways of doing things to manage soils in a regenerative way. In addition to no till in a small scale and ways to manage weeds without tilling.

native plant species, emerging crops (sweet potatoes, okra, etc.)

climate change, rising input costs for organic ingredients, lower labour availability, increasing land prices

Q6 - How familiar are you with KPU’s Sustainable Agriculture program?



Note that ‘Not at all familiar’ and ‘Slightly familiar’ categories are excluded from the chart. Use the frequency table below to review the proportion of ‘Not at all familiar’ versus ‘Slightly familiar’ responses.

#	How familiar are you with KPU’s Sustainable Agriculture program?	Percentage
1	Not at all familiar	8%
2	Slightly familiar	38%
3	Moderately familiar	38%
4	Very familiar	15%
	Total	13

Q7 - When you think about KPU’s Sustainable Agriculture program, what are the top three characteristics that come to mind?

Characteristic #1	Characteristic #2	Characteristic #3
Local	Engaged	Growing
Sustainable	Cooperative	Regenerative
comprehensive	professionally taught	
applied research	innovation	diversity
hands on learning at the farm school	down to earth real staff to teach	staff that are open to learn and talk about new methods
Practical experience	Depth of knowledge	Community connections

Q8 - Have you ever hosted, hired, or worked with KPU Sustainable Agriculture alumni and/or students?

#	Have you ever hosted, hired, or worked with KPU Sustainable Agriculture alumni and/or students?	Percentage
1	Yes	69%
2	No	31%
	Total	13

**Q9 - Which of the following best describes your previous experience with students and/or alumni in KPU's Sustainable Agriculture program? Please select all that apply.**

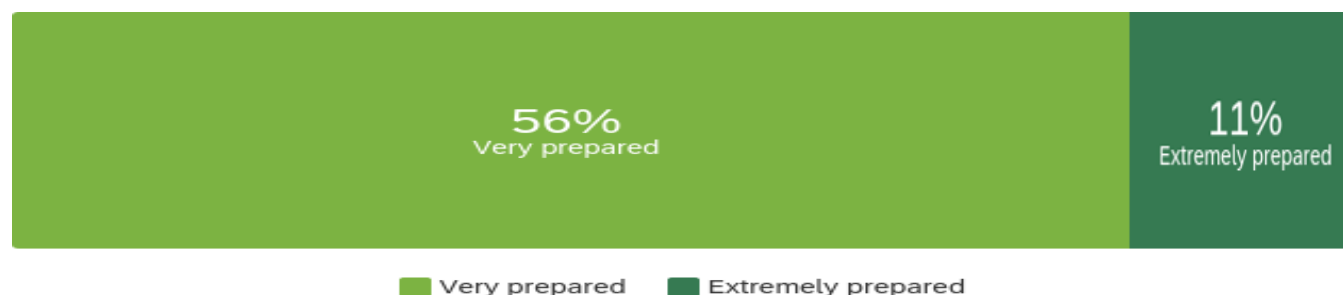
#	Which of the following best describes your previous experience with students and/or alumni in KPU's Sustainable Agriculture program? Please select all that apply. - Selected Choice	Percentage
1	I have hosted KPU Sustainable Agriculture internship, mentorship or work experience students	22%
2	I have hosted a KPU Sustainable Agriculture class for a site visit or I have visited a class	26%
3	I have hired KPU Sustainable Agriculture alumni to work in my organization	26%
4	I have worked with KPU Sustainable Agriculture alumni	19%
5	Others. Please specify.	7%
	Total	27

**Q9\_TEXT - Others. Please specify.**

I mentor students in the research class of [Name Redacted]

I have engaged students at the TFN Farm

**Q10 - Based on your experience, how prepared were KPU's Sustainable Agriculture alumni and/or students to work in your organization?**



Note that 'Not at all prepared' and 'Somewhat prepared' categories are excluded from the chart. Use the frequency table below to review the proportion of 'Not at all prepared' versus 'Somewhat prepared' responses.

#	Based on your experience, how prepared were KPU's Sustainable Agriculture alumni and/or students to work in your organization?	Percentage
1	Not at all prepared	0%
2	Somewhat prepared	33%
3	Very prepared	56%
4	Extremely prepared	11%
	Total	9

**Q11 - Please comment on the alumni and/or students you hired or worked with. Please highlight any strengths you have observed.**

most important strength was interest in learning production

interest/passion for ecological farming culinary values of our crops economics of our kind of farming

The students and alumni have all been very engaged and resourceful.

The students I've hosted and worked with are engaged i.e. their questions and interest come from a genuine place. I believe this is a quality of the students themselves, but also the inspiration they've gained from their professors.

Good working knowledge of the sector

[Names Redacted] are great to work with as well as share information and ideas with. They are available to visit and show off some of the things they are working on. [Names Redacted] have been great additions to our staff and have great growing knowledge.

## Q12 - Please comment on the alumni and/or students you hired or worked with. Please highlight any suggestions you have for improvement.

one hire we had to release before end of season to lack of work ethic and inability to retain instructions farming is a lifestyle as well as a business, pay is low and expectations are high. not for everyone - weed out the dreamers!

I think there is sometimes a disconnect between the expectations of students and alumni and the reality of the sector's business needs.

I cannot think of any.

Livestock handling techniques

The only thing I think would help is after covid, maybe more tours of other operations, such as what the PNWMG group. Pacific North West Market Garden group arranged tours of other small farms and they share knowledge of how they are working on being destination farms for locals and tourists.

The alumni working with us was unwilling to suggest any of their available classmates for future employment with us. Perhaps the cream of the crop had already found other opportunities. And our offerings are part-time minimum wage with little opportunity to move up. However, I believe the concern was also the available classmates weren't self-starting enough to fit into our organizational culture which does rely on people taking initiative and having a strong sense of personal responsibility.

## Q13 - What can KPU's Sustainable Agriculture program do to build better connections with the discipline/sector?

provide field trip bus transportation, or at least expedite car pooling!! have students identify specific questions they want answered ahead of their visit make sure they come dressed for the weather and slogging around a working farm

Is there a place we can list jobs?

In hiring students, I work almost exclusively with the UBC Co-op program for one reason: their responsiveness in serving employers and their laser focus on advancing their students' professional experience. As an employer of students who is exceedingly busy, I need a co-op department that makes the hiring process easy for me. Achieving this would cause me to go to KPU for students. It may already be functionally developed and that I'm not aware of that.

Good connections in BC Organic Podcast that just came out; thank you. Connect with Small-Scale Meat Producers Association. I was just thinking that I would like to engage IFSF about help designing a customer survey for our direct marketing meats business.

Participate in AAS (All America Selections), and variety trials through the US and Canada, and how they manage them in the industry.

Visit our site, personalized invitations to sector-relevant open houses or events at KPU farm sites, ongoing co-operative student placements with support to hosts in recruitment (you may do these things with other groups and we are unaware, not on the right email lists or what have you)

Not sure if there's much connection between the grads and primary agriculture. They would make great consultants and it would be nice to have them employed with companies like Terralink, Southern Drip, and even seed companies that supply primary agriculture. Alternatively a co-op program would enable students to get more hands-on experience which is what farmers are looking for in management-level positions.

## APPENDIX 7: Faculty CV

### Curriculum Vitae: Rebecca Harbut

Department of Sustainable Agriculture & Food Systems

Department Chair

Kwantlen Polytechnic University

Richmond Campus

Phone: 604-599-2563

Email: Rebecca.harbut@kpu.ca

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### EDUCATION

Ph.D.	2009	Cornell University	Horticulture
M.S.	2004	University of Guelph	Plant Science
BSc.Agr.	2002	University of Guelph	Agricultural Science

### PROFESSIONAL EXPERIENCE

2020-2021	Visiting Fellow, Swedish International Centre of Education for Sustainable Development (SWEDES), Uppsala University, Uppsala, Sweden
2013-2020	Chair, Department of Sustainable Agriculture, KPU
2009-2013	Assistant Extension Professor, Department of Horticulture, University of Wisconsin-Madison (60% Extension, 30% Research, 10% Teaching)
2004-2009	Graduate Research Assistant, Cornell University
2004-2008	Teaching Assistant, Cornell University
2003-2004	Teaching Assistant, University of Guelph
2000-2002	Research Assistant, University of Guelph, Small Fruits Program
2000-2002	Research Assistant, University of Guelph, Crop Science Dept., Barley Program

### RELATED SERVICE EXPERIENCE

Research advisor for BC Cranberry Growers Association (2014-present)  
Reviewer for Journal of the American Society for Horticultural Science (2009-present)  
Reviewer for HortScience (2008, 2009)  
Member, American Society of Horticultural Science (2003-present)  
Coordinator, Cornell Orchards Education Program (2005-2009)  
Vice-President, Society of Horticulture Graduate Students (2007)  
President, Society of Horticulture Graduate Students (2006)

### RESEARCH AND EXTENSION INTERESTS

- 1) Development of sustainable, regional food production systems
- 2) Resource management in fruit production systems
- 3) Integrative whole plant physiology and biochemistry related to carbon assimilation in berry crops.



- 4) Effects of production practices on fruit quality
- 5) Understanding the dissemination and utilization of information among researchers and growers

## AWARDS

Endowed Cranberry Research Chair, University of Wisconsin, 2010  
 Homan Award, Cornell University, 2006, 2008  
 NSERC PGSD, Canadian National Award, 2006  
 Outstanding Teaching Assistant Award, College of Agricultural and Life Science, Cornell University, 2006  
 Journal of American Pomological Society U.P. Hedrick Award, 2004  
 H.L. Hutt Memorial Scholarship, University of Guelph, 2004  
 Natural Sciences and Engineering Research Council of Canada (NSERC), 2004  
 OAC Centennial Scholarship, University of Guelph, 2003  
 Fred Ball Scholarship, Hort. Dept., University of Guelph, 2003  
 Ontario Graduate Scholarship, Provincial Award, Ontario, 2003

## PUBLICATIONS

### Peer Reviewed:

DeVetter, L.W., Beaver, E., Colquhoun, J., Zalapa, J. and **Harbut, R.** (2016). Comparison of nonstructural carbohydrates across cranberry cultivars. *Eur.J.Hortic.Sci.* 81(6), 321-326. DOI: 10.17660/eJHS.2016/81.6.5

DeVetter, L.W., **R. Harbut**, E. Beaver, and J. Colquhoun. 2014. Nonstructural carbohydrates and return bloom potential differ among cranberry cultivars. *HortScience*. Manuscript in review.

DeVetter, L.W., **R. Harbut**, J. Colquhoun, and J. Zalapa. 2014. Analysis of genetic, physiological, and environmental yield components within commercial cranberry production systems. *HortScience*

DeVetter, L.W., **R. Harbut**, and J. Colquhoun. 2013. Understanding yield-contributing factors of cranberry (*Vaccinium macrocarpon* Ait.). *J. Am. Pom. Soc.* 67(3):147-156.

DeVetter, L.W., **R. Harbut**, and J. Colquhoun. 2013. Bud development, return bloom, and external bud appearance differs among cranberry cultivars. *J. Amer. Soc. Hort. Sci.* 38(5):338-343.

Siebach, S., G. Covarrubias-Pazaran, **R. Harbut**, B. Workmaster, L.W. DeVetter, S. Steffan, C. Guédot, A. Atucha, and J. Zalapa. 2015. Toxicity of chelated iron (Fe-DTPA) in American cranberry. *J. Horticulture*. 2: pp 1-6

**Harbut, R.M.** Sullivan, A.J., Proctor, J.T.A. (2010). Temperature Affects Dry Matter Production and Net Carbon Exchange Rate of Lower-Ploidy *Fragaria* Species and Species Hybrids. *Canadian Journal of Plant Science* 90:1-8.

**Harbut, R.M.**, Sullivan, A.J., Proctor, J.T.A. (2009). Early generation performance of *Fragaria* species hybrids in crosses with cultivated strawberry. *Canadian Journal of Plant Science* 89(6):1117.

**Harbut, R.M.**, Pritts, M.P. and Alba, R. (2007). A Century of Strawberry Breeding: A Photosynthetic Evaluation. *Proceedings of the 2007 North American Strawberry Symposium* (eds. F.Takeda, D.T. Handley and E.B. Poling). Pp 18-22.

conference proceedings, papers presented at scholarly meetings or conferences, articles in professional or trade journals).

**Harbut, R.M.** and J.A. Sullivan (2004). Breeding Potential of lower poidy *Fragaria* species. *Journal of the American Pomological Society*

*Other refereed contributions:*

Wasko-DeVetter, L. and **Harbut, R.M.** New Discoveries in Cranberry Bud Development American Society of Horticultural Science Annual Conference, Miami, FL July 30-Aug3. Journal of the American Society for Horticultural Science (Abstract).

**Harbut, R.M.** Pritts, M.P. (2012). Evaluating strawberry cultivars for the last 100 years American Society of Horticultural Science Annual Conference, Miami, FL July 30-Aug3. Journal of the American Society for Horticultural Science (Abstract).

**Harbut, R.M.**, Pritts, M.P. and Alba, R. (2007). A Century of Strawberry Breeding: A Photosynthetic Evaluation. Proceedings of the 2007 North American Strawberry Symposium (eds. F.Takeda, D.T. Handley and E.B. Poling). Pp 18-22.

Non-refereed contributions (Conference Proceedings:)

**Trade Publications:**

Harbut, R.M. (2014). Soil management in organic systems. BC Organic Grower Magazine. Spring Issue

Harbut, R.M. (2012). Roots Shoots and Boots, WI Cranberry School 2012 Proceedings (ed. R.M. Harbut). Pp. 10-13

Harbut, R.M. (2011). Fall in the Orchard. Fresh Magazine, September

Harbut, R.M. (2011). Cranberry Canopy Management. WI Cranberry School 2011 Proceedings (ed. R.M. Harbut). Pp. 18-21.

Harbut, R.M. (2011). Nutrient management in Cranberries. WI Cranberry School 2011 Proceedings (ed. R.M. Harbut). Pp.22-25.

Harbut, R.M. Diagnosing Nutritional Status of Fruit Crops. Fresh Magazine, Spring. 2011.

Harbut, R.M., Heidenreich, C., McDermott, L. and Pritts, M.P. The New Face of New York Berry Growers: Insights From the 2007 Berry Growers Survey. New York Fruit Quarterly, Winter 2009.

**Selected Extension Presentations and Workshops**

Harbut, R.M. and A. Kurniki. *The Garden City Lands: Arriving at Convergence*, BC Land Summit, March 2019

Harbut, R.M. *Fostering a Sustainable Cranberry Industry in British Columbia*, Richmond, BC, Feb. 2018

Harbut, R.M and T. Someya. *Defining Cranberry Field Decline and Approaches to Management*, Cranberry Congress, Richmond, B.C., Feb. 2018

Harbut, R.M. *The Community Embedded University: The Role of Universities in Building Sustainable Societies*, Kona, USA, July 2016 *NRCS Nutrient Conservation Training*. Tomah, Hayward and Stevens Point, WI, March 2010

Harbut, R.M. *Tree Fruit Mineral Nutrition*. WI Fresh Fruit and Vegetable Conference. WI Dells, WI. Jan. 5, 2010.

Harbut, R.M. *Understanding Nitrogen*. Northland Community and Technical College. Thief River Falls, MN. March 29, 2008.

Harbut, R.M. *Climate Change and Strawberry Production in the Northeast*. Empire State Fruit and Vegetable Expo. Syracuse, NY Feb. 13-15, 2007

Harbut, R.M. *Introduction to Berry Growing*. Cooperative Extension, Bath NY Dec. 7, 2007

#### (4) Research Support

Award Dates	Role	Title	Agency	Amount
2016	PI	Unmanned Aerial Systems for cranberry crop assessment	NSERC – Engage	\$25,000
2015	PI	Development of Seed Testing Lab and Research Farm	CFI and BCKDF	\$1,600,000
2014-2016	PI	Characterization and development of management strategies for Cranberry Field Decline	BC Cranberry Research Council, IAF	\$120,000
2013	CO-PI	Regional Food System – Developing a model and extension system in BC	SSHRC	\$250,000
2013	PI	Fostering Region Food Systems in BC	KPU	\$45,000
09/2010-8/2011	PI	Determining Nutrient Availability Profiles in Newly Planted and Established Cranberry Marshes	WI Cranberry Board	\$9,643
09/2010-8/2011	PI	Iron in Cranberry Production: Sampling, Analysis and Effects on Plant Productivity	WI Cranberry Board	\$25,560
10/2010-12/2011	PI	Grape Quality of Cold Hardy Wine Grapes Produced In Different Regions of Wisconsin	SCBG-USDA	\$38,494
10/2010-12/2011	PI	Evaluating Use of Soil Moisture Probes to Increase Water Use Efficiency in Irrigation of Cranberry Beds	SCBG-USDA	\$28,537
10/2010-12/2011	PI	Evaluation of Automated Cycled Sprinkler Irrigation System for Frost Protection in Wisconsin Cranberry Beds: Impact on Water Use and Flower Bud Development	SCBG-USDA	\$30,000
09/2011-8/2013	PI	Nutrient Management in Organic High Tunnel Raspberry Production	Hatch	\$78,841
10/2011-9/2012	PI	Development of Best Management Practices Workbook for Wisconsin Cranberry Production	SCBG-USDA	\$15,000
10/2011-9/2012	PI	Increasing Water Use Efficiency in Cranberry Production Through the Use of Soil Moisture Probes	SCBG-USDA	\$27,500
12/2011-9/2013	Co-PI	Northern grapes: Integrating viticulture, winemaking, and marketing of new cold-hardy cultivars supporting new and growing rural wineries	SCRI-USDA NIFA	\$45,875
2011-2012	PI	Assessing nutrient release rates of Organic Nutrient Sources in High Tunnel Raspberry Production	NCR-Sustainable Agriculture Regional Extension	\$46,266
2012-2013	Co-PI	Producing Strawberries Throughout the Growing Season With a Small Environmental Footprint	USDA-MN-Specialty Crop Block Grant	\$98,492
2012-2013	PI	Development of Research Based IPM and Grape Canopy and Fruit Maturity Index Tools	USDA	\$28,479
2011-2013	PI	Optimization of Timing of Tissue Analysis in Cranberry	USDA_Specialty Crop Block Grant	\$39,092
2011-2013	Co-PI	Development of Strawberry BMP Workbook	USDA-Specialty Crop Block Grant	\$50,000

# Alexandra Lyon

Faculty Member

Sustainable Agriculture and Food Systems

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Email: [alexandra.lyon@ubc.ca](mailto:alexandra.lyon@ubc.ca)

Web: <https://www.kpu.ca/agriculture>

## SPECIALIZATION

Agroecology, seed systems, plant breeding, participatory research, knowledge mobilization for agri-food systems

## EDUCATION

Aug. 2015 **Ph.D.** University of Wisconsin-Madison, Nelson Institute for Environmental Studies

Advisor: Erin Silva

Major: Environment and Resources Thesis: *Evaluating for Resilience: Participatory Variety Trials and Seed Systems for Wisconsin's Organic Vegetable Farms*

Dec. 2008 **M.S.** University of Wisconsin-Madison, Agroecology Program

Advisor: Michael M. Bell

Thesis: *Learning as You Go: Farmers, Scientists, and the Creation of Knowledge for Management Intensive Grazing*

May 2004 **B.S.** Smith College

Advisors: Frederique Apfell-Marglin, Leslie King

Major: Anthropology; Minor: Environmental Science & Policy

## INTERNATIONAL STUDY

October 2019 **GROW: Agrobiodiversity in a Changing Climate**, Bioversity International, Rome, Italy

- Professional training (2 weeks) in on-farm conservation of crop genetic diversity

Fall 2008 **AGROECOS European Masters in Agroecology**, ISARA-Lyon College of Food, Agriculture, Environment, and Rural Development; Lyon, France

- Semester exchange with field-based agro-ecosystem research project

Spring 2003 **Universidad San Francisco de Quito**, Quito, Ecuador

- Semester exchange, coursework in Spanish and Latin American Studies
- Visits to sustainable agriculture and permaculture operations

## LEAVES OF ABSENCE

July 2013 – Aug 2014 Parental Leave

March – Dec 2017 Parental Leave

## PROFESSIONAL EXPERIENCE

July 2020 **Faculty**, Sustainable Agriculture and Food Systems, Kwantlen Polytechnic University

- Teach courses in Sustainable Agriculture and Food System
- Advise participatory plant breeding research and community variety trials in collaboration with the UBC Centre for Sustainable Food Systems

Apr 2020 –

June 2020 **Research Associate**, University of British Columbia, Centre for Sustainable Food Systems

- Leading strategic plan development for seed systems research, outreach, and education at the Centre for Sustainable Food Systems
- Leading participatory plant breeding and on-farm variety trials with partners across Canada
- Developing on-farm research network for BC Hazelnut Growers' Association

Nov 2015 – March 2020 **Postdoctoral Research Fellow**, University of British Columbia, Prof. Hannah Wittman

- Lead researcher for the BC Seed Trials project, in collaboration with FarmFolk CityFolk and the BC Eco-Seed Coop, supporting BC seed growers through variety trials on 25 BC farms (2016 – 2018)
- Secured 5-year funding as part of AAFC Organic Science Cluster 3 for on-farm vegetable variety trial and participatory plant breeding network across Canada, with support from the Bauta Family Initiative on Canadian Seed Security (2018 – 2023)
- Mentored graduate and undergraduate students in variety trial methods, participatory plant breeding, and seed systems research
- Led knowledge mobilization through public field days, workshops, presentations, webinars, and online research briefs

2010 – 2014 **Research Assistant**, University of Wisconsin-Madison, Prof. Erin Silva

- Coordinated variety trials in 7 vegetable crops on 15 organic farms
- Managed organic variety trials at West Madison Agricultural Research Station
- Collaborated with plant breeders, farmers, and other seed professionals in multi-university, USDA-funded research initiative

2006 – 2008 **Research Assistant**, University of Wisconsin-Madison, Prof. Michael Bell

- Organized field days and built farmer relationships for a participatory research project in pasture management and pasture ecology

## TEACHING EXPERIENCE

- Core courses at Kwantlen Polytechnic University (Primary Instructor, ongoing):
  - *AGRI 1150: Sustainable Agriculture in the 21<sup>st</sup> Century*. 3 credits.

- *AGRI 1290: Food Systems Field Analysis*. 1 credit.
- *AGRI 2250: Agriculture and Food Systems*. 3 credits.
- *AGRI 4298: World Trends in Agriculture*. 3 credits.
- *AGRI 4295: Community Internship*. 3 credits.

- *Agroecology 701: The Farm as an Agroecological Endeavor* (Project Assistant – Course Design). Spring 2013, UW-Madison.
  - Contributed to curriculum re-design for a core course the M.S. in Agroecology
  - Led three lectures and facilitated active learning activities

- *Introduction to Environmental Studies* (Undergraduate Curriculum Design Assistant). Helped develop curriculum for a new introductory survey course for first year students. Spring 2004, Smith College.

## PEDAGOGY TRAINING

- *Foundations of Intercultural Teaching, Inclusive Pedagogies, and Interculturalizing the Curriculum*. Three-week online series. KPU Teaching and Learning Commons, June – July 2021.
- *FLO MicroCourse: Authentic and Alternative Assessments*, BC Campus. One-week online course. July 19 – 23, 2021.
- *Foundations of Pedagogy 1*, Centre for the Integration of Research, Teaching, and Learning (CIRTL) at UBC. Completed March 2019. (16 hours)

## GUEST LECTURES

- *Applied Biology 318: Applied Plant Breeding*, University of British Columbia. “Participatory Plant Breeding: Why and How?” November 13, 2018.
- *Interdepartmental Seminar: Seeds and Human Wellbeing*, Middlebury College. “A Farm-Level View of the Organic Seed Industry.” January 25, 2016.
- *Agroecology 701: The Farm as an Agroecological Endeavor*, University of Wisconsin-Madison. ○ “Grazing and Pasture Ecology,” February 28, 2013
  - “Seed Systems,” April 16, 2013
  - “Plant-Environment Interactions,” April 18, 2013
- *Agronomy 300: Cropping Systems*. Agroecology and Agroecosystems. February 6, 2008, UW-Madison.
- *Seminar in Sociology of Environment, Technology, and Agrofood Systems*. No Textbook Answer: How Wisconsin Graziers Understand University Research. May 2, 2007, UW-Madison.

## STUDENT MENTORSHIP & SUPERVISION

### Graduate Students

- Lea Kliem, PhD Candidate, Institute for Ecological Economy Research, Berlin, Germany ○ Hosted visiting scholar to facilitate research on seed commons
- Chris Thoreau, M.S. in Applied Biology, UBC. Supervisor: Hannah Wittman ○ Served on thesis committee, supervised research assistantship in on-farm variety trials
- Paul Dutartre, Master’s in Agriculture Science at National Institute of Agronomy and Food Science in Dijon (France)
  - Supervised 20-week internship in greenhouse seed production, March – August 2019

### UBC Work-Learn and Directed Studies Students

- Nazir Irfan, Work-Learn Program, May 2020 –
- Nicolas Buchheister, Work-Learn Program, May 2019 – Apr 2020
- Katherine Cramer, Work-Learn Program, May 2018 – April 2019
- Morgan Hamilton, APBI 497 Directed Studies, Spring 2019
- Carla Hick, Work-Learn Program, Sept. 2016 – Apr. 2018
- Nicolette Lax, Work-Learn Program, Sept 2016 – Apr. 2017

## PUBLICATIONS

- Lyon, A.**, H. Friedmann, and H. Wittman. 2021. “Reinvigorating a Seed Commons? Cultivating seed sovereignty through community-university partnerships.” *Elementa: Science of the Anthropocene* 9, 1: 00089. <https://doi.org/10.1525/elementa.2021.00089>
- Nawaz, S., Klassen, S., and **A. Lyon**. 2020. “Good seeds, bad seeds? Rearticulating ‘organic’ plant breeding in the age of gene editing.” *Elementa: Science of the Anthropocene* 8, 34. <https://doi.org/10.1525/elementa.429>
- Lyon, A. H.**, W. Tracy, M. Colley, P. Culbert, M. Mazourek, J. Myers, J. Zystro, and E. M. Silva. 2019. “Adaptability Analysis in a Participatory Variety Trial of Organic Vegetable Crops.” *Renewable Agriculture and Food Systems* 35, 3: 1–17. <https://doi.org/10.1017/S1742170518000583>

**Lyon, A. H.** "Evaluating for Resilience: Participatory Variety Trials and Seed Systems for Wisconsin's Organic Vegetable Farms." Ph.D., The University of Wisconsin - Madison, 2015.

<https://search.proquest.com/docview/1835182270/abstract/218817CD5B684724PQ/1>.

**Lyon, A. H., E. M. Silva, J. Zystro, and M. M. Bell.** 2015. "Seed and Plant Breeding for Wisconsin's Organic Vegetable Sector: Understanding Farmers' Needs." *Agroecology and Sustainable Food Systems* 39, 6: 601-624.

<https://doi.org/10.1080/21683565.2015.1017786>

Luby, C. H., **A. H. Lyon**, and A. C. Shelton. 2013. "A New Generation of Plant Breeders Discovers Fertile Ground in Organic Agriculture." *Sustainability* 5, 6: 2722-2726. <https://doi.org/10.3390/su5062722>

**Lyon, A. H., M. M. Bell, C. Gratton, and R. Jackson.** 2011. "Farming without a recipe: Wisconsin graziers and new directions for agricultural science." *Journal of Rural Studies* 27, 4: 348-393.

<https://doi.org/10.1016/j.jrurstud.2011.04.002>

**Lyon, A.H., M. M. Bell, C. Gratton, and R. Jackson.** 2010. "Maculate Conceptions: Power, Process, and Creativity in Participatory Research." *Rural Sociology* 75, 4: 538-559. <https://doi.org/10.1111/j.1549-0831.2010.00030.x>

Bell, M. M., **A. H. Lyon**, C. Gratton, and R. Jackson. 2008. "The Productivity of Variability: An Agroecological Hypothesis." *International Journal of Agricultural Sustainability* 6: 1-3. • <https://doi.org/10.3763/ijas.2008.c5004>

## PRESENTATIONS

Nadar, D., T. Traverse, K. Duthie-Kannikkatt, and **A. Lyon.** (2020, May 31-June 2). *Countering the effects of settler colonialism on local food systems: sharing Indigenous seed saving models on Turtle Island, in Tarija, Bolivia and in the West Bank, Palestine.* [Conference Panel Session]. Canadian Association of Food Studies, London, ON (Conference Canceled).

**Lyon, A., H. Jensen, A. Dey, D. Catzel, I. Vaisman, S. Hughes, H. Martorell, R. Ivanoff, C. Thoreau, M. Isaac, H. Wittman.** (2020, February 12-16). *Canadian Organic Vegetable Improvement.* [Poster]. 10<sup>th</sup> Organic Seed Growers' Conference, Corvallis, OR, United States.

**Lyon, A., N. Enjalbert, and C. Thoreau.** (2019, Nov 8-9). *The Role of Technology in Supporting Participatory Variety Trials in Canada.* [Conference Session]. BC Seed Gathering, Richmond, BC.

**Lyon, A.** (2019, February 22-24). *Digging Better Carrots, Picking Better Peppers: Introducing CANOVI: Canadian Organic Vegetable Improvement.* [Conference Session]. Certified Organic Associations of British Columbia 2019 Conference, Vernon, BC.

**Lyon, A.** (2018, June 13-16). *Reinvigorating A Seed Commons? Cultivating Seed Sovereignty in the Public Sphere.* [Conference Session]. Association for the Study of Food and Society and the Agriculture, Food, and Human Values Society 2018 Conference, Madison, WI, United States.

**Lyon A.** (2018, February 16-18). *Facilitating Farmer Collaboration in On-farm Variety Trials: Lessons from Wisconsin and British Columbia.* [Conference Session]. 9<sup>th</sup> Organic Seed Growers Conference, Corvallis, OR, United States.

**Lyon, A., and M. Sylvestre.** (2017, February 24-26). *BC Seed Trials Update: What We Learned in Year One of Participatory Variety Trials to Support Organic Seed Production in BC.* [Conference Session]. Certified Organic Associations of British Columbia 2017 Conference. Nanaimo, BC.

**Lyon, A.** (2015, February 25-26) *Workhorse Varieties for Organic Farms: Perspectives from Wisconsin Farmers.* [Conference Session] Organic Agriculture Research Symposium, MOSES Organic Farming Conference, La Crosse, WI, United States.

**Lyon, A. H. and E.M. Silva.** (2013, February 21-23) *Seed and Plant Breeding for Wisconsin's Organic Vegetable Sector: Understanding Farmers' Needs and Practices.* [Poster] MOSES Organic Farming Conference, Lacrosse, WI, United States.

**Lyon, A. H. and E.M. Silva.** (2011, February 24-26) *Participatory On-Farm Trials in the NOVIC Project.* [Conference Session]. MOSES Organic Farming Conference, Lacrosse, WI, United States.

**Lyon, A. H.** (2008, July 26-28). *Maculate Conceptions: Power, Process, and Creativity in Participatory Research.* [Conference Session]. Annual Meeting of the Rural Sociological Society, Manchester, NH, United States.

**Lyon, A. H., M. M. Bell, R. Jackson, and C. Gratton.** (2008, February 21-23). *Directions for Grazing Research: Agronomic Recipes or Ecological Principles?* [Poster]. Upper Midwest Organic Conference, Lacrosse, WI, United States.



## GRANTS AND AWARDS

- ‘BC Hazelnut On-Farm Trial Network.’ Funding from BC Ministry of Agriculture, administered by BC Hazelnut Growers Association. **2020. (C\$15,025)**
- ‘Participatory variety trialing and breeding for commercial organic vegetable growers and seed producers in Canada.’ AAFC Organic Science Cluster 3. Project manager, co-wrote application and formulated core research plan. **2018. (C\$331,000)**
- “Why Does Local Seed Matter: Conceptualizing linkages between community seed systems, food sovereignty, and resilience in British Columbia.” SSHRC Insight Development Grant. Principle applicant. **2016. (C\$75,000)**
- “Growing a BC Seed Industry: Increasing the competitiveness of BC seed producers through participatory variety trials.” Investment Agriculture Foundation. Co-applicant. **2016. (C\$98,000)**
- “The Student Organic Seed Symposium: Supporting and educating future leaders in organic seed and plant breeding.” USDA Organic Agriculture Research and Extension Initiative. Co-applicant. **2015. (US\$49,500)**
- Annie’s Sustainable Agriculture Scholarship. **2012. (US\$2,500)**
- Ceres Graduate Student Grant. **2010. (US\$9,584)**

## KNOWLEDGE MOBILIZATION AND OUTREACH – PUBLICATIONS

**Lyon, A.,** C. Thoreau, N. Buchheister, and K. Cramer. 2018 *CANOVI Variety Trial Reports*.

<http://www.seedsecurity.ca/en/resources/onfarm-research>

Dey, A., R. McLean, C. Hick, S. MacKinnon, I. Marder-Eppstein, C. Thoreau, and **A. Lyon**. 2018. *Canadian Organic and Ecological Plant Breeding Priorities for Vegetable Crops: 2018 Survey Report*. Toronto: Bauta Family Initiative on Canadian Seed Security. <http://seedsecurity.ca/en/resources/onfarm-research>

**Lyon, A.,** M. Sylvestre, C. Thoreau, S. MacKinnon, and R. Prasad. 2017. *BC Seed Trials Specialty Beet Variety Trial 2016*. Vancouver: Centre for Sustainable Food Systems at UBC Farm. <https://bcfoodweb.ca/crops/seeds>

**Lyon, A.,** M. Sylvestre, C. Thoreau, S. MacKinnon, and R. Prasad. 2017. *BC Seed Trials Lacinato Kale Variety Trial 2016*. Vancouver: CSFS at UBC Farm. <https://bcfoodweb.ca/crops/seeds>

**Lyon, A.,** M. Sylvestre, C. Thoreau, S. MacKinnon, and R. Prasad. 2017. *BC Seed Trials Spinach Variety Trial 2016*. Vancouver: CSFS at UBC Farm. <https://bcfoodweb.ca/crops/seeds>

## KNOWLEDGE MOBILIZATION AND OUTREACH – EVENTS

**Lyon, A.,** H. Jensen, and E. Winfeld. (2019, March 28). *Introduction to Canadian Organic Vegetable Improvement (CANOVI)*. [Live Webinar]. <https://www.youtube.com/watch?v=fFlfgdxxZKU>

**Lyon, A.** (2018, October 15). *Farmer Field Science Day: Carrot Breeding*. [Full-day Workshop]. UBC Farm, Vancouver, BC.

**Lyon, A.** (2018, October 23). *Adapting Seeds for Canadian Organic Farms*. [Talk and Field Tour]. Organic Production Research Field Day, UBC Farm, Vancouver, BC.

**Lyon, A.,** C. Hick, S. MacKinnon, and C. Thoreau. (2018, July 21). *Seeds of Knowledge*. [Public variety trial tasting, field day, and research tour]. UBC Farm, Vancouver, BC.

**Lyon, A.** and C. Thoreau. (2018, April 11). *BC Seed Trials*. [Live Webinar].

**Lyon, A.** (2015, March 3). *Using Participatory Variety Trials to Assess Response to Environment in Organic Vegetable Crops*. [Live Webinar] eOrganic/e-Extension. <https://eorganic.org/node/12901>

**Lyon, A.** and Solveig Hanson. (2015, August 8). *Finding New Favorites: Variety Trials for Your Farm or Garden*. [Workshop]. Mother Earth News Fair, West Bend, WI, United States.

## FARM EXPERIENCE

**UBC Farm,** University of British Columbia, 2016-

- Managed variety trials in 11 vegetable crops, from seed to harvest and storage, and developed methods for greenhouse seed production for carrots
- Hands-on training in organic vegetable production in BC and the Pacific Northwest through working with UBC Farm staff and other local farmers to develop variety trial protocols



**Organic Vegetable Variety Trials**, University of Wisconsin-Madison, 2010-2013

- Trained and supervised field crew, coordinated planting, harvest, data collection, and all other field tasks at West Madison Ag Research Station
- Assisted farmers with planting, harvest, and data collection for on-farm trials

**Troy Community Farm**, Urban Farm Internship, Madison, WI, March-September 2009

- Completed experiential farmer training program in diversified vegetable production; worked with high school student volunteers

**FH King Students for Sustainable Agriculture**, University of Wisconsin-Madison, 2006-2010

- Volunteered with student-run organic vegetable farm on the UW-Madison campus

**Organic Planet CSA Farm**, Smith College Praxis Internship; Fallbrook, CA, June-September 2003

- Training in all aspects of small-scale organic vegetable and flower production

## **LEADERSHIP & SERVICE**

**Board Member, Society for Organic Seed Professionals**, 2017 - 2018

**Advisory Member, Survey Design Working Group for Organic Seed Alliance**, 2014

**Co-founder, Student Organic Seed Symposium**, August 2011

- With two student co-founders, launched first nation-wide, graduate student symposium in organic plant breeding and seed systems, which has been held annually since
- Collaborated with public, private, and non-profit leaders in the organic seed industry to fund scholarships and create mentor network for graduate students

## **PRESS MENTIONS**

Lee, Karen. "Better Veggies for Canadian Organic Farmers." *ReachOut*. Spring 2019: Issue 31.

<https://www.landfood.ubc.ca/better-veggies-for-canadian-organic-farmers/>

Marr, Jordan. "Episode 110: Participatory Plant Breeding." *The Ruminant Podcast*. (Episode released June 2, 2019)

<http://www.theruminant.ca/blog/2019/6/2/e110-participatory-plant-breeding>

Wylie, Constance. "Cultivating Climate Resilience in a Living Laboratory." *The BC Organic Grower*. January, 2019.

<http://bcorganicgrower.ca/2019/01/organic-stories-ubc-farm-vancouver-bc/>

Tomlinson, S. "B.C. researchers focus on vegetable seeds." *The Western Producer*. March 2018.

<https://www.producer.com/2018/03/b-c-researchers-focus-vegetable-seeds/>

Mitham, Peter. "Beet trials target 'seed sovereignty'." *Country Life BC*. September 2017.

<https://www.countrylifeinbc.com/beet-trials-target-seed-sovereignty/>

MacKinnon, Shauna. "The BC Seed Trials: Scaling Up Ecological Seed Production." *British Columbia Organic Grower*.

September 2017. <http://bcorganicgrower.ca/2016/09/the-bc-seed-trials/>

Shore, Randy. "Farm Trials Underway to Establish Commercial Seed Industry in BC." *Vancouver Sun*. April 2016.

<http://vancouversun.com/business/local-business/farm-trials-underway-to-establish-commercial-seed-industry-in-b-c>

Miller, N. "Seeding an Organic Future." *Grow: Wisconsin's Magazine for the Life Sciences*. 2013. 6, 3: 28-33. of Wisconsin, Madison. <https://grow.cals.wisc.edu/deprecated/agriculture/seeding-an-organic-future>

Cherfas, J. "Plant breeding as a public good. Again." *Agricultural Biodiversity Weblog*. June 19, 2013.

<http://agro.biodiver.se/2013/06/plant-breeding-as-a-public-good-again>

## MICHAEL K. BOMFORD – CURRICULUM VITAE

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KWANTLEN POLYTECHNIC UNIVERSITY  
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CELL: 604-445-9359  
[MICHAEL.BOMFORD@KPU.CA](mailto:MICHAEL.BOMFORD@KPU.CA)

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### OBJECTIVE

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Advance ecologically, socially, and economically sustainable agriculture through teaching and research.

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### EDUCATION

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#### **Doctor of Philosophy (Plant and Soil Science)**

West Virginia University, Morgantown, WV

**May 2004**

- Dissertation: Yield, pest density and tomato flavor effects of companion planting in garden-scale studies incorporating tomato, basil, and Brussels sprout
- Field studies completed on a certified organic research farm

#### **Master of Pest Management (Agricultural Pest Management)**

Simon Fraser University, Burnaby, BC Canada

**Apr 1998**

- Thesis: Potential of physical barriers for root weevil management in nurseries
- Awards: Professor Thelma Finlayson Fellowship, Simon Fraser University Graduate Fellowship, H.R. MacCarthy Graduate Bursary, Richard Claxton Palmer Scholarship

#### **Bachelor of Science in Agriculture (Plant Science)**

University of British Columbia, Vancouver, BC Canada

**Apr 1995**

- Honors thesis: The importance of collection overhangs on the efficacy of exclusion fences for managing cabbage flies
- Awards: Dean Blythe Eagles Medal for promise of service to mankind through science, Dr. John M. Yorsten Memorial Prize for excellence and career potential, Plant Science Seminar Prize, BC Council of Garden Clubs Scholarship, Natural Sciences and Engineering Award, Rhona Claire Gillis Scholarship, UBC Agricultural Sciences Entrance Scholarship

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## WORK EXPERIENCE

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### **Instructor, Sustainable Agriculture**

Kwantlen Polytechnic University, Richmond, British Columbia

**Sep 2014 – Present**

- Developed and taught applied undergraduate classes in a new Sustainable Agriculture program at Canada's only polytechnic university.
- Assisted with development of new graduate program in Sustainable Food Systems.

### **Associate Professor, organic agriculture**

Kentucky State University, Frankfort, Kentucky

**July 2012 – Sep 2014**

- Guided teaching, research and extension programs related to organic agriculture in Kentucky.
- Taught undergraduate and graduate-level classes at a historically black land grant university.
- Collaborated with academic colleagues to solicit and administer more than \$2 million in funding and resources.
- Targeted outreach programs to small, limited-resource and minority farms and families.
- Awards: Epsilon Sigma Phi National Distinguished Team Award, 2014 (with Third Thursday Thing Team); USDA Honor Award for Excellence (with Third Thursday Thing Team), 2013; College of Agriculture, Food Science and Sustainable Systems Outstanding Teaching Award, 2013

### **Principal Investigator and State Extension Specialist for organic agriculture**

Kentucky State University, Frankfort, Kentucky

**Nov 2004 – June 2012**

- Managed research and extension programs related to organic agriculture in Kentucky.
- Disseminated research results and applied knowledge using diverse media.
- Collaborated with academic colleagues to solicit and administer more than \$3 million in funding and resources.
- Assisted with development and implementation of two new degree programs: Masters in Environmental Studies and Bachelors in Agriculture, Food, and Environment.
- Awards: USDA Bio-Energy Awareness Grand Challenge Winner, 2008.

### **Instructor (Adjunct)**

Kentucky State University, Frankfort, Kentucky

**Sep 2009 – May 2012**

- Developed and taught Sustainable Agriculture Systems class to students enrolled in KSU's new Masters in Environmental Studies degree program.

### **Assistant Professor (Adjunct)**

University of Kentucky, Lexington, Kentucky

**Apr 2005 – Dec 2015**

- Co-taught introductory course for a new Sustainable Agriculture degree program.
- Assisted with development of new Sustainable Agriculture degree program.

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## WORK EXPERIENCE (CONT.)

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### Graduate Research Assistant

West Virginia University, Morgantown, West Virginia

**Apr 2000 - May 2004**

- Worked with an interdisciplinary team of scientists to certify a land-grant research farm to national organic standards.
- Developed and taught a 3-credit course in "Organic Crop Production" for three consecutive years.
- Planned, conducted, analyzed, and reported on research trials evaluating popular companion planting claims.

### Integrated Pest Management Consultant

Pro-Tect Crop Consulting Services, Langley, British Columbia

**Jan 1998 - Mar 2000**

- Provided weekly, field-specific reports on pest dynamics to growers of field vegetables, greenhouse vegetables, nursery crops, and small fruit crops.
- Hired, trained, and supervised teams of field scouts.
- Developed and field-tested a hand-held computer pest monitoring tool to deliver information collected in the field directly to a desktop computer database.

### Contract Researcher

University of Guelph -- Muck Crops Research Station, Kettleby, Ontario

**Oct 1999 - Dec 1999**

- Designed, conducted, and reported on studies assessing the potential of tags containing a temperature-sensitive dye for monitoring post-harvest temperatures of vegetables.

### Contract Researcher

BC Ministry of Agriculture, Fisheries, and Food, Abbotsford, British Columbia

**Jan 1998 - Mar 1998**

- Synthesized weather station data and disease development observations to determine whether a disease forecasting program could reduce fungicide applications to ginseng.

### Research Affiliate

Agriculture and Agri-Foods Canada, Agassiz, British Columbia

**Apr 1997 - Dec 1997**

- Designed, conducted, and reported on studies evaluating the potential of physical migration barriers for root weevil management in nurseries.

### Lab Assistant

University of British Columbia, Vancouver, British Columbia

**May 1993 - Aug 1993**

**Jan 1995 - Aug 1995**

- Screened tropical wood samples for potential botanical insecticides.
- Designed, conducted, and reported on studies of insect habituation to neem.

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## WORK EXPERIENCE (CONT.)

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### Summer Student

Agriculture and Agri-Foods Canada, Abbotsford, British Columbia

May 1994 - Aug 1994

- Designed and conducted studies determining how the design of a physical barrier to insect movement affects target and non-target insects.

### Summer Student

Eco-Care Technologies, Sidney, British Columbia

Apr 1992 - Aug 1992

- Conducted laboratory and field studies related to the development of a fungicide suitable for organic growers. Product now commercially available.

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## TEACHING EXPERIENCE

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### Sustainable Agriculture Program, Kwantlen Polytechnic University

- AGRI 1150 – Sustainable Agriculture in the 21<sup>st</sup> Century, 2016.
- AGRI 2240 – Ecologically Based Pest Management, 2015-present.
- AGRI 3225 – Experimental Design and Analysis, 2015-present.
- AGRI 3260 – Animal Agriculture, 2015.
- AGRI 3270 – Vegetable Production, 2015-present.
- AGRI 3325 – Agriculture and Energy, 2016-present.
- AGRI 3399 and 4299 – Research I and II, 2015-present.
- AGRI 3290, 3390 and 4190 – Agroecosystems Management I, II and III, 2015-present.
- AGRI 4295 – Internship, 2015-present.

### Richmond Farm School, Kwantlen Polytechnic University

- Integrated Pest Management, 2015.

### Bachelor of Agriculture, Food & Environment Program, Kentucky State University

- AFE 117 – Global Perspectives on Agriculture, Food & Environment, 2013-14.
- AFE 425 – Organic Agriculture, 2014.
- AFE 445 – Agriculture & Energy, 2013-14.
- AFE 311 & AFE 411 – Practicum I & II, 2013-14.
- BIO 495 – Special Topics in Biology, 2013-14.
- Winner of College of Agriculture, Food Science and Sustainable Systems “Outstanding Teaching Award,” 2013.

### Master of Science in Environmental Studies Program, Kentucky State University

- ENV 501 – Introduction to Environmental Studies, 2011-14.
- ENV 519 – Sustainable Agriculture Systems (online), 2010-14.

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## TEACHING EXPERIENCE (CONT.)

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### Sustainable Agriculture Program, University of Kentucky

- SAG 101 - Introduction to Sustainable Agriculture, 2006-08.

### Plant and Soil Science Program, West Virginia University

- PLSC 453/553 – Organic Crop Production, 2002-04.

### Other Teaching

- Prescott College Sustainability Education Program: Carbon Management for Transitioning Farms (Guided Independent Study), 2012.
- KSU Summer Program: Ecology for Teachers, 2005-09.
- Simon Fraser University: Teaching Assistant for PP 315, Principles of Plant Pathology, 1997.
- University of British Columbia: Teaching Assistant for ABPI 328, Weed Science, 1994.
- Cedar English Language Academy (Kobe, Japan): English as Second Language Instructor, 1990.

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## MENTORING

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### Graduate Student Committee Chair

- Jennifer Hubbard-Sanchez, MES, Kentucky State University, 2015. Social construction and perceptions of climate change in Kentucky: What we believe, what we know.
- Marlon Bascombe, MES, Kentucky State University, 2015. Persistence of Allelopathic Activity of Sorghum-Sudangrass on Winter Grains and Tomato.
- Marshawn Thomas, MES candidate, Kentucky State University, 2012-15 (Resigned). Developing Enterprise Budgets for On-Farm Energy Conversion using Small-Scale Gasification Equipment.
- Brandon May, Kentucky State University, 2014. On-farm Electricity Production through Biomass Gasification.
- Jon Cambron, MES, Kentucky State University, 2014. Assessing Sweet Potato Varieties for Organic Production of Food and Biofuel in Kentucky.
- Joni Nelson, MES, Kentucky State University, 2013. Effects of Polyethylene and Hay Mulch on Soil Properties and Yield of Organic Heirloom Tomato (*Lycopersicon esculentum* Mill.) and Watermelon (*Citrullus lanatus* Thunb.)
- Michael Ward, MES, Kentucky State University, 2011. Row Covers Moderate Diurnal Temperature Flux in High Tunnels.
- Terrell Holder, MES, Kentucky State University, 2011. A Model-Based Determination of Human Carrying Capacity in Kentucky's Ecoregions.

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## MENTORING (CONT.)

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### Graduate Student Committee Service

- Grace Augustinowicz, MSc, University of British Columbia, 2020. Assessing the Impact of Agricultural Management Practices on Soil Health at Alaksen National Wildlife Area.
- Marie Blacksmith, MES, Kentucky State University, 2014. Glucosinolate Concentrations in Kale (*Brassica oleraceae*) and Myrosinase Activity in Soil Amended with Recycled Waste.
- Anne Schoettelkotte, MES Kentucky State University, 2014. The Effects of Environment and Plant Hormones on Sexual and Asexual Propagation of Pawpaw (*Asimina triloba*).
- David Jones, MES, Kentucky State University, 2014. Assessment of Canopy Height Using LIDAR on Reclaimed Minesites of Eastern Kentucky.
- Brandon Burfict, MES, Kentucky State University, 2013. Assessing Kentucky State University's Carbon Footprint.
- Jeannie Haak, MES, Kentucky State University, 2013. Abundance of Leafhoppers Associated with Blackberry and Raspberry Plantings in Central Kentucky.
- Delia Scott, MS, University of Kentucky, 2012. Evaluating the Sustainability of Two Widely Used Organic Vegetable Production Systems and Their Potential Use in Kentucky.
- Jacob Botkins, MES, Kentucky State University, 2012. Pawpaw Patch Genetic Diversity, and Clonality, and its Impact on the Establishment of Invasive Species in the Forest Understory.
- Adam Gerugthy, MES, Kentucky State University, 2012. The Effect of Pool Geomorphology on Feeding Morphology of *Aplodinotus grunniens* and *Lepomis macrochirus* in the Ohio River, USA.
- Rodney Ripberger, MES, Kentucky State University, 2012. Implementation and Monitoring of a Rain Garden for Storm Water Runoff Mitigation at Kentucky State University.
- Re'Gie Smith, MES, Kentucky State University, 2011. Genetic Diversity in Kentucky Spicebush Populations Using Simple Sequence Repeat Markers.
- Audrey Law, PhD, University of Kentucky, 2009. Analysis of Soil Microbial Activity and Diversity in a Four Year Vegetable Crop Rotation under Three Management Systems: Organic, Low-Input and Conventional.
- Anthony Silvernail, PhD candidate, University of Kentucky, 2006-2008 (Resigned). Evaluation of Tillage Effects on Weed Seed Bank Changes in an Organic Production System.

### Undergraduate Student Research Projects

- Sabrina Anderson, 2019. Effects of Wood Compost on Soil Health and the Frequency of *Trichoderma* spp. in an Organic Loam.
- Jenna Graham, 2019. Alternative Application Methods for *Metarhizium brunneum* Biocontrol of Wireworm in Potato.
- Rosina Rodighiero, 2019. Can Leaf Mold Replace Peat to Create a Local, Renewable Seed Starting Medium?
- Jordan Roper, 2019. Assessing *Bacillus subtilis* S-713, Cow's Milk, and Sodium Bicarbonate as a Control for Powdery Mildew in Field Cucurbit Crops.
- Hazel Chan, 2018. Attract-and-Kill Tactic Using *Metarhizium brunneum* Granules and Rolled Oats for Control of Wireworm in Scallions.
- Lindsay Dodds, 2018. The Effect of Cut Seed Tubers and *Metarhizium brunneum* on Wireworm Damage to Potatoes.

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## MENTORING (CONT.)

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### Undergraduate Student Research Projects (Cont.)

- Piper Kenney, 2018. Effect of Fine Cement Sand on Plant Dry Weight Accumulation in Two Local Soils.

- Angeli dela Rosa, 2018. An Evaluation of 11 Summer Cover Crops for Suitability to Southwest British Columbia.
- Alexander Stark, 2018. Season Extension in Ever-bearing Strawberry with Row Covers and Low Tunnels.
- Will Bailey-Elkin, 2017. Weed Diversity and Abundance, Soil Moisture, and Labour Input Responses to Mulching in Pear (*Pyrus communis* L.) Production.
- Kirsten Guest, 2017. Does Plant Species Composition Affect Beetle Abundance and Diversity in Newly-Established Beetle Banks?
- Jessica Hill, 2017. Bean Seed Water Absorption: Responses to Different Sounds.
- Isabel Stewart, 2017. Biological Control of Wireworm (*Agriotes lineatus*) in Potato with *Metarhizium brunneum* Fungus.
- Nicolas Walser, 2017. Effectiveness of Intercropping Carrot (*Daucus carota*) and Onion (*Allium cepa*) to Deter Carrot Rust Fly (*Psila rosae*) and Onion Fly Maggot (*Delia antiqua*).
- Leanne Ejack, 2016. Comparing Soil Amendments for Growing Bush Beans (*Phaseolus vulgaris* L.) in Saline-Stressed Soil.
- Masanari Ishii, 2016. Effect of rice density and crimson clover companions on early development of rice transplanted into unflooded soil.
- Emily Mceachern, 2016. Does soil remediation with vermicompost overcome negative effects of soil degradation in Cuba?
- Rebecca Kilford, 2016. Price discount effect on produce purchases at a mobile market.
- Toni Biddlecombe, 2015. Effects of coloured polyethylene mulch on tomato yield.
- Oliver Capko, 2015. Crop damage, weed, and pest population response to quail (*Coturnix japonica*) integration in gardens.
- Samantha Graham, 2015. Effects of low tunnels and compost amendment on growth parameters of fall-seeded radish.
- Micheal Robinson, 2015. Effects of increased cover on the essential oil concentration of basil (*Osimum basilicum*).
- Abdul Sami, 2015. The use of canola seed meal and Enterra Natural Fertilizer for controlling wireworm.
- Allen Tillberg, 2015. Assessing yields of a maize-legume intercrop and their respective monocrops in response to stress.
- Johanna Walker, 2015. Anthelmintic effect of diatomaceous earth against parasite populations in sheep (*Ovis aries*)

### Student Research Assistants

- Eight undergraduate and four graduate student research assistants employed, 2006-Present.
- Nine high school students mentored throughout six-week summer internship culminating in presentation of original research, 2005-14.



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## RESEARCH PUBLICATIONS

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- M.K. Bomford**, T.D. Sluss, K.J. Bates, and S. Hansford. 2014. Potential of Kentucky Freeway Rights-of-Way to Displace Fossil Fuel Consumption through Production of Switchgrass. *Journal of the Kentucky Academy of Science* 74: 16-25.
- M.J. Ward and **M.K. Bomford**. 2013. Row Covers Moderate Diurnal Temperature Flux in High Tunnels. Proceedings of the International Symposium on High Tunnel Horticultural Crop Production, *Acta Horticulturae* 987: 59-66.
- J.L. Nelson, **M.K. Bomford**, J.C. Cambron, and A.F. Silvernail. 2012. Effects of Plastic and Hay Mulches on Soil Temperature and Moisture in Organic Heirloom Tomato and Watermelon Production. In T. Coolong, J. Snyder and C. Smigell (Eds.) *2012 Fruit and Vegetable Research Report*, pp. 34-35. University of Kentucky.
- J.D. Sedlacek, K.L. Friley, K.W. Pomper, J.D. Lowe, S.B. Crabtree, I. Howard, and **M.K. Bomford**. 2012. Incidence of Stink Bug Species in Organically Grown 'Prime-Jam®' and 'Prime Jim®' Blackberry Plantings in Central Kentucky. In T. Coolong, J. Snyder and C. Smigell (Eds.) *2012 Fruit and Vegetable Research Report*, pp. 24-25. University of Kentucky.
- J.D. Sedlacek, K.L. Friley, K.W. Pomper, J.D. Lowe, S.B. Crabtree, and **M.K. Bomford**. 2010. The influence of primocane mowing date on flowering, ripening, and stink bug populations on primocane-fruited blackberry selections in Kentucky. In T. Coolong, J. Snyder and C. Smigell (Eds.) *2010 Fruit and Vegetable Research Report*, pp. 24-25. University of Kentucky.
- M.K. Bomford**. 2009. Do Tomatoes Love Basil but Hate Brussels Sprouts? Competition and land-use efficiency of popularly recommended and discouraged crop mixtures in biointensive agriculture systems. *Journal of Sustainable Agriculture* 33: 396-417.
- G.F. Antonious, **M.K. Bomford**, and P.C. Vincelli. 2009. Screening brassicas for glucosinolate content. *Journal of Environmental Science and Health, Part B* 44: 311-316.
- M.K. Bomford**, P.C. Vincelli, E.W. Dixon, and B.A. Geier. 2007. Evaluation of solarization and Contans WG for control of *Sclerotinia sclerotiorum* in high tunnels, 2006. *Plant Disease Management Reports* 1: V163.
- M.K. Bomford** and R.S. Vernon. 2005. Moisture tempers impairment of adult *Otiorhynchus sulcatus* (Coleoptera: Curculionidae) climbing ability by fluoropolymer, talc dust, and lithium grease. *Journal of the Entomological Society of British Columbia* 102: 13-19.
- M.K. Bomford** and R.S. Vernon. 2005. Root Weevil (Coleoptera: Curculionidae) and Ground Beetle (Coleoptera: Carabidae) Immigration into Strawberry Plots Protected by Fence or Portable Trench Barriers. *Environmental Entomology* 34: 844-849.
- M.K. Bomford**, R.S. Vernon and P. Päs. 2000. Importance of collection overhangs on the efficacy of exclusion fences for managing cabbage flies (Diptera: Anthomyiidae). *Environmental Entomology* 29: 795-799.

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## RESEARCH PUBLICATIONS (CONT.)

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**M.K. Bomford**, R.S. Vernon and P. Päs. 2000. Aphid (Homoptera: Aphididae) accumulation and distribution near fences designed for cabbage fly (Diptera: Anthomyiidae) exclusion. *Journal of the Entomological Society of British Columbia* 97: 79-87

**M.K. Bomford** and M.B. Isman. 1996. Desensitization to azadirachtin and neem in fifth instar *Spodoptera litura* (Lepidoptera: Noctuidae). *Entomologia Experimentalis et Applicata* 81: 307-313.

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## BOOK CHAPTERS, PROCEEDINGS & REPORTS

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Emily Hansen, Naomi Robert, **Mike Bomford**, Rebecca Harbut, and Kent Mullinix. 2020. Response to the Findings & Recommendations of the B.C. Food Security Task Force. Institute for Sustainable Food Systems, Kwantlen Polytechnic University. [https://www.kpu.ca/sites/default/files/ISFS%20Response\\_layoutFINAL\\_0.pdf](https://www.kpu.ca/sites/default/files/ISFS%20Response_layoutFINAL_0.pdf)

**Michael Bomford**, Lee Meyer, Thomas Sikora, William Martin, Sam Mcneill, Mike Montross, Edwin Ritchey, and Chad Lee. 2015. Organic Corn Production in Kentucky. University of Kentucky ID-255. 30pp. <http://www2.ca.uky.edu/agc/pubs/ID/ID225/ID225.pdf>

**Michael Bomford**. 2015. Nitrate Accumulation in Vegetables: Something to Avoid. Horticulture Growers' Short Course Proceedings, Lower Mainland Horticultural Improvement Association 57: 152-157. <https://www.researchgate.net/publication/299560844>

George Antonious, Eric Turley, **Michael Bomford**, Steven Mims, John Sedlacek, Thomas Webster, and Jennifer Hubbard-Sanchez. 2014. Sustainable Research Projects and Campus Initiatives in the College of Agriculture, Food Science, and Sustainable Systems at Kentucky State University. *Sustain – A Journal of Environment and Sustainability Issues* 30: 42-47. <http://louisville.edu/kiesd/sustain-magazine/SUSTAIN-30.pdf>.

**Michael Bomford**. 2011. Agriculture and Natural Gas. In *Will Natural Gas Fuel America in the 21<sup>st</sup> Century?* – Supplemental Articles, Daniel Lerch, ed. Post Carbon Institute, Sebastopol, CA. <http://www.postcarbon.org/reports/NatGasSupplements.pdf>.

**Michael Bomford**. 2010. Getting Fossil Fuels off the Plate. In *The Post Carbon Reader: Managing the 21st Century's Sustainability Crises*, Richard Heinberg and Daniel Lerch, eds. University of California Press. <http://www.postcarbon.org/Reader/PCReader-Bomford-Food.pdf>.

**Michael Bomford** and Tony Silvernail. 2010. Can Sweet Sorghum and Sweetpotato Ethanol Contribute to Self-Sufficiency of Small Farms? *Proceedings of the 5th National Small Farms Conference: Roadmap to Success for Small Farmers*. <http://orgprints.org/17228/1/17228.pdf>.

Kristina Anderson, **Michael Bomford**, Johnny Cagle, Kimberly Holmes, Mike Montross, Frank Moore, Kate Shanks, Jeff Stringer, Emily Taylor and Bryan Thomas. 2009. *Final Report from the Executive Taskforce on Biomass and Biofuels Development in Kentucky*. Governor's Office of Agricultural Policy and the Energy and Environment Cabinet of Kentucky. <http://tinyurl.com/y9x2kjg>

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## BOOK CHAPTERS, PROCEEDINGS & REPORTS (CONT.)

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Richard Heinberg and **Michael Bomford**. 2009. *The Food and Farming Transition*. Post Carbon Institute, Sebastopol, CA. (Also released in Italian). <http://postcarbon.org/food>

Nancy Cox, Scott Shearer, Rich Gates, Sue Nokes, Mike Montross, Don Colliver, **Michael Bomford**, Harold Benson, Tom Starr, Cam Metcalf, John Davies, Greg Guess, James Bush, and Tony Moreno. 2008. 25 x '25 *Vision for Kentucky*. <http://tinyurl.com/yaf8g89>

Chuck Adams, **Michael Bomford**, Jim Call, Andrew Cammack, Maya DeRosa, Justin Evilsizor, Brent Sweger, and Bob Tillett. 2007. *City of Frankfort & Franklin County Pedestrian & Bicycle Master Plan*. <http://tinyurl.com/ybje7zt>

**Michael Bomford** and Barbara Peterson. 1999. *Integrating alternative strategies into Fraser Valley onion production*. Commissioned by the BC Onion Industry Development Trust and Lower Mainland Horticultural Improvement Association.

**Michael Bomford**. 1999. *CanAdapt time-temperature indicator project*. Commissioned by the Ontario Ministry of Agriculture and Food and the Bradford District Vegetable Growers' Association.

**Michael Bomford**. 1997. *Weather conditions and ginseng Alternaria blight development in interior British Columbia ginseng gardens*. Commissioned by the BC Ministry of Agriculture, Fisheries and Food and the BC Ginseng Growers' Association.

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#### PUBLISHED ABSTRACTS

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**M.K. Bomford**, J.C. Cambron, A.F. Silvernail, and J.L. Nelson. 2013. Economics and Energy Efficiency of On-Farm Ethanol Production from Sweet Sorghum Using a Microfueler. *Association of 1890 Research Directors: 17<sup>th</sup> Biennial Research Symposium Program and Abstracts*, p. 127.

J.L. Nelson, **M.K. Bomford**, C. Wang, J.C. Cambron, A.F. Silvernail, L. Huang and M.J. Ward. 2013. Comparison of Hay and Polyethylene Mulch Effects on Soil Properties and Organic Produce Yield and Quality. *Association of 1890 Research Directors: 17<sup>th</sup> Biennial Research Symposium Program and Abstracts*, p. 72.

J. Beckwith, J.C. Cambron, and **M.K. Bomford**. 2013. Effect of Antibiotic on Ethanol Yield from Sweet Sorghum. *Association of 1890 Research Directors: 17<sup>th</sup> Biennial Research Symposium Program and Abstracts*, p. 77.

J.D. Sedlacek, K.L. Friley, K.W. Pomper, J.D. Lowe, S.B. Crabtree, I. Howard, and **M.K. Bomford**. 2013. Survey of Stink Bug Species Found on Organically Grown Primocane-Fruiting Blackberry Plantings in Central Kentucky. *Association of 1890 Research Directors: 17<sup>th</sup> Biennial Research Symposium Program and Abstracts*, p. 251.

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#### PUBLISHED ABSTRACTS (CONT.)

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**M.K. Bomford**, T.D. Sluss, S. Hansford, and K.J. Bates. 2011. Potential of Kentucky Freeway Rights of Way to Displace Fossil Fuel Consumption through Production of Switchgrass, *Panicum virgatum*. *Abstracts of the Association of Research Directors 16th Biennial Research Symposium*, p. 98.

**M.K. Bomford** and A.F. Silvernail. Land, Labor, and Energy Efficiency of Alternative Biofuel Feedstock Crops at Three Farm Scales. 2011. *Abstracts of the Association of Research Directors 16th Biennial Research Symposium*, p. 128.

M.J. Ward, **M.K. Bomford**, and A.F. Silvernail. 2011. Effect of Row Covers on High Tunnel Soil Temperature. *Abstracts of the Association of Research Directors 16th Biennial Research Symposium*, p. 146.

K.L. Friley, J.D. Sedlacek, K.W. Pomper, J.D. Lowe, S.B. Crabtree, and **M.K. Bomford**. 2011. Timing of Primocane Mowing Influences Flowering and Ripening Time in Primocane Fruiting Blackberry Selections in Kentucky. *Abstracts of the Association of Research Directors 16th Biennial Research Symposium*, p. 149.

J. D. Sedlacek, K.L. Friley, **M.K. Bomford**, R.S. Hayden, C.M. Wales, M.L. Grayson-Holt, and D. Slone. 2011. Beneficial Insects in Sweet Corn Baited with Methyl Salicylate Based Lures. *Abstracts of the Association of Research Directors 16th Biennial Research Symposium*, p. 157.

M.L. Grayson-Holt, J.D. Sedlacek, K.L. Friley, K.W. Pomper, J.D. Lowe, **M.K. Bomford**, C.M. Wales, and R.S. Hayden. 2011. Stink Bug Species Associated with Organic Blackberry Production in Central Kentucky. *Abstracts of the Association of Research Directors 16th Biennial Research Symposium*, p. 166.

J.C. Cambron, and **M.K. Bomford**. 2011. A Comparison of iPod Touch® and Paper-Based Field Data Collection Systems. *Abstracts of the Association of Research Directors 16th Biennial Research Symposium*, p. 173.

**Michael Bomford**, Paul Vincelli, George Antonious, Brian Geier and Ed Dixon. 2009. Solarization and biofumigation for organic control of white mold in high tunnels. *HortScience* 44: 1041.

**Michael Bomford**. 2009. A Spacing Calculator for Mixed Plantings. *HortScience* 44: 1165.

Changzheng Wang, Lingyu Huang, **Michael Bomford** and Anthony Silvernail. 2009. Sweetpotato leaves as a source of antioxidant phenols. *HortScience* 44: 1096.

Anthony Silvernail and **Michael Bomford**. 2009. The effect of weed control and tillage on soil health in organic vegetable production. *HortScience* 44: 1112.

**M.K. Bomford** and A.F. Silvernail. 2009. Potential of Sweet Potato and Sweet Sorghum as Advanced Biofuel Crops for Low Input Production on Small Farms. *Association of Research Directors, 15th Biennial Research Symposium*, 28 March - 1 April. Atlanta GA.

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#### PUBLISHED ABSTRACTS (CONT.)

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J.D. Sedlacek, K.L. Friley, L.S. Brent and **M.K. Bomford**. 2009. Populations of Beneficial Insects in Organically Grown Sweet Corn Using Methyl Salicylate Based PredaLure® Insect Attractant. *Association of Research Directors, 15th Biennial Research Symposium*, 28 March - 1 April. Atlanta GA.

**M.K. Bomford**, J.C. Bradford, J. Darley, C. Hanson, J. Puckett, J.A. Rodgers, and A.F. Silvernail. 2008. Low-input Biofuel Crops for Sustainable Renewable Energy Production on Small Farms. *AEA/ARD Land Grant Conference*, Memphis TN: 23.

- A.F. Silvernail and **M.K. Bomford**. 2007. Mulch effects on weed pressure and organic watermelon yield. *HortScience* 42(4): 954.
- L. Huang, C. Wang and **M.K. Bomford**. 2007. Effects of plant source, age, and foliar molasses application on brix readings of kale extracts. *HortScience* 42(4): 1012.
- M.K. Bomford**, A.F. Silvernail and B.A. Geier. 2007. Season extension with high tunnels in Kentucky. *HortScience* 42(4): 988.
- Anthony Silvernail and **Michael K. Bomford**. 2006. Weed control in organic edamame soybean production. *HortScience* 41(4): 1031.
- Michael K. Bomford** and Anthony Silvernail. 2006. Energy and capital costs of high tunnel construction. *HortScience* 41(4): 1077.
- Michael K. Bomford** and Anthony Silvernail. 2006. Energy use in two potential systems for year-round vegetable production in Kentucky. *Association of Research Directors 14th Biennial Research Symposium*: 247-8.
- Anthony Silvernail and **Michael K. Bomford**. 2006. Organic weed management in sweet corn and vegetable soybean production. *Association of Research Directors 14th Biennial Research Symposium*: 265.
- Boram Lee, Lingyu Huang, Changzheng Wang, Anthony Silvernail, and **Michael Bomford**. 2006. Effects of several organic tillage and weed management practices on calcium content of vegetable soybeans. *Association of Research Directors 14th Biennial Research Symposium*: 183.
- M.K. Bomford**. 2005. Companion Choice, Crop Density, and Mixture Ratio Affect Polyculture Yield Advantage. *HortScience* 40(4): 1070

**Kentucky State University Organic Agriculture Working Group** website, <http://organic.kysu.edu>

- Development and maintenance, 2006-14
- 370,000+ pageviews from 200,000+ visitors
- Includes preliminary research results and archive of slides from 75+ recent presentations

**Kentucky State University Masters in Environmental Studies** website

- Maintenance, 2009-14
- 40,000+ pageviews from 8,000+ unique visitors

**Energy Farms** blog, <http://energyfarms.wordpress.com>

- Contributor, 2007-2011
- Moderator, April 2009-2011
- 100,000+ pageviews since April 2009

**Organic Association of Kentucky** website and blog, <http://oak-ky.org>

- Development and maintenance, 2009-2012
- 80,000+ pageviews from 20,000+ unique visitors
- Content mirrored on Facebook page

**eXtension.org**, <http://extension.org>

- Ask an Expert Community (200+ questions answered, 2007-2010)
- Sustainable Ag Energy Community (300+ edits, 2008-14). Contributions to peer reviewed posts:
  - Introduction to Farm Energy, [http://www.extension.org/pages/Introduction\\_to\\_Farm\\_Energy](http://www.extension.org/pages/Introduction_to_Farm_Energy)
  - Biodiversity in Sustainable Energy Systems, [http://www.extension.org/pages/Biodiversity\\_in\\_Sustainable\\_Energy\\_Systems](http://www.extension.org/pages/Biodiversity_in_Sustainable_Energy_Systems)
  - Sustainability Standards for Farm Energy, [http://www.extension.org/pages/Sustainability\\_Standards\\_for\\_Farm\\_Energy](http://www.extension.org/pages/Sustainability_Standards_for_Farm_Energy)
  - Sustainability Indicators for Farm Energy, [http://www.extension.org/pages/Sustainability\\_Indicators\\_for\\_Farm\\_Energy](http://www.extension.org/pages/Sustainability_Indicators_for_Farm_Energy)
  - Water Quality in Sustainable Energy Systems, [http://www.extension.org/pages/Water\\_Quality\\_in\\_Sustainable\\_Energy\\_Systems](http://www.extension.org/pages/Water_Quality_in_Sustainable_Energy_Systems)

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## INTERNET (CONT.)

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### Streaming Video

- 500,000+ views of 94 streaming videos, including:
  - Organic control of white mold in Kentucky high tunnels, <http://tinyurl.com/ydnopqi>
  - Traditional storage methods, <http://tinyurl.com/ybbsft4>
  - Weed treatments, <http://tinyurl.com/yanxmoj>
  - Transplanting sweetpotatoes, <http://tinyurl.com/yh9vlz2>
  - Eating sweetpotato leaves, <http://tinyurl.com/y8joa32>
  - Biointensive sweetpotato harvest, <http://tinyurl.com/ycz5hth>
  - Double Digging, <http://organic.kysu.edu/DoubleDig.shtml>

### Web chats

- **Michael Bomford**, Tom Philpott and Asher Miller. Food After Fossil Fuels. Resilience.org, 7/25/16. <http://www.resilience.org/stories/2016-07-26/in-conversation-food-after-fossil-fuels>.
- David Hughes, Richard Gilbert and **Michael Bomford**. The Unintended Impact of Natural Gas on Food and Transportation. Energy Bulletin, 6/15/11. Archived at <http://tinyurl.com/3rnansv>.
- **Michael Bomford**. Getting Fossil Fuels off the Plate. Nohad A. Toulan School of Urban Studies and Planning, Portland State University, 4/11/11.

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## BOOK REVIEWS

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Denison, R. Ford. "Darwinian Agriculture: How Understanding Evolution Can Improve Agriculture" by Ford R. Denison. *Choice: Current Reviews for Academic Libraries* 50, 4 (December 2012).

"Water and Sustainable Agriculture" by Iván Francisco García-Tejero et al. *Choice: Current Reviews for Academic Libraries* 49, 8 (April 2012).

"IPM Images" by University of Georgia Center for Invasive Species and Ecosystem Health. Internet Resource. *Choice: Current Reviews for Academic Libraries* 49, 5 (January 2012).

"The Renewable Revolution: How We Can Fight Climate Change, Prevent Energy Wars, Revitalize the Economy, and Transition to a Sustainable Future" by Sajed Kamel. *Choice: Current Reviews for Academic Libraries* 48, 12 (August 2011).

"Sustainability: A Biological Perspective" by Stephen Morse. *Choice: Current Reviews for Academic Libraries* 48, 9 (May 2011).

"Algae Energy: Algae as a New Source of Biodiesel" by Ayhan & M. Fatih Demirbas. *Choice: Current Reviews for Academic Libraries* 48, 7 (March 2011).

"OrganicWorld.net." *Choice: Current Reviews for Academic Libraries* 48, 3 (November 2010).

"The Conversion to Sustainable Agriculture: Principles, Processes, and Practices" by Stephen Gliessman & Martha Rosemeyer. *Choice: Current Reviews for Academic Libraries* 47, 11 (July 2010).

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## BOOK REVIEWS (CONT.)

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"Organic Farming, Pest Control and Remediation of Soil Pollutants" by Eric Lichtfouse. *Choice: Current Reviews for Academic Libraries* 47, 9 (May 2010).

"Integrated Pest Management Volume 1: Innovation-Development Process" by A. Ciancio & K.G. Mukerji. *Choice: Current Reviews for Academic Libraries* 47, 4 (December 2009).

"Renewable Energy from Forest Resources in the United States" by B.D. Solomon & V.A. Luzadis. *Choice: Current Reviews for Academic Libraries* 47, 1 (September 2009).

"Biofuels: Securing the Planet's Future Energy Needs" by Ayhan Demirbas. *Choice: Current Reviews for Academic Libraries* 46, 10 (June 2009).

"Biofuels, Solar and Wind as Renewable Energy Systems: Benefits and Risks" by David Pimentel. *Choice: Current Reviews for Academic Libraries* 46, 7 (March 2009).

"Food Fears" by Alison Blay-Palmer. *Choice: Current Reviews for Academic Libraries* 46, 4 (December 2008).

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#### PRESS COVERAGE

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"Beyond the Burger: Consider the Ethical Costs of the Patties You Buy Before Chowing Down" by Braden Klassen, *The Runner*, 06/13/19. Archived: <https://runnermag.ca/2019/06/beyond-the-burger/>

"Urban Farming in Downtown Richmond" by Thor Diakow, Breakfast Television, Citytv, 06/10/19. Archived: <https://www.btvancouver.ca/videos/urban-farming-in-downtown-richmond/>

"KPU's Richmond Farm School Works the Soil" by Maria Rantanen, *Richmond News*, 05/16/19. Archived: <https://www.richmond-news.com/news/kpu-s-richmond-farm-school-works-the-soil-1.23824800>

"Garden City Project Breaks Sustainable Ground" by Cathy Glover, *Country Life in BC*, June 2018.

"KPU Prof Talks Diet and Climate Change at Science World" by Braden Klassen, *The Runner*, 06/19/17. Archived: <http://runnermag.ca/2017/06/kpu-prof-talks-diet-and-climate-change-at-science-world/>

"Food, Lifestyle Choices Can Help Fight Climate Change" by Tamara Leigh, *The Western Producer*, 02/23/17. Archived: <https://www.producer.com/2017/02/food-lifestyle-choices-can-help-fight-climate-change/>

"Climate Smart Food Choices" with Rick Cluff, *CBC Early Edition*, 02/06/17.

"Agriculture on the Brink" by Dahr Jamail, *Truthout*, 04/04/16. Archived: <http://www.truth-out.org/news/item/35468-agriculture-on-the-brink>

"Hungry for Food Security" by Graeme Wood, *Richmond News*, 08/14/16. Archived: <http://www.richmond-news.com/news/weekly-feature/feature-hungry-for-food-security-1.2031199>



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## PRESS COVERAGE (CONT.)

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"Farmers, Researchers Wait to See How Hemp Seed Delay Will Affect Pilot Projects" by Mark Vanderhoff, WLKY Louisville, 05/21/14. Archived: [www.wlky.com/news/26092104](http://www.wlky.com/news/26092104)

"Kentucky Ag. Department Acquires License to Possess Hemp Seeds" by Mark Vanderhoff, WLKY Louisville, 05/21/14. Archived: [www.wlky.com/news/26109236](http://www.wlky.com/news/26109236)

"Organic Agriculture May Be Outgrowing Its Ideals" by Elisabeth Rosenthal, *New York Times*, 12/31/11. Archived: <http://www.nytimes.com/2011/12/31/science/earth/questions-about-organic-produce-and-sustainability.html>

"The Scourge of Peak Oil" by Dahr Jamail, *Al Jazeera*, 07/25/11. Archived: <http://english.aljazeera.net/indepth/features/2011/07/201172081613634207.html>

"The Decline of Agriculture" by Dahr Jamail. *Al Jazeera*, 07/04/11. Archived: <http://english.aljazeera.net/indepth/features/2011/07/201173114451998370.html>

"Ethanol: Growing Food, Feed, Fiber, and Fuel?" by Dan Imhoff, *Earth Island Journal*, 05/09/12. Archived: [http://www.earthisland.org/journal/index.php/elist/eListRead/Ethanol\\_growing\\_food\\_feed\\_fiber\\_and\\_fuel/](http://www.earthisland.org/journal/index.php/elist/eListRead/Ethanol_growing_food_feed_fiber_and_fuel/)

"Why Work? The Case for Working Less and Living More" by Leilani Clark. *North Bay Bohemian*, 07/07/10. Archived: <http://www.bohemian.com/bohemian/07.07.10/feature-1027.html>.

"Low Carbon Diet" panel discussion on Frankfort Cable 10 television, December 2009.

"Michael Bomford Interview" on *Reality Report* talk radio show with Jason Bradford. KZYX and KZYZ, Mendocini County California, 06/16/09. Archived as podcast: <http://tinyurl.com/y9gazuf>.

"Organic Food Industry on the Rise" story on *Fox in the Morning* television show with Candyce Clifft. Fox41, WDRB Louisville, 07/30/08. Script archived: <http://tinyurl.com/y9gets2>.

"Eye on the Earth" segment of *Frankfort Today* Talk Radio 1490 with Stacey Brothwell, WKYW Frankfort, 05/29/08.

"Can Organic Farming Feed the World?" by Aspasia Daskalopoulou. *Science Metropolis*, Boston, 05/09/08.

"Global Issues, Local Action" by Paul Glasser. *Frankfort State-Journal*, 04/15/07.

"High Life Helps Plants Survive Low Temps" by Sara Gividen. *Frankfort State-Journal*, p. A1, 04/16/07.

"Farmers Markets Booming." Radio 1490, WKYW. Spring 2005.

"West Virginia University Organic Research Project" segment on *Outlook* television show produced by John Nakashima. West Virginia Public Television, 09/23/04.

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## INVITED PRESENTATIONS

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"C and N and P, Oh My! – Agrogeochemistry in the Anthropocene." Doane University Institute for Human and Planetary Health Symposium, Crete, NE. September 2018.

"Climate Smart Organic Farming." Certified Organic Associations of British Columbia annual conference (Bioregionalism – Resilience in a Changing Climate), Abbotsford, BC. February 2018.

"Suppressive Soil." Agrienergy Resources Winter Seminar Series, Indianapolis, IN and Des Moines, IA. February 2018.

"Pondering Peat." Harvest Festival at Garden City Lands, Richmond, BC. September 2017.

"The Wicked Problem of What's for Dinner." Unitarian Church of Vancouver, Vancouver, BC. August 2017.

"Cool Eats: The City Slicker's Diet for a Warming Planet." KPU & Science World Speaker Series, Richmond and Vancouver, BC. February and May 2017.

"Municipal Solid Waste Composting." Town hall meeting hosted by Joe Peschisolido, M.P., Richmond, BC. January 2017.

"Sustainable Agriculture." Unitarian Church of Vancouver, Vancouver, BC. November 2016.

"Why Use Organic Seed?" KPU Small Farm Sessions, Pacific Agriculture Show, Abbotsford, BC. January 2015.

"Inquiry into GMOs." Louisville Sustainability Forum. Louisville, KY. September 2014.

"The Certified Organic Difference." 4th Annual Organic Association of Kentucky Conference, Berea, KY. March 2014.

"Organic Vegetable Intensive." Empowering Women Veterans: Business, Agriculture, and Wellbeing, Louisville, KY. November 2013.

"Organic Gardening, Farming, and Certification." Ohio Valley Small Farm and Garden Conference, Henderson, KY. October 2013.

"Extending the Season." Field to Fork Festival, Paint Lick KY. July 2013.

"Healthy Soil for Beginners." Field to Fork Festival, Paint Lick KY. July 2013.

"Is Small Beautiful?" Kwantlen Polytechnic University, Burnaby BC. June 2013.

"US Food System Energy Use." Locavores and Congregations Coming Together for Good, Unitarian-Universalist General Assembly, Louisville KY, June 2013.

"Education as Homecoming." Berry Center Conference: Resettling America, Louisville KY, April 2013.

"Suppressive Soil." Organic Association of Kentucky Conference, Berea KY, March 2013.

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#### INVITED PRESENTATIONS (CONT.)

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"The Energy We Eat." Bingham Fellows' Retreat: Developing a Smart Food Culture, Frankfort KY, January and March, 2013.

"What is Organic?" and "Mid-East Organic Corn Variety Trial." Introduction to Organic Corn Workshop, Bowling Green KY, January 2013.

"Weed Suppression with Cover Crops on Organic Farms." Kentucky Fruit and Vegetable Conference, Lexington KY, January 2013.

"High Tunnel Challenges." Wholesale Success Workshop, Bowling Green KY, December 2012.

"Renewable and Non-Renewable Energy." Latino Leadership and College Experience Camp, Frankfort KY, August 2012.

"Introduction to Organic Gardening" and "Low-Cost Season Extension." Growing Appalachia Conference, Prestonsburg KY, April 2012.

"Sustainable Food, From Farm to Fork." Organic Association of Kentucky Conference, Bowling Green KY, March 2012.

"Organic Sweet Sorghum and Edamame Soybean Production and Processing." Virginia Association of Biological Farmers Conference, Richmond VA, February 2012.

"Organic/Sustainable Vegetable Production in High Tunnels, Including Economics." Indiana Horticultural Congress, Indianapolis IN, January 2012.

"Reducing Energy Costs on Vegetable Farms." Indiana Horticultural Congress, Indianapolis IN, January 2012.

"Kentucky Opportunities for On-Farm Energy Production." Community Farm Alliance Meeting, Lexington KY, January 2012.

"A Global Context for an American Thanksgiving Meal." Kentucky State University International Week, Frankfort KY, November 2011.

"The Small Farm Comeback." US State Department International Visitor Program – Small Business Development. Kentucky State University Center for Sustainability of Farms and Families, Frankfort KY, September 2011.

"High Tunnel Production." Sustainable Commercial Urban Farm Incubator Workshop, Cincinnati OH, September 2011.

"KSU's Organic Program." US State Department International Visitor Program – Food Security in the Face of Climate Change. Kentucky State University Center for Sustainability of Farms and Families, Frankfort KY, July 2011.

"It's Organic... But Is It Sustainable?" Organic Weed and Fertility Management Seminar, Kentucky State University Center for Sustainability of Farms and Families, Frankfort KY, July 2011.

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#### INVITED PRESENTATIONS (CONT.)

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"Food for All Forever – The Challenge of Sustainable Agriculture." Research Extension and Apprenticeship Program Seminar, Frankfort KY, June 2011.

"Recipe for Food for a Day in the USA." Bluegrass Local Foods Summit, Lexington KY, April 2011.

"The Energy We Eat." Organic Association of Kentucky Conference, Bowling Green KY, March 2011.

"Farming With Less Fossil Fuel." Tennessee Horticultural Expo, Nashville TN, January 2011.

"Heirloom Tomatoes." Fairview Produce Auction, Christian County KY, January 2011.

"Life after Cheap Carbon: The Transition to a Resilient, Renewable Energy Economy." Kentucky State University Whitney Young Schools of Honors and Liberal Studies Lecture Series, Frankfort KY November 2010.

"Beyond Food Miles." Bluegrass Bioneers Conference. Louisville KY, October 2010.

"Backyard Biofuels?" Kentucky League of Cities Conference, Louisville KY, September 2010.

"Energy Smart Farming." Kentucky State University Sustainable Farms, Families, and Farm Energy Field Day, Frankfort KY, July 2010.

"Comparing Greenhouse and High Tunnel Biocontrol." Entomology Society of America - North Central Branch, Louisville KY, March 2010.

"Farming with Less Fossil Fuel." American Society for an Energy Efficient Economy Forum on Energy Efficiency in Agriculture, Madison WI, February 2010.

"Energy-Smart Horticulture." Kentucky Fruit and Vegetable Conference and Trade Show, Lexington KY, January 2010.

"Feedstock Logistics." Governor's Taskforce on Biomass and Bioenergy, Frankfort KY, October 2009.

"Creating a Bicycle and Pedestrian Network for Frankfort, KY." Rotary Club Meeting, Frankfort KY, September 2009.

"Can We Fly and Eat Too?" Biofuels for Aviation Summit, Arlington VA, September 2009.

"Farming With Less Fossil Fuel." West Virginia Small Farms Conference, Morgantown WV, February 2009.

"Energy and Organic Agriculture." Kentucky Fruit and Vegetable Conference and Trade Show, Lexington KY, January 2009.

"Fresh Tomatoes in January: Can B-ISA Make them Sustainable?" Building-Integrated Sustainable Agriculture Summit, Berkeley CA, December 2008.

"Vegetable Production in High Tunnels." Fairview Produce Auction, Christian County KY, December 2008.

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#### INVITED PRESENTATIONS (CONT.)

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"Greenhouse Biocontrol." Fairview Produce Auction, Christian County KY, December 2008.

"More than the Corner Store." Closing the Food Gap Conference, Lexington KY, October 2008.

"Organic Pest Management." A Look at Organic Vegetable Production Workshop, Princeton KY, December 2007.

"Compost Tea." Kentucky Fruit and Vegetable Conference and Trade Show, Lexington KY, January 2007.

"Winter Gardens in Solar Greenhouses." Bluegrass Energy Expo, Lexington KY, October 2005 & 2006.

"Organic growing." Certified Garden Consultant Short Course, Franklin County Extension, Frankfort KY, 2006.

"A Tale of Two Lettuces: Evaluating the Sustainability of Two Winter Vegetable Production Systems." Kentucky Fruit and Vegetable Conference and Trade Show, Lexington KY, January 2006.

"What the Heck IS Sustainable Agriculture?" Southern Sustainable Agriculture Working Group annual conference, Louisville KY, January 2006.

"Organic Growing." ATTRA Workshop for Prospective Organic Farmers, Fayette and Christian Counties KY, 2005.

"Gardens for Healthy Communities." Kentucky Recreation and Parks Society Annual Conference, Louisville KY, 2005.

"Sowing the Seeds of Change." Local Government Leadership Academy, Morgantown WV, 2005.

"Crop Circles, Color Wheels, and Companion Planting." University of Kentucky Department of Horticulture Seminar Series, Lexington KY, November 2004.

"Organic Agriculture: Good Farming... Good Food." West Virginia Dietetic Association Annual General Meeting, Flatwoods WV, April 2004.

"Agricultural Dystopia." Cyberpunk Class, George Mason University College of Visual and Performing Arts, Washington DC, September 2003.

"Struggle with Science: Key Figures in the History of Organic Agriculture." British Columbia Institute of Agrologists (Victoria and Islands Branch) Annual General Meeting, Victoria BC, January 2002.

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## RESEARCH PRESENTATIONS & JURIED SUBMISSIONS

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**M.K. Bomford.** 2015. Nitrate Accumulation in Vegetables: Something to Avoid. Horticulture Growers' Short Course, Abbotsford, BC.

**M.K. Bomford,** A.F. Silvernail, J.C. Cambron & J.L. Nelson. 2014. Effects of Farm Scale on Land, Labor, and Energy Efficiency. Paper presented at the 4th Annual Organic Association of Kentucky Conference. Berea, KY.

**M.K. Bomford,** J. Schmitz, A.F. Silvernail, & J.C. Cambron. 2014. Mid-East Organic Corn Variety Trial. Poster presented at the Midwest Organic and Sustainable Education Service Conference. La Crosse, WI.

J.C. Cambron, **M.K. Bomford,** A.F. Silvernail & J.L. Nelson. 2014. Effects of Farm Scale on Land, Labor, and Energy Efficiency in Organic Crop Production. Poster presented at the Southern Sustainable Agriculture Working Group Conference. Mobile, AL.

**M.K. Bomford,** A.F. Silvernail, J.C. Cambron, and J.L. Nelson. 2013. Effects of Farm Scale on Land, Labor, and Energy Efficiency of Organic Grain Production. Kentucky Academy of Sciences. Morehead, KY.

**M.K. Bomford,** J.C. Cambron, A.F. Silvernail, and J.L. Nelson. 2013. Economics and Energy Efficiency of On-Farm Ethanol Production from Sweet Sorghum Using a Microfueler. Association of 1890 Research Directors: 17<sup>th</sup> Biennial Research Symposium. Jacksonville, FL.

J.D. Sedlacek, K.L. Friley, K.W. Pomper, J.D. Lowe, S.B. Crabtree, I. Howard, and **M.K. Bomford.** 2013. Survey of Stink Bug Species Found on Organically Grown Primocane-Fruiting Blackberry Plantings in Central Kentucky. Association of 1890 Research Directors: 17<sup>th</sup> Biennial Research Symposium. Jacksonville, FL.

J.L. Nelson, **M.K. Bomford,** C. Wang, J.C. Cambron, A.F. Silvernail, L. Huang and M.J. Ward. 2013. Comparison of Hay and Polyethylene Mulch Effects on Soil Properties and Organic Produce Yield and Quality. Association of 1890 Research Directors: 17<sup>th</sup> Biennial Research Symposium. Jacksonville, FL.

J. Beckwith, J.C. Cambron, and **M.K. Bomford.** 2013. Effect of Antibiotic on Ethanol Yield from Sweet Sorghum. Association of 1890 Research Directors: 17<sup>th</sup> Biennial Research Symposium. Jacksonville, FL.

B. Wyatt, **M.K. Bomford,** C. Wang, L. Huang, and M.J. Ward. 2013. Row Cover Weight Influences Nitrate Content of Kale Grown in Solar Greenhouses. Posters at the Capitol, Frankfort, KY.

J.C. Cambron, **M.K. Bomford,** A.F. Silvernail, and J.L. Nelson. 2013. Assessing Sweet Potato Varieties for Organic Production of Food and Biofuel in Kentucky. Southern Sustainable Agriculture Working Group, Little Rock, AR.

J.C. Cambron, **M.K. Bomford,** A.F. Silvernail, and J.L. Nelson. 2012. Energy Return on Investment for Small-Scale Ethanol Fuel Production from Sweet Sorghum. Kentucky Academy of Science Meeting, Richmond, KY.

**M.K. Bomford,** B. Wyatt, C. Wang, L. Huang, and M.J. Ward. 2012. Effects of Row Cover Weight on Yield and Nitrate Content of High Tunnel Grown Kale. Kentucky Academy of Science Meeting, Richmond, KY.

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## RESEARCH PRESENTATIONS & JURIED SUBMISSIONS (CONT.)

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J.C. Cambron, **M.K. Bomford,** A.F. Silvernail, and J.L. Nelson. 2012. Economics and Energy Efficiency of On-Farm Fuel Production from Sweet Sorghum Using a Small-Scale Ethanol Plant. Growing the Bioeconomy Conference: Social, Environmental, and Economic Implications, Banff, Alberta.

- J.C. Cambron, **M.K. Bomford**, S. Crabtree, J. Lowe, B. May, K.W. Pomper, and A.F. Silvernail. 2012. Potential for on-farm sustainable, ethanol production using a MicroFueler. Southern Sustainable Agriculture Working Group, Little Rock, AR.
- T.H. Holder and **M.K. Bomford**. 2011. A model-based determination of human carrying capacity of Kentucky's ecoregions. Kentucky Academy of Science Meeting, Murray State University, Murray, KY.
- J.C. Cambron, **M.K. Bomford**, A. Silvernail, M.J. Ward, R. Ward, J.L. Thompson. 2011. Kentucky performance of a high-yielding sweet potato (*Ipomea batatas* L.) variety. Kentucky Academy of Science Meeting, Murray, KY.
- J.L. Thompson, **M.K. Bomford**, J.C. Cambron, M.J. Ward, A.F. Silvernail, C. Flewellen and C. Gaines. 2011. Effects of plastic and hay mulches on soil temperature and moisture in organic heirloom tomato production. Kentucky Academy of Science Meeting, Murray, KY.
- J.D. Sedlacek, K.W. Pomper, **M.K. Bomford**, S.B. Crabtree, M.L. Grayson-Holt and C.M. Wales. 2011. Will Mowing of Primocane-Fruiting Blackberries Affect Fruit Ripening? Kentucky Academy of Science Meeting, Murray, KY.
- M.J. Ward and **M.K. Bomford**. 2011. Row covers moderate diurnal temperature flux in high tunnels. International Society of Horticultural Sciences Symposium on High Tunnel Horticultural Crop Production, State College, PA.
- M.K. Bomford**, T.D. Sluss, S. Hansford, and K.J. Bates. 2011. Potential of Kentucky Freeway Rights of Way to Displace Fossil Fuel Consumption through Production of Switchgrass, *Panicum virgatum*. Association of Research Directors 16th Biennial Research Symposium, Atlanta, GA.
- M.K. Bomford** and A.F. Silvernail. 2011. Land, Labor, and Energy Efficiency of Alternative Biofuel Feedstock Crops at Three Farm Scales. Association of Research Directors 16th Biennial Research Symposium, Atlanta, GA.
- M.J. Ward, **M.K. Bomford**, and A.F. Silvernail. 2011. Effect of Row Covers on High Tunnel Soil Temperature. Association of Research Directors 16th Biennial Research Symposium, Atlanta, GA.
- K.L. Friley, J.D. Sedlacek, K.W. Pomper, J.D. Lowe, S.B. Crabtree, and **M.K. Bomford**. 2011. Timing of Primocane Mowing Influences Flowering and Ripening Time in Primocane Fruiting Blackberry Selections in Kentucky Association of Research Directors 16th Biennial Research Symposium, Atlanta, GA.
- J. D. Sedlacek, K.L. Friley, **M.K. Bomford**, R.S. Hayden, C.M. Wales, M.L. Grayson-Holt, and D. Slone. 2011. Beneficial Insects in Sweet Corn Baited with Methyl Salicylate Based Lures. Association of Research Directors 16th Biennial Research Symposium, Atlanta, GA.

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#### RESEARCH PRESENTATIONS & JURIED SUBMISSIONS (CONT.)

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- M.L. Grayson-Holt, J.D. Sedlacek, K.L. Friley, K.W. Pomper, J.D. Lowe, **M.K. Bomford**, C.M. Wales, and R.S. Hayden. 2011. Stink Bug Species Associated with Organic Blackberry Production in Central Kentucky. Association of Research Directors 16th Biennial Research Symposium, Atlanta, GA.
- J.C. Cambron and **M.K. Bomford**. 2011. A Comparison of iPod Touch® and Paper-Based Field Data Collection Systems. Association of Research Directors 16th Biennial Research Symposium, Atlanta, GA.
- M.K. Bomford**, T.D. Sluss, S. Hansford and K. Bates. 2010. Potential of Kentucky freeway rights of way to displace fossil fuel consumption through production of prairie switchgrass, *Panicum virgatum*. Kentucky Academy of Science Meeting, Bowling Green, KY.
- M.K. Ward, **M.K. Bomford**, and A.F. Silvernail. 2010. Effectiveness of row covers against late frosts in unheated high tunnels. Kentucky Academy of Science Meeting, Bowling Green, KY.

- J. Cambron and **M.K. Bomford**. 2010. A field comparison of data collection efficiency using the iPod Touch and paper-based systems. Kentucky Academy of Science Meeting, Bowling Green, KY.
- A. F. Silvernail, **M.K. Bomford**; M.K. Ward; J. Cambron. 2010. Land, labor, and energy efficiency of alternative biofuel feedstock crops at three farm scales. Kentucky Academy of Science Meeting, Bowling Green, KY.
- J.D. Sedlacek, K.L. Friley, L.S. Brent, **M.K. Bomford**, and D. Slone. 2010. Populations of beneficial insects in sweet corn using methyl salicylate based PredaLure® insect attractant. Kentucky Fruit and Vegetable Conference, Lexington KY.
- M.K. Bomford**. 2009. Kentucky yield projections for biofuel feedstock crops. Kentucky Academy of Science Meeting, Highland Heights, KY.
- M.K. Bomford**, J. Rodgers and B.A. Geier. 2009. Comparison of two spacing methods for mixed plantings of lettuce and radish. Kentucky Academy of Science Meeting, Highland Heights, KY.
- B.A. Geier, **M.K. Bomford**, P.C. Vincelli and G.F. Antonious. 2009. Effect of biofumigation and soil solarization on *Sclerotinia sclerotiorum* in high tunnel vegetable production systems of Kentucky. Kentucky Academy of Science Meeting, Highland Heights, KY.
- M.K. Bomford** and A.F. Silvernail. 2009. Can sweet sorghum and sweet potato contribute to self-sufficiency of small farms? 5th National Small Farms Conference, Springfield, IL.
- M.K. Bomford**, P.C. Vincelli, G.F. Antonious, B.A. Geier and E. Dixon. 2009. Solarization and biofumigation for organic control of white mold in high tunnels. American Society for Horticultural Science Meeting, St. Louis, MO.
- M.K. Bomford**. 2009. Spacing calculator for biointensive mixed plantings. American Society for Horticultural Science Meeting, St. Louis, MO.
- Changzheng Wang, Lingyu Huang, **Michael Bomford** and Anthony Silvernail. 2009. Sweetpotato leaves as a source of antioxidant phenols. American Society for Horticultural Science Meeting, St. Louis, MO.

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#### RESEARCH PRESENTATIONS & JURIED SUBMISSIONS (CONT.)

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- A.F. Silvernail and **M.K. Bomford**. 2009. The effect of weed control and tillage on soil health in organic vegetable production. American Society for Horticultural Science Meeting, St. Louis, MO.
- J.D. Sedlacek, K.L. Friley, L.S. Brent and **M.K. Bomford**. 2009. Populations of beneficial insects in organically grown sweet corn using methyl salicylate based PredaLure® insect attractant. Association of Research Directors Biennial Conference, Atlanta, GA.
- M.K. Bomford** and A.F. Silvernail. 2009. Potential of sweetpotato and sweet sorghum as advanced biofuel crops for low input production on small farms. Association of Research Directors Biennial Conference, Atlanta, GA.
- J.D. Williams and **M.K. Bomford**. 2009. Effectiveness of corn gluten meal as a natural herbicide. Minorities in Agriculture Natural Resources and Related Sciences Annual Conference, Indianapolis, IN (*Awarded second place in national undergraduate research competition*).
- M.K. Bomford**, P.C. Vincelli, G.F. Antonious and K. Seebold. 2009. Managing *Sclerotinia sclerotiorum* in high tunnels with biofumigation and solarization. University of Kentucky Plant Pathology Seminar Series, Lexington, KY.



- A. Kakar, **M.K. Bomford** and B.A. Geier. 2009. Effectiveness of a blend of beneficial microorganisms and Brassica green manures in reducing damage by *Phytophthora capsici* to yellow squash (*Curbita pepo*) seedlings. Kentucky State University Biology Seminar Series, Frankfort, KY.
- J. A. Rodgers, **M.K. Bomford**, G.F. Antonious and B.A. Geier. 2008. Effect of planting date on biomass production by *Brassica juncea* var. 'Pacific Gold'. Kentucky Academy of Science Meeting, Lexington, KY.
- M.K. Bomford**, A. Bateman, P.C. Vincelli, B.A. Geier, and G.F. Antonious. 2008. Effect of glucosinolate exposure on *Sclerotinia sclerotiorum* and *Phytophthora capsici*. Kentucky Academy of Science Meeting, Lexington, KY.
- G.F. Antonious, **M.K. Bomford** and P.C. Vincelli. 2008. A simplified procedure for glucosinolate quantification. Kentucky Academy of Science Meeting, Lexington, KY.
- J.A. Rodgers, **M.K. Bomford**, B.A. Geier, and A.F. Silvernail. 2008. Evaluation of alternative bioethanol feedstock crops. Whitney Young School of Honors Roundtable Forum, Richmond, KY.
- J.A. Rodgers, **M.K. Bomford**, C. Wang, B.A. Geier, and A.F. Silvernail. 2007. Evaluation of alternative bioethanol feedstock crops. Kentucky Academy of Sciences Meeting, Louisville, KY.
- R.S. Vernon, **M.K. Bomford** and P. Pats. 2007. Physical barriers for insect control in vegetables. International Organisation for Biological Control (IOBC/WPRS) Integrated Control in Field Vegetables working group meeting, Porto, Portugal.
- A.F. Silvernail and **M.K. Bomford**. 2007. Mulch effects on weed pressure and organic watermelon yield. American Society for Horticultural Science Meeting, Scottsdale, AZ.

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#### RESEARCH PRESENTATIONS & JURIED SUBMISSIONS (CONT.)

---

- L. Huang, C. Wang and **M.K. Bomford**. 2007. Effects of plant source, age, and foliar molasses application on brix readings of kale extracts. American Society for Horticultural Science Meeting, Scottsdale, AZ.
- M.K. Bomford**, A.F. Silvernail and B.A. Geier. 2007. Season extension with high tunnels in Kentucky. American Society for Horticultural Science Meeting, Scottsdale, AZ.
- M.K. Bomford**, A.F. Silvernail, S. Detenber and A. Peterson. 2006. Corn gluten meal as herbicide: A worthwhile investment for organic growers? Kentucky Academy of Sciences Meeting, Morehead, KY.
- A.F. Silvernail, **M.K. Bomford**, and B. Harvey. 2006. Alternatives to plastic mulch for organic watermelon production. Kentucky Academy of Sciences Meeting, Morehead, KY.
- A.F. Silvernail and **M.K. Bomford**. 2006. Weed control in organic edamame soybean production. American Society for Horticultural Science Meeting, New Orleans LA.
- M.K. Bomford** and A.F. Silvernail. 2006. Energy and capital costs of high tunnel construction. American Society for Horticultural Science Meeting, New Orleans, LA.
- M.K. Bomford** and A.F. Silvernail. 2006. Energy use in two potential systems for year-round vegetable production in Kentucky. Association of Research Directors Symposium, Atlanta, GA.
- A.F. Silvernail and **M.K. Bomford**. 2006. Organic weed management in sweet corn and vegetable soybean production. Association of Research Directors Symposium, Atlanta, GA.
- A.F. Silvernail, **M.K. Bomford**, C. Wang and M. Williams. 2006. Organic weed management in vegetable soybean (edamame). Kentucky Fruit and Vegetable Conference and Trade Show. Lexington, KY.

**M.K. Bomford** and A.F. Silvernail. 2005. Evaluating two byproducts of corn processing for herbicidal activity. Kentucky Academy of Sciences Annual Meeting, Richmond, KY.

A.F. Silvernail and **M.K. Bomford**. 2005. Using fluorescein diacetate to measure the effect of weed management practices on soil microbial activity in organic vegetable production systems. Kentucky Academy of Sciences Annual Meeting, Richmond, KY.

**M.K. Bomford**. 2005. Organic research and demonstrations at Kentucky State University. 4th National Small Farm Conference, Greensboro, NC.

**M.K. Bomford**. 2005. Companion choice, crop density, and mixture ratio affect polyculture yield advantage. American Society for Horticultural Science Meeting, Las Vegas, NV.

A.F. Silvernail and **M.K. Bomford**. 2005. Organic weed control in sweet corn production. Annual Meeting of the American Society for Horticultural Science, Las Vegas, NV.

**M.K. Bomford**, and L. Butler. 2003. Do tomatoes love basil but hate Brussels sprouts? Northeastern Branch Meeting of the American Society of Agronomy and the Soil Science Society of America, Burlington, VT.

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#### RESEARCH PRESENTATIONS & JURIED SUBMISSIONS (CONT.)

---

**M.K. Bomford** and L. Butler. 2002. Some effects of companion planting with tomato, basil, and Brussels sprout. Annual Meeting of the International Federation of Organic Agriculture Movements, Victoria, British Columbia.

**M.K. Bomford** and R.S. Vernon. 1997. Potential of physical barriers for root weevil management in nurseries. Entomological Society of British Columbia Meeting, Aggasiz, British Columbia.

**M.K. Bomford** and M.B. Isman. 1995. Desensitization of fifth instar *Spodoptera litura* (Lepidoptera: Noctuidae) to azadirachtin and neem. Joint Annual Meeting of the Entomological Societies of Canada and British Columbia, Victoria, British Columbia.

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#### GRANT FUNDING (\$6.2 MILLION)

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"Products and Management Methods for Wireworm Control in Small-Scale Vegetable Production." PI: Todd Kabaluk; Co-PIs: Wim Van Herk, **Michael Bomford**, Arzeena Hamir. Funded for **\$320,000** under Agriculture and Agri-Foods Canada Organic Science Cluster III, October 2018.

"Organic Farmscapes: Balancing Soil Building and Year-Round Food, Feed and Bioenergy Production in Kentucky's Changing Climate and Economy." PI: **Michael Bomford**; Co-PI: Anthony Silvernail. Funded for **\$800,000** and four years through Evans-Allen funding (non-competitive), September 2012.

"Implementing the Center for Sustainability of Farms and Families at Kentucky State University: An Innovative Approach for Meeting the Needs of Kentucky's Tobacco Dependent and Underserved Farm Communities." PI: James Tidwell; Co-PIs: Teferi Tsegaye, **Michael Bomford**, and Kirk Pomper. Funded for **\$1.0 million** by Kentucky Ag Development Board, April 2012.

"Development of a Baccalaureate Degree Program in Agriculture, Food, and Environment and Supporting Research Opportunities at Kentucky State University." PI: Kirk Pomper; Co-PIs: **Michael Bomford**, John Sedlacek, George Antonious, Avinash Tope, James Tidwell and Teferi Tsegaye. Funded for **\$598,360** funded by 1890 Capacity Building Grants program, July 2011.

“Farm Production, Marketing and Farm Energy for Socially Disadvantaged Farmers, Ranchers and Foresters.” PI: Marion Simon; Co-PIs: Louie Rivers, Harold Eli, Tehran Jewell, Nancy Calix, **Michael Bomford**, and Kenneth Andries. Funded for **\$1.2 million** by USDA Office of Advocacy and Outreach grants program, February 2011.

“A mobile kitchen for fruit and vegetable processing training and extension initiatives for pawpaw and sorghum syrup.” PI: Kirk Pomper; Co-PIs: **Michael Bomford**, Marion Simon, Timothy Woods, John Strang, Tom Cottrell, Robert Perry, Sheri Crabtree, Jeremiah Lowe, and Michael Parker. Funded for **\$300,000** and three years by 1890 Capacity Building Program, July 2010.

“Food safety in a changing economy for socially disadvantaged small, limited-resource farmers.” PI: Marion Simon; Co-PIs: Louie Rivers Jr., **Michael Bomford**, Nancy Calix, Edwin Chavous, Tehran Jewell and Harold Eli. Funded for **\$400,000** by the USDA Outreach and Assistance to Socially Disadvantaged Farmers and Ranchers Program, July 2010.

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#### GRANT FUNDING (CONT.)

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“A full-day agri-energy track at the Kentucky State University Sustainable Farms and Families Field Day.” PI: **Michael Bomford**; Co-PI: Marion Simon. Funded for **\$5,000** by the Kentucky Governor’s Office of Agricultural Policy and the Kentucky Cabinet for Energy, June 2010.

“Developing a training program in sustainable vegetable production for agriculture professionals in Kentucky and Tennessee.” PI: Timothy Coolong; Co-PIs: Annette Wszelaki, **Michael Bomford**, Mark Williams, Kenny Seebold and Ricardo Bessin. Funded for **\$59,532** and one year by Southern Sustainable Agriculture Research and Education Program, March 2010.

“Assisting socially disadvantaged farmers who grow vegetables to improve their production, business, and marketing practices to ensure a safer food supply.” PI: Marion Simon; Co-PIs: Louie Rivers, Edwin Chavous and **Michael Bomford**. Funded for **\$300,000** and three years by CSREES Outreach and Assistance for Socially Disadvantaged Farmers and Ranchers Competitive Grants Program, July 2009.

“Evaluation of natural sprays for control of economically important foliar and fruit diseases of tomato and cucurbits.” PI: Paul Vincelli; Co-PIs: Kenny Seebold, Mark Williams, Merari Feliciano, **Michael Bomford** and John Bell. Funded for two years by Kentucky New Crop Opportunities Program, June 2009.

“Development of a Master's in Environmental Studies degree program and graduate student recruitment and retention at Kentucky State University.” PI: Kazi Javed; Co-PIs: **Michael Bomford**, Tamara Sluss, and Charles Bennett. Funded for **\$200,000** and three years by 1890 Capacity Building Program, October 2008.

“Small organic farms growing food and biofuel crops: Effects of scale on sustainability.” PI: **Michael Bomford**; Co-PI: Anthony Silvernail. Funded for **\$700,000** and four years through Evans-Allen funding (non-competitive), September 2007.

“Biofumigation for soil-borne disease management in field and high tunnel vegetable production systems.” PI: **Michael Bomford**; Co-PIs: Paul Vincelli, George Antonious and Kenny Seebold. Funded for **\$170,000** and three years by Southern Sustainable Agriculture Research and Education, April 2006.

“Evaluating the sustainability of two widely used organic production systems and their potential use in Kentucky.” PI: Mark Williams; Co-PIs: Elisa D'Angelo, **Michael Bomford** and Brent Rowell. Funded for **\$120,000** and three years by University of Kentucky New Crop Opportunities, April 2005.

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## SERVICE

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### Committee service

- Faculty Council, KPU Faculty of Science and Horticulture, 2014-Present (Chair, 2017-Present).
- Research Committee of Faculty Council, KPU Faculty of Science and Horticulture, 2017-Present.
- Kwantlen Faculty Association - Science and Horticulture Rep., 2017-2020.
- Creating Homefulness Society Farms Board of Directors, 2015-2020.
- Kentucky Academy of Science, Agricultural Science Section Chair (2005-2006) and Secretary (2006-2007 and 2013-2014)
- *Organic Farming* editorial board, 2013-Present (non-profit, open access journal)
- Faculty Senate, Kentucky State University, 2012-2014
- KSU Professional Concerns Committee Secretary, 2012-2014
- Franklin County Green Vision Commission, 2012-2013
- University of Kentucky Sustainable Agriculture Curriculum Steering Committee, 2007-2014.
- Global Education and Programs Advisory Committee, Kentucky State University, 2010-2012.
- External evaluation of tenure review package, University of Florida Extension, July 2010.
- Kentucky Climate Action Plan Council, Transportation and Land Use Technical Working Group, 2010.
- Kentucky Department of Agriculture Organic Certification Review and Standards Advisory Committee, 2007-2011.
- Walk/Bike Frankfort Steering Committee, 2007-09; Planning and Implementation Committee Chair, 2009-2012; Treasurer, 2013-14.
- KSU Cooperative Association of States for Scholarship advisory council, 2007-09.
- Frankfort Mayor's Task Force on Energy Efficiency and Climate Change, 2007.
- *Journal of Sustainable Agriculture* board of editors, 2003-08.
- Professional Pest Management Association of British Columbia Secretary, 1998-2000.

### Manuscript reviews

- *Organic Farming*
- *HortTechnology*
- *Journal of Agronomy*
- *Journal of Sustainable Agriculture*
- *Renewable Agriculture and Food Systems*
- CABI Publishing
- Internal reviews for Kentucky State University and University of Kentucky

### Grant reviews

- KPU Professional Development – Internal Grant Review Committee, 2019-Present
- Kentucky State University Small Farmer Grants, 2012-2014
- Sustainable Agriculture Research and Education, 2005-2014
- CSREES Small Business Innovation Research, 2005-2014
- CSREES Methyl Bromide Replacement Program, 2007-08

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## SERVICE (CONT.)

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### Newsletter editorship

- *The OAK Leaf* (Newsletter of the Organic Association of Kentucky), 2010-2011.
- *The Organic Harvester* (Newsletter of the Mountain State Organic Growers' and Buyers' Association), 2001-2002.

- *Straws in the Wind* (Newsletter of the University of British Columbia Agriculture Undergraduate Association), 1992-1994.

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## AFFILIATIONS

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**American Society for Horticultural Science** Member, 2005-2010, 2014

- A cornerstone of research and education in horticulture

**Community Farm Alliance** Member, 2006-2014

- Using grassroots democracy to ensure an essential, prosperous place for family-scale agriculture in Kentucky

**Certified Organic Associations of BC** Member (with KPU), 2016-Present

- Umbrella association representing organic certifying agencies in British Columbia

**Farm Folk / City Folk** Member, 2019-Present

- Supporting access to local, sustainable food; supporting local growers and producers; and providing access to farmland in BC

**Garden City Conservation Society** Member, 2015-Present

- Dedicated to research, education, and action to help steward natural legacies of Richmond, BC

**Kentucky Academy of Science**, Agricultural Sciences Section, 2005-14

- Encouraging agricultural research in the Commonwealth of Kentucky

**National Sweet Sorghum Producers and Processors Association** Member, 2006-14

- Dedicated to educating the public about sweet sorghum syrup

**Organic Association of Kentucky** Founding Member, 2010-14

- Promoting Kentucky's organic farms and farmers

**Partners for Family Farms** Board Member, 2010-2012

- Dedicated to sustaining family farms through farm diversification, linking urban consumers and family farms, and educating the public about their role in buying local farm products.

**Post Carbon Institute** Fellow, 2008-Present

- Leading the transition to a more resilient, equitable, and sustainable world.

**Woodwynn Farms** Board Member, 2015-2020

- A healing farm community dedicated to creating homefulness and helping homeless feed themselves.

REPORT: Sustainable Agriculture Self Study

**OVERALL ASSESSMENT:**

*Please provide a brief assessment of the Self-Study Report under review and an overall recommendation.*

Reviewer #1: This is an excellent Self-Study Report – one of the best that I have reviewed. The authors have done a superb job of providing the history and context of the program and outlining some of the ongoing challenges. The report is clearly written and to the point, highlighting precisely the areas that need the most attention. I see the Sustainable Agriculture program as being an incredibly important one for KPU and one that has huge potential via the hands-on learning that it affords students. Clearly, faculty are extremely dedicated to the program, students, and the ongoing success of the Farm School, and are already moving forward on a number of steps (such as working to form the Program Advisory Committee). The Self-Study speaks to the faculty members' clear care, expertise, and guidance in working to make this program a continued success for students and to raise its profile both regionally and nationally. I have noted some minor typos/errors that need polishing (in the last section), but otherwise, this is an excellent Self-Study Report. Bravo!

Reviewer #2: Thank you to the program for providing this thorough assessment! A really interesting program and a real asset to KPU and BC as a whole.

Reviewer #3: Overall, this is an excellent self-study report with a clear voice and vision for the program moving forward. I appreciated the in depth look into the program's history and current standings even though it is a relevantly younger program at KPU. This study clearly identified the strength and challenges of the program with a clear plan for the future such as the development of an Advisory committee. I saw a few minor formatting and typo issues but again overall a huge congratulations to the authors and faculty. I look forward to the QA plan.

**The Report:**

- ☒ Reviewer #1 & #3: Recommend for approval by the SSCPR as is
- ☒ Reviewer #2: Recommend for approval by the SSCPR pending further action (see below)
- ☐ Recommend return to the Program for major revision
- ☐ Recommend for rejection by the SSCPR

*Direction for Reviewers:* Determine if the criterion for each chapter is fully addressed according to the standard.

**CHAPTER 1: Program Overview**

**Criterion:** This chapter provides a description of the program, its history, and the scope of the review.

**Standard:** The Chapter clearly describes the program, its history and curriculum, and the scope of the current review.

**THE CHAPTER:**

☒ **Meets the Standard**

*Additional Comments (if necessary):*

Reviewer #1: This is a wonderfully clear and engaging overview of the program and its history. Especially impressive is the fact the program has its own Vision and Mission Statements as well as a tag line. These components along with the strength of the description provide a tangible sense of the program's purpose and goals for student learning. In terms of the scope of the review, does the program want to include (in its list) the question of external accreditation, which the authors mention "should be pursued"? It is not listed explicitly on page 8, yet it seems something that is already identified as being important to the future of the program.

Reviewer #3: It was such a wonderful in depth look into such a young program. I really appreciated that you also included the programs core values, the mission and vision statements that then were echoed in the voice throughout the report.

☐ **Requires Further Action to Meet the Standard**

*Further Action Required for this Chapter to Meet the Standard:*

[Click here to enter text.](#)

## CHAPTER 2: Program Currency and Connections

**Criterion:** This chapter assesses program demand and its current relevance to the discipline/sector.

**Standard:** The Chapter contains data-supported assessments and recommendations.

### THE CHAPTER:

☒ **Meets the Standard**

*Additional Comments (if necessary):*

Reviewer #1: This section provides an excellent overview of the unique attributes of the Sustainable Agriculture program within the broader post-secondary sector, and the particular challenges it is facing, especially in terms of raising its profile both within and beyond KPU.

Reviewer #3: This program is truly an asset to KPU and the speaks to the diversity of programing that KPU offers. The faculty and author dedication come though clearly in the ability to identify the challenges and the opportunities of the program, such as the formation of an Advisory committee.

☒ **Requires Further Action to Meet the Standard**

*Further Action Required for this Chapter to Meet the Standard:*

Reviewer #2: The Self Study Guide (page 5) notes that there should be information about the program's connections to alumni, but nothing is noted in this chapter.



### CHAPTER 3: Quality of Curriculum Design

**Criterion:** This chapter examines the quality of the program's curriculum.

**Standard:** The Chapter contains data-supported assessments and recommendations.

#### THE CHAPTER:

☒ **Meets the Standard**

*Additional Comments (if necessary):*

Reviewer #1: Another excellent self-study of the curriculum design and the particular challenges the program has been facing and addressing in constructive ways. On page 25, there is mention of increasing Indigenous content and perspectives to better understand different ways of knowing. Would it be important to include this explicitly in the revised list of program competencies on pages 21-22? For instance, "Recognize and represent diverse perspectives and ways of knowing" could include an explicit acknowledgment of Indigenous perspectives? This is just a suggestion as Indigenous content and perspectives were mentioned several times later on in this chapter. On another note, it is nice to see the mention of micro-credentials, albeit it is a bit vague what these may focus on (albeit at this stage, that may be fine). These potential micro-credentials may serve as important entry points to the program for prospective students and to increase future enrollments.

Reviewer #3: The authors and faculty have done a great job outlining the opportunities and challenges within the curriculum and mention the potential of micro credentials. In the section under Career/ and Further Education I wondered if they had considered the possible link between the Graduate Diploma: Green Business Management and Sustainability in the school of Business?

☒ **Requires Further Action to Meet the Standard**

*Further Action Required for this Chapter to Meet the Standard:*

Reviewer #2: The Self Study Guide (pages 7 and 9) mentions including a career pathways map. There is some discussion of career pathways on page 29, in the "Career Pathways" and "Alumni Preparedness" paragraphs, but not an actual graphic or table. Regardless, more specificity and clarity would be welcome, especially for such a unique program. It would be interesting if the self-study authors could list the types of organizations represented by the discipline/sector survey and whether the diversity within that group may affect what skills they are looking for in program graduates. Is there a lot of overlap? If the program is considering implementing different streams, it would be interesting to know this.

#### CHAPTER 4: Quality of Instructional Design

**Criterion:** This chapter examines the quality of the program's instructional design.

**Standard:** The Chapter contains data-supported assessments and recommendations.

##### THE CHAPTER:

☒ **Meets the Standard**

*Additional Comments (if necessary):*

Reviewer #3: This chapter outlines the uniqueness of the program in the post-secondary sector. I wondered if authors had considered the possible opportunity for further studies for their students in the Graduate Diploma: Green Business Management and Sustainability in the school of Business, and or collaboration?

☒ **Requires Further Action to Meet the Standard**

*Further Action Required for this Chapter to Meet the Standard:*

Reviewer #2: I think that recommendations 4.4 and 4.5 may be somewhat outside the scope of program review, as they relate to the budgetary processes that may not be fully under the department's control. In the past, reviewers have requested that recommendations subject to larger budgetary processes be rephrased with language such as "advocate for" and "investigate," like, "investigate hiring a full time lab instructor" or "advocate for hiring another full time faculty, submitting a budget request into the next possible budget cycle" etc.

#### CHAPTER 5: Quality of Services, Resources and Facilities

**Criterion:** This chapter assesses program resources, equipment, software, and facilities from both the student and instructor perspective.

**Standard:** The Chapter contains data-supported assessments and recommendations.

##### THE CHAPTER:

☒ **Meets the Standard**

*Additional Comments (if necessary):*

Reviewer #3: I think that this chapter in the self-study clearly speaks to the in-depth look that the authors and faculty took in foreseeing the growth and development that the program needs to be sustainably with the planning for future budgetary recommendations.

☐ **Requires Further Action to Meet the Standard**

*Further Action Required for this Chapter to Meet the Standard:*

[Click here to enter text.](#)

## CHAPTER 6: Conclusions and Recommendations

**Criterion:** This chapter summarizes the conclusions drawn from the evidence gathered in the program review.

**Standard:** The Chapter contains data-supported recommendations.

### THE CHAPTER:

☒ **Meets the Standard**

*Additional Comments (if necessary):*

Reviewer #1: Another very strong chapter with clear conclusions drawn from the evidence. The only recommendation that is a bit vague is 3.7 – about micro-credentials. This is given very brief nods throughout the self-study, so it is a bit unclear what the program is considering in terms of this issue. Could the micro-credentials help as an entry-point?

Reviewer #3: With this program being highly specialized it is an excellent suggestion from the faculty and authors to recommend that staff in the main areas of contact with the students, such as advising, and registration receive specialized training.

☐ **Requires Further Action to Meet the Standard**

*Further Action Required for this Chapter to Meet the Standard:*

[Click here to enter text.](#)

### MINOR EDITS (Spelling, syntax, word choice and other mechanical issues).

Please list corresponding page numbers. Minor edits are NOT discussed at the SSCPR meeting. Add or remove rows as needed.

Minor Edits (page #)
Overall formatting should be constant whether it is left justified or centered as it differs in chapters
p.6 NR1: regular and non-regular faculty?
p.6 acronym use: CFI: reviewers may not be familiar with these acronyms
p.6 3 full-time faculty: meaning regular faculty members – NR2 can be full time as well
p. 6 – heading: Teaching & Research <b>Facilitates</b> >> typo/sp: should be <b>Facilities</b>
p. 7 – comma splice: external organization, <b>however</b> the>> should be: <b>organization; however, the</b>
p. 7 – another comma splice: association, <b>however, the</b> program [fix as above]
p. 9 Awkward phrasing: a 12-month courses series of applied learning on the farm. Should this be “a 12-month series of courses with applied learning on the farm”?
p. 9 fraser valley – capitalize?
p. 9 There are many similarities between this program and <b>KPUs, however t</b> there are also some key differences: -- comma splice needs correction

Minor Edits (page #)
Overall formatting should be constant whether it is left justified or centered as it differs in chapters
p.6 NR1: regular and non-regular faculty?
p.6 acronym use: CFI: reviewers may not be familiar with these acronyms
p.6 3 full-time faculty: meaning regular faculty members – NR2 can be full time as well
p. 10 Most of the industry members are primary producers which is reflected in our survey <b>responses</b> , <b>however there</b> are a growing number of supporting jobs in retail and distribution and consulting. – comma splice
Page 13, 3 <sup>rd</sup> paragraph: “Our farm manager is actively with the food services on facilitating this partnership.” Word missing after actively?
Page 15, last paratrph” We have had many interactions with students at other institutions and community members that have had no ideas we exist.” Ideas should be singular?
Page 21, 1 <sup>st</sup> paragraph: “A core component of the program is to facilitate the student’s exploration of concepts of social justice, equity, and ecological sustainability and to examine how their own journey intersects with these critical components.” I think student’s should be students’. Especially how the second half of the sentence uses “their,” so I think student’s should be plural instead.
p. 22 – subject/verb agreement error: Scientific writing skills are developed through the program and culminates in >>>should be culminate
p. 23 – comma splice: There is currently only the degree level credential, however, given the response from students, it is suggested >>> change to semicolon. *There are a number of these errors throughout the report, so I suggest proofing of the report by the authors to correct these (an easy fix via a find and review).
Page 24, 1 <sup>st</sup> bullet point, “Knowledge of methodologies and research; a 12-month research course series is required of all students where they gain experience with dealing” (incomplete sentence)
Page 24, “One particular prerequisite has had poor student success and we have recommended to students that the take an online course at TRU to meet the requirement and the signed a prerequisite waiver to allow the student to continue.” Should “that the take” be “that they take”? Also, first part of sentence indicates multiple students, second part indicates a single student. Can this be clarified?
Page 25, 2 <sup>nd</sup> to last bullet point: “several courses are taught be contract instructors...” be = by
Pg. 38 – comma splice: Students in their final year...members, they are also engaged ....>>should be a semicolon or make two separate sentences
p. 44 – first alert system >> should be Early Alert
Page 44, “The library has been critical in allowing us to provide our students with learning materials at little to no cost” – suggested revision: “at little to no cost to the Sustainable Agriculture program” (there is a cost to the library).
Page 46, last paragraph. Should “facilities” be capitalized when referring to the Facilities Department?



## **PROGRAM REVIEW: Self-Study** ***Sustainable Agriculture***

**Date Submitted:** August 30, 2021 (First Draft), September 20, 2021 (revised draft)

**Program Name:** Sustainable Agriculture

**Program Review Team Members:** Dr. Rebecca Harbut and Dr. Mike Bomford

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# Chapter 1. Program Overview

## Program Description

Kwantlen Polytechnic University's Sustainable Agriculture program offers a Bachelor of Applied Science in Sustainable Agriculture. The program addresses complex issues related to sustainability such as; climate change, regenerative agriculture, sustainable food systems, policy, food security, social justice, and sustainable economics. The program utilizes experiential learning, is applied science focused, and provides opportunities to engage with issues that are currently facing our food system both globally and regionally. The program is housed in the Faculty of Science and Horticulture and the foundation of the curriculum is based in science but students are encouraged to take courses in other programs that build on their own experience, interests and expertise. The program was designed this way to ensure students are provided with the opportunity to gain interdisciplinary skills and understanding which will be required to address the complex challenges of the 21<sup>st</sup> century. The food system intersects with all aspects of society, has regional and global reach and the development of a sustainable food system is perhaps one of the most critical issues of our time.

The program is built on a set of core values that inform the vision, mission, curriculum, partnerships and program competencies. These core values represent a unique perspective that our program brings to the sector. These values are:

- Sustainability is imperative
- Good, wholesome, nutritious food is a basic human right
- Co-creation of knowledge fosters citizen engagement and positive change
- Pursuit of accuracy and truthfulness are critical for constructive discourse
- Science is enriched by honoring diverse perspectives and ways of knowing

In alignment with these values, our courses, faculty and learning experiences expose our students to the diverse aspects of society that interface with food system issues. The curriculum allows them to engage with food production at all levels from practice to policy. This program is focused on empowering students to have the foundational knowledge required to understand what a sustainable food system could look like and give them the experience and confidence to be leaders that facilitate “change from the ground up”.

**Program type:** Undergraduate

**Credential offered:** Bachelor of Applied Science in Sustainable Agriculture (120 credits)



**Admission requirements:** Students pursuing a Bachelor of Applied Science in Sustainable Agriculture must be admitted to the Faculty of Science and Horticulture.

**Options, specializations:** There are currently no options or specializations

**Laddering and transferability:** There is currently no laddering or transferability

**Campuses where the program is offered:** Richmond Campus

**Academic unit(s) responsible for the program:** Faculty of Science and Horticulture

**Number of staff and faculty (part-time and full-time)**

Full-time	3
Contract (NR2)	4
Full-time staff (Farm Manager)	1
Seasonal staff (Farm Assistants – April-Oct)	2
Seasonal student farm assistants (partially grant supported)	1-2

### **Vision Statement**

We foster the development of a sustainable food system that is place-based, community-focused; nurtures diversity in scale, markets, and cropping systems; and serves, engages, and empowers all.

### **Mission Statement**

We provide integrated education, applied research, and community engagement programming to advance sustainable food systems.

### **Tag Line**

‘Change from the ground up’

### **Brief History of the Program**

The Sustainable Agriculture program was approved by Senate in 2011 and the first intake of students occurred in 2012 with the first graduates completing their degree in 2016. The program was developed out of the Institute for Sustainable Food Systems at KPU which carries out research and extension programming in sustainable food systems. The degree was developed out of an identified need for a program that trained agricultural practitioners that understood both the larger challenges and opportunities related to

sustainability, but also the practical skills of sustainable food production and agroecosystem management. While there are several agricultural universities in Canada, KPU is unique in its focus on sustainable, regional food production systems. The program was developed with the following goals:

- Address community needs identified by the provincial government and municipal councils in relation to local-regional, agri-food systems and food security.
- Address institutional priorities embedded in Kwantlen's polytechnic mission and mandate.
- Model innovative agricultural practices of sustainable food production and post-production functions.
- Inspire a new generation of leaders in forging the advancement of a sustainable society.

Since the program launched in 2012, the programs capacity to deliver these goals has been realized through the hiring of full time and part-time faculty, through partnerships that have been fostered with the community, industry and local governments and through a (Canada Foundation for Innovation (CFI) award submitted by faculty which provided \$1.2 million towards the development of a dedicated space for program offices, a research lab and the infrastructure at the farm.

When the program launched in 2012, there were no faculty appointed to the program. The first AGRI courses were taught by Dr. Kent Mullinix, Director of the Institute for Sustainable Food Systems and the lead in designing the program. The program hired the first full-time faculty member in 2013 and currently has 3 full-time regular faculty in the program all of whom have doctoral degrees in food production, production agriculture expertise, research and extension experience. In order to deliver our courses, which are designed to run in accordance with the annual food production cycles, all faculty teach in all three semesters. The program relies on non-regular, part-time NR1 faculty to teach several of our courses; including soil science, animal production, economics and business. Both the NR1 and regular faculty also teach our labs as we do not have any dedicated lab instructors. The farm is managed by a full time Farm Manager who is responsible for overseeing the farm operations, support teaching and research activities and supervising farm staff.

#### *Teaching & Research Facilities*

There are three main research and teaching facilities that support the delivery of the degree:

- 1) The Gilbert Rd. Orchard. In 2012, the city of Richmond agreed to allow KPU to farm an eight acre parcel of municipally-owned land managed by the Parks and Recreation Department. This land provides teaching space and also provides graduates of the degree program (and individuals who complete the ISFS Farm School outreach program) with an incubator plot where they can develop their agricultural business. This land is now leased by ISFS but the Sustainable Agriculture program continues to use it.
- 2) KPU Farm at Garden City Lands. In 2016, KPU and the City of Richmond signed a lease agreement for a 20 acre parcel of land on the Garden City Lands. This site has become the main farm for the program and has been extensively developed into a certified

organic farm. Funding for the establishment of the farm was secured by faculty through a CFI grant which provided federal, provincial and KPU funding.

- 3) Seed Lab. As part of the CFI grant, the department was able to build and purchase equipment for a seed lab to support a growing seed industry in British Columbia. This lab is used in the delivery of several courses and is also shared with the Biology Department.

### *Program Revisions*

In 2014, a program revision was approved by senate (Appendix 1) with the following purpose and rationale:

#### Proposed Changes:

1. Revise language to follow new Proposed Calendar layout.
2. Reduce number of core required courses in years 1 and 2

#### Rationale:

2. The BASc in Sustainable Agriculture had the first intake of students in 2012 and we now have students registered in year one, two and three courses

The proposed revisions to the program have come in response to feedback from enrolled and prospective students, advisors and faculty as well as the desire to provide students with flexibility to tailor their degree to match their career aspirations. This flexibility would also allow students the option of completing a minor without adding excessive course load. Many of our students are not able to carry the prescribed course load and as a result are projected to require additional semesters to the 4 year (8 semesters) program.

The reasons for these revisions are:

- To provide students with greater flexibility to make it reasonable to complete the degree in 4 years.
- To provide students with the option to choose an additional area of emphasis through the completion of a minor (i.e. Minor in Policy Studies in Sustainability)

### **External Accreditation**

Our program is not currently accredited through any external organization; however, the KPU Farm at Garden City Lands is certified through the B.C. Association for Regenerative Agriculture, which is accredited by the Certified Organic Association of B.C. We have had some of our students gain accreditation through the B.C. Agrologists association; however, the program has not been accredited through this association. As a production agriculture program, the possibility of gaining accreditation should be pursued.

### **Scope of the Review**

This is the first review of the Sustainable Agriculture program. While there were some revisions to the program in 2014, (Appendix 1) there have not been any major changes to the program. Over the last several years, we have gained experience, had input from our students and further defined our program with the development of our values, mission and

vision. We have also expanded our capacity to deliver a much more engaged and practical learning experience with the development of the KPU Farm and the Farmers Market. Over the years, we have identified some disconnects and deficiencies in our program. The foundation of the program is based on a very traditional agricultural science framework. As we have considered what competencies and skills we want our students to gain and the diversity of our student population, it has become clear that the curriculum needs to be redesigned. We believe our program should facilitate a transformative educational experience that will empower our students to be the leaders needed to build the food systems of their future.

In order to accomplish this, we have chosen to focus our review on the following:

- Evaluation of all courses and their connection to student competencies, skills and learning outcomes.
- Evaluation of the experiential learning opportunities throughout the program
- Examine the connections with our community and industry partners
- Evaluate the program outcomes through the experience of our graduates
- Evaluate the student outcomes and competencies through the lens of education for sustainable development.
- Evaluation of Departmental capacity and growth of the program

## **Chapter 2. Program Currency and Connections**

### **Competitive Context**

There are currently no other programs in the province that provide a similar degree that requires all students to engage in a research project and a 3 applied learning courses which are taught on the farm over consecutive 12-months.

UFV, Department of Agriculture

UFV offers a Bachelor of Agriculture Science, Horticulture Major. This degree is focused on the main agricultural sectors found in the Fraser Valley; dairy, greenhouse production and vegetable production. This program is a more traditional agriculture program and tends to focus more on conventional production practices rather than an Agroecological approach with a sustainable food systems perspective. UFV also offers a wide range of diplomas and certificates on focused topics such as; berry production, field vegetable production, integrated pest management, livestock production.

UBC, Faculty of Land and Food Systems

UBC offers a degree in Applied Biology with a major in Sustainable Agriculture and Environment. This degree is built on an applied biology foundation and provides students with the opportunity to select restricted electives that meet their interests in agriculture and food systems. The electives are largely focused on soils, pest management and plant/post-harvest physiology. There is also an opportunity to select the summer internship at the UBC Farm to gain hands-on experience. There are many similarities between this program and KPUs; however, there are also some key differences:

- UBC is a core science degree, not applied science degree and therefore requires a greater focus on basic science courses.
- KPU students are all required to enroll in a 12-month agroecosystems course series to ensure they have experience with the full cycle of farm production, not only the summer season
- KPU students are all required to carry out a research project
- KPU has a greater focus on crop production courses with a focus on organic production methods

### **Program's Connections to its Advisory Board**

When the program was first established, the program advisory board was shared with the advisory board of the Institute for Sustainable Food Systems. This board was involved in the program as it developed and during the first few years of the program assisting in the hiring of the first two faculties. However, over time the advisory board has become more focused on the work of ISFS and the program became a lower priority. A separate program

advisory board has been needed, but has not yet been established. Potential board members have been identified and invited to join.

The establishment of an engaged and active advisory committee is a high priority.

## Program's Connections to the Discipline/Sector

The sector that Sustainable Agriculture supports, alternative/sustainable agriculture, is a growing component of B.C.'s agricultural sector. It is centered around small to medium sized farms that often have diverse cropping systems, are certified organic or adhere to organic standards and serve local markets. Most of the industry members are primary producers which is reflected in our survey responses; however, there are a growing number of supporting jobs in retail and distribution and consulting. (Table 1). Due to the social justice component of sustainability, there are a number of non-profit organizations that we work with and play a critical role in our connection with the community. One of the areas that has grown significantly the last several years is the seed sector with many growers either focusing on the seed production or including it in their cropping scheme.

Table 1. Identification of sector partners. Discipline/Sector Survey, Feb. 2021

Which sector best describes your organization or business? Select all that apply	Percentage
Agricultural Supply Retailer (ie. Seeds, equipment, fertilizers, etc.)	15%
Agricultural Services Provider (i.e. pest management/scouting services)	8%
Primary Production	54%
Food retail and food service (i.e. farmers market, grocery store, restaurant)	15%
Agricultural Consultant	8%
Food and Beverage processing	8%
Research	8%
Education	8%
Government (i.e. BC Ministry of Agriculture, Agriculture and Agrifood Canada)	8%
Other (Please Specify)	15%
Total	13

Other (Please Specify): Non-profit, Local chain ag-tech; automated onsite commercial-scale food & livestock feed technologies

One of the challenges within the sector is that it has historically been a diverse group of farmers, many of whom are not represented by an industry group or organization. There has not been a post-secondary institution that has engaged in research or training focused on the sector. As a result, the sector does not have a culture of collaboration with Universities or government and does not have an overarching industry association that represents them. This sector does, however, have a tradition of peer mentorship and has fostered a sense of community between many of the growers.

As this sector continues to grow and become a larger part of BC's agriculture sector, the Ministry of Agriculture (MOA) has recognized the challenge to ensure that this sector has appropriate representation and support. They have hired specialists to provide support and have reached out to Universities to explore the best way to serve this sector. Both Sustainable Agriculture and ISFS have been working with the MOA, other post-secondary institutions and the sector to explore how KPU can contribute through research and training.

All of the faculty in Sustainable Agriculture have experience and training in agricultural extension work and have been actively engaged in training and research with the agriculture sector in BC and it has been clearly demonstrated that there is a demand from the sector, however the faculty are limited by the workload associated with the farm and teaching obligations.

Sustainable Agriculture has a strong connection to the organic agriculture sector in British Columbia as the core of our program is teaching organic production systems. We have been members of the Certified Organic Association of B.C. for several years. Our connection with the sector is both through our academic program and through the KPU Farm which is a member as a certified organic farm. KPU has contributed to the annual conference through student attendance and presentation of student posters and faculty have presented in various seminars.

Our students are required to complete an internship and this has also fostered a stronger connection with the sector.

## **Program's Connections to Other KPU Academic Units**

Sustainable Agriculture is a very unique program at KPU, so there is no overlap with other programs. There is, however, often confusion about the relationship between the School of Horticulture and Sustainable Agriculture, and the ISFS Farm School Outreach program and the Sustainable Agriculture degree. This confusion occurs both within KPU and outside of KPU. It is necessary to build a strong identity for the Sustainable Agriculture program so that it is clear to both internal and external partners who we are and how we relate to other programs. We believe this will also provide a good foundation for developing more meaningful connections with other programs.

The Sustainable Agriculture program is a credentialed bachelor program focused on sustainable, land-based food production with a focus on organic production systems. The ISFS Farm School is a non-credentialed, outreach program that provides opportunity for people to develop their skills in sustainable food production. There is no credential associated with Farm School and it does not fall under KPU's teaching programs. The School of Horticulture has programs that are also focused on food production, however they are focused on greenhouse production and non-food crops such as ornamental crops and turf. In addition to production, they also have the urban ecosystems program and plant protection. These two programs are complementary to ours and we have had the opportunity to provide courses such as our research series and agroecosystems series to Horticulture students and have collaborated in

the development of a beekeeping course which is taken by both horticulture and Sustainable Agriculture students. The distance between the Langley and Richmond campus is the greatest challenge to increased collaboration.

When the program first began, it was very strongly tied to the Policy Studies in Sustainability (POST) program and the Environmental Protection Technology (EPT) program as they shared a focus on sustainability and offered a broader base for our students. This has been an enriching connection for both the students and faculty. The full realization of the connection between the programs has been limited due to the geographical challenges of the courses being on three different campuses. As our program is based on the Richmond campus it is challenging for students to commute between these campuses. While there has been a willingness to offer sections of courses in Richmond, the number of Sustainable Agriculture students has been too low to justify this. Our desire to maintain this connection resulted in one of KPU's first mixed mode delivery course enabling Richmond students to attend the lecture in Surrey via a video link that they could view together in a Richmond classroom. There are several programs at KPU that we would like to foster deeper connections with including, School of Business, Horticulture, and Arts. We are optimistic that Sustainable Agriculture can contribute service courses to the broader KPU community that provide students with opportunities to deepen their understanding of sustainability. Given the lessons learned through COVID and our increased capacity for online learning, there may be new opportunities to effectively increase our collaborations with other programs.

The most recent collaboration Sustainable Agriculture has had is our contribution to the new graduate certificate in food systems which is offered through the Faculty of Arts with Dr. Kent Mullinix as the coordinator.

Service courses currently offered by other departments in the Sustainable Agriculture Program:

Year 1

BIOL 1110: Intro Biology I

BIOL 1210: Intro Biology II

ENGL 1100: Intro to University Writing

One of:

ENIV 1106: Environmental Chem I

CHEM 1110: The Structure of Matter

One of:

PHIL 1110: Confronting Moral Issues: Intro to Ethics

PHIL 1112: Environmental Ethics

POST 1100: Sustainability: Analysis and Ethics

Year 2:

BIOL 2322: Ecology

MATH 1115: Statistics I

One of:

POLI 1120: Canadian Government and Politics



POLI 1125: Intro to Political Science  
POST 2100: Sustainability and Government

It should be noted that these service/prerequisite courses make up a large portion of students 1<sup>st</sup> and 2<sup>nd</sup> year and as a result, the students have minimal connection and interaction with the Sustainable Agriculture department in these first two years. This has been identified by both students and faculty as an area that needs to be addressed.

### **Connection to Institute for Sustainable Food Systems (ISFS)**

ISFS is a research and outreach institute at KPU that shares a focus and vision with the Sustainable Agriculture program. There are several points of intersect with the department that include; sharing farm resources and expertise, providing internship opportunities for the Sustainable Agriculture students, collaboration on the graduate certificate (offered through Faculty of Arts) and research projects. There is potential to develop a deeper collaboration with ISFS on outreach initiatives and teaching. There is currently no connection between the Farm School, which is a non-credentialed ISFS outreach program, and our department. We feel it would benefit students and faculty to foster this connection.

### **Campus Food Services**

While campus food services is not an academic unit, they serve an important role on campus and student experience. Fostering a relationship with the food services provides an opportunity for KPU to demonstrate its commitment to sustainability, provides KPU students with healthy food and allows the Sustainable Agriculture students the opportunity to gain experience working with a food service provider. The recently awarded food services contract at KPU articulates the desire to have more locally sourced foods on campus and Sustainable Agriculture is excited to expand on this initiative. Our farm manager is actively engaged with the food services on facilitating this partnership.

### **Contribution to KPU's Sustainability Initiatives**

The Sustainable Agriculture faculty and staff are very proud to be part of a university that has articulated its sincere commitment to sustainability. There are many aspects of the Vision 2023 document that we can contribute to, but one goal in particular is exemplified through our program:

*B2. Goal: We will foster environmental sustainability through our offerings, research and operations Progress on this goal will be made by:*

- *Offering formal education programs and courses that address sustainability*
- *Conducting research that addresses sustainability issues*
- *Ensuring our operations are environmentally sustainable*

The Sustainable Agriculture program is an excellent example where the thought of these goals meets action. Through the KPU Farm and our program, we are able to model sustainability for our community and engage with them about issues of land, food and environment. The KPU Farm at Garden City Lands is a high profile location that has the potential to bring high recognition to KPU's Sustainable Agriculture Program and KPU in

general. The Sustainable Agriculture team is looking forward to working with other ‘arms’ of the institution to optimize the impact that we can have. Sustainable Agriculture has also had a representative on the University Sustainability Community.

## **Program’s Articulation and Credential Recognition Processes**

### **Transfer Credit and Prior Learning Recognition**

The process of receiving credit for some of our service courses at KPU has been a challenge for many of our transfer students. We have often had to advocate for our students to receive credit for several of our service courses. Within the Sustainable Agriculture program, we strive to recognizing previous work as much as possible while ensuring the student can demonstrate that they have achieved the learning outcomes required. It is our belief that it is the core concepts and outcomes of the course that need to be met, not the detailed content of the course. There appears to be little consistency between programs at KPU as to how transfer credit is assigned and students are often left feeling frustrated and confused by the process. This may be due to inconsistency of using content vs. learning outcomes to assess the course for credit.

Prior learning assessment has been carried out in a few cases with students that have come to us either from the KPU Farm School (which is a non-credentialed program) or have had their own farm experience. With prior learning assessment, it is also critical for students to demonstrate that they have achieved the required learning outcomes for the course(s).

### **Articulation Agreements**

Currently, we do not have articulation agreements with other schools. However, there are some two-year technical colleges in the Pacific Northwest that may be appropriate to develop agreements with that will allow students to complete their bachelor degree. There may also be an opportunity to provide experiential learning courses for students at UBC and SFU through our summer agroecosystems course. We are also interested in pursuing exchange opportunities for students in Sweden at Svenska Lansbruk Universitet (SLU) and the Waterford Institute in Ireland.

We have had an ongoing partnership with the Delta School District where we have offered courses for dual credit and in partnership with the Delta School Division Farm Roots program.

As other universities are increasingly becoming interested in providing courses and programs related to sustainable agriculture, it is critical that we ensure they are aware of our courses and the potential for articulation and transfer. As courses are reviewed and revised, they should be resent to schools with agriculture programs to request review for transfer credit.

The ISFS Farm School is a non-credentialed program that is provided as an outreach program to the community. Participants in the program often join to expand their understanding of sustainable food production. Currently, there is no connection between

the Farm School and the Sustainable Agriculture programs. There may be a possibility to explore an agreement based on prior learning between the Farm School and Sustainable Agriculture for those that complete the Farm School and would like to pursue credentialed training in Sustainable Agriculture. The complexities of linking a non-credentialed program need to be considered to achieve this.

### **Program's Connection to Alumni**

We have been able to maintain close contact with our alumni through our social media, department events and through connections with their workplaces. In some cases, our students have come back to campus and been guest speakers in classes, or mentored students through the internship program. Some of our graduates have gone on to work with some of our partners and we are able to stay connected with them through our work that we do with our partners. We are currently in the process of working with Alumni Affairs to develop a chapter for the Sustainable Agriculture students.

### **Program's Public Information and Community Outreach**

Sustainable Agriculture is deeply committed to informing the public about sustainability issues in our food system and has found several ways to reach out to the community, although it is often not exclusively to inform about our program. We have developed partnerships with several non-profit organizations including the Richmond Food Bank, Richmond Food Security Society, Fresh Roots and Farm Roots to support their work and amplify the message about sustainability in our food system. We have been able to gain recognition for our program in the community through working with them. The partnership with Farm Roots and Fresh Roots has allowed us to reach high school students and inform them about our program. Our involvement in the Certified Organic Association has allowed us to connect with potential employers and service groups. Our partnership with West Coast Seeds has led to the opportunity to have a large display at the PNE at no cost.

Our most effective outreach to high school students has been through our dual credit programs in the high schools, though we have not had the capacity to expand this. There is a great deal of interest from the schools, however we do not have the capacity to teach the courses. Many of our students are mature students that have previous careers or have already completed a post-secondary degree. This diverse group of potential students has been more difficult to connect with and is largely reached through our website and our social media. Our faculty and students spend a lot of time and effort on our social media outreach and this has become an effective, but time consuming tool for outreach that has potential to be used more.

The program website is underdeveloped and under-utilized. Given our social media presence it would be very beneficial to improve the website that visitors get directed to.

Currently, our faculty do not have access to edit our website which has led to some inefficiency as we need to go through marketing for everything.

Public information and community outreach about the program is currently not adequate. Sustainable Agriculture continues to be a unique program in Canada, but it has not been able to attract the number of students expected. Our interactions with students at the UBC Farm internship program has shown us that we are not promoting our program sufficiently. We have had many interactions with students at other institutions and community members that have had no idea we exist. Much more needs to be done to get the information about our program out to potential students. The challenge that we face is that the faculty workloads are too high to allow time to do the marketing and promotion required, including holding info sessions and workshops that would raise awareness of the program. Currently, the faculty and staff are struggling to achieve the work that must be done to meet student expectations with no time left over for other important aspects such as working with the marketing department, community workshops and outreach.

### **Student Demand for the Program**

Canada has a rich history in agricultural education with every province having an agricultural university, many of which were founded in the late 1800s and early 1900s. In British Columbia, the Faculty of Agricultural Sciences at UBC was one of the university's three founding faculties. This Faculty provided agricultural training for many decades, however, due to declining enrollment, they changed their name to Land and Food Systems and moved away from teaching production agriculture. Changes like this have been observed in many universities across Canada with attempts to redefine themselves. An article in University Affairs that was published in Feb. 2020 summarizes the shifts that have been seen in agriculture programs. (<https://www.universityaffairs.ca/features/feature-article/agriculture-programs-change-with-the-times/>) This article highlights many of the trends, and notably only mentions the established agricultural schools. This demonstrates the challenge KPU faces in starting a new agriculture program and the additional effort that must be taken to gain recognition as an agricultural university.

KPU's program has a significant advantage in that it did not have to redefine itself, but was built from the beginning as an agriculture program that reflects today's challenges and opportunities facing society. Our students appreciate the fact that our program was created with the current context in mind and all of our faculty are deeply committed to sustainability. As universities across Canada have shifted their marketing and focus, they have seen increased enrollments, however, we have not seen this increase at KPU.

## Enrollments

Enrollment in the Sustainable Agriculture program has increased over the last five years, with an increase of 11%. Despite this increase, there has been a decrease in the number of students who have declared Sustainable Agriculture as their major. This may be due to the fact that many of our students do not declare as Sustainable Ag. Majors until late in the program. This is often due to many of them working towards meeting prerequisites that are needed or a lack of knowledge of the need to declare. Student numbers in our courses have had a higher increase than those in the program which is due to a higher number of students from other majors taking our courses as electives or to fulfill other program requirements such as POST or ENVI which include AGRI courses in their programs. The increased interest in taking our courses as electives is an indication of the growing interest in sustainability in the general student population.

**Table 2. FTE Headcount<sup>1</sup> by Academic Year: Sustainable Agriculture and Faculty of Science & Horticulture Undergraduate Courses**

	2015/16	2016/17	2017/18	2018/19	2019/20	% Change <sup>2</sup>
Sustainable Agriculture	66	62	86	103	89	35%
Faculty of Science & Horticulture	3,341	3,563	3,876	4,104	3,646	9%

**Table 3: FTE Headcount by Academic Year: Sustainable Agriculture<sup>3</sup>**

	2015/16 <sup>4</sup>	2016/17	2017/18	2018/19	2019/20	%Change
Sustainable Agriculture Total <sup>5</sup>	38	43	43	38	42	11%
Intended	11	22	25	25	26	136%
Major	28	22	21	14	19	-32%

The main challenge that has faced our program is the ability to communicate who we are and what we are about to both the KPU community and potential students outside of KPU. The trends we are seeing in other institutions suggests that we should be seeing higher increases in enrollment, but there remains little recognition of our program. As one UBC student that was attending the 2019 Seed Gathering hosted by KPU put it, *"How did I not know this program was here!? I would have enrolled in this program if I knew about it as it is more what I was looking for!"* This sentiment has been shared several times and indicates that there is much more that needs to be done to get the information about our

<sup>1</sup> Headcount used for FTE calculations. This includes students enrolled in the course from the Stable Enrolment date, including those who later withdrew from the course.

<sup>2</sup> % Change refers to change between 2015/16 to 2019/20.

<sup>3</sup> Data for Intended and Major headcounts in Sustainable Agriculture are reported separately.

<sup>4</sup> Effective September 2015 and onwards, KPU has now admitted new students to a Faculty instead of a program and these new students are being reported under the 'undeclared' credential category until they meet program declaration requirements (exception are students enrolled in a limited entry program).

<sup>5</sup> To avoid double counting students, Sustainable Agriculture total is a unique headcount for the year, not the sum of Intended and Declared counts.

program out to potential students. Despite the fact that we were one of the first programs available to students focused on sustainable agriculture, we remain unknown in the broader community. Our main limitation has been a lack of resources for marketing. As a program we have been building our capacity and our faculty have been bearing additional workload to develop the farms, work with the City of Richmond to foster the relationship that has allowed us to gain access to the 20 acres of farmland on Garden City, and develop the program as it grows and conduct some limited research. Our faculty have also maintained an active social media presence, but there has been little time left for other marketing efforts by the faculty. The marketing department has had some campaigns, but they have been minimal due to the funding and the ability for Sustainable Agriculture faculty to commit additional time to assist. It has been a constant struggle to have marketing understand the essence of our program and Sustainable Agriculture is constantly confused with the ISFS Farm School. There is little recognition that the Farm School is a non-credentialed outreach program and Sustainable Agriculture is a completely separate, credentialed program.

### Student Demographics

Sustainable agriculture has always attracted more mature students to the program and has, in most years, had a higher percentage of females enrolled. This is consistent with the trends we are seeing in the sustainable agriculture sector where there has been an increase in women engaged in agriculture than has been the case in the past.

**Table 4. Profile of Sustainable Agriculture Students by Academic Year**

Student Profile	2015/16	2016/17	2017/18	2018/19	2019/20
FTE Headcount	38	43	43	38	42
% Female	61%	49%	49%	55%	55%
% 22 years or younger	24%	31%	33%	29%	41%
% International	5%	14%	19%	18%	17%

It is difficult to compare enrollment with other institutions as there are not many others that have programs that identify as sustainable agriculture programs and therefore the data may suggest a smaller number of students than is the case.

**Table 5 Number of Students Enrolled in Bachelor-level Sustainable Agriculture Programs at B.C. Public Post-Secondary Institutions**

	2013/14	2014/15	2015/16	2016/17	2017/18
Total	58	65	51	49	45

*Describe students' reasons for choosing the program.*

Based on the survey responses, the reasons that most students choose the program were; emphasis on sustainability and opportunities for hands-on learning. Students also indicated that small class sizes were an important factor.

## Summary and Recommendations

### Program Strengths:

- The Sustainable Agriculture Program is a unique program that is empowering students to address the increasingly urgent needs within our food system.
- Our program is based in our values which are shared by faculty and staff
- In a time where society's connection to land and food has become dangerously weak, we are able to provide students and our community with the opportunity to reconnect, learn and envision a sustainable future where healthy ecosystems and good, wholesome food are essential for sustainable communities.
- With the addition of the KPU Farm at Garden City Lands, we have become an increasingly recognized and important part of the community and have new opportunities to engage with the community through our farm, the KPU Farmers Market and new outreach programs.

As a new program, we have worked hard to lay a foundation upon which we can build a lasting and impactful program. While a building phase is part of the growth process, it is critical that we now focus on gaining recognition, establishing ourselves as one of Canada's innovative agriculture programs, and become recognized for the unique perspective and type of learning we provide.

### Recommendations:

**Recommendation 2.1** Re-establish the Sustainable Agriculture Advisory Committee

**Recommendation 2.2** Create a stronger identity for Sustainable Agriculture at the Richmond campus as a separate and unique program at KPU. This could be done through signage, a stronger presence of our produce at the cafeteria and more opportunities for all KPU students and community members to engage with the KPU Farm and terrace garden.

**Recommendation 2.3** Review AGRI courses to identify opportunities to open up courses to be accessible to all KPU students to engage in sustainability focused learning. This will also aid in low fill rates in courses.

**Recommendation 2.4** Consider possible avenues to develop a stronger connection with the KPU School of Business. This may be in conjunction with changes to the Sustainable Agriculture curriculum as discussed in Chapter 3

**Recommendation 2.5** Review other agriculture programs to determine if new opportunities for transfer credit may exist.

**Recommendation 2.6** Conduct review of agriculture programs in the U.S. Pacific Northwest and Canada to identify schools which may be suitable to establish articulation agreements and exchange opportunities with.

**Recommendation 2.7** Explore the possibility of being added to the 'approved diploma programs' list of the BC Institute of Agrologists

**Recommendation 2.8** Explore the demand and opportunity for an online high school dual credit course that would be easily accessible to students from all school districts in B.C. (This recommendation would require that additional teaching faculty be added to the program as we currently do not have capacity to teach more courses)

**Recommendation 2.9** Increase outreach through social media and website to share information about the program.

The staff and faculty in the department manage social media accounts for the department. We have often included student voices in our social media as well. It would be very helpful to have a better website, that we are able to edit, that reflects who we are and what we do so that we can direct people to that site.

**Recommendation 2.10** Provide workshops to KPU staff involved in marketing and recruitment.

**Recommendation 2.11** Generate recognition for the program regionally, nationally and internationally



## Chapter 3. Quality of Curriculum Design

### Assessment of the Curriculum

#### *Overview of the Program*

The Sustainable Agriculture program was designed to be an applied program focused on training students to have the practical skills and knowledge to contribute to the development of a more sustainable food system. The desire is to build on the students' own experience, interests and skills to empower them to address the complex challenges and embrace the exciting opportunities the future holds.

It is our goal to provide a transformative learning experience that will empower and equip students to not only know the technical aspects of sustainable food production, but understand the complex context of today's world. A core component of the program is to facilitate the students' exploration of concepts of social justice, equity, and ecological sustainability and to examine how their own journey intersects with these critical components. It is our desire that each student is able to develop a picture of what their contribution to a more sustainable society might look like.

#### *Program Competencies*

When the program was developed, there were no clearly defined program competencies, the program was developed with a focus on learning outcomes:

- Advance sustainable food system development through community engagement.
- Apply principles of sustainability to agriculture and food systems.
- Critique existing and emerging agricultural paradigms from social, economic and environmental perspectives.
- Understand interrelationships between food systems, community and human well-being.
- Mitigate climate change and adapt food systems to a changing climate.
- Apply agroecological principles to agricultural production.
- Design, conduct, analyze and critique natural and social scientific research.
- Recognize and represent diverse perspectives and ways of knowing.
- Manage a sustainable agriculture business.

Review of these competencies has led the faculty to develop a new set of program competencies that better reflect our program. We suggest the following program competencies be considered:

- Understand interrelationships between agriculture, food systems, environment, and human well-being.
- Recognize and represent diverse perspectives and ways of knowing.

- Critique existing agriculture and food system paradigms from social, economic and environmental perspectives.
- Craft visions for a sustainable future for agriculture and food systems, and chart paths towards that vision.
- Promote changes to agriculture and food systems that mitigate climate change and adapt agriculture and food systems to a changing climate.
- Design and conduct experimental research, and analyze and critique natural and social scientific research.
- Apply agroecological principles to farming.
- Understand the foundations of sustainable agriculture business.

### *Essential Skills*

- *Written communication:* Throughout the program, students are given opportunities to develop their written communication skills in various formats. In the first year, they are encouraged to engage in reflective journal writing to consider why they have come to this program and what they hope to get out of their experience. This is important to do in the beginning of the program so that the students can focus their efforts and plan their time at KPU to build the specific skills. Scientific writing skills are developed throughout the program and culminate in the completion of a final research report.
- *Oral communication* – Class discussion is a major component of our program and students are provided guidance early in the program on how to engage in effective, productive and respectful group discussions. This informal oral communication is a critical skill that influences their ability to engage in group work, problem resolution and other collaborative activities. Formal oral communication skills (i.e. giving a presentation) are also developed throughout the program and in their final year, they give a formal presentation of their research projects at our research seminar which is joint with other departments and open to external partners.
- *Group collaboration* Group projects are carried out in many of our courses and group collaboration skills are applied during their agroecosystems series where the cohort must plan and execute a farm plan for a 12-month cycle on our teaching and research farm.
- *Critical analysis* – One of the foundational aspects of our program is the critical analysis of our existing food system. Throughout the program students are challenged to consider the state of our food systems and how it has come to be.
- *Problem resolution* – As the students spend a full 12-month period engaged in the management and maintenance of the farm, they are often in a situation that they need to resolve an issue that has arisen. They may be faced with situations such as a technical issue with the crop management software, challenges dealing with customers at the market, or problems related to crop production. Students are encouraged to work through and resolve these challenges.

- *Learn on your own.* Students are given opportunities to develop and conduct their own research project. They also work independently on the farm and are often in the situation where they are working independently.
- *Reading and comprehension.* The program has several opportunities where students are asked to read, reflect and share their understanding of different types of written work.

### *Learning Outcomes*

**Graduates of the Bachelor of Applied Science in Sustainable Agriculture will acquire skills to:**

- Advance sustainable food system development through community engagement
- Apply principles of sustainability to agriculture and food systems
- Critique existing and emerging food systems paradigms from social, economic and environmental perspectives
- Understand interrelationships between food systems, community and human well being
- Mitigate climate change and adapt food systems to a changing climate
- Apply agroecological principles to agricultural production
- Design, conduct, analyze and critique natural and social scientific research
- Recognize and represent diverse perspectives and ways of knowing
- Manage a sustainable agriculture business

These learning outcomes require revision as several are vague and not easily attainable or measurable. With the suggested revision of the program competencies and the recommendation to review the course progression, these learning outcomes must be revised to better align with the competencies and provide more concrete understanding of what the program outcomes will be. This must be done in conjunction with a revision of the curriculum discussed below.

### *Credential-Level Specifications*

There is currently only the degree level credential; however, given the response from students it is suggested that the possibility of developing additional credentials be explored. This may include a diploma level credential in the 2+2 format, micro-credentials and/or program tracks that would allow students to focus on a specific aspect of sustainable agriculture and food systems.

### *Degree-Level Standards (if applicable)*

- Depth and breadth of knowledge;
  - Sustainable Food Systems is a complex area and requires an understanding of a broad range of topics including social equity and justice, ecology, plant science, production systems, and economics. The program strives to expose students to all these different concepts, while providing sufficient depth to have marketable skills in food production. The current curriculum divides most courses into two categories; 1) high level/systems level issues and 2) more in-depth courses focused on a specific area (i.e. fruit production, pest management, business management).

The program is designed to help students understand how the elements of our food system function together and contribute to a sustainable food system

- Knowledge of methodologies and research; A 12-month research course series is required of all students where they gain experience with planning, executing and carrying out research.
- Application of knowledge; The program is very applied and provides opportunities for students to demonstrate their learning on the farm and through their research projects.
- Communication skills; Students are provided with many opportunities to share their own work as well as sharing from other sources of information.
- Awareness of limits of knowledge; A major component of our program is to understand the complexity of knowledge and that there are multiple ways of knowing. We are all limited in our knowledge and should strive to be lifelong learners. This awareness creates an openness to gaining insights from others and exploring other ways of knowing.
- Professional capacity/autonomy. Our students are required to do an internship in the area they intend to pursue a career. They are responsible for finding their own internship opportunities (guidance is provided).

#### *Admissions and Prerequisites*

Many of the prerequisites required for the program are foundational science prerequisites that most science programs require. Over the years of offering the program, however, we have found that several of the prerequisites are creating barriers to success. In some cases, the completion of prerequisites has prevented students from carrying on and they have left the program. One particular prerequisite has had poor student success and we have recommended to students that they take an online course at TRU to meet the requirement and the signed a prerequisite waiver to allow the students to continue.

We believe there is a need to conduct a thorough review of the courses in year 1 and 2 to ensure that the course learning outcomes are contributing to our student success.

The survey results indicate a lower degree of satisfaction with the prerequisites which is consistent with the feedback we have heard in our own interactions with students.

Overall, students appear to be satisfied with the relevance of the curriculum to their career goals and there was a high degree of satisfaction with the level of ability required to succeed. This is affirming as we strive to make the program accessible to as many students as possible and want students to succeed in their studies.

**Table 6. student satisfaction with ability of program to prepare them for their career, Student Survey, Feb. 2020.**

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Relevance of program curriculum to my career goals	0%	0%	9%	45%	45%	11

2	Prerequisites that prepare me for more advanced courses	0%	0%	18%	64%	18%	11
3	Level of ability required to succeed in the program	0%	0%	9%	9%	82%	11
4	Range of courses offered each term	0%	18%	18%	36%	27%	11
5	The preparation I am receiving to achieve the career I want	0%	0%	9%	27%	64%	11

### Student Satisfaction

Students indicated a fairly high level of satisfaction with the program's ability to prepare them to perform program competencies. However, there are three competencies that had lower rates of satisfaction. The ability to 'mitigate climate change and adapt food systems to a changing climate' had lower rates of satisfaction. This is perhaps an overwhelming competency and difficult to feel prepared for, however it suggests that we may need to provide learning opportunities to better understand the challenge of climate change and how to effect change. The other two competencies that were listed as lower were the ability to 'Recognize and represent diverse perspectives and ways of knowing' and 'Manage a sustainable agriculture business'. Having the ability to have students engage in the farm finances more directly may provide an opportunity for them to develop a better sense of what is involved in a farm business. However, this would require a different approach to the Farm as it is currently integrated with the department budget. Increasing the indigenous content and perspectives in our program may contribute to better understanding of different ways of knowing.

**Table 7. Satisfaction of students in preparation to perform program competencies. Student Survey, Feb. 2020**

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Advance sustainable food system development through community engagement	10%	0%	10%	20%	60%	10
2	Apply principles of sustainability to agriculture and food systems	0%	0%	10%	10%	80%	10
3	Critique existing and emerging agricultural paradigms from social, economic and environmental perspectives	0%	0%	20%	10%	70%	10
4	Understand interrelationships between food systems, community and human well being	0%	0%	20%	10%	70%	10

5	Mitigate climate change and adapt food systems to a changing climate	0%	10%	10%	30%	50%	10
6	Apply agroecological principles to agricultural production	0%	0%	10%	50%	40%	10
7	Design, conduct, analyze and critique natural and social scientific research	0%	0%	20%	30%	50%	10
8	Recognize and represent diverse perspectives and ways of knowing	0%	30%	10%	20%	40%	10
9	Manage a sustainable agriculture business	0%	10%	30%	20%	40%	10

### Essential Skill Development

There was a range of responses to the satisfaction with how the program is helping students develop their essential skills with some dissatisfaction on written communication and group collaboration. There were no further comments so it is unclear what aspect of these skills was unsatisfactory.

**Table 8. Satisfaction of students in preparation to perform essential skills. Student Survey, Feb. 2020**

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Written communication	0%	10%	30%	20%	40%	10
2	Oral communication	0%	0%	20%	30%	50%	10
3	Group collaboration	0%	10%	10%	20%	60%	10
4	Critical analysis	0%	0%	20%	40%	40%	10
5	Problem resolution	0%	0%	30%	30%	40%	10
6	Learn on your own	0%	0%	10%	40%	50%	10
7	Reading and comprehension	0%	0%	10%	40%	50%	10

The overall satisfaction with the curriculum is lower than what we would like to see. Based on the comments, students would like more breadth and depth of agricultural topics and a greater inclusion of indigenous perspectives in the program. We have also had consistent feedback that students would like to have more hands-on experience in the program.

**Table 9. Overall student satisfaction with the program. Student survey, Feb. 2020**

#	Overall, how satisfied are you with KPU's Sustainable Agriculture program curriculum (the academic content taught in the program)?	Percentage
1	Very dissatisfied	0%
2	Somewhat dissatisfied	10%

3	Neither satisfied nor dissatisfied	20%
4	Somewhat satisfied	20%
5	Very satisfied	50%
	Total	10

## Faculty Satisfaction with the Curriculum

The majority of faculty are somewhat or very satisfied with the ability of the program to prepare students in the stated competencies. However, there was some dissatisfaction with the ability of our students to 'design, conduct, analyze and critique natural and social scientific research, and to 'manage a sustainable agriculture business'. The dissatisfaction with these is consistent with other feedback received from faculty. There was a concern raised regarding the lack of social science research instruction and experience and also a concern that the amount of business training is not adequate to prepare students to manage a business.

As the faculty have discussed these results, it has become clear that these program competencies require refinement in conjunction with the revision of the program curriculum.

**Table 10. How satisfied are you with how KPU's Sustainable Agriculture program is preparing students to do the following? (Faculty Survey Report, Feb. 2021)**

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Advance sustainable food system development through community engagement	0%	0%	14%	71%	14%	7
2	Apply principles of sustainability to agriculture and food systems	0%	0%	0%	29%	71%	7
3	Critique existing and emerging agricultural paradigms from social, economic and environmental perspectives	0%	0%	0%	43%	57%	7
4	Understand interrelationships between food systems, community and human well being	0%	0%	0%	57%	43%	7
5	Mitigate climate change and adapt food systems to a changing climate	0%	0%	14%	57%	29%	7
6	Apply agroecological principles to agricultural production	0%	0%	14%	57%	29%	7
7	Design, conduct, analyze and critique natural and social scientific research	0%	14%	14%	29%	43%	7

8	Recognize and represent diverse perspectives and ways of knowing	0%	0%	29%	57%	14%	7
9	Manage a sustainable agriculture business	0%	14%	14%	29%	43%	7

Most faculty are somewhat to very satisfied with the program's ability to help students develop the articulated essential skills. There was one faculty member who felt unsatisfied with the development of critical analysis, problem resolution and ability to learn on their own.

**Table 11. How satisfied are you with how KPU's Sustainable Agriculture program is preparing students in the development of essential skills? (Faculty Survey Report, Feb. 2021)**

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Written communication	0%	0%	43%	29%	29%	7
2	Oral communication	0%	0%	29%	29%	43%	7
3	Group collaboration	0%	0%	43%	14%	43%	7
4	Critical analysis	0%	14%	0%	43%	43%	7
5	Problem resolution	0%	14%	14%	43%	29%	7
6	Learn on your own	0%	14%	14%	29%	43%	7
7	Reading and comprehension	0%	0%	29%	43%	29%	7

Overall, faculty are very proud to be part of the program and are deeply committed to the success of this unique program. The program's key strength is the focus on sustainability and empowering change makers through transformational learning experiences. However, the faculty have identified some aspects of the curriculum that need to be addressed. Concerns raised in the survey include the small number of regularized faculty and reliance on contract instructors as well as the availability and breadth of courses. These concerns echo student feedback about the program. The faculty feel the program is able to train students to gain an understanding of the foundational principles of sustainable food systems, however, there are key practical components of agricultural production that are not adequately covered. Our faculty have tried to address this with the addition of new courses, but are limited in their ability to offer these courses due to time and budget constraints. This has led to frustration in both the faculty and student body. A review of learning outcomes has revealed that most courses are trying to cover too much content and there are both overlaps and gaps in the program. There is an urgent need to refine the learning outcomes and evaluate the course progression to ensure students have a cohesive experience throughout the program. One of the challenges identified by the faculty is that some of the 1<sup>st</sup> and 2<sup>nd</sup> year courses currently require a significant portion of program credits, but may not be optimized to prepare students for subsequent courses or provide students with hands-on experience in agriculture in their first two years.



**Table 12. Overall, how satisfied are you with how KPU's Sustainable Agriculture program curriculum? (Faculty Survey Report, Feb. 2021)**

#	Overall, how satisfied are you with KPU's Sustainable Agriculture program curriculum?	Percentage
1	Very dissatisfied	0%
2	Somewhat dissatisfied	14%
3	Neither satisfied nor dissatisfied	14%
4	Somewhat satisfied	43%
5	Very satisfied	29%
	Total	7

## **Career/Further Education Preparedness**

### *Career Pathways*

Our students come to the program with a broad range of experience and interests, and this is reflected in the types of careers our alumni have pursued. This broad range of employment types were anticipated when the program was developed, and the program curriculum reflects a desire to provide breadth to the students, however, alumni feedback has indicated that it would be beneficial to have more hands-on experience with production systems that we currently have on the KPU Farm as well as having more exposure to the existing agricultural sector. The core of the program is to train people who have a strong foundation in sustainable food production, and we believe this is important to maintain. Students and alumni have indicated they would like earlier exposure to hands on activities and more opportunities to engage with production systems, both at the KPU Farm and in the broader agricultural community. It would be desirable to be able to tailor student's degree to focus on the career they want to pursue. This may be accomplished through the development of different student tracks.

The tracks would allow them to develop skills that are needed for food production, but also the supporting disciplines of Sustainable Agriculture such as retail, distribution, non-profit organizations that work in food security and policy.

### *Alumni Preparedness for Work/Further Education*

80% of our students that are employed have found work as agricultural consultants or have pursued research paths in agriculture and 20% are employed in primary food production. There are also students that have pursued careers in related fields such as lab technician at the Ministry of Forestry, and an educational assistant in the Jesuit order. Many of our students who would like to pursue a career in primary production are limited in their ability to access land. It is possible there would be more students engaged in primary production if they had access to land in the area. Our students have access to incubator plots upon graduation to try to alleviate the challenge of land access, we would like to further develop this program as it is currently underutilized by our students.

30% of the alumni respondents have gone on to pursue master's degrees. Students have gone on to study at McGill University (Masters in Natural Resource Sciences - Soil Ecology), University of Manitoba (Masters - Plant Science), Loyola University, Chicago (MA in Social Philosophy)

Overall, alumni are very satisfied with the ability of the program to prepare them for the competencies that related to higher level thinking and understanding of sustainable food systems. There were lower levels of satisfaction in the ability to prepare them for the business aspects of sustainable food systems. This is consistent with the concerns of faculty that the program does not have enough courses allocated to the management of agricultural business.

**Table 13. In which of the following sectors are you currently employed? Please select all that**

#	. - Selected Choice	Percentage
1	Other (Please specify)	60%
2	Agricultural Consultant	40%
3	Research	40%
4	Primary Production	20%
5	Education	20%

There is a high percentage of our alumni that have indicated they are in the 'other' category of discipline sector. These include jobs such as working with non-profit organizations that work in the area of food security and policy or in grower organizations such as the Certified Organic Growers Association of British Columbia. Alumni that go on to pursue these types of jobs would benefit from more courses that related to managing non-profit organizations and policy courses.

Students that go into the marketing, retail and distribution side of the discipline, or that go on to become consultants, would benefit from more business courses that would enable them to have a more comprehensive understanding of the practical aspects of running a business, marketing and logistics. These types of specializations could be accommodated through the development of tracks.

**Table 14. How well do you feel the program prepared you for the following? (Sustainable Agriculture Program Review, Alumni Survey, Feb. 2021)**

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Advance sustainable food system development through community engagement	0%	0%	10%	40%	50%	10
2	Apply principles of sustainability to agriculture and food systems	0%	0%	0%	30%	70%	10
3	Critique existing and emerging agricultural paradigms from social, economic and environmental perspectives	0%	0%	0%	30%	70%	10
4	Understand interrelationships between food systems, community and human well being	0%	0%	0%	20%	80%	10
5	Mitigate climate change and adapt food systems to a changing climate	0%	0%	20%	20%	60%	10
6	Apply agroecological principles to agricultural production	0%	0%	0%	20%	80%	10
7	Design, conduct, analyze and critique natural and social scientific research	0%	0%	0%	20%	80%	10
8	Recognize and represent diverse perspectives and ways of knowing	0%	0%	10%	30%	60%	10
9	Manage a sustainable agriculture business	0%	10%	40%	10%	40%	10

Overall, alumni were very or somewhat satisfied with the ability of the program to develop the AVED's essential skills.

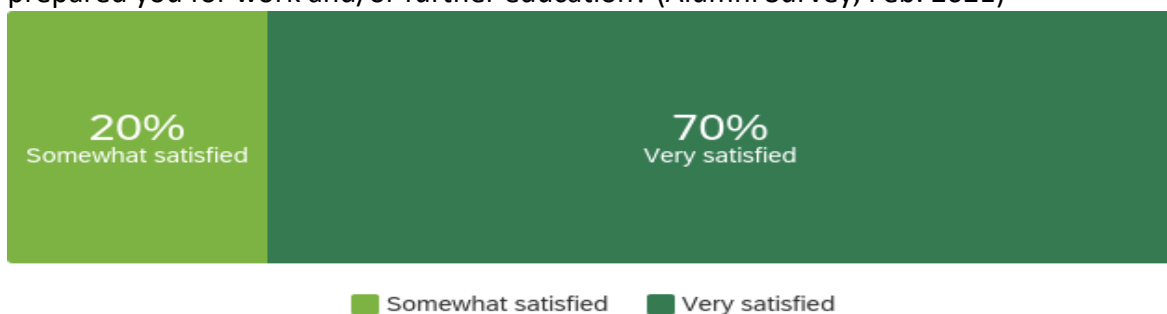
**Table 15. How satisfied are you with the programs ability to equip you with the following essential skills? (Sustainable Agriculture Program Review, Alumni Survey, Feb. 2021)**

#	Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
1	Written communication	0%	0%	10%	50%	40%	10
2	Oral communication	0%	0%	10%	40%	50%	10
3	Group collaboration	0%	0%	0%	60%	40%	10
4	Critical analysis	0%	0%	0%	40%	60%	10
5	Problem resolution	0%	0%	10%	40%	50%	10

6	Learn on your own	0%	0%	10%	30%	60%	10
7	Reading and comprehension	0%	0%	10%	40%	50%	10

90% of alumni that responded to the survey indicated that they were satisfied with the ability of the program to prepare them for their work or further schooling (Fig 1).

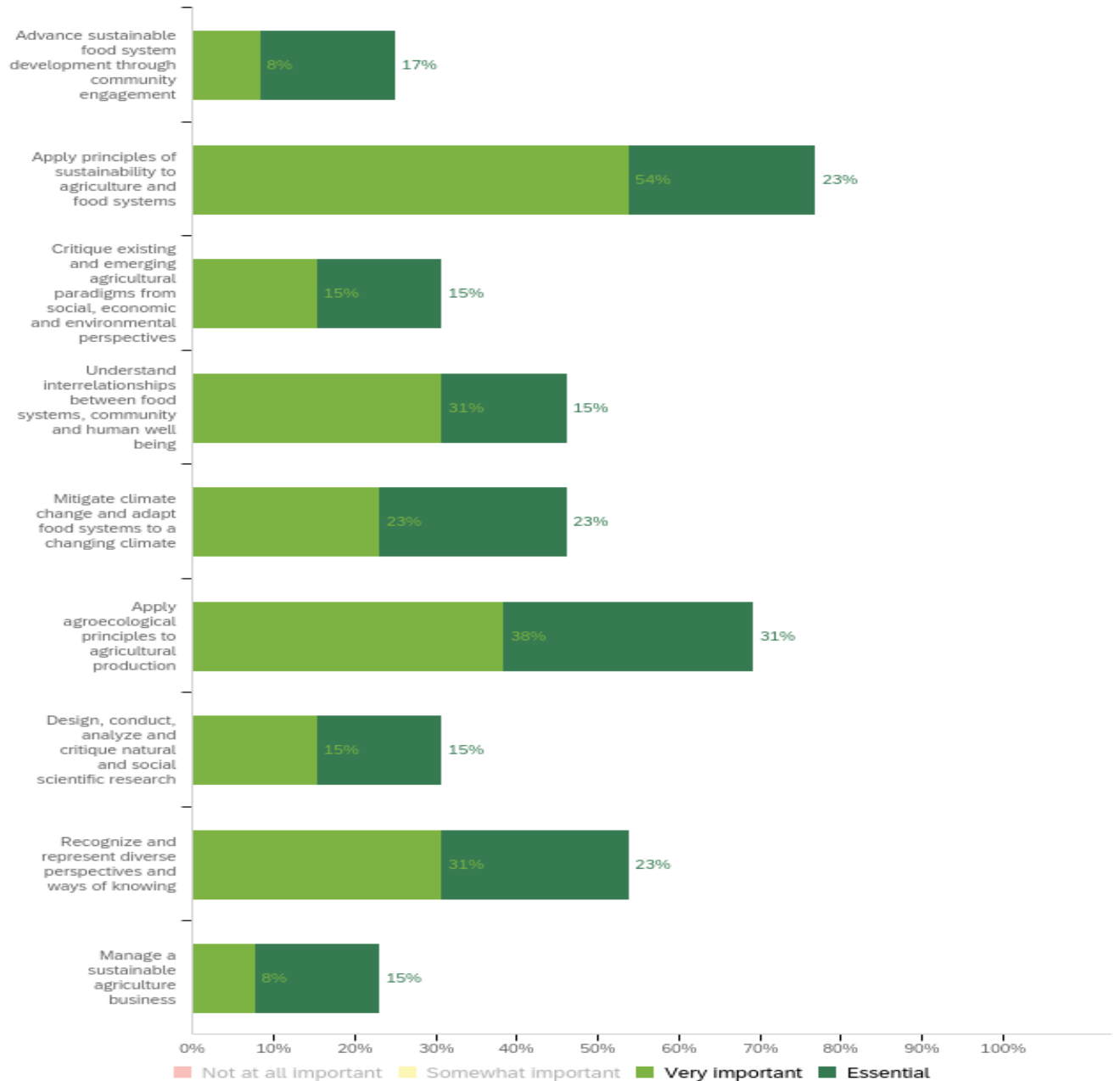
Fig. 1. Overall, how satisfied were you with how KPU's Sustainable Agriculture program prepared you for work and/or further education? (Alumni Survey, Feb. 2021)



#### *Discipline/Sector Feedback*

The discipline respondents indicated that the ability to 'Apply principles of sustainability to agriculture and food systems' and 'Apply agroecological principles to agricultural production' were the two most relevant competencies. Many of the other competencies were rated as less important. The suggested competencies will be vetted with the discipline partners to determine if they better align with what they feel students should be equipped with.

**Fig. 2 Considering the needs and expectations of your organization, how important is it for an entry-level employee to be able to demonstrate the following?**



Several of the discipline respondents indicated that physical ability and tolerance of working in different weather conditions and the knowledge of crop production were critical for graduates to possess. There is a clear desire to have graduates that have the knowledge and capability to carry out the practical work on a farm.

**Table 16. What other skills, training or knowledge should an entry-level applicant have to be hired into your organization?**

physical ability to work in the fields in all but most extreme weather conditions
A strong work ethic, drive to learn, be curious, and strive to be better. Be open to learning from everyone in the organization. Solid project management skills.
interest in growing not just managing
Understanding of business processes and principles.
Knowledge of plants and their pests would be preferred.
You've identified key areas already, which I'm pleased to see. I always draw on the current scientific textbook knowledge of students and recent graduates, which we - as working researchers, don't encounter from day to day.
driver's license, software skills (e.g. traceability software, group communication applications, time tracking applications)
General hands on knowledge of growing in either a farm setting or large home garden
Crop Planning skills, Excel; communications & marketing skills, social media & website maintenance
know how to move their body efficiently. able to work in all weather conditions. balance quality and speed in tasks.
Curiosity, willingness to learn, not be attached to ideology that it prevents them from learning about reality at the farm-level.

The program provides the sector with students that have an understanding of the unique challenges and opportunities that exist in the sustainable agriculture sector and have many skills to get started in the discipline. However, based on the feedback there is room to expand on the amount of time and exposure students get to different production techniques as well as a deeper understanding of the broader agricultural context and discipline.

## Curriculum Development and Review Processes

Our faculty are constantly working to improve our curriculum and courses to ensure our students are ready for their future endeavors. As this program is both unique and new, there is no precedent for what should be included in such a program. As a result, we continue to strive to meet the balance between the theory and practice, big ideas and detailed information. We have done one major revision of the curriculum which was focused on streamlining and have modified some of our courses to better reflect the needs of the discipline as well as respond to student feedback. The curriculum has been largely influenced by students, especially in the third and fourth year of the program.

## Summary and Recommendations

Overall the program is meeting the needs and expectations of students, but there are some key aspects that are in need of revision. The main challenge that the curriculum faces is the amount and focus of the content and that students do not engage with the program in a meaningful way and are not on the KPU Farm until the 3<sup>rd</sup> and 4<sup>th</sup> year. We have a range of students with different interests and yet only one program track. As a result, the program touches on a range of topics, but does not offer students the ability to delve deeper into their area of interest. To address this, we are recommending the following:

Recommendations:

**Recommendation 3.1** Revise program competencies in consultation with Advisory committee.

**Recommendations 3.2** Revise the learning outcomes to align with the program competencies and potential program revisions. (i.e. learning outcomes that align with proposed 'track' options)

**Recommendation 3.3** Examine the existing courses and course progression to determine if courses contribute to program competencies and learning outcomes and provide adequate hands-on learning.

**Recommendation 3.4** Identify opportunities for 1<sup>st</sup> and 2<sup>nd</sup> year students to have more experiential/hands-on learning and interaction with the program and farm.

**Recommendation 3.5** Explore the possibility of having specializations (i.e. business, production, policy) within the degree to allow for students to focus their studies.

**Recommendation 3.6** Explore the possibility of a new certificate that will follow the 2+2 format.

**Recommendation 3.7** Explore the possibility of offering micro-credentials.

## Chapter 4. Quality of Instructional Design

### Delivery Modes

The program utilizes a wide range of delivery modes, including classroom, lab, teaching farm, field trips and some online delivery since COVID.

Having diversity in our student population is a goal we strive for and we often work individually with students to identify how to build on their own past experience and to understand the best way to allow them to grow. Some physical and mobility differences may be more difficult to accommodate in our agroecosystems course, but we have not had the opportunity to explore what this may look like.

As much of our teaching occurs on a working farm, physical safety is a critical issue. All students are required to complete a safety training course in which they learn about the farm equipment, sun safety and how to safely work with others in a farm environment. We partner with AgSafe, an organization committed to agricultural safety that provides teaching resources and courses to our students.

### Experiential learning opportunities

Our program has several opportunities for experiential learning, although it is currently focused on the third and fourth year students. There are three main program aspects that provide opportunities.

The Research course series is a total of 9 credits that allow students to gain experience with research design, analysis and execution. They are able to choose a research project that is focused on a topic of interest to them in and in some cases, work with a discipline partner. The Agroecosystems course series is centered around the planning and management of the teaching and research farm. Students are actively engaged in a full 12-month cycle on the farm starting in January with crop planning and seed ordering. During this series, they learn to use farm equipment, manage a farmer's market stand and interact with customers, manage crops and carry out operations related to the farm.

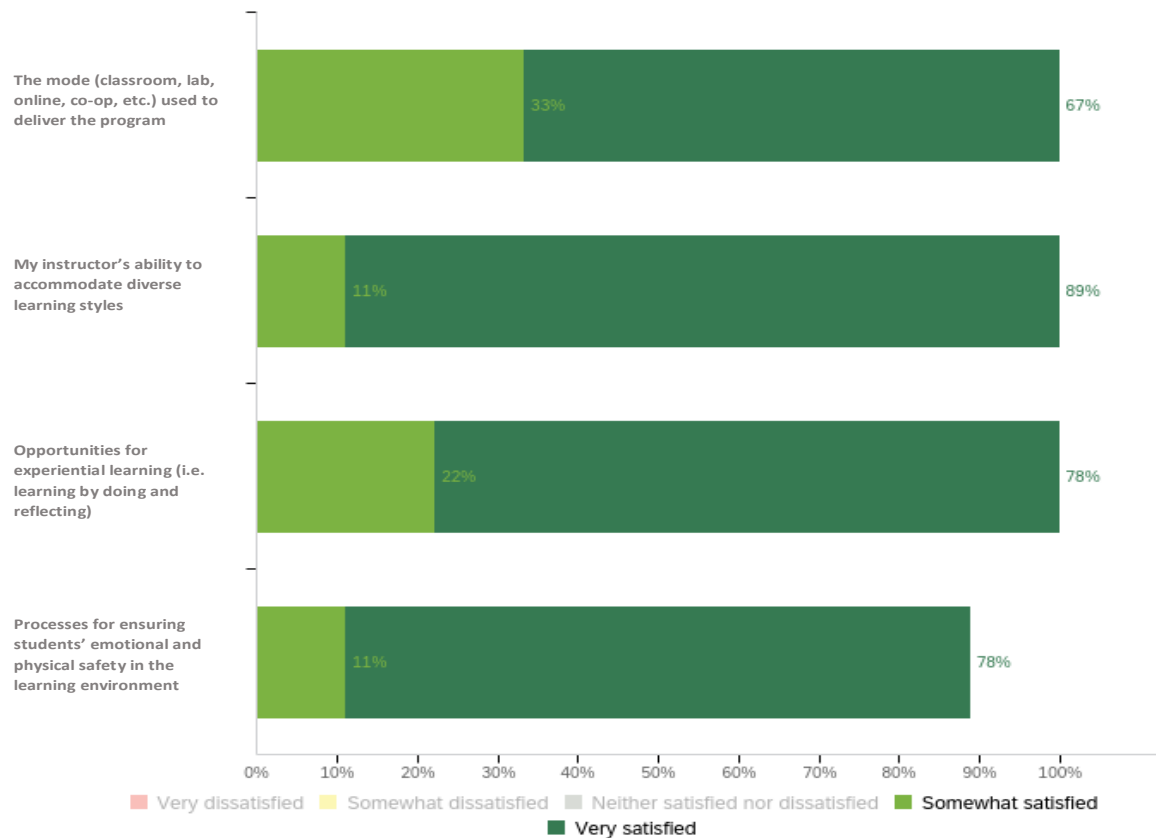
Each student is required to complete an Internship Course where they complete a minimum of 120 hours. The program has standing relationships with some discipline partners that have spaces available for our students, however, many students find their own opportunities. The program uses a contract that is signed by the supervisor, student and faculty which outlines expectations for learning and communication plans. The students and supervisors then also fill out a survey at the end of their experience.

In addition to these courses, instructors strive to include experiential learning opportunities in other courses. The student and alumni feedback received indicated that this type of learning is extremely helpful and appreciated and there was a strong desire to have of these types of opportunities.

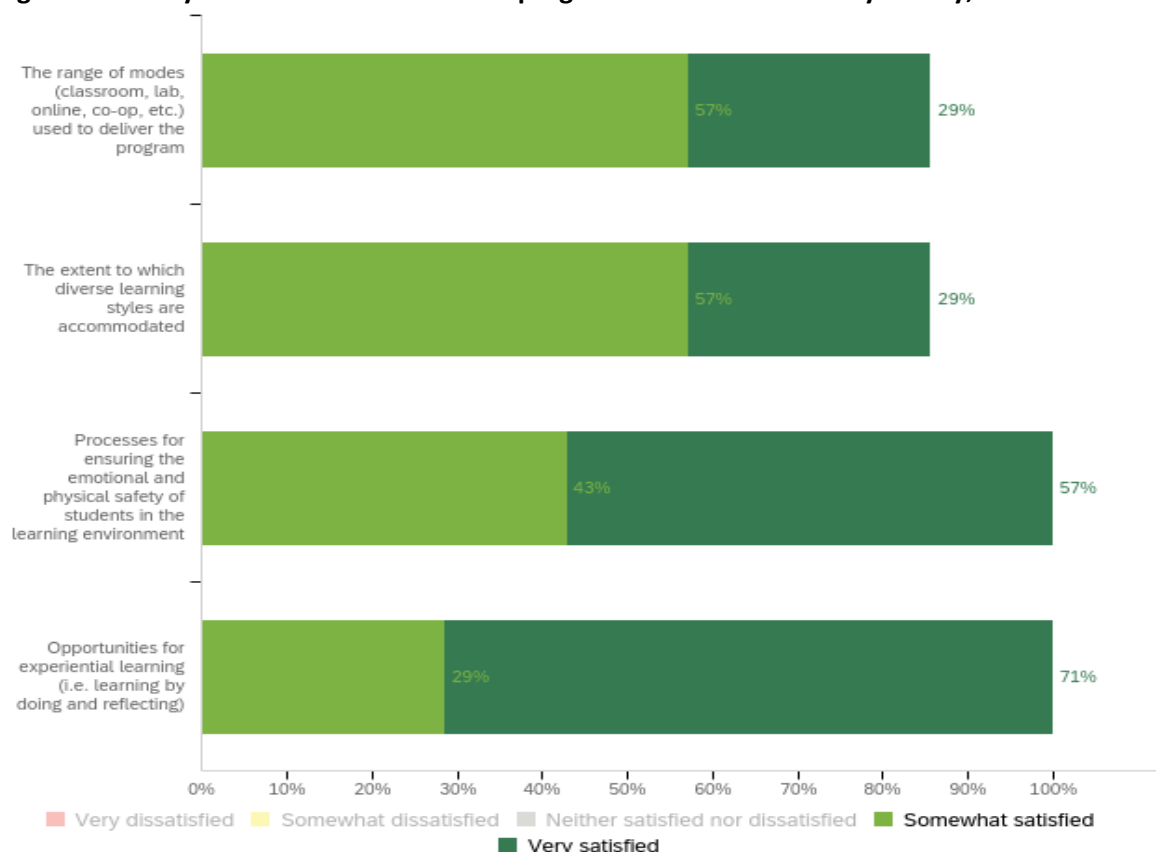


Overall, students are satisfied with the program delivery and our ability to accommodate different learning styles and needs. The satisfaction of faculty was a little lower than students, particularly with regard to the mode of delivery and the ability to accommodate diverse learning styles.

**Figure 3. Overall, how satisfied were you with the program delivery? (Student Survey, Feb. 2021)**



**Figure 4. Faculty satisfaction with how the program is delivered. Faculty Survey, Feb. 2021**



## Assessment Methods

Review of the course outlines revealed that many of the courses had similar lists of assessment methods, however, the utilization of these methods was highly dependent on the instructor. Many of our courses have a large project associated with it, and often they are group projects. Students feedback indicated that they were overall satisfied with the assessment; however, there were sometimes too many large projects and that small, weekly assignments may ease some of the pressure at the end of the semester and assist with retention of knowledge and assessment. (Student Survey, July 2020).

It is necessary to review the overall assessment strategy of the program and ensure that the different projects are appropriate in size and are perhaps more connected. There is a desire to utilize e-portfolios in the program to assist with the development of a more effective assessment strategy in the program.

Students in their final year carry out a research project that they have to present to the entire faculty and industry members; they are also engaged in the agroecosystems course series in which they are effectively assessed for many of the competencies as they are required to perform them on the farm and as they engage in their research project. While

these are effective assessment methods, it would be beneficial to have a better way to assess students throughout the program and allow them to demonstrate their learning in more unique and personalized ways. E-portfolios can facilitate this type of assessment.

As the first two years of the program are predominantly service courses from other departments, there are often very different assessment strategies and standards used. We have received a lot of student feedback that this wide range of assessments is frustrating. Within the AGRI courses, the assessment standards and strategies are more similar.

## Student Experience

### *Grade Distribution*

Grade distribution in the program demonstrates a very high degree of success. At least 87% of students have reached a C or higher in the programs cumulative grade distribution over the last five years. This is above the average for all the students in the Faculty of Science and Horticulture.

### *Retention and Graduation Rates*

Sustainable Agriculture students are progressing through the program in approximately three to 6 years. This is comparable to rates of other Bachelor programs at KPU (Table 16). There is a fair amount of discrepancy as some students are coming in with substantial amounts of transfer credit while others are new to post-secondary.

**Table 17. Median Years to Graduate:<sup>6</sup> Sustainable Agriculture and Faculty of Science (FSH). (Administrative Data Report, Sustainable Agriculture, Jan. 2021)**

	2015/16	2016/17	2017/18	2018/19	2019/20
Sustainable Agriculture	4.0	2.8	4.3	5.9	3.5
FSH Bachelors Degree	4.0	2.8	4.9	4.9	5.9

Graduation rates over the last 5 years have remained stable, but are lower than the number of students enrolled. There have been a number of students that have struggled with completing prerequisites and frustration with the frequency of some of the required courses. These factors may be contributing to lower completion rates.

**Table 18. Student survey response to questions as they relate to program as a whole (Student Survey, July 2020)**

Question	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied	Total
Frequency with which course prerequisites are offered	11%	22%	11%	33%	22%	9

Availability of the courses I need to complete the program in a timely manner	0%	44%	11%	0%	44%	9
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Students in the first two years of the program have also struggled to feel connected to the program as the majority of their time is spent in courses offered by other departments and may not have much opportunity to connect with other Sustainable Agriculture students. This lack of connection to the program in the first two years may result in students not completing the degree.

### *Student Outcomes*

Sustainable Agriculture achieved positive outcomes for most of the Ministry of Education targets. The two outcomes that had the lowest scores of 75% and 80%, respectively, 'the usefulness of their knowledge and skills in performing their jobs' and the 'satisfaction students felt with their education'. This response is consistent with some of the comments shared in the student survey which indicated that students felt the program needed more practical training and a broader set of agriculture course options.

Once again, this data suggests that there is a need to re-evaluate the courses that are required, especially in the first two years to ensure that there is sufficient time in the program to cover agriculture content more thoroughly and provide students with more opportunities to gain practical experience.

### *Student Satisfaction with Instruction*

Student survey responses indicated that overall, students are very satisfied with the instruction received with 89% of 8 respondents indicating they were very satisfied or satisfied.

## **Faculty Experience**

### *Expertise and Qualifications*

All faculty in the Sustainable Agriculture program, both regular and contract, have PhDs in related fields and considerable experience in their discipline. One of the unique characteristics of our program is that all our faculty are deeply committed to sustainability and the need to re-envision our food system and train leaders to face the challenges that lie ahead.

Our three full-time faculty all have had experience working in the US Extension Service and have many years of experience both teaching and carrying out participatory research with agricultural members.

### **Dr. Rebecca Harbut**

Joined Sustainable Agriculture program 2013

Specializations: Fruit Production, Plant Physiology, Crop Ecology

Rebecca Harbut is a native of British Columbia and is delighted to have returned to BC after spending several years in Ontario and the US. Rebecca received both her BSc and MS degree from the University of Guelph in Ontario and then completed her PhD in Horticulture at Cornell University in Ithaca, NY where she conducted research on fruit crops. Most recently, Rebecca was a faculty member in the Department of Horticulture at the University of Wisconsin where she developed a fruit research and extension program. Rebecca was the first faculty hired in the Sustainable Agriculture program at KPU in 2013. Since returning to BC she has been funded by the BC Cranberry industry (\$250,000) to carry out research and provide extension services. She has also served as an adjunct faculty at UBC's Land and Food Systems where she has supervised master's degree students. Rebecca has specialized in fruit production and sustainable production systems such as high tunnels.

#### **Dr. Michael Bomford**

Joined Sustainable Agriculture program 2014

Specializations: Organic Farming, Agriculture and Energy, Ecologically-Based Pest Management

Mike has taught in KPU's Sustainable Agriculture program since 2014. Before returning to BC, he spent 10 years at Kentucky State University (KSU), leading research, extension, and teaching programs related to organic agriculture, with an emphasis on small farms. He completed his PhD at West Virginia University, conducting companion planting research on a newly-certified organic farm. He grew up the son of a District Agriculturalist among the expansive grain farms of BC's Peace River region and earned degrees in plant science and agricultural pest management at UBC and SFU.

A passionate teacher, Mike helped launch a new Sustainable Agriculture degree program at the University of Kentucky in 2006; followed by a new Master of Science in Environmental Studies at KSU in 2010; and a new Bachelor of Agriculture, Food and Environment degree at KSU in 2012. In 2013 he was given his College's Outstanding Teacher award and the USDA's Honor Award for Excellence.

Mike is very interested in the intersection between food and energy. He has explored energy consumption and greenhouse gas emissions associated with farming and food systems, and experimented with renewable energy production techniques for small farms. His teaching responsibilities at KPU include the senior series in Agroecosystem Management, and courses in Vegetable Production, Ecologically-Based Pest Management, and Agriculture and Energy. He also guides a full-year series of Research courses for senior students.

#### **Dr. Alex Lyon**

Joined Sustainable Agriculture program 2020

Specialization: Seeds and Plant Breeding, Agrobiodiversity, Sociology of Agriculture

Alex Lyon is an agroecologist who applies interdisciplinary approaches to complex questions in agriculture and food systems, embedding natural science in social and cultural contexts. Some of her core education and outreach interests are the environmental and cultural significance of seeds and crop genetic diversity, and the role of plant breeding in

resilient and sustainable food production. She holds a B.A. in Anthropology from Smith College (2004) and an M.S. in Agroecology from the University of Wisconsin-Madison (2009) where her research focused on the role of farmer knowledge in sustainable pasture management. During her Ph.D. in Environment and Resources, also at UW-Madison (2015), Alex began working on seed systems and crop improvement for organic agriculture using on-farm and community-engaged research in a multi-university project that involved farmers, seed companies, and plant breeders from across the northern United States. She continued this work in British Columbia as a Postdoctoral Fellow with the University of British Columbia's Centre for Sustainable Food Systems (2015 – 2020). Working with organic vegetable farmers and community partners across Canada, Alex developed the Canadian Organic Vegetable Improvement (CANOVI) project which supported participatory plant breeding and on-farm variety trials to develop regionally adapted varieties for organic production.

Beginning at KPU in 2020, Alex will be teaching courses in Sustainable Agriculture for the 21st Century, Agriculture and Food Systems, Food Systems Field Analysis, and World Trends in Agriculture, as well as co-teaching the Agroecosystems Management series.

Full CV's attached in Appendix 7

#### *Faculty Satisfaction with Instruction*

Overall the faculty were satisfied with the program and were happy to be part of such a dedicated team of instructors. There was an appreciation for the ability to teach at the KPU Farm and have access to such an excellent facility.

There is, however a concern over the workload and the small number of full-time faculty and staff in the program. Faculty are often unable to implement important changes to help the program grow due to the non-teaching work required. The farm manager is also unable to adequately develop the farm as he is often taking time to assist with instruction and training on the farm. There is a critical need to recognize the lack of capacity in the program we strongly feel that the program will not be able to develop until it has addressed this issue.

Some significant concerns that were raised included:

- Inability to offer all the courses due to funding limitations and teaching load for the faculty
- Lack of courses that cover some essential components of agriculture such as genetics and breeding, agronomy, advanced pest management, business management. Due to only having three full time faculty, it is very difficult to teach all of these topics
- Reliance on only three full time faculty to teach a very diverse set of courses.
- Reliance on contract faculty to teach many of our core courses in the program. It is very difficult to build a cohesive curriculum and experience for students when several core courses are taught by contract instructors that are otherwise not engaged in the program.
- No lab staff to assist with the farm lab and science lab instruction.

## Summary and Recommendations

Both the contract and regular faculty are deeply committed to the program and have always worked above and beyond the required duties to see the program succeed. This can be seen in the types of work our faculty do, from maintenance work on the farm, promotion and marketing through social media and work on the website, securing grants and overseeing the development of the KPU Farm at Garden City Lands. There is no doubt about their commitment. There is, however, serious concern about the sustainability of the current workload our faculty and staff hold as a result of these non-teaching duties. This same issue is seen in the work of our farm manager who is currently carrying out the role of farm manager, but also providing significant amounts of instruction to our students. It has been a struggle for both staff and faculty to find the time to take holidays as there is not enough personnel to cover for each other while away.

It is essential that we address this issue as soon as possible. A high priority is to hire a Lab Instructor that would assist with teaching at the farm, and lab courses such as the soils and plant science courses. This would allow the farm manager to focus on managing the farm and the work crews and ensure that students are provided with the instruction required. This would also alleviate some of the faculty work load as they currently assist with the farm work to support the farm manager.

### **Recommendations**

**Recommendation 4.1** Improve the opportunities for students in all years of the program to engage in experiential learning and have increased access to the KPU Farm. (Short term)

**Recommendation 4.2** Utilization of e-portfolios to improve and coordinate assessment throughout the program (Medium term)

**Recommendation 4.3** Improve retention and graduation rates through earlier engagement with students in the program that are only taking service courses and prerequisites. Ensure that they have the opportunity to participate at the KPU Farm within their first semester. (short-term)

**Recommendation 4.4** Advocate for an increase in the number of full-time faculty so that a wider range of agriculture courses are able to be offered consistently. Having additional faculty will also assist with the workloads that are currently very high on the full-time faculty due to non-teaching work such as research, farm maintenance, marketing and promotion, and administrative/committee work. Include this in the next budget cycle request (long-term)

**Recommendation 4.5** Advocate for the hiring of a full-time lab instructor to assist with instruction on the farm, student's safety training, soil and plant science lab preparation. (short-term)





## Chapter 5. Quality of Services, Resources and Facilities

### Description of Program Resources, Services and Facilities

Sustainable Agriculture is a unique agriculture program and has largely developed our own learning resources or gathered learning packages. The library has been critical in allowing us to provide our students with learning materials at little to no cost to the Sustainable Agriculture program through the utilization of e-books, and ensuring they have hardcopies of materials we utilize. The library staff, particularly Celia Brinkerhoff, have been exceptional at sourcing new materials and finding requested materials.

#### *Administrative Support*

Many of our students have utilized the learning center for assistance with some of their first and second year courses, particularly the Math and Biology courses. As faculty, we have, on several occasions, referred students to counselling services and utilized the Early Alert system on campus.

Our experience with the registrar's office has been challenging at times as we have had to assist several students as they try to navigate the admissions and credit transfer process. We have also had challenges with the advising on campus as several students have found themselves talking to advisors that do not know anything about the Sustainable Agriculture program. We have also had a constant change in our program advisors, so it has been difficult to establish a good understanding and connection with advising. While we clearly depend on these services, we have felt that our program has been underserved and not well understood.

#### *Facilities*

The Sustainable Agriculture faculty have committed significant amounts of time to acquire, fund and build first class teaching and research facilities.

##### 1) KPU Farm at Garden City Lands

The Garden City Lands are 55 hectares (136 acres) of municipally-owned land in the Agricultural Land Reserve, just 200 meters east of KPU's Richmond campus.

Sustainable Agriculture leases eight hectares (20 acres) of the site for a Teaching and Research Farm. The farm highlights diversified, sustainable, regenerative, and organic production practices adjacent to the population centre of downtown Richmond. Students study and practice at the farm while working toward their Bachelor of Applied Science in Sustainable Agriculture.

Interesting aspects of the farm include:

- 3.3 ha (8 acres) of organic farmland, certified by the BC Association for Regenerative Agriculture;
- A solar-heated dome greenhouse;
- Three moveable high tunnels; and
- An innovative approach to carbon-negative farming at the edge of a former peat bog.

As this is a working farm, there are several specialized equipment required:

- 2 tractors
- Pick up truck
- Refrigerated trailer for produce transport
- Multiple tractor implements
- Walk-behind BCS tractor
- Farm utility vehicle
- Extensive irrigation systems (both in-ground and above ground)
- Weather stations
- Processing facility
- Hand tools

Organic produce from the farm is sold at the Kwantlen Street Farmers Market and through KPU's campus cafeterias. Food is also donated to the Richmond Food Bank.

2) Seed lab at the Richmond campus

KPU Seed Program was developed to partner with British Columbia seed sector to foster the growth of the province's organic seed industry, provide research-based information and services to enable sustainable production practices, and develop seed quality assessment systems to improve quality and quantity of BC's organic seed supply

British Columbia has Canada's largest market for organic and ecological seed, with \$7.79 million in annual sales. BC seed producers are not meeting provincial demand for high-quality organic seed. The organic seed industry has potential to be a vibrant agricultural sector with appropriate support.

The KPU Seed Lab is available to assist seed growers with testing and cleaning seed lots which will enable seed growers to improve seed quality and production efficiency. This seed lab also provides students with the opportunity to learn about seed physiology and how to use analytical equipment.

3) Terrace gardens on the South side of the campus

The Richmond campus terrace gardens offer an accessible, high-visibility, growing space. Students working toward their Bachelor of Applied Science in Sustainable Agriculture use the garden to grow high-value crops suited to small-scale production, including lettuce, spinach, and other salad greens. The garden's well-drained soils and warm micro-climate allow production of cool-season crops through much of the fall and spring semesters.

4) Orchard at Gilbert Road

The KPU Orchard is a 3.3 hectare (8 acre) farm at the south end of Gilbert Road, on the South Arm of the Fraser River that is leased by ISFS. The site includes certified organic teaching and research land used for fruit and vegetable production by students in the Richmond Farm School, and by students completing their Bachelor of Applied Science

in Sustainable Agriculture. It is also home to KPU's Richmond incubator farms, where program graduates can trial their farm business plans while mentoring each other.

### **Student Satisfaction with Program Resources, Services and Facilities**

Students consistently indicated that the KPU Farm is a major strength of the program and there were many requests to increase the amount of time students could spend at the farm during the course of the degree.

There was little satisfaction from the students with regards to the registrar's office and academic advising. The following two comments provided in the survey represent comments the faculty often hear from students:

*"Most academic advisors know nothing about the program so it is necessary to visit a professor which many new students don't know and end up having to extend their degrees by a year or so to obtain all the required classes."*

*"The Registrar's Office is an administrative nightmare. I've been to 7 different institutions and KPU is by far the worse. [Name redacted] was excellent at resolving problems but the intransigence and lack of accountability from other staff left me to twist in the wind. The Registrar's Office does a disservice to any and all recruitment being done by the University and had I not been as stubborn and patient as I was, I would have walked away. I wouldn't be surprised to hear of other students who decided to study elsewhere. Zero stars. Otherwise I loved studying Sust Ag at KPU and would recommend the program to anyone. Five stars."*

It is necessary to address the lack of knowledge about the program within the Registrar's office and the advising office.

### **Faculty Satisfaction with Program Resources, Services and Facilities**

The Sustainable Agriculture faculty and staff are very proud of the facilities that they have been able to develop. The majority of equipment and capital infrastructure has been acquired primarily through the faculties' efforts. A major challenge has been the lack of support from the facilities services in the development of the farm. It has been a challenge to have the KPU Farm considered as part of the university's facilities. It has required significant effort by the faculty to engage the administrative staff in the development and management of the agriculture facilities, particularly the KPU Farm at Garden City Lands. As a result, the work load of project management, site maintenance and safety has fallen to the Sustainable Agriculture faculty and staff. In recent months there has been increased engagement in the farm, however progress remains slow and it unclear how Facilities will support the farm. It is essential the University begin to see the KPU Farm as one of the university's facilities, not just a faculty project.

## **Summary and Recommendations**

**Recommendation 5.1** Provide training and education for the staff in the registrar's office and academic advising to help them better understand the program and the curriculum.

**Recommendation 5.2** Clearly define management and financial responsibilities of the Sustainable Agriculture program and the Facilities.

## Chapter 6. Conclusions and Recommendations

### Summary of Conclusions

#### Program Strengths:

- The Sustainable Agriculture Program is a unique program that is empowering students to address the increasingly urgent needs within our food system.
- Our program is based in our values which are shared by faculty and staff.
- In a time where society's connection to land and food has become dangerously weak, we are able to provide students and our community with the opportunity to reconnect, learn and envision a sustainable future where healthy ecosystems and good, wholesome food are essential for sustainable communities.
- With the addition of the KPU Farm at Garden City Lands, we are becoming an increasingly recognized and important part of the community and have new opportunities to engage with the community through our farm, the KPU Farmers Market and new outreach programs.

As a new program, we have worked hard to lay a foundation upon which we can build a lasting and impactful program. Agriculture programs are complex and require significant investment to ensure that there are appropriate facilities to provide quality instruction that allows students to develop the competencies and skills required to succeed. As KPU has never had a credentialed field production agriculture program, there was a significant amount of building of resources required to ensure the program has what it needs. During the first 7 years of the program the faculty have dedicated a significant amount of time to building relationships with the City of Richmond to secure farmland, acquiring funding to build a seed lab, and purchase farm equipment and infrastructure at the farm. This has required an exceptional amount of effort and time from the faculty in addition to the teaching obligations. While a building phase is part of the growth process, it is critical that we now focus on establishing ourselves as an agriculture program and become recognized for the unique perspective and type of learning we provide. The program is at a point at which we must invest in marketing and promotion and staffing to ensure that the significant progress that has been made is not lost.

### List of Recommendations

#### Recommendations:

##### **Program Currency and Connections:**

**Recommendation 2.1** Re-establish the Sustainable Agriculture Advisory Committee

**Recommendation 2.2** Create a stronger identity for Sustainable Agriculture at the Richmond campus as a separate and unique program at KPU. This could be done through signage, a stronger presence of our produce at the cafeteria and more opportunities for all KPU students and community members to engage with the KPU Farm and terrace garden.

**Recommendation 2.3** Review AGRI courses to identify opportunities to open up courses to be accessible to all KPU students to engage in sustainability focused learning. This will also aid in low fill rates in courses.

**Recommendation 2.4** Consider possible avenues to develop a stronger connection with the school of business. This may be in conjunction with changes to the Sustainable Agriculture curriculum as discussed in Chapter 3.

**Recommendation 2.5** Review other agriculture programs to determine if new opportunities for transfer credit may exist.

**Recommendation 2.6** Review agriculture programs in the U.S. Pacific Northwest and Canada to identify schools which may be suitable to establish articulation agreements and exchange opportunities with.

**Recommendation 2.7** Explore the possibility of gaining accreditation through the Agrologists of BC.

**Recommendation 2.8** Explore the demand and opportunity for an online high school dual credit course that would be easily accessible to students from all school districts in B.C. (This recommendation would require that additional teaching faculty be added to the program as we currently do not have capacity to teach more courses).

**Recommendation 2.9** Increase outreach through social media and website to share information about the program itself. The staff and faculty in the department manage social media accounts for the department. We have often included student voices in our social media as well. It would be very helpful to have a better website that reflects who we are and what we do so that we can direct people to that site.

**Recommendation 2.10** Provide workshops to KPU staff involved in marketing and recruitment.

**Recommendation 2.11** Generate recognition for the program regionally, nationally and internationally.

**Program Curriculum:**

**Recommendation 3.1** Revise program competencies and gather input from Advisory committee

**Recommendations 3.2** Revise the learning outcomes to align with the program competencies and potential program revisions. (i.e. learning outcomes that align with proposed 'track' options)

**Recommendation 3.3** Examine the existing courses and course progression to determine if courses contribute to program competencies and learning outcomes and provide adequate hands-on learning.

**Recommendation 3.4** Identify opportunities for 1<sup>st</sup> and 2<sup>nd</sup> year students to have more experiential/hands-on learning and interaction with the program and farm.

**Recommendation 3.5** Explore the possibility of having specializations (i.e. business, production, policy) within the degree to allow for students to focus their studies.

**Recommendation 3.6** Explore the possibility of a new certificate that will follow the 2+2 format

**Recommendation 3.7** Explore the possibility of offering micro-credentials

**Instructional Design:**

**Recommendation 4.1** Improve the opportunities for students in all years of the program to engage in experiential learning and have increased access to the KPU Farm.

**Recommendation 4.2** Utilization of e-portfolios to improve and coordinate assessment throughout the program

**Recommendation 4.3** Improve retention and graduation rates through earlier engagement with students in the program that are only taking service courses and prerequisites. Ensure that they have the opportunity to participate at the KPU Farm within their first semester.

**Recommendation 4.4** Advocate for the increase the number of full-time faculty so that a wider range of agriculture courses are able to be offered consistently. Having additional faculty will also assist with the workloads that are currently very high on the full-time faculty due to non-teaching work such as research, farm maintenance, marketing and promotion, and administrative/committee work. Include this request in the next budget cycle

**Recommendation 4.5** Advocate for a full-time lab instructor to assist with instruction on the farm, students safety training, soil and plant science lab preparation. (short-term).

**Facilities and Services:**

**Recommendation 5.1** Provide training and education for the staff in the registrar's office and academic advising to help them better understand the program and the curriculum.

**Recommendation 5.2** Clearly define management and financial responsibilities of the Sustainable Agriculture program and the Facilities.

## Chapter 7. Responses from the Dean/Associate Dean

### Program Overview

*What do you see as the program's greatest accomplishments over the last 5 years?*

This degree was launched in 2012 with first graduates convocating in 2016. This alone is a great accomplishment for a new degree. The program continues to attract a steady number of students and successfully fills a gap in BC, and perhaps even Canada.

The program is slowly gaining awareness within the external community, thanks to the diligence of the faculty, and graduates are finding applicable employment and further post-secondary education opportunities.

This program has greatly benefited from highly respected lead instructors who are known for their expertise and connections to the industry and community.

*Does the program adequately fulfill the purpose for which it was intended? If not, how can it be improved?*

This program was designed to fill gaps in the academic programming in BC. This has been successfully achieved.

The review team has proposed several tweaks to the program, including increasing the hands-on components in the first two years, partnering with the School of Business to explore program links, and investigating new modes of delivery such as microcredentials.

*How does the program's curriculum support the following:*

- *graduates' pursuit of meaningful employment and further education*
- *the viability and continued development of the program*

Graduates' pursuits:

There are many opportunities for students to obtain hands-on experiential learning built into the upper level courses with plans to extend this to first and second year courses. Having the KPU Farm, Seed Lab and Terrace Gardens provides an excellent learning environment for students.

New graduates are finding meaningful employment and opportunities to further their post-secondary education.

Program viability and development:

Overall the program is solid but some changes, as outlined in the recommendations, are warranted. These include streamlining the early years, including more practical learning in the early years and exploring a business-focused stream.

Opening up more courses to non-degree students will increase enrolments.

Introducing Indigenous leanings and ways into core courses is important.



*What challenges and opportunities for growth should the program consider based on the following?*

- *student demand (past, present and future)*
- *comparable programs at competing institutions*
- *trends and changing contexts in the discipline/sector*

Student demand:

The Program Review Committee has described the ongoing challenges very well with viable solutions. Ensuring that there is a strong understanding of the merits of the program both at KPU and externally is key. This can be addressed internally by ongoing education of central advising staff and recruitment staff and externally via marketing and general word of mouth. This is unique program that addresses pressing real work issues and should be marketed as such.

Obtaining BC Agrologist accreditation is important and will attract more students.

Working with the School of Business on new streams or micro-credentials should build demand.

Opening up key courses to non-degree students will boost enrolments and likely lead to more interest in the program overall.

Dual credit opportunities with school divisions should be revitalized and a laddering path from the non-credit Farm Schools should be investigated.

Comparable programs:

The KPU degree is unique and as such really has no direct competition. The main issue is recruiting new students, not retention as most complete their degree at KPU.

Trends/changes in sector:

This program has been very successful in nimbly altering content to fit the new trends. All faculty are experts in their given areas and ensure their students receive the most current materials. The plans to develop a stream in agri-business or sustainable economics is on point with what is happening in the field (no pun intended) today.

*What plans (departmental, faculty and institutional) are in place for program growth and development?*

Implement changes outlined in this Program Review.

Place emphasis on program marketing.

Investigate High School dual credit and Farm School laddering pathways.

*What resources, institutional support, and/or external support would help address the program's plans for growth and development?*

Increased funding to hire lab staff.

The program has state-of-the art learning environments (KPU Farm, Seed Lab) however what it needs in a boost to the number of students. This can be done by further outreach

into the schools and at events with support from the Future Student's Office, KPU International and all levels of marketing.

*Collectively, what qualifications and other human resources are required so the program will be able to make the changes required to improve and remain current?*

A BCGEU lab instructor will be needed along with seasonal farm staff (which can be current students).

Assistance from KPU Special Advisor on Indigenous Leadership, Innovations and Partnerships.

*What areas should the program focus on for the short range (< 6 months), mid-range (6 mo. – 2 years), and long range (>2 years) program directions and improvement?*

Short range:

Reboot the External Program Advisory Committee.

Implement proposed changes to program structure and curriculum.

Develop a recruitment and marketing plan and begin recruitment and outreach.

Medium range:

Begin process for BC Agrologist accreditation.

Set up high school dual credit courses.

Develop plan for laddering from Farm Schools into the degree.

Revise curriculum to include Indigenous learnings and ways.

Long range:

Forge relationship with School of Business to develop new programming in Agri-business or related areas.

## **External Connections and Support**

*How could the program improve its connections with external groups (e.g. the discipline/sector, high schools, alumni, professional associations, other institutions)?*

Reboot the External Program Advisory Committee.

Liaise with high school regarding dual credit options.

Seek BC Agrologist accreditation.

## **Final Comments**

*What else do you think is important to add about the program that is not covered in the previous questions?*

I would like to extend congratulations to the AGRI Program Review Committee for compiling an excellent, fulsome, comprehensive and honest report. I would also like to thanks OPA for their assistance with surveys and data analysis.

I support all the recommendtions put forward in this report.

I will advocate for more course sharing between programs comparable to the beekeeping course which is shared by AGRI and HORT.

## **Chapter 8.** Appendices for Self-Study Report

Provided in separate document.

## SENATE STANDING COMMITTEE ON PROGRAM REVIEW

**Agenda Item: 6.1**

**Meeting Date: September 22, 2021**

**Presenter: Amy Jeon**

### Agenda Item

### Notice of Election of Committee Chair

Action Requested	Information
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### Context & Background

The Vice-Chair of Senate has been acting as chair of the committee pending election of a committee chair in the 2021-22 academic year.

### Key Messages

1. All senators who are members of the committee and all voting members of the committee are eligible to be elected as committee chair. If the elected chair is not a senator, then the committee should elect a senator into the committee vice-chair position.
2. The chairs of Senate standing committees are normally elected for a three-year term beginning in September. The term of office will be from November 1, 2021 to August 31, 2024, or to the end of the member's term on Senate, whichever is shorter.
3. Nominations will be from the floor at the next meeting. If there is only one person nominated, then that person may be acclaimed. If more than one person is nominated, then there will be an election by ballot. If there are no nominations, the Vice-Chair of Senate will continue to chair.

### Submitted by

*Meredith Laird, Administrative Assistant, University Senate*

### Date submitted

*September 20, 2021*

## SENATE STANDING COMMITTEE ON PROGRAM REVIEW

**Agenda Item: 6.2**

**Meeting Date: September 22, 2021**

**Presenter: Lori McElroy**

### Agenda Item      New Program Review Guides

Action Requested	Discussion
<b>Context &amp; Background</b>	<p>Over the summer, the Office of Planning &amp; Accountability has been busy reviewing and revising the program review process and the associated guides. The purpose of this review was to address the recommendations we received from the Ministry's audit of our program review process, and at the same time we made improvements to the entire process.</p> <p>During the meeting, we would like to obtain SSCPR's feedback on Guide #2: Curriculum Review and Guide #4: Self-Study, as they set the standards for the entire program review process.</p>
<b>Key Messages</b>	See attached memo for more information.
<b>Consultations</b>	Leeann Waddington and Nishan Perera, from the Teaching and Learning Commons, and with David Burns, as the then chair of both the Senate Standing Committees on Program Review, and on Curriculum.
<b>Attachments</b>	<p>Memo to SSCPR from Lori McElroy</p> <p>Program Review Guide 1 Getting Started</p> <p>Program Review Guide 2 Curriculum Review</p> <p>Program Review Guide 4 Self-Study</p>
<b>Submitted by</b>	<i>Lori McElroy, AVP, Planning &amp; Accountability</i>
<b>Date submitted</b>	<i>September 7, 2021</i>

*To: Senate Standing Committee on Program Review*

*From: Lori McElroy, AVP, Planning & Accountability*

*Date: September 7, 2021*

*Re: Changes to the Self-Study Process and Guides*

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Over the summer, the Office of Planning & Accountability has been busy reviewing and revising the program review process and the associated guides. The purpose of this review was to address the recommendations we received from the Ministry's audit of our program review process. You can find the recommendations, and our plan on how we proposed to address them [here](#).

The most substantial of the recommendations was to "implement a standardized program mapping process....to clearly demonstrate the link between program learning outcomes/goals and course learning outcomes." To develop this process, we consulted with Leeann Waddington and Nishan Perera, from the Teaching and Learning Commons, and with David Burns, as the then chair of both the Senate Standing Committees on Program Review, and on Curriculum.

We used this as an opportunity to do a thorough review of the entire process and all the guides to not just incorporate this change, but to make the entire process clearer, and hopefully easier for faculty. The program review process is now broken into the following 7 phases, with a guide for each:

**Phase 1: Getting Started** – The kick-off meeting can occur in any semester of the year the review is scheduled to start. Timing of the kick-off meeting to initiate the review is based on discussions with the Dean and program chair.

**Phase 2: Curriculum Review** – The Curriculum Review process (with support available from TLC, if needed) begins right after the kick-off meeting. This phase should be completed no more than 2 months after the Program Review kick-off meeting.

**Phase 3: Data Collection** – The Data Collection phase (conducted by OPA) begins right after the Curriculum Review phase. This phase should be completed no more than 2 months after the completion of the review of the program's curriculum.

**Phase 4: Self-Study** – Self-Study phase begins with the Curriculum Review phase. The Self-Study Report should be submitted to the SSCPR for approval no later than 4 months after the data collection is complete to ensure the data remains relevant throughout the review.

**Phase 5: External Review Site Visit** – The External Review Site Visit should take place no later than 2 months after the approval of the Self-Study Report, except when this falls in the summer, where site visits can be delayed to the early fall, if necessary.

**Phase 5: External Review Report** – The External Review Team should submit the External Review Report to the SSCPR for approval no later than 1 month after the site visit.

**Phase 6: Quality Assurance Plan Development** – The Quality Assurance Plan should be submitted to the SSCPR no later than 4 months after the External Review Report has been approved.

**Phase 7: Annual Follow-Up Reporting** – The first report should be submitted to the SSCPR no later than 12 months after the Quality Assurance Plan has been approved.

Some of the guides are new, others revised. *Guide #1: Getting Started*, provides an overview of the entire process and describes all seven guides. This guide is included in the agenda package for your information about the entire process. We are seeking feedback from the SSCPR on the following two guides, as they set the standards for the entire program review process:

**Guide #2: Curriculum Review** – includes information on how to conduct a curriculum review, including developing/reviewing program learning outcomes, career pathways map, and curriculum map. It also explains where to report this information in the Self-Study Report template.

**Guide #4: Self-Study** – covers the rest of the Self-Study process, explaining how to use the Self-Study data to address the program review questions and where to report this information in the Self-Study Report template.

The approach we've used in both guides is to set up a series of questions to be answered in the Self-Study. For each question, we discuss the relevant information that would address the question, and how to use the information. This is new, and will hopefully make it easier for faculty to link the data to the review.

Although we did have a curriculum review process before, it was simpler and wasn't reported in the Self-Study Report. To address the audit recommendation, we expanded the process and included the results in the Self-Study report. We recognize this is more work for the Program Review Team, so we looked for efficiencies elsewhere, and have eliminated some of the questions we had been asking Program Review Teams to address in the Self-Study process. We have also reviewed the types of data we have been providing, illuminating data that wasn't necessary, and improving some of the survey questions. The end result will be less data for the Program Review Team to review and a clearer process for how to use the data.

Since there were two programs wanting to start their review this past summer, we decided to pilot the new Curriculum Review guide with these programs. We will be obtaining their feedback on this and making adjustments where warranted.

When reviewing the two guides, please consider the following:

1. Appropriateness of the standard: Each question in the guides is, in essence, a program review standard. Do you agree that we should be asking these questions?
2. Clarity: Will faculty conducting a review understand what is expected, and how to link data to program review questions? If you were on the SSCPR last year, think of the program review reports you have reviewed in the past; do you think this will eliminate some of the issues you've seen?

During the meeting we will focus on any major concerns you may have with the standards and the approach we've taken. If you have wording suggestions, or minor points, please send them directly to Melike Kinik-Dicleli, Manager of Quality Assurance.





# Program Review Guide #1: Getting Started

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# 1. Introduction to Program Review

## What Program Review Is

Program Review is a faculty-led, collaborative, systematic, and evidence-based examination of a program's quality. It focuses on ensuring that program graduates achieve the learning outcomes appropriate to the discipline and credential level.

Program Review is:

**Formative** – provides feedback that identifies program strengths and weaknesses to guide improvements to the program over time;

**Participatory** – uses input from internal and external stakeholders including students, graduates, faculty, staff, administration, program advisory committees, licensing or accrediting organizations, and employers, as appropriate;

**Evidence-based** – follows standardized, evidence-based processes and methodologies;

**Strategic** – leads to coordinated action that strengthens the program's ability to support students in achieving the program's learning outcomes;

**Iterative** – draws on previous reviews and recommendations with specific attention to trends and patterns.

**Accountable** – reports must be approved by the Senate Standing Committee on Program Review (SSCPR) and are made available on KPU's [Program Review SharePoint site](#).

## Why We Do Program Review

Program Review is one of KPU's quality assurance functions and is required by the Ministry's Degree Quality Assessment Board (DQAB). Please refer to SSCPR Memorandum in Appendix A for more information on the regulatory context of the Program Review process. DQAB conducts an audit of KPU's Program Review process every seven years to ensure compliance with Ministry's quality assurance requirements.<sup>1</sup> It is also a condition of KPU's membership in Universities Canada.<sup>2</sup>

## Frequency of Program Review

All KPU **degree programs** undergo review once **every five years**. **Non-degree programs** undergo review once **every seven years** (see Policy AC3 in Appendix B). Degree and non-degree programs in the same discipline are reviewed together because of the integrated nature of their curriculum. The schedule for Program Reviews is updated on a yearly basis, provided to Senate, and posted to the [Program Review SharePoint site](#).

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<sup>1</sup> <https://www2.gov.bc.ca/gov/content/education-training/post-secondary-education/institution-resources-administration/degree-authorization/degree-quality-assessment-board/quality-assurance-process-audit>

<sup>2</sup> <https://www.univcan.ca/universities/quality-assurance/quality-assurance-principle>

## Overview of the Components of Program Review

Program Review entails a detailed analysis of a program's strengths and areas for improvement through an assessment of its:

- curriculum
- relevance and student demand
- effectiveness of instructional delivery
- resources, services and facilities

The Program Review process consists of four components, which are summarized in the table below.

Component	Purpose	Written by
<b>Self-Study</b>	<ul style="list-style-type: none"><li>• Review program quality</li><li>• Identify program's strengths and areas for improvement</li><li>• Provide recommendations on improving the quality of the program</li></ul>	Program Review Team
<b>External Review</b>	<ul style="list-style-type: none"><li>• Validate the Self-Study Report</li><li>• Provide external perspective</li></ul>	External Review Team
<b>Quality Assurance Plan</b>	<ul style="list-style-type: none"><li>• Establish the steps that will be taken to address the recommendations from both the Self-Study Report and External Review Report</li><li>• Identify the resources required to implement these steps.</li></ul>	Program Review Team (in consultation with the Dean and signed off by the Dean and Provost)
<b>Annual Follow-Up Reporting</b>	<ul style="list-style-type: none"><li>• Provide annual updates on progress in implementing the Quality Assurance Plan</li></ul>	Program Review Team

## Who Is Involved in Program Review

While a program's faculty members (Program Review Team) lead the review, other KPU community members have a role. These include the Office of Planning & Accountability (OPA), the Teaching and Learning Commons (TLC), the Dean, the Provost and the Senate Standing Committee on Program Review (SSCPR). A summary of the roles of each follows:

**Program Review Team** – leads the review and writes the Program Review Self Study Report, Quality Assurance Plan, and Annual Follow-Up Reports;

**OPA** – provides planning and advice throughout, administers surveys and provides survey and administrative data, and provides support to SSCPR;

**TLC** – is available, if needed, to guide the Program Review Team in development/review of program learning outcomes, career pathways map, and curriculum map;

**Dean** – provides guidance and institutional perspective, reviews reports, provides feedback and advice on

the Self-Study Report in the form of a memo; meets with Provost to discuss Quality Assurance Plans, and, together with the Provost, signs off on Quality Assurance Plans;

**Provost** – is the administrator with institutional responsibility for academic quality and approves all Quality Assurance Plans;

**SSCPR** – ensures Program Review Policy is carried out by reviewing and approving Program Review reports and providing updates to Senate on the progress of Program Reviews.

## **Starting the Program Review Process**

When your program is scheduled to undergo a review, OPA's Manager, Quality Assurance, will contact you to set up a meeting to explain the process and OPA's role in supporting it. The Manager will help you develop a plan and timeline for the review, and provide resources on Program Review and guidance throughout. You will also be introduced to the current Chair of the Senate Standing Committee on Program Review.

For convenience, all guidelines and templates related to program review can be found at the Program Review SharePoint site: <https://kpuemp.sharepoint.com/sites/progreview/SitePages/Home.aspx>. The site also hosts program review schedules as well as completed and approved reports for past reviews. Please contact [sscpr@kpu.ca](mailto:sscpr@kpu.ca) if you can't find reports from a previous review of your program. Note that guides and templates change over time, so previous work may not match current requirements.

OPA is here to support you throughout the review!

For assistance, please contact Melike Kinik-Dicleli, Manager, Quality Assurance at:

Tel: 604.599.3294 or [sscpr@kpu.ca](mailto:sscpr@kpu.ca)

## 2. Program Review Timeline

A program review should ideally take 16 months from the beginning of the Curriculum Review process to the submission of the Quality Assurance Plan. The 16-month timeline accounts for all of the activities to be undertaken by the various participants and takes into account annual vacation of faculty members.

The chart below depicts the ideal timeline for all phases of the review. Note that the curriculum review, data collection, and self-study phases overlap.

Phases	Months																
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Getting Started																	
2. Curriculum Review																	
3. Data Collection																	
4. Self-Study																	
5. External Review																	
6. Quality Assurance Plan Development																	
One Year Later																	
7. First Annual Follow Up Report																	

◆ Report submission months

Note: External Review Report is submitted by the External Review Team, not by the Program Review Team.

A description of the timeline for each phase follows. The timeline ensures that data and other information collected for the Self-Study remains timely throughout the review and that programs remain in compliance with the Program Review Policy AC3. OPA keeps a schedule of the year each program review should begin to ensure that degree programs are reviewed every 5 years and non-degree programs every 7 years. Delays in the program review can cause a range of challenges for students, faculty and staff – including, but not restricted to, the expiry and recollection of data, and lack of compliance with the Program Review Policy.

**Phase 1: Getting Started** – The kick-off meeting can occur in any semester of the year the review is scheduled to start. Timing of the kick-off meeting to initiate the review is based on discussions with the Dean and program chair.

**Phase 2: Curriculum Review** – The Curriculum Review process (with support available from TLC, if needed) begins right after the kick-off meeting. This phase should be completed no more than 2 months after the Program Review kick-off meeting.

**Phase 3: Data Collection** – The Data Collection phase (conducted by OPA) begins right after the Curriculum Review phase. This phase should be completed no more than 2 months after the completion of the review of the program's curriculum.

**Phase 4: Self-Study** – Self-Study phase begins with the Curriculum Review phase. The Self-Study Report should be submitted to the SSCPR for approval no later than 4 months after the data collection is complete to ensure the data remains relevant throughout the review.

**Phase 5: External Review Site Visit** – The External Review Site Visit should take place no later than 2 months after the approval of the Self-Study Report, except when this falls in the summer, where site visits can be delayed to the early fall, if necessary.

**Phase 5: External Review Report** – The External Review Team should submit the External Review Report to the SSCPR for approval no later than 1 month after the site visit.

**Phase 6: Quality Assurance Plan Development** – The Quality Assurance Plan should be submitted to the SSCPR no later than 4 months after the External Review Report has been approved.

**Phase 7: Annual Follow-Up Reporting** – The first report should be submitted to the SSCPR no later than 12 months after the Quality Assurance Plan has been approved.

The tasks involved in each phase of the Program Review process are described in detail in Chapter 4. The Manager, Quality Assurance, will work with the Program Review Team to prepare a timeline after the Program Review kick-off meeting, which will then be submitted to the SSCPR.

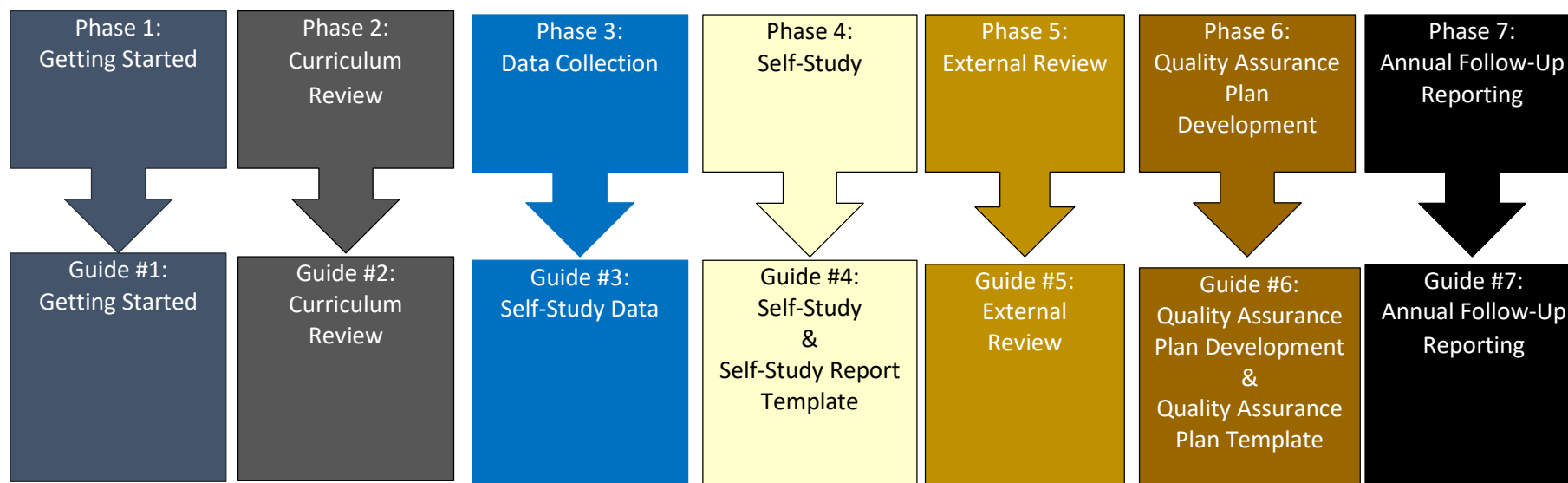
To facilitate the process, each program under review will receive an invitation to present their reports to the SSCPR as indicated in the timeline.

The SSCPR requests brief, regular status reports on the progress of each program's reports, provided to the Manager, Quality Assurance. These status reports will help the SSCPR determine how best to support programs during the review process and ensure timelines are met.

To ensure quality standards are met, each report (beginning with the Self-Study Report) must be submitted to the SSCPR for approval before the report for the next phase can be submitted. Each report must be received by OPA by the report submission deadline, which is 3 weeks prior to the SSCPR meeting.

### 3. Program Review Guides & Templates

To assist the Program Review Team, a series of guides and templates are provided for each phase in the program review process. All guides and templates are available at: <https://www.kpu.ca/program-review> and <https://kpuemp.sharepoint.com/sites/progrev/SitePages/Home.aspx>.



The guides are intended to make the Program Review process easier to navigate for the Program Review Team, while ensuring that KPU meets the expectations of the Ministry's Degree Quality Assessment Board. Below is an overview of the guides:

**Guide #1: Getting Started** – provides the Program Review Team with an overview of the program review process at KPU and prepares them for the Program Review kick-off meeting.

**Guide #2: Curriculum Review** – includes information on how to conduct a curriculum review, including developing/reviewing program learning outcomes, career pathways map, and curriculum map. It also explains where to report this information in the Self-Study Report template.

**Guide #3: Self-Study Data** – provides information about the data sources available for the Self-Study, including the administrative data and standard survey questions, and explains the survey development process.

**Guide #4: Self-Study** – covers the rest of the Self-Study process, explaining how to use the self-study data to address the program review questions and where to report this information in the Self-Study Report template.

**Guide #5: External Review** – provides information on the steps required to plan an external review site visit and criteria for selection of external reviewers.



There is also a guide for the External Review Team, and a template for their report.

***Guide #6: Quality Assurance Plan Development*** – comes with a template and explains in detail how to develop a Quality Assurance Plan based on the findings and recommendations in the Self-Study and External Review Reports.

***Guide #7: Annual Follow-Up Reporting*** – explains the process for reporting back to the SSCPR on progress made in carrying out the Quality Assurance Plan. The template for Annual Follow-Up Reports is prepared by OPA using the SSCPR-approved Quality Assurance Plans.

## 4. Program Review Roles and Responsibilities

The steps entailed in each component of the review process are described on the following pages. For each step, the roles of the Program Review Team, that is the faculty conducting the review, OPA, the Dean's office, and the SSCPR are described. In addition, the support available from the Teaching and Learning Commons for Curriculum Review is identified. Please note that steps may overlap.

### Phase 1 – Getting Started

Timing: Program Review Launch

Program Review Team	OPA	Dean's Office	SSCPR
<p>Reviews <i>Getting Started Guide (Guide #1)</i> provided by the Manager;</p> <p>Attends kick-off meeting;</p> <p>Confirms Program Review timeline.</p>	<p>Provides <i>Guide #1</i> before Program Review kick-off meeting;</p> <p>Organizes and leads kick-off meeting, which includes an overview of the review process, and next steps;</p> <p>Helps establish timeline for review;</p> <p>Provides Program Review Team with guides and relevant templates after kick-off meeting;</p> <p>Connects Program Review Team with Teaching and Learning Commons for support with Curriculum Review (below), if desired.</p>	<p>Connects Manager with Program Chair;</p> <p>Provides input into development of review scope.</p>	<p>Chair participates in kick-off meeting.</p>

### Phase 2 – Curriculum Review

Timing: Months 1 and 2

Program Review Team	OPA	TLC (Optional)
<p>Reviews <i>Curriculum Review Guide (Guide #2)</i>;</p> <p>Conducts a review of the program's curriculum, which is the first step in the Self Study.</p>	<p>Provides <i>Guide #2</i> and the program's curriculum map with Course Learning Outcomes.</p>	<p>If requested, TLC can provide guidance and advice in conducting the review of the program's curriculum.</p>

### Phase 3 – Data Collection

Timing: Months 3 and 4

Program Review Team	OPA
Reviews <i>Self-Study Data Guide (Guide #3)</i> and provides input into survey design;	Prepares administrative data report;
Provides list of faculty members and discipline/sector representatives who should receive the surveys;	Prepares surveys, ensuring they address issues in scope, in consultation with Program Review Team;
Reviews survey and administrative data reports;	Compiles student and alumni email addresses;
Submits additional administrative data requests, if needed, to Manager, Quality Assurance.	Tests and administers surveys;
	Analyzes survey results and provides survey data reports;
	Provides advice on data interpretation.

## Phase 4 – Self-Study

Timing: Months 1 to 8. Some parts of the report can be written during the Curriculum Review and Data Collection phases.

Program Review Team	OPA	Dean's Office	SSCPR
<b>Preparation of Self-Study Report</b>			
<p>Reviews <i>Self-Study Guide (#3)</i> and <i>Self-Study Report Template</i>;</p> <p>Gathers documents needed for Self-Study Report;</p> <p>Prepares Self-Study Report.</p>	<p>Provides guidance and advice, as required;</p> <p>If requested, connects with Chair to have members of SSCPR provide feedback on draft versions of Self-Study Report in advance of formal submission to SSCPR.</p>	<p>Reads drafts of Self-Study Report and provides feedback;</p> <p>When Self-Study is ready for submission, provides feedback and advice in the form of a memo, which is presented at the beginning of the Self-Study Report.</p>	<p>Provides feedback on draft version of Self-Study Report, if such input is requested prior to formal submission.</p>
<b>Self-Study Report Review by SSCPR</b>			
<p>Sends Self-Study Report to Manager, Quality Assurance, at least 3 weeks before the SSCPR meeting;</p> <p>Reviews feedback from SSCPR reviewers prior to the meeting;</p> <p>Attends meeting and answers questions from SSCPR;</p> <p>Revises Self-Study, as required, for SSCPR approval. If they wish, revisions can be submitted prior to the meeting so the meeting can focus on the revised report.</p>	<p>Schedules Report on SSCPR meeting agenda;</p> <p>Arranges for SSCPR members to review Self-Study Report.</p>	<p>Deans are encouraged to attend the meeting of SSCPR when Self-Study Report is discussed.</p>	<p>Chair of SSCPR reviews Self-Study report before it is sent to SSCPR members for review;</p> <p>SSCPR members assigned to review Self-Study Report review the report and provide written feedback prior to the meeting;</p> <p>Chair forwards SSCPR reviewers' feedback to Program Review Team prior to the meeting.</p> <p>During meeting, discusses and decides whether to approve or ask for specific revisions to meet SSCPR standards.</p>

## Phase 5 - External Review

Timing: Months 8 to 12

Program Review Team	OPA	Dean's Office	SSCPR
<b>Planning for External Review Site Visit</b>			
<p>Reviews <i>External Review Guide (Guide #5)</i>;</p> <p>Provides a list of external reviewer candidates;</p> <p>Determines date and location of site visit;</p> <p>Plans agenda for site visit.</p>	<p>Provides support to External Review Team by holding an orientation meeting, and providing the team with relevant guidelines, External Review Report Template, and the SSCPR-approved Self-Study Report.</p>	<p>Invites external reviewers.</p>	<p>Reviews external review candidates and selects External Review Team;</p> <p>Chair appoints KPU faculty member who will be a part of the team.</p>
<b>External Review Site Visit</b>			
<p>Hosts site visit if site visit takes place on campus;</p> <p>Participates in site visit.</p>	<p>If site visit is conducted remotely, Manager invites stakeholders and hosts site visit.</p>	<p>Participates as required in site visit.</p>	
<b>External Review Report</b>			
<p>Reviews SSCPR-approved External Review Report.</p>	<p>Forwards SSCPR-approved External Review Report to Dean and Program Review Team.</p>	<p>Reviews SSCPR-approved External Review Report.</p>	<p>Chair of SSCPR reviews External Review Report before it is sent to SSCPR members for review.</p> <p>Report reviewers review External Review Report and provide written feedback prior to the meeting.</p> <p>During the meeting, discusses and decides whether an addendum to the report is needed to clarify scope.</p>

## Phase 6 - Quality Assurance Plan Development

Timing: Months 13 to 16

Program Review Team	OPA	Dean's Office	SSCPR
<b>Development of Quality Assurance Plan</b>			
<p>Reviews <i>Quality Assurance Plan Development Guide (Guide #6)</i> and <i>Quality Assurance Plan Template</i>;</p> <p>Collaborates with faculty members and Dean on how to address recommendations in Self-Study and External Review Reports;</p> <p>Develops Quality Assurance Plan according to guidelines using template provided;</p> <p>Revises Quality Assurance Plan, if required, to obtain approval of Dean and Provost.</p>	<p>Manager provides advice and guidance, as required.</p>	<p>Collaborates in development of Quality Assurance Plan;</p> <p>Reviews Quality Assurance Plan and asks for revisions, if required;</p> <p><u>Together with a Program representative, meets with Provost to discuss the Plan;</u></p> <p><u>Together with Provost, signs off on the Plan.</u></p>	
<b>Quality Assurance Plan Review by SSCPR</b>			
<p>Delivers signed Quality Assurance Plan to Manager, Quality Assurance, at least 3 weeks prior to the SSCPR meeting;</p> <p>Reviews feedback from SSCPR prior to meeting;</p> <p>Attends meeting and answers questions from SSCPR;</p> <p>Revises Quality Assurance Plan, as required by SSCPR. If they wish, revisions can be submitted prior to the meeting so the meeting can focus on the revised report.</p>	<p>Schedules report on SSCPR meeting agenda;</p> <p>Arranges for SSCPR to review Quality Assurance Plan;</p> <p>Coordinates Dean's and Provost's signatures if SSCPR requests a revised Quality Assurance Plan.</p>	<p>Deans are encouraged to attend the meeting of SSCPR when Quality Assurance Plan is discussed.</p>	<p>Chair of SSCPR reviews Quality Assurance Plan before it is sent to SSCPR members for review;</p> <p>Report reviewers review Quality Assurance Plan and provide written feedback prior to the meeting;</p> <p>Chair forwards SSCPR reviewers' feedback to Program Review Team ahead of the meeting;</p> <p>During the meeting, discusses and decides whether to approve or ask for specific revisions to meet SSCPR standards.</p>

## Phase 7: Annual Follow up Reporting

Timing: Begins 12 months following approval of Quality Assurance Plan. Continues until the program can demonstrate to the SSCRP substantial completion of the Quality Assurance Plan.

Program Review Team	OPA	Dean's Office	SSCPR
<b>Prepare Annual Follow-Up Report</b>			
Prepares report on progress of implementation of Quality Assurance Plan to date, using follow-up report template.	Reminds Program Review Team when Annual Follow-Up Report is due;  Provides program with Annual Follow-Up Template, created from the Quality Assurance Plan.		
<b>Present Annual Follow-Up Report</b>			
Delivers Annual Follow-Up Report to Manager, Quality Assurance, at least 3 weeks prior to the SSCPR meeting;  Reviews feedback from SSCPR prior to meeting;  Attends meeting and answers questions from SSCRP;  Revises Annual Follow-Up Report, as required by SSCPR. If they wish, revisions can be submitted prior to the meeting so the meeting can focus on the revised report.	Schedules time in SSCPR meeting agenda for the Annual Follow-Up Report to be discussed;  Arranges for SSCPR to review Annual Follow-Up Report;	Deans are encouraged to attend the meeting of SSCPR when Annual Follow-Up Report is discussed.	Chair of SSCPR reviews Annual Follow-Up Report before it is sent to SSCPR members for review;  Report reviewers review Annual Follow-Up Report and provide written feedback prior to the meeting;  Chair forwards SSCPR reviewers' feedback to Program Review Team ahead of the meeting.  During the meeting, discusses and decides whether to approve Annual Follow-Up Report or to ask for specific revisions to meet SSCPR standard;  Decides whether the Quality Assurance plan is substantially complete, or a report is required the following year.

## Appendix A: SSCPR Memorandum



KWANTLEN POLYTECHNIC UNIVERSITY  
SURREY CAMPUS

12666 – 72<sup>ND</sup> Ave.  
Surrey, BC Canada V3W 2M8

### MEMORANDUM

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TO: Stan Kazymierchyk, Chair, Senate Standing Committee on Program Review [SSCPR]

FROM: David P. Burns, Vice-Chair, University Senate

DATE: January 17, 2018

SUBJECT: The Regulatory Context of The Program Review Process

**NOTE: Endorsed By The Senate Standing Committee On Program Review on January 24, 2018**

---

In response to your query regarding the links between program review and the Senate, *writ large*, I have prepared the following policy brief.

#### Why does the Senate discuss program reviews through its Standing Committee on Program Review?

KPU has two salient characteristics in this regard. First, it is a public institution. Second, it is an exempt educational institution.

As a public institution KPU must hold itself to the high standards of public accountability prescribed in documents such as the Auditor General's *Performance Reporting Principles for the British Columbia Public Sector* (2003). We must, in short, provide transparent accounting of the ways in which we use the public funding we receive to provide quality service to the citizens of our community. This obligation is deepened by our *exempt* status (which confers unto KPU a level of autonomy in our degree development and revision processes). Since the Senate's authority under the *University Act* is most explicit with respect to academic issues, one of the Senate's most important duties to our community is, therefore, academic quality assurance.

The Senate's program review duty is defined by a number of principles observable in provincial policy and cross-provincial agreements:

- 1) Program review is primarily the responsibility of KPU as an institution (and not government) and the Board of Governors is required by law to consult the Senate on educational policy in this area. **We are, in short, responsible as a university community through our Senate.**

*per* Degree Quality Assessment Board Secretariat (2017b)

*per* Council of Ministers of Education, Canada (2007)

*per* University Act, British Columbia, 25.2.6.f



## MEMORANDUM

- 2) Program review is the primary mechanism through which to ensure we are carrying out the **commitments we made**, through our full program proposals, to Government and the people of British Columbia.

*per* Bond, Gelin, van Brummelen, Waterhouse and Stubbs (2011), the “Stubbs Report”

*per* Degree Quality Assessment Board Secretariat (2017b), 2.1

- 3) Program review is meant to be **cyclical** and **ongoing**, and not a response to a particular change.

*per* Council of Ministers of Education, Canada (2007), 2.7.10

*per* Shanahan (2015), p. 47

*per* Degree Quality Assessment Board Secretariat (2017a), 2.3

*per* Degree Quality Assessment Board Secretariat (2017b)

- 4) Program review should be **timely**, so that policy makers (internal and external) may use the information produced to respond to labour market demand.

*per* Auditor General of British Columbia (2003), for timeliness of public reporting

*per* Degree Quality Assessment Board Secretariat (2017b), appendix 1.1.a

- 5) Program review is the **basis** for an institution’s ongoing use of the Education Quality Assurance standard, and its status as an **exempt institution**.

*per* Governance and Quality Assurance Branch (2016)

*per* Degree Quality Assessment Board Secretariat (2017a), 2.3

**As a result of the duties outlined above, the Senate of any university in British Columbia should consider program review findings in curricular development (as in 2 and 3), budget development (as in 4 and Performance Reporting Principles) and in its general approach to good governance (as in 1 and 5).**



## MEMORANDUM

Auditor General of British Columbia. (2003). Performance reporting principles for the British Columbia public sector: Principles endorsed by government, the Select Standing Committee on Public Accounts and the Auditor General of British Columbia. Victoria, BC.

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<https://www2.gov.bc.ca/assets/gov/education/post-secondary-education/institution-resources-administration/degree-authorization/stubbs-report.pdf>

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Shanahan, T. (2015). The role of the provincial government in postsecondary education. In T. Shanahan, M. Nilson, & Broshko, L. (pp. 37-56). Montreal, QC: McGill-Queens's University Press.

University Act, RSBC 1996, c 468, <<http://canlii.ca/t/52v8h>> retrieved on 2018-01-17

## Appendix B: KPU Policy AC3



Policy History
<b>Policy No.</b> AC3
<b>Approving Jurisdiction:</b> Board of Governors, with Senate advice
<b>Administrative Responsibility:</b> Provost and Vice President Academic
<b>Effective Date:</b> May 22, 2019

### Program Review Policy

#### 1) CONTEXT AND PURPOSE

- Program Review at Kwantlen Polytechnic University is a faculty-led, collaborative, systematic and evidence-based examination of a program's quality. Program Review allows for a detailed analysis of a program's strengths and areas for improvement that result in enhancements to the program. Students, faculty and alumni are all given an opportunity to provide their perspectives during the review.
- As a public institution, KPU has a duty to ensure and report on the quality of its programs. Program Review is the mechanism by which we practice this accountability, and communicate it to our community. KPU's Senate Standing Committee on Program Review (SSCPR) oversees this process.
- Program Review is the process that drives continual progress and improvement at the program level. Program Review findings should inform Senate deliberations on curricula changes, and curriculum development. For this reason, Quality Assurance Plans will be submitted to Senate, following approval by the SSCPR, as part of the SSCPR Chair's Report.

#### 2) SCOPE AND LIMITS

- This policy applies to educational programs under the governance of Senate.
- Program Review does not evaluate performance of individual faculty, staff, or administrators.
- This policy does not apply to programs which are not under the governance of Senate (e.g. Continuing/Professional Studies and Apprenticeship).

#### 3) STATEMENT OF POLICY PRINCIPLES

- All programs will be scheduled for review on a regular basis. Degree programs will undergo review at least once every five (5) years and all non-degree programs will undergo review at least once every seven (7) years.
- All programs under the governance of Senate must meet the requirements of Policy AC3, including programs that undergo extensive review by external accrediting bodies. As appropriate,

the review of programs that undergo external review may occur concurrently with the external accreditation so as not to duplicate processes.

- Successful completion of a program review requires the SSCPR's approval of the following reports: Self-Study Report, External Review, and Quality Assurance Plan.
- Implementation of the Quality Assurance Plan is not deemed completed until a program can demonstrate, through Annual Follow-Up Reports to the satisfaction of the SSCPR, its substantial completion.
- The SSCPR Chair will include approved Quality Assurance Plans in the SSCPR Report to Senate.

#### **4) DEFINITIONS**

Refer to Section A in the related Procedures document for definitions which will enhance the reader's interpretation of this Policy.

#### **5) RELATED POLICIES & LEGISLATION**

*University Act 35.2 (6)(f) AC9*

*Essential Skills Policy*

*AC13 Qualifications for Faculty Members Policy*

#### **6) RELATED PROCEDURES**

Refer to Procedure AC3 *Program Review*.



# Program Review Guide #2: Curriculum Review

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# 1. Moving through Program Review and Program Revision

## The role of Curricular Review

Curricular review is centrally important both before and after the program review process. A detailed map of your program's curriculum will help you understand what it is that your students, faculty and community/industry partners are responding to in your Program Review. When your students say that they learn the same thing in two different courses you will be able to check whether and how this is happening. When your industry advisors indicate that a new skill is needed in the field you will be able to check where that skill might fit into your program. Once your program review is finished, this map of your curriculum, as well as the observations and recommendations you have made using it, will be indispensable in making the changes to your program on which you and your colleagues have settled.

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*Curricular review informs the **Self-Study Report** and the **Quality Assurance Plan** and is a planning tool you will need when you propose changes to your courses and program.*

---

## The role of the Senate Standing Committees on Program Review and Curriculum

Changes to KPU programming are both administratively and democratically significant. Each change to the way a program works means that we must conduct due diligence to ensure that the change can be responsibly enacted with available resources, that it won't cause unforeseen problems, that it doesn't interfere with other systems or changes, and so forth. Because of KPU's status as a university under the British Columbia *University Act*, a change to a program also requires that we consult with, or seek approval from, various levels of our governance system. Some changes can be made at the level of a particular Faculty, others require approval of KPU's Senate or Board of Governors, and others require the approval of the Minister of Advanced Education Skills and Training. Any changes that alter a program, including its courses and prerequisites, will eventually go to the Senate Standing Committee [SSC] on Curriculum. That committee will want to see that you have built a case for your proposed changes from your Program Review onward. More detail on these approval processes is provided in Chapter 3.

---

*If you intend to make changes to your program you should view the end of your **Program Review** as the beginning of your **Program Revision**.*

---

## Support for the Curriculum Review process

As you complete your curricular review you can seek advice from the Teaching and Learning Commons on developing learning outcomes, and conducting curriculum mapping. The Office of Planning & Accountability will provide the contact and will help with other aspects of the Self-Study process.

## **The Outcome of the Curriculum Review Process**

By the end of the curriculum review, you will have produced the following components for the Self-Study Report:

1. A profile of the program and its purpose, from Chapter 2 of the Curriculum Review Guide.
2. A profile of pathways for program graduates with respect to employment, further study, and life as an educated citizen, from Chapter 3 of the Curriculum Review Guide.
3. Program Learning Outcomes, from Chapter 4 of the Curriculum Review Guide.
4. Curriculum Map, showing the alignment between Program Learning Outcomes and Course Learning Outcomes, for the Self-Study appendix, from Chapter 5 of the Curriculum Review Guide.
5. An assessment of how well the curriculum meets or supports the program's learning outcomes, and recommendations about how to improve the program, from Chapter 5 of the Curriculum Review Guide.



## 2. The Program Overview

Program review begins by describing the program under review, including the rationale for the program, and how that may have changed since the program was established. This provides context for the review of the curriculum.

### Where are our curricula found?

When we say “curriculum” or “curricula” at KPU we are referring to several different documents that are stored in different systems and are approved by different persons or governing bodies. These things, together, constitute KPU’s program of study for your students. Making significant change to different aspects of your curriculum requires support from many different service areas (such as the Office of the Registrar or Student Services) and governing bodies (such as your Faculty Council, or the University Senate) and may even involve the Board of Governors or Provincial Government. The Program Review process is intended, among other things, to help us make the most comprehensive, coordinated and evidence-based recommendations for curricular improvements possible.

That process begins by gathering all the information about the curriculum (or curricula) you currently have. This curriculum is recorded in up to four tiers of documents, as described below.

Full Program Proposals [FPPs]	<p>FPPs are the documents that were written to create the program. While these documents are sometimes decades old they do include our original explanation for the program-level learning outcomes your program was meant to foster.</p> <p>FPPs are stored in the records of the University Board of Governors and Senate, and with the Provincial Government. You can request them from the Senate office by emailing <a href="mailto:Senate@KPU.ca">Senate@KPU.ca</a></p>
The University Calendar	<p>The official and current version of all programs is stored (after being passed by Senate) in the University Calendar at: <a href="https://calendar.kpu.ca">https://calendar.kpu.ca</a></p>
Previous Program Reviews	<p>Program reviews include program-level learning outcomes. If your program has completed a Program Review in the past this is a good starting point.</p> <p>Program review reports are available on the <a href="#">Program Review SharePoint site</a>. If you can’t find them, email <a href="mailto:SSCPR@KPU.ca">SSCPR@KPU.ca</a></p>
Course Outlines	<p>The current and official version of any course is stored in the <a href="#">Course Outline Library</a>.</p> <p>Note, OPA will provide the template for the Curriculum Mapping with the Course Learning Outcomes included, to reduce the workload on faculty conducting the Curriculum Review.</p>

## What is the program being reviewed?

The audience for the Self-Study report will need to understand the purpose of the program and its features. Having this information in one place will also facilitate the curriculum review process described in the succeeding chapters of this guide.

Review the program documents, identified above, for the following information:

- » Overview of the Program(s) under Review:
  - Program type (e.g. graduate, undergraduate, vocational or preparatory)
  - Discipline, and specializations, if applicable
  - Credential(s) offered and minimum credits required for each credential
  - Laddering across credential levels, if applicable
  - When program(s) was established and last major revision
  - Admission requirements and selection methods where applicable
  - Profile of department responsible for delivering the program, in terms of number of faculty (full- and part-time) and other staff involved in delivery.
- » Program Purpose:
  - The current purpose of the program, and if major revisions have occurred, the original rationale for the program and why changes were made and when.
  - External accreditation requirements, such as graduate competencies, if applicable. Include name of accrediting agency.
- » Known Issues to be addressed in the Program Review:
  - There are standard issues that each program review must address. Often there are program-specific issues that should be addressed as well. These issues may have been identified by:
    - Program faculty, graduates or students
    - The accrediting agency
    - Known changes in the discipline
    - Feedback from external stakeholders such as the Program Advisory Committee [PAC]

### REPORTING

In Chapter 1 of the Self-Study Report template, provide the following information for each subheading in the chapter:

#### 1.1. Overview of Program

- Programs Under Review:
  - List the programs under review, including the credential (citation, certificate, etc.) and level (developmental, vocational, undergraduate, graduate).
  - Describe program requirements (in general, list of courses is optional and should be included in the appendix), and include any minors or specializations, where relevant.
  - Also include the year when each program was established, and the date of the most recent revision, if applicable.
  - Describe how credentials ladder from one to the other, where applicable.
  - Describe course transferability where relevant.

- Admission Requirements: Describe the admission requirements for each program under review, and if limited intake, methods for selecting qualified applicants.

#### 1.2. Program Department

- Provide a brief profile of the department delivering the program, in terms of number of faculty (full- and part-time) and other staff involved in delivery.

#### 1.3. Program Purpose

- Describe the current purpose of the program, and if this is a change for the original purpose, explain why.

#### 1.4. Issues for Program Review

- Describe any program-specific issues that will be addressed in the program review, and the rationale for addressing them. For instance, a change in the discipline, or a new accreditation requirement, or a decline in demand for the program.

Together, these provide a profile of the program being reviewed, and program-specific issues that will be addressed in the program review.

### 3. The Educated Person: On what paths are you helping them travel?

The ultimate outcome of any program of study is the growth of a more *educated* person. At some levels, such as the baccalaureate level, this education should be broad and comprised of educational experiences that help a person become more employable, more ready for potential future study and a more rounded person and citizen. At other levels, such as the level of a certificate or diploma, programs are usually narrow in scope and may focus on a particular skillset needed for future employment or civic engagement.

While the kind of education you hope to provide changes over time, having some sense of the ultimate goal of your program will allow you to work backwards to set your program and course-level learning outcomes. What does an educated graduate of your program look like? How are they better prepared for the employment they seek, the future study they hope to pursue, and the enriched civic and personal life they want?

---

*In short, how would you describe graduates from your program?*

---

There isn't a form to encode this question and its complex answers, but considering it with your colleagues will help you to answer all of the many questions that come next.

#### **Pathways to employment**

While access to new forms of employment isn't the *only* reason to obtain a post-secondary education, it is surely *one* of the reasons. Your image of the educated graduate needs to include some basic concepts about the kind of employment they can access after successfully completing your program.

- What kind of occupations are your graduates prepared to pursue?
- How are you preparing your graduates for jobs in this field, future changes in this field, and the job market in general? Your Program Advisory Committee will be helpful in considering this question and, if you don't have one yet, see [Policy AC 1 on PACs](#) about how to set one up.
- Are there professional competencies that your graduates require for entry to the profession? This could include the requirements set by accrediting agencies. If so, describe them here.
- Are your graduates ready to take on entry level positions only, or are you preparing them in the medium or long-term for leadership roles?
- In a competitive employment market, what kinds of experiential education are employers looking for?
- Will your students be well prepared to keep up with the changing knowledge base of their field?

#### **Pathways to future study**

Students will sometimes enroll in a program in order to prepare themselves for another more advanced program, and many former students find – years into their career – that they want to pursue an additional credential out of personal interest, a desire to move up in their industry, or pursue a different career altogether. Part of your vision for an educated graduate should include the new educational opportunities available to that graduate.

- Does, or should, your program ladder into another credential at KPU or elsewhere?
- Does, or should, your program provide prerequisite courses that allow students to apply, on graduation, for a professional program (such as teacher education)?

- To what extent are your courses transferable to other programs at KPU or elsewhere?
- Is your program intended to be, in most cases, the terminal program in a student's educational experience, or do you typically expect them to take another program of study?
- Is a graduate of your program well prepared for study at the next level? Is, for instance, a baccalaureate graduate prepared for graduate school should they choose to pursue it?

## **Pathways to an enriched civic and personal life**

Students who only develop a narrow range of job-specific skills are likely ready for a given job, but they aren't necessarily ready for a lifetime of participation in a changing society, or as members of their communities and families. They may not know how to engage with complex social issues like decolonization, the personal and collective adversity of a pandemic, or the hidden world of data privacy and mass surveillance. Educated people are also ready to exercise more mundane competencies – from understanding the risks of a particular medicine they are prescribed by their doctor to knowing how to read the dense litigious language of a mortgage agreement. In what ways does your program prepare students to exercise these everyday but essential, skills?

- How well does your program curriculum develop skills an educated citizen should have?
- Does your program help students to make more informed decisions in their personal and civic lives?
- Does your program equip students with new, or deepened literacies – be they digital, oral, written, etc.?

### **REPORTING**

Answers to these questions, taken together, provide a profile of a typical graduate of the program and will help inform the development and review of program learning outcomes, in Chapter 4.

This information is reported in Chapter 2 of the Self-Study Report template, in section 2.1, Pathways for Graduates. For that section, produce a short narrative for each of the following pathways:

- Pathways to employment, including professional competencies that graduates acquire, and occupations they are qualified to enter.
- Pathways to further study, describing the most common study options that graduates pursue, and the career options this makes possible.
- Pathways to an enriched civic and personal life, describing the essential skills a graduate of the program would have.

It also provides the basis for developing the Career Pathways Map, discussed next.

## **Career Pathways Map**

A Career Pathways Map is a simple visual representation of the types of careers available to graduates of the program undergoing review. The Map benefits students in numerous ways. Because students often have difficulty aligning what they have learned with employment possibilities, the Map can provide students useful information about post-graduation options they may have never imagined. It may also clarify decision-making processes as students select electives, explore internships and embark on research

projects as part of their employment preparation. The Map also aids prospective students as they choose programs, majors and begin to build towards their future.

The Career Pathways Map can also illuminate possibilities outside the traditional careers associated with the program. For instance, the knowledge and skills that a liberal arts degree bestows upon graduates – the ability to think critically, communicate clearly, write persuasively, conduct data-driven research, and sift through opposing viewpoints – are often sought after by high technology firms (Anders, 2015). A Career Pathways Map can shed light on graduate success stories as well as provide faculty fresh ways of making connections between the curriculum and employment.

The Career Pathways Map can also include post-graduate programs. While these are not technically employment, they may include a vital next step for students and should be considered when assessing how well a program prepares its graduates for life beyond KPU.

The profile of a typical graduate, developed earlier, provides the information needed to develop the Career Pathways Map.

#### **REPORTING**

Produce a visual representative, in graphic or table form, of the Career Pathways Map, for the appendix of the Self-Study Report, including:

- The typical occupations for graduate of the program, and whether this is entry level, or more advanced,
- Possible occupations suitable for someone who has achieved the program learning outcomes.
- Pathways to further study, and potential careers these pathways would lead.

The Map is a communication tool that can help students understand the options available to them after graduating from the program. Examples of Career Pathway Maps are provided in Appendix A.

## 4. The Program Curricula

This chapter describes the process for reviewing your existing curricula and collecting information for the curriculum map, in Chapter 5. This will help focus both your conversations about how well the current program is working as well as develop recommendations on where the curricula need improvement for the Self-Study Report.

### What are learning outcomes?

Learning outcomes are the centre piece of the curricular review process, and come in two forms: program-level learning outcomes [PLOs] and course-level learning outcomes [CLOs].

- PLOs are written in Full Program Proposals, Program Reviews, and, sometimes, in proposals to revise a program. They may be referred to in the description of a program provided in the University Calendar, but this is not usually the case. Program Learning Outcomes are statements that describe the knowledge, skills and attributes possessed by a graduate from a program. Unless required by external accreditors, the number of PLOs is generally less than a dozen.
- CLOs are written in Course Outlines and Course Presentations and, in some cases, are also written into Full Program Proposals. CLOs are the knowledge, skills and attributes possessed by a student who successfully completes a course.

The form that PLOs and CLOs take is diverse, and there are many schools of thought as to how best to understand the outcomes educational systems produce: [competency-based education](#) and [21st Century Skills](#) are both current but non-authoritative examples. These kinds of big questions about how to understand outcomes are left to faculty members to decide within their own programs, subject to the approval of their Faculty Council and (when required) Senate. Senate uses a modernized version of [Blooms Taxonomy](#) but basing your outcomes on it isn't a firm requirement.

For the purposes of getting started, here are some basic best practices:

- Most models refer to outcomes in three categories: knowledge, skills and attributes or attitudes. Graduates should, in other words, know certain things, know how to do others, and possess certain traits or dispositions.
- All KPU outcomes start with the stem "A student who successfully completes the course will have reliably demonstrated the ability to..."
- Write your outcomes with an action verb (see the taxonomy link above for examples) that refers to students and not the instructor.
  - i.e. "...distinguish monetary from fiscal policy proposals."
- Identify observable outcomes or, put differently, things that students can demonstrate to you.
  - i.e. "identify the parts of an appliance" and not "understand an appliance."

### Program-level learning outcomes

Review the curricular documents identified in Chapter 2 and determine whether your program has program-level learning outcomes. PLOs may be in either the original Full Program Proposal for your program or in a previous Program Review. Some programs include PLOs in course revisions, so there is also a chance you might have PLOs in your most recent revision documents.

Program Learning Outcomes should align with the purpose of the program, articulated in Chapter 2, and the profile of a typical graduate of the program, from Chapter 3. If they don't, then changes should be made so they do align, either to the PLOs, or the profile of a typical graduate, or both.

### *If you have program-level learning outcomes*

Although, normally, changes are not made to a program during the program review process, the one exception is Program Learning Outcomes. In order to do the curriculum review, relevant PLOs are required. If you have PLOs already you may wish to review them with your colleagues to determine whether these outcomes represent the *current* goals of your program. The profile of a typical graduate, developed in Chapter 3, can help you consider whether your program needs to reconsider its PLOs.

KPU does not currently have a system for changing your PLOs through Senate, so all you need to do to change your PLOs is to write new PLOs in your Program Review documents. Keep in mind, though, that if the ultimate outcomes of your program change significantly, the Ministry of Advanced Education, Skills and Training may consider this a new program and require that KPU obtain new approval to offer it. For this reason, it is always a good idea to check the original PLOs in your Full Program Proposal. If you are making substantive changes to the PLOs create a recommendation in the Self-Study to determine what approvals, if any, will be required, and address this in the Quality Assurance plan.

### *If you don't have program-level learning outcomes*

If the program doesn't have PLOs you will need to develop them before you can proceed with the next steps in the curriculum review process. You may begin with the profile of the typical graduate, developed in Chapter 3. Review the profile and ask yourself, *which elements of this conception can we support through education?* If you and your colleagues see your graduates as being leaders in ethical business practices, for instance, you might conclude that this is something that can indeed be taught (or at least *nurtured*) in your program. This would form the basis for a PLO on ethical business.

### *Aligning PLOs to the credential*

KPU offers a range of credentials ranging from citations to post-baccalaureate degrees. The level of proficiency students must demonstrate upon successful completion of their program should depend on the type of credential they are receiving. As a general rule, learning outcomes should be "scaled up" as the level of credential increases. Identifying the level of proficiency students are to achieve helps ensure attainable and credential-appropriate CLOs.

To illustrate, for an English program that offers certificates, diplomas and degrees, the learning outcome increases in complexity as the credential level increases:

- Certificate: Identify rhetorical appeals in assigned readings
- Diploma: Apply rhetorical appeals when writing a short persuasive essay
- Degree: Critique a writer's use of rhetorical appeals in long-form essay

### *Aligning PLOs with other Requirements*

If there are accreditation requirements or other external standards that your program must address, you may find it useful to map out how the PLOs align with these standards to ensure there are no gaps. If you have made changes to the existing PLOs, one way to communicate those changes is to map the new PLOs to the old PLOs.



## REPORTING

The PLOs are reported in Chapter 2 of the Self-Study Report template, in section 2.2, Program Learning Outcomes. List each PLO, numbering them for ease of reference. Indicate whether these are new, because none existed before, or modified from the original PLOs.

The PLOs will be needed for Curriculum Mapping, described in Chapter 5. You will have an opportunity to obtain feedback on the PLOs when OPA conducts the surveys of faculty, students, alumni and the Discipline/Sector.

## Essential Skill Development

KPU has 12 essential skills ([Policy AC 9](#)) that each program is expected to address. These are provided in Appendix B, Essential Skill Development. Also included in that appendix are the Ministry-required seven skills. Through the BC Outcomes Survey of graduates, the Ministry uses graduates' assessments of how their education helped them attain these skills as a measure of the quality of education programs in every public post-secondary institution in the province. Each institution is required to achieve at least 85% of graduates reporting that the program helped them attain these skills. The results for your program will be provided in the data collection phase of the Self-Study. Note that all but one of the Ministry skill requirements align with KPU's essential skills.

Each KPU program needs to address all of the essential skills articulated in KPU's eSkills policy, and ensure that the program helps students develop the skills on which the Ministry will assess the quality of our programs. In many cases programs naturally develop these skills – it would be unusual, for instance, to find a baccalaureate program that did not develop a student's written communication. In other cases, outcomes should be added at the course or program level to ensure your students graduate with the full range of skills for which we are responsible. For your convenience, both KPU's eSkills, and the Ministry skill requirements, are listed in Appendix B, as well as how they overlap. There is only one Ministry skill requirement that does not overlap with KPU's eSkills. This should be included in the assessment of how well the program helps students develop these skills.

## REPORTING

The assessment of how well the program addresses the essential skills should be reported in Chapter 2 of the Self-Study Report template, in section 2.3, Essential Skill Development. While doing the assessment, identify recommendations for improvements that may be required to better address the essential skills and clearly articulate these in Section 2.3.

## Course-level learning outcomes

All courses at KPU have course-level learning outcomes, which can be found in their most recent and approved form in the [Course Outline Library](#). These are mandatory and must be taught in all sections of a given course. This is distinct from a course's assessments, for instance, which are included in the approved Course Outlines but which are the subject of flexibility for each course instructor.

Course outlines also contain other information that may help in your program review process such as assessment, course format, learning activities, prerequisites and corequisites, content, learning resources, and so on. These aren't part of your curricular review, but may be useful for review of the instructional delivery, which follows the curriculum review process.

### *Can we change our CLOs?*

Changes to CLOs require approval that is outside the mandate of the SSCPR, so for the curriculum mapping step in Chapter 4, use the current CLOs. The purpose of curricular review is to identify where changes are required, and make recommendations in the Self-Study report. The recommendations should specify what the issue is with regard to CLOs that needs to be addressed, rather than posing the solution. Fixing the learning outcomes comes after the Program Review is finished, although the process could begin before the Program Review is completed, but is not required as part of the review. Information on the curriculum approval process is provided in the Guide to Developing the Quality Assurance Plan.

#### **REPORTING**

OPA will provide an appendix with a full set of CLOs for the program being reviewed. This will be provided as a matrix that will be needed for Curriculum Mapping, described in Chapter 5.

## 5. The Curriculum Map

Curriculum mapping provides a global view of how elements of the program's curriculum relate to the program learning outcomes. The process of mapping the curriculum entails associating CLOs to PLOs. This allows programs to identify curricular gaps, where outcomes are not currently being taught, or are not adequately assessed, and curricular redundancies, where outcomes are taught in multiple courses without a rationale for the overlap.

### Mapping Learning Outcomes

The map is portrayed as a matrix, with PLOs reported across the top of each column, and CLOs for each course in rows. In the matrix, short forms of the learning outcomes can be used, or CLOs numbers. The CLO number is specific for each course to avoid confusing CLOs from different courses. A simple example is portrayed on the following page. Across from the course name is a summary of how the course addresses the PLOs, while the specifics are provided in the rows for each CLO.

This approach produces a large matrix, but conveys a lot of information and makes the process of mapping CLOs to PLOs straightforward by having all the information in one table. It makes it possible understand the logic of the mapping, since each CLOs is listed. It also makes it clear when CLOs don't align with any PLO. Note, the example illustrates that CLO 3100-2 does not map onto any PLO.

Rather than merely indicating alignment with the PLO, this approach can be used to identify the degree to which program level outcomes are addressed by each CLO. Here is a scale that can be used for this purpose,<sup>1</sup> although there are other scales can be used:

*Introduced [I]:* Course learning outcomes that concentrate on knowledge or skills related to the program outcomes at a basic level or skills at an entry-level of complexity.

*Developing [D]:* Course level outcomes that demonstrate learning at an increasing level of proficiency of the program level outcome as well expanding complexity.

*Advanced [A]:* Course level outcomes that demonstrate learning related to the program level outcome with an increasing level of independence, expertise and sophistication or integrate the use of content or skills in multiple levels of complexity.

The example on the following page illustrates the use of the scale. In this example, CLOs are listed by number.

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<sup>1</sup> Source: Adapted from Veltri, Webb, Matveev & Zapatero, 2011.

### Example of Curriculum Map

Program Courses and their CLOs	PROGRAM LEARNING OUTCOMES					
	PLO#1	PLO#2	PLO#3	PLO#4	PLO#5	PLO#6
ABC1100	I	I				I
1100-1	I					
1100-2		I				
1100-3						I
ABC1200	I		I	I		
1200-1			I			
1200-2	I					
1200-3				I		
ABC2100		D	D	D	I	
2100-1			D			
2100-2				D		
2100-3					I	
2100-4		D				
ABC2200	D			D		D
2200-1	D					
2200-2						D
2200-3				D		
ABC3100			D			
3100-1			D			
3100-2						
ABC3200					D	D
3200-1					D	
3200-2						D
ABC4000	A	A	A	A	A	A
4000-1		A				
4000-2			A			
4000-3					A	
4000-4	A					
4000-5				A		
4000-6						A

#### REPORTING

OPA will provide a matrix like this for your program, with all the CLOs listed for each required course. In addition, CLOs for courses for which students must select from among a list are also included.

You will need to add the PLOs to the columns. Then identify which CLOs align with each PLO, and indicate the level of the alignment, with an I, D or A in the corresponding cell. The completed Curriculum Map will be one of the appendices in the Self Study Report.

## The Gap Analysis

Once you have completed the mapping you can begin the analysis to assess how well the curriculum meets or support the PLOs. As you discuss the results of this exercise with your colleagues you will be able to answer some of the big questions your Program Review will pose:

1. Are there PLOs that are overly emphasized in the courses? Is there a need to adapt some courses to reduce this redundancy?
2. Are there PLOs that are not adequately addressed by the CLOs? Are new courses required, or do some courses need to be revised with new CLOs to fully address the PLOs?
3. Are some CLOs only loosely connected to the outcomes of the program? Does that mean that additional PLOs are needed, or that the CLOs are inappropriate?
4. Do our courses provide a progression from more introductory outcomes, in early courses, to more advanced outcomes in final courses?
5. Do our outcomes show that the courses for which we have prerequisite requirements truly need those requirements? Do the prerequisite courses include outcomes that make the higher-level courses more feasible? In other words, are the course outcomes students meet in one course built on in upper level or subsequent courses?

### REPORTING

The results of the gap analysis are reported in Chapter 2 of the Self-Study Report template, in section 2.4, Curriculum Assessment. Cover the following points in the report:

- Program Learning Outcomes:
  - Provide the results of the assessment about whether the PLOs are correct.
  - Describe what PLOs are missing, if any, and why it's needed. Missing PLOs can be added to the Curriculum Map to determine whether they are already being addressed through the existing CLOs.
  - Identify any PLOs that aren't relevant, and explain why.
- Course Mix:
  - Are the PLOs adequately addressed through the courses? If not, what is needed?
  - Are we overemphasizing some PLOs? If yes, which ones?
  - Are we teaching things that aren't relevant to the PLOs? If yes, what is not needed?
  - Do the courses provide a supportive, scaffolded progression towards our vision of an educated graduate? If not, where are improvements needed and why?

This analysis will include recommendations about what issues need to be addressed and why. For instance, some courses may need to be revised. At this point in the process you are identifying redundancies that need to be eliminated and gaps that need to be addressed. The specifics of how to address these issues are not required in the Self-Study Report. The process of determining how to address these issues begins once the program review is over.

## Appendix A: Examples of Career Pathway Maps

### EXAMPLE 1: Policy Studies

#### Policy Studies in Sustainability CAREER PATHWAYS



*EXAMPLE 2: B.Sc. in Health Science*

<b>Sector</b>	<b>Possible Careers</b>	<b>Credential/Skills</b>
Academia Post-Secondary	<ul style="list-style-type: none"> <li>• Professor</li> <li>• Researcher/Research Coordinator</li> <li>• University Administrator</li> <li>• Support Services Coordinator</li> </ul>	MA, MSc, or PhD (Health Related Field)
K-12 Education	<ul style="list-style-type: none"> <li>• Science Teacher</li> <li>• School Administrator</li> <li>• School Counsellor</li> </ul>	BC Teaching Certificate Administration/ Counselling: Graduate Diploma in Education MA or M.Ed
Research and Program Evaluation	<ul style="list-style-type: none"> <li>• Research Associate or Consultant</li> <li>• Research and Community Development Advisor</li> <li>• Program Evaluation Officer</li> <li>• Research Analyst</li> <li>• Census Officer/Statistician</li> </ul>	BA/BSc Some positions MA, MSc or PhD Technical skills
Public Policy	<ul style="list-style-type: none"> <li>• Policy Analyst</li> <li>• Policy Researcher/Writer</li> <li>• Policy Development Coordinator</li> <li>• Policy Research and Communications Associate</li> </ul>	BA/BSc Some positions: MA, MSc, or PhD
Community Services	<ul style="list-style-type: none"> <li>• Community Engagement Coordinator</li> <li>• Community Worker</li> <li>• Outreach Worker</li> </ul>	BA/BSc Senior Positions: MA, MSc, or PhD
Global Health	<ul style="list-style-type: none"> <li>• Development Program Officer</li> <li>• Community Development Project Manager</li> </ul>	BA/BSc Senior Positions: MA, MSc, or PhD
Public Health/ Health Education	<ul style="list-style-type: none"> <li>• Health Educator</li> <li>• Health Promotion Educator</li> </ul>	BA/BSc Senior Positions: MA, MSc, or PhD
Clinical/ Pharmaceutical	<ul style="list-style-type: none"> <li>• Clinical Research Associate</li> <li>• Coordinator, Clinical Research</li> <li>• Pharmaceutical and Health Products Sales Representatives</li> </ul>	Bachelor's degree in life science or related discipline For pharmaceutical sales representative: usually Bachelor's plus sales

### EXAMPLE 3: Fine Arts

Industry or Sector	Possible Careers	Potential Next Steps
Self-Employment	-Professional Artist	Working in a Fine Arts or Craft discipline
Post-secondary Education	<ul style="list-style-type: none"> <li>- Professor, Fine Arts</li> <li>- Professor, Art History</li> <li>- Researcher</li> <li>- Technician</li> <li>- Artist in residence, guest lecturer</li> <li>- Archivist</li> <li>- Librarian</li> </ul>	Entry-level position (for technician), all other potential careers require further graduate training: MFA, MA, and/or PhD depending on the discipline and/or research area
Digital Arts, Interactive Media	<ul style="list-style-type: none"> <li>- Web Design</li> <li>- Game Design</li> <li>- Concept Artist</li> <li>- Digital Photographer</li> </ul>	Entry-level Position, or specialized program
Museum, Gallery, Studio	<ul style="list-style-type: none"> <li>- Curation</li> <li>- Public Programs, Education</li> <li>- Preparator</li> <li>- Artist Assistant</li> <li>- Writing</li> <li>- Exhibit Designer</li> <li>- Photographer</li> </ul>	Entry-level Position, or specialized program
Marketing, Advertising, Publishing	<ul style="list-style-type: none"> <li>- Branding</li> <li>- Graphic Design</li> <li>- Publishing/Layout</li> <li>- Photographer</li> <li>- Writing</li> <li>- Illustration</li> </ul>	Entry-level Position, or specialized program
Architecture	<ul style="list-style-type: none"> <li>- Architect</li> <li>- Landscape Architect</li> <li>- Urban Design</li> <li>- Environmental Design</li> </ul>	Master of Architecture, Master of Landscape Architecture, Master of Urban Design, Master of Environmental Design
Education: K-12	<ul style="list-style-type: none"> <li>- Teaching Assistant</li> <li>- Teacher</li> </ul>	Specialized program, B.Ed., or PDP
Film, TV, Theatre Arts and Stagecraft	<ul style="list-style-type: none"> <li>- Set Design</li> <li>- Prop Design</li> <li>- Production Design</li> <li>- Assistantship</li> <li>- Photographer</li> </ul>	Entry-level position, apprentice/intern, or specialized program
Art Therapy	<ul style="list-style-type: none"> <li>- Art Therapist</li> <li>- Counseling</li> </ul>	Masters, or specialized program



Industry or Sector	Possible Careers	Potential Next Steps
Design	<ul style="list-style-type: none"> <li>- Industrial Design</li> <li>- Product Design</li> <li>- Interior Design</li> <li>- Graphic Design</li> </ul>	Entry-level, or specialized program
Education: Other	<ul style="list-style-type: none"> <li>- Private: Post-Secondary Teaching (e.g. Arts Institute)</li> <li>- Civic: Recreation and Community Arts Teaching</li> <li>- Public Secondary &amp; Post-Secondary: Continuing Education</li> <li>- Independent: Art instruction</li> </ul>	Entry-level position, specialized program, B.Ed., PDP, or Masters
Art Market	<ul style="list-style-type: none"> <li>- Art Advisor</li> <li>- Art Appraiser</li> <li>- Estate Planning</li> </ul>	Entry-level positions with an MA in Art Business or an Art Appraisal License

## Appendix B: Essential Skills

### *KPU's Essential Skills*

KPU Policy AC 9, Essential Skills, states that each program must ensure students have opportunities to learn and demonstrate Essential Skills at a level appropriate for that program.

The term skill is taken to include knowledge, attitudes and abilities. The 12 essential skills are:

*Creative Thinking and Problem Solving Skills:* Recognizes problems and generates new ideas; devises and implements plan of action.

*Oral Skills:* Receives, attends to, interprets, and responds to verbal/non-verbal messages and other cues. Organizes ideas and communicates orally.

*Interpersonal Skills:* Works with others effectively.

*Teamwork and Leadership Skills:* Participates as member of a team. Contributes to the group effort and success.

*Personal Management & Entrepreneurial Skills:* Displays personal ethics, adaptability, sociability, and resource management skills.

*Writing Skills:* Communicates written thoughts, ideas and information in appropriate documents.

*Reading and Information Skills:* Locates, understands and interprets written information in a variety of formats.

*Visual Literacy:* Organizes and processes symbols, pictures, graphs, objects and other information.

*Mathematical Skills:* Performs basic computations. Approaches practical problems by choosing appropriately from a variety of mathematical techniques.

*Technological Skills:* Works with a variety of technologies.

*Intercultural Skills:* Works well with people from diverse backgrounds. Respects individual differences.

*Citizenship and Global Perspective:* Integrates an awareness of how social, organizational, and global issues are interrelated with individual and local concerns.

### *Ministry Essential Skill Requirements*

Through the BC Outcomes Survey of graduates, the Ministry uses graduates' assessment of how their education helped them attain the following 7 skills as a measure of the quality of education programs:

*Oral Communication:* speaking effectively (verbally express opinions or ideas clearly and concisely),

*Written Communication:* writing clearly and concisely,

*Reading and Comprehension:* reading and comprehending material (appropriate to your field),

*Group Collaboration:* working effectively with others,

*Critical Analysis:* analyzing and thinking critically,

*Problem Resolution:* resolving issues or problems, and

*Independent Learning:* learning on your own.

### *Alignment of KPU and Ministry Essential Skill Requirements*

The following table illustrates the alignment between KPU's essential skills and the Ministry's skill requirements. Although there is a high degree of alignment, the Ministry's requirement of Independent Learning does not align with any of KPU's essential skills.

<b>KPU's Essential Skills</b>	<b>Ministry Skill Requirements</b>
Creative Thinking and Problem Solving Skills	Critical Analysis and Problem Resolution
Oral Skills	Oral Communication
Interpersonal Skills	Group Collaboration
Teamwork and Leadership Skills	Group Collaboration
Personal Management & Entrepreneurial Skills	
Writing Skills	Written Communication
Reading and Information Skills	Reading and Comprehension
Visual Literacy	
Mathematical Skills	
Technological Skills	
Intercultural Skills	
Citizenship and Global Perspective	
	Independent Learning



# Program Review Guide #4: Self-Study

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## List of Acronyms

CLO: Course Learning Outcome

KPU: Kwantlen Polytechnic University

PAC: Program Advisory Committee

PLO: Program Learning Outcome

# 1. Introduction

The Self Study consists of a review of the program's curriculum, instructional design and delivery, program relevance, student demand and resources needed to support the program. The process for conducting the Self-Study is covered in two guides: Curriculum Review, and this one, which describes the steps in the Self-Study that follow the Curriculum Review.

The Self Study is the core of the program review process and forms the foundation on which the entire review is based. It includes an analysis of the program's strengths, weaknesses, opportunities and challenges, as well as recommendations that will need to be addressed to improve the program's quality.

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*The Self-Study is the core of program review and provides the focus for the subsequent external review and quality assurance planning phases.*

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The results of the Self-Study review are reported in the Self-Study Report, which contains the following sections and chapters:

- Memo from Dean/Associate Dean
- 1. Overview of the Program(s)
- 2. Curriculum Review
- 3. Program Relevance and Student Demand
- 4. Effectiveness of Instructional Delivery
- 5. Resources, Services and Facilities
- 6. Conclusions and Recommendations
- Appendices

You will have completed the first two chapters of the Self-Study Report while working through *Guide #2: Curriculum Review*. This guide describes the rest of the steps in the Self-Study. It includes information on the sources to use for each part of the Self-Study process, much of which is provided by OPA, including:

- Administrative data such as enrolment trends, grade distributions, and waitlists;
- Graduate outcomes data collected by BC Stats; and
- Data from the surveys administered by OPA: students, alumni, faculty, and discipline/sector.

Guide # 3, Self-Study Data Guide, provides more information about the data and surveys. The data provided by OPA will be formatted as appendices for the Self-Study Report.

The self-study process will help you identify the strengths of the program, as well as areas that need improvement. For the latter, you will need to develop recommendations. Keep the following in mind when crafting each recommendation:

- Recommendations should identify the issues or areas needing improvement that will be addressed in future planning; a solution isn't required in the recommendation.
- The rationale for each recommendation should be clear and based on the evidence in the report. It is important to make sure the link to the evidence is clear.
- It is also important to focus on actions within the control of the program; if action is required from elsewhere in the institution, the recommendation should be about the program seeking the relevant support from the institution.

## Self-Study Report Formatting Guidelines

### **Content:**

- The language in the reports should be professional and respectful in tone. Names of individuals should not appear in the reports.
- Reports, once approved by the SSCPR, become public documents and are published on the KPU website. Please ensure reports undergo careful proofreading for spelling and style.
- Define all acronyms upon their first use and include an alphabetical list of their definitions at the beginning of the report, immediately after the table of contents.
- Kwantlen Polytechnic University can be referred to as “KPU” or in full. Please only use “Kwantlen” when referring to the Kwantlen First Nation.
- All sources for information used in the reports should be referenced with complete citations, using either APA, MLA or Chicago Style Guide. Use the preferred citation style correctly and consistently throughout the report. Each source you cite in the report must appear in your bibliography/reference list; likewise, each entry in the bibliography/reference list must be cited in your text.
- Do not use hyperlinks to refer reviewers to websites for additional information since links can change. All supporting materials should be included in the appendices.

### **Appendices:**

- Appendices provide the necessary data and other supporting information for the report. Because they can be lengthy, they should be combined into one document and be submitted as a separate document.
- The Appendices document should include a table of contents to assist readers in locating appendices.
- Each appendix should be labeled with a letter (A, B, C, etc.) or a number (1, 2, 3, etc.) followed by a descriptive title and be arranged sequentially by the order in which they were first referenced in the report (i.e., Appendix B should not be referenced in the text before Appendix A is referenced).
- The Appendices for the Self-Study reports **must** include the following OPA-provided appendices: Administrative Data Report and Student, Faculty, Alumni, and Discipline/Sector Survey Reports. It should also include the Curriculum Map and Career Pathways Map of the program. Other appendices may be included, as necessary, but do not include an appendix that is not referred to in the Self-Study Report.
- Do not include accreditation reports in their entirety. If the inclusion of accreditation report is necessary, include only the information that is relevant to the Self-Study Report.

### **Length:**

- Typical length for the Self-Study report is between 40 and 70 single-spaced pages.
- Typical length for the Self-Study report appendices is between 120 and 200 single-spaced pages.

A **Microsoft Word** version of both documents is required. Please contact the Quality Assurance team at [sscpr@kpu.ca](mailto:sscpr@kpu.ca) if you have any questions about how to format your report appropriately.



## 2. Program Relevance and Demand

In the Curriculum Review process, you identified the Program Learning Outcomes (PLOs) and how they align with Course Learning Outcomes (CLOs). In this chapter, the focus is on the relevance of the program to the discipline/sector and how it maintains its currency.

### Relevance

*Are the program learning outcomes relevant to the current needs of the discipline/sector?*

Members of the discipline/sector<sup>1</sup> are asked to identify the degree of importance that an entry level employee, or those who plan to pursue further studies in the discipline, can demonstrate each PLO. They are also asked if there are other skills, training or knowledge required and for what emerging trends in the discipline/sector graduates should be prepared.

In their respective surveys, students and alumni are asked their level of agreement that the curriculum is relevant to their career goals. Faculty are asked their level of agreement that the program's curriculum is relevant to the needs of the discipline/sector, the program prepares graduates for a career in the discipline/sector, and the programs prepares students for further education in the field.

Students, alumni and faculty are also asked for their overall satisfaction with the program curriculum, the strengths of the program, and areas for improvement.

Based on this information, determine the relevance of the PLOs, and if necessary develop recommendations to address any shortcomings.

*Does the program have the connections to the discipline/sector needed to remain current?*

How does the program maintain connections with the discipline/sector (including professional organizations, accreditation/licensing bodies, program advisory committee, potential employers, alumni, etc.) in order to meet its needs and expectations? Describe these connections and how they help the program remain current. Does the program have the right connections to remain current? Is it using these connections effectively to remain current? Feedback from the PAC, alumni, and discipline/sector can help address these questions.

Identify, if appropriate, recommendations for improving the program's connections to ensure it remains relevant to the needs of the discipline/sector.

*Does the program include appropriate Indigenous Content?*

As articulated in KPU's Academic Plan, KPU is undertaking an authentic indigenization of our education delivery and content as part of our efforts to increase Indigenous participation at KPU. Describe the extent to which these changes have been applied to your program and assess what more should be done, with appropriate recommendations.

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<sup>1</sup> This usually includes the program's Program Advisory Committee (PAC), as well as other people working in the discipline/sector.

## REPORTING

In Section 3.1, *Relevance*, of Chapter 3 of the Self-Study Report template, provide the following information:

- Assess whether the program learning outcomes are relevant to the needs of the discipline/sector, referencing the relevant data, which should be in the appendix. Note, OPA will provide the data already formatted for the Appendix.
- Assess the effectiveness of the connections to the discipline/sector needed to remain current, referencing the relevant data in the appendix.
- Describe the extent to which program content and delivery has been indigenized, and assess the effectiveness of these changes and whether further changes are needed.
- Identify weaknesses in these areas and provide applicable recommendations for addressing them.

## Faculty Qualifications and Currency

This section focusses primarily on the faculty who deliver the program, but for some programs it may also include instructional staff with specialized roles such as lab instructors. This assessment is not intended to evaluate the performance of individuals, but rather to determine whether collectively the department has the expertise and currency to deliver on the PLOs, and associated CLOs.

*What is the collective expertise available to deliver the program?*

This includes both the qualifications and currency of faculty and other instructional staff, as well as the number available to meet the workload needs of the program. Complete the Qualifications and Currency Profile template with the following information:

- The number of FTEs by role: the number of faculty instructor FTEs and BCGEU instructional staff FTEs, if appropriate.
- Area(s) of Faculty Expertise: Briefly describe the areas of expertise relevant to the program that are held by faculty and the number of FTEs available in each area. Do not name individuals, as this is about the collective expertise of program faculty.
- Faculty Qualifications: Based on the highest credential relevant to the program held by faculty, report the number of faculty FTEs with a doctorate, a masters, etc. as well as other relevant professional certifications. Do not name individuals, as this is about the collective qualifications of program faculty.
- Expertise of Instructional Staff: Briefly describe the areas of expertise relevant to the program that are held by instructional staff and the number of FTEs available in each area. Do not name individuals, as this is about the collective expertise of program instructional staff.
- Recent Professional Development: Provide a brief description of professional development activities attended by faculty, as well as scholarly activity (such as research, presentation, publications) to illustrate how faculty, collectively, remain current in the field.

Include this as an appendix to the Self Study Report.

*Collectively, does the department have the expertise needed to deliver the curriculum?*

Based on the information in the profile, determine whether the collective expertise of the department is able to deliver the curriculum to the standards of the credential level, and those of accreditation or regulatory bodies, where applicable. Are faculty and instructional staff remaining current in the discipline/sector through their research, scholarly and professional development activities? If not, identify the gaps and develop recommendations for addressing them. Consider faculty retirements/attrition, changes in the discipline/sector, and student demand.

**REPORTING**

In Section 3.2, *Faculty Qualifications and Currency*, of Chapter 3 of the Self-Study Report template, provide the following information:

- Provide the required information in the appendix.
- Using the information in the appendix, provide an assessment of the extent to which the department has the expertise needed to deliver the curriculum.
- Include applicable recommendations, taking into account expected faculty retirements, changes in the discipline and student demand.

**Student Demand**

*Who takes the program?*

Using the information provided by OPA, describe the demographics of the students in the program and, where applicable, identify demographic changes or underrepresented demographic groups. Describe students' reasons for taking the program. Identify any issues that should be addressed, such as lack of student diversity, and draw appropriate recommendations.

*Is demand for the program sustainable?*

Programs need healthy enrolments to be sustainable. Some programs have FTE targets set by the Ministry that KPU is expected to meet. All programs need to have sufficient enrolments to be sustainable. Sustainability can mean many things, but at a minimum, it means efficiency of delivery is maximized, taking into account the unique features of the program, such as student safety and pedagogy. A program's importance isn't gaged by the tuition revenue it brings in, as some programs will not be able to cover their costs, but all programs should be delivered efficiently. Part of assessing a program's sustainability is considering if it can be made more efficient without compromising student safety or success. OPA will provide information on the cost structure for your program, showing how tuition compares with instructional costs for the average class in your program. The two biggest factors that drive efficiency are class size (measured in terms of filled seats), and international enrolment.

Sustainability also relates to demand for the program. Assess enrolment trends for the past five years (data provided by OPA), both in terms of headcounts and filled seats. Is demand steady, declining, or increasing? How does demand for upper level courses (3<sup>rd</sup> and 4<sup>th</sup> year) compare to demand for lower level courses, where applicable? Is the overall class size, in terms of filled seats, sustainable? For programs with FTE targets, are the targets being achieved?

To help understand the enrolment trends for your program, OPA will also provide the overall trends for other disciplines in your Faculty, as well as the trends for the discipline across all institutions in BC.<sup>2</sup> How do enrolment trends compare to those for your Faculty, and for the discipline across the province? These comparisons can help identify whether any trend observed for the program is happening across the discipline or is specific to KPU. For instance, if enrolments in the KPU program are declining, but they aren't declining elsewhere, it could be due to lower relevance of the program, poor reputation, admission barriers or other reasons why the KPU program is not competitive. If enrolments for the discipline are declining across BC, there may be structural changes happening in the discipline/sector that the program will need to address.

Draw conclusions about program demand and, where relevant, develop recommendations for addressing issues with demand. Consider the challenges and opportunities for growth for the program based on student demand, comparable programs in the lower mainland, and trends and changes in the discipline/sector.

*Does the program have the capacity to meet demand?*

If demand for the KPU program is growing, it's also useful to know if that is the case across the system. There may be a growth in the discipline/sector, or KPU may have a competitive advantage that is causing the increase in enrolment. Growth in the discipline/sector may indicate that demand will continue to grow. Ability to meet demand is important to access.

Assess waitlist trends for required courses in the program, if applicable (OPA will provide for courses with significant waitlists). Are there waitlists that limit student ability to progress through the program in a timely manner? Are the waitlists for courses delivered by the program, or delivered by other departments (such as ENGL 1100)?

Draw conclusions about program capacity to meet demand and, where relevant, develop recommendations for addressing capacity.

*Does the program have effective outreach to ensure demand?*

The program's connections to the discipline/sector, described above, can also help to promote the program to prospective students. Community outreach practices, and public information on the website and elsewhere, can also help promote the program. Assess the work that the program does to promote the program—beyond the work done by KPU Marketing. Draw conclusions about their effectiveness, and where relevant, develop recommendations for improvement.

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<sup>2</sup> Enrolments across the province will be reported by CIP, Classification of Instructional Program.

## REPORTING

In Section 3.3, *Student Demand*, of Chapter 3 of the Self-Study Report template, provide the following information:

- Describe who takes the program, referencing relevant data in the appendix.
- Assess whether demand for the program is sustainable, referencing relevant data in the appendix.
- Assess whether the program has the capacity to meet demand, referencing relevant data in the appendix.
- Assess the effectiveness of program outreach to ensure demand, referencing relevant data in the appendix.
- Identify weaknesses in these areas and provide applicable recommendations for addressing them.

### 3. Effectiveness of Instructional Delivery

With the curriculum review complete (see Curriculum Review Guide), you can now turn to the assessment of aspects of curriculum delivery.

#### Instructional Design and Delivery of Curriculum

Ideally, each course in the program was designed following the principle of constructive alignment, whereby course learning outcomes align with teaching activities and the methods of assessing student learning. You can find information on constructive alignment in course design [here](#).

Theoretically, it would be possible to review the constructive alignment of each course in the program. Since the same course can be taught by different faculty members, who may have designed the instruction and assessment differently, there may be a number of different ways each course is delivered. To review every instance of how each course is taught would be a massive undertaking and is beyond the scope needed for program review.

The approach taken here is to review instructional design and delivery more holistically, using feedback from students, alumni, faculty, and the discipline/sector, where appropriate, to answer the following questions:

#### *Are appropriate opportunities provided to help students acquire the PLOs?*

In their respective surveys, students, alumni and faculty are asked to what extent the program is helping students develop each of the program learning outcomes. Respondents to the discipline/sector survey who have experience with KPU grads (as interns, Co-ops or new hires) are also asked to provide feedback on how well the program is preparing students to work in their organization.

If the feedback identifies one or more PLOs that are not adequately taught, the curriculum mapping exercise completed for curriculum review can be used to identify the courses that map to those PLO(s). There are a number of possible reasons a PLO is not being taught adequately: there may not be enough courses that address the PLO; the courses that address the PLO may not do so in sufficient depth; or the learning activities in the course(s) may not be sufficiently aligned with the CLOs. These reasons do not need to be identified in the Self Study. At this point you need merely to develop a recommendation that the relevant courses will be reviewed and revised to strengthen their connection with the PLOs to ensure they are appropriately taught.

#### *Are appropriate experiential learning opportunities provided to help student acquire the learning outcomes?*

Experiential learning can result in deeper learning by providing “opportunities for the students to take what they learn in the classroom and apply it in a real world setting where they grapple with real-world problems, discover and test solutions, and interact with others.”<sup>3</sup>

There are a range for experiential and work-integrated learning opportunities provided at KPU, with many terms used to describe them: Co-op, experiential, service learning, work term, work experience, field trip, field school, partnership, collaboration, community engaged, labs, studio, applied research project, directed research, practicum and clinical placement.

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<sup>3</sup> <https://uwaterloo.ca/centre-for-teaching-excellence/support/integrative-learning/experiential-learning>

Describe the experiential learning opportunities provided in this program, both the type of opportunities and their extent. Is there just one course, or many opportunities for students? Programs will vary considerably in this given the nature of the discipline. Consider whether the experiential learning opportunities available to students are sufficient to support the learning outcomes for this program.

Students and alumni are asked about the extent to which the various experiential learning opportunities contributed to their learning. If the findings identify that the program doesn't provide sufficient experiential learning opportunities to help students learn, this can be identified as a weakness and captured with appropriate recommendations.

*Are appropriate opportunities provided to help students acquire the essential skills?*

See the Curriculum Review Guide for a list of the essential skills. Students, alumni and faculty are asked to what extent the program is helping students develop these essential skills. In addition, BC Stats collects feedback from graduates on the development of most of the essential skills. If survey findings identify essential skills that the program is not addressing well, this can be identified as a weakness and captured with appropriate recommendations.

*Does the program design ensure students are prepared for subsequent courses?*

Students, alumni and faculty are asked for their level of agreement that prerequisites prepare students for more advanced courses. If survey findings identify low levels of agreement, this can be identified as a weakness and captured with appropriate recommendations.

*Does instruction meet the needs of diverse learners?*

Students and alumni are asked their level of agreement that instruction accommodates their learning needs, presentation of course materials is effective, and content reflects current developments in the discipline/sector. Faculty are asked their level of agreement that instruction accommodates the multiple learning modalities of students, presentation of course material is effective, and content reflects current developments in the discipline/sector.

Students, alumni and faculty are also asked for their overall satisfaction with the program instruction, its strengths, and areas for improvement. If survey findings identify that instruction is an issue appropriate recommendations to address this weakness should be developed.

*Do the assessment methods allow students to demonstrate to what extent they have achieved the learning outcomes?*

Assessment is the last part of constructive alignment: assessments need to be appropriate to the learning outcomes being assessed.

Faculty are asked about for their level of agreement that the assessment methods support the course learning outcomes, the ranges of assessments that let students demonstrate their learning, the clarity of the information on how students will be assessed and the consistency of assessment standards.

Students and alumni are asked for their level of agreement that the information on how they will be assessed is clear, the range of assessment methods let them demonstrate their learning, assessment standards are consistent and instructor feedback is useful.

Any weaknesses identified through the surveys should be reported, as well as appropriate recommendations.

## REPORTING

In Section 4.1, *Instructional Design and Delivery of Curriculum*, of Chapter 4 of the Self-Study Report template, provide the following information:

- Assess the extent to which appropriate opportunities are provided to help students acquire the PLOs, referencing relevant data in the appendix.
- Assess the extent to which experiential learning opportunities are provided to help students acquire the learning outcomes, referencing relevant data in the appendix.
- Assess the extent to which appropriate opportunities are provided to help students acquire the essential skills, referencing relevant data in the appendix.
- Assess the extent to which the program design ensures students are prepared for subsequent courses, referencing relevant data in the appendix.
- Assess the extent to which instruction meet the needs of diverse learners, referencing relevant data in the appendix.
- Assess the extent to which assessment methods allow students to demonstrate their achievement of the learning outcomes, referencing relevant data in the appendix.
- Identify weaknesses in these areas and provide applicable recommendations for addressing them.

## Student Success

The ultimate indicator of a program's quality is the success of its students. In this section you will assess the program from the perspective of student success, in terms of performance on courses, retention and progression, graduation and beyond.

In addition to survey data from students and alumni, collected by OPA for the program review, OPA will also provide:

- KPU administrative data on grade distributions, DFW rates<sup>4</sup> and repeat rates; and other data on retention and graduation. Comparison data for courses at the same level and Faculty are provided.
- Graduate outcome data, collected through surveys conducted on behalf of BC Stats, that includes employment outcomes (unemployment rate, % working in a job related to their program, usefulness of education to their job) and education outcomes (% who went on to further education), as well as views about the KPU program (satisfaction with the education they received and views on the quality of instruction, and the extent to which it helped them develop the essential skills). Comparison data for similar programs across BC is also provided.

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<sup>4</sup> DFW rate is the percentage of students who either received a grade of D or F, or withdrew from the course.



### *Are students performing satisfactorily in courses?*

Assess whether the grade distribution, DFW rates and repeat rates for courses in the program align with those across the Faculty. If not, identify the differences and determine whether they indicate an issue that needs addressing. Survey data, such as feedback from students and alumni about assessment methods and instruction may provide information to help interpret the grade data. Draw appropriate conclusions, and make recommendations if there are issues that need to be addressed.

### *Are students making satisfactory progress in the program?*

In limited intake programs, the courses students are expected to take each term are prescribed, with the assumption that students will take a full course load each term. For limited intake programs the focus is more on attrition. Review the trends in the number of students who graduate and the median number of years taken to graduate (provided by OPA). Determine whether the program is graduating all students, and if not, how many drop out of the program and why? Determine whether there are any issues that the program should address and, if so, make appropriate recommendations.

For open intake programs, progress will be more variable. Some students will wish to proceed quickly, taking 4 or 5 courses a term, while others may take only 3 or less, either because they need to work, or they want to focus on only a few courses at once. In addition, access to courses may be a challenge, if there are waitlists for required courses, or prerequisite courses. Students and alumni in non-cohort-based programs are asked about availability of courses to complete the program in a timely manner, and specifically about availability of prerequisite courses.

In addition to the survey data, review the trends in the number of students who graduate and the median number of years taken to graduate. Does the time it takes to graduate align with the average for programs with the same credential? Determine whether there are any issues that the program should address and, if so, make appropriate recommendations.

### *Are graduates of the program successful?*

There are two sources of data about the success of graduates, surveys of alumni, and members of the discipline/sector conducted specifically for program review, and the graduate outcomes data collected by BC Stats described above. Determine where program graduates are successful in pursuing employment, and/or further education in the discipline/sector. Are graduates well prepared for entry into positions relevant to the credential awarded, with appropriate skills and abilities? Determine whether there are any issues regarding the success of graduates that the program should address and, if so, make appropriate recommendations.

## REPORTING

In Section 4.2, *Student Success*, of Chapter 4 of the Self-Study Report template, provide the following information:

- Assess the extent to which student performance on courses is satisfactory, referencing relevant data in the appendix.
- Assess the extent to which student are making satisfactory progress in the program, referencing relevant data in the appendix.
- Assess the extent to which graduates in the program are successful, referencing relevant data in the appendix.
- Identify weaknesses in these areas and provide applicable recommendations for addressing them.

## 4. Resources, Services and Facilities

The next step in the Self-Study is an assessment of the resources, facilities and services required by your program.

### *Does the program have the library and learning resources needed to deliver the curriculum?*

This is about having access for students and faculty to the material they need, when it's needed. Students and alumni are asked about their satisfaction with the library resources they have used, including books, periodicals, online journals, audio-visual and computer equipment, and librarian support. They are also asked about satisfaction with availability of relevant text books at the KPU bookstore. Faculty are asked how well these resources meet the program's needs.

Using this feedback, identify any shortcomings in type or amount of materials needed to meet the needs of the program. If these needs are not well met, provide appropriate recommendations for addressing the shortcomings.

### *Does the program have the specialized technology/equipment needed to deliver the curriculum?*

This will not be applicable to all programs. Some programs require specialized software or equipment to help students achieve the learning outcomes. If this applies to your program, describe the specialized software and/or equipment requirements. OPA will customized the survey questions to be relevant to the technology and equipment requirements of the program so you can assess how well these requirements are met, using feedback from students, alumni and faculty. If these needs are not well met, provide appropriate recommendations for addressing the shortcomings.

### *Does the program have the facilities needed to deliver the curriculum?*

All programs that deliver on campus will need sufficient access to space to be able to deliver the capacity needed to address the demand for the program. In addition, specialized technology needs are often associated with special facility requirements to house the technology, and provide students with access to it. Describe the special facility requirements for the program. OPA will customize the survey questions to be relevant to the technology and equipment requirements of the program so you can assess how well these requirements are met, using feedback from students, alumni and faculty. Identify if there are issues with capacity due to space limitations. If facility needs are not well met, provide appropriate recommendations for addressing the shortcomings.

### *Does the program have the other support services needed to deliver the curriculum?*

Students are asked about their satisfaction with the services they have used, including academic advising, the learning centre and career services. Faculty are asked how well these services meet the program's needs. Using this feedback, identify any shortcomings in how well these services meet the needs of the program. If these needs are not well met, provide appropriate recommendations for addressing the shortcomings.

## REPORTING

In Chapter 5, *Resources, Services and Facilities*, of the Self-Study Report template, provide the following information:

- Assess the extent to which the program has the library and learning resources needed to deliver the curriculum, referencing relevant data in the appendix.
- If applicable, assess the extent to which the program has the specialized technology and equipment need to deliver the curriculum, referencing relevant data in the appendix.
- If applicable, assess the extent to which the program has the facilities needed to deliver the curriculum, referencing relevant data in the appendix.
- Assess the extent to which the program has the other support services needed to deliver the curriculum, referencing relevant data in the appendix.
- Identify weaknesses in these areas and provide applicable recommendations for addressing them.

## 5. Conclusions and Recommendations

The final step in the Self Study is to summarize the program's strengths, weaknesses, opportunities and challenges, based on the findings reported throughout the Self-Study Report.

Then list all the recommendations made in the previous chapters here, for ease of reference. This information is helpful for the Dean and other readers, and will help you when it comes time to develop the Quality Assurance Plan.

Organize the recommendations under the following subheadings:

- Curriculum Review
- Program Relevance and Student Demand
- Effectiveness of Instructional Delivery
- Resources, Services, and Facilities

## 6. Dean's Response to Self-Study Report

Before you can submit the Self-Study report to the Senate Standing Committee on Program Review (SSCPR), the Dean or Associate Dean (at the Dean's discretion) will review the draft Self-Study Report, particularly the conclusions and recommendations, and provide feedback and advice in the form of a memo. This memo will be included at the beginning of the Self-Study Report, before the table of contents. The memo may include suggestions from the Deans for changes to recommendations, or may identify issues that need to be addressed in the Self Study.

The Dean can be a champion for changes the program wishes to make so it's important to consider their advice. When reviewing the Self-Study Report, the SSCPR may direct the program to address the Dean's feedback, so the program may wish to make those changes before submitting the report.

## 7. Appendices

The Appendices should contain all the supporting data and information cited in the Self-Study Report.

### REQUIRED:

- Career Pathways Map
- Curriculum Map
- Administrative Data Report
- Student Survey Tabular Results and Comments
- Faculty Survey Tabular Results and Comments
- Alumni Survey Results and Comments
- Discipline/sector Survey Tabular Results and Comments
- Faculty Profiles

All appendices should be referenced in the report. Only include information in the Appendices that is needed to help the reviewers understand the program and the issues being addressed.

Do not add information from the Calendar, as the appendix is already long. If the program has an external accreditation process, you may wish to add some selected information from it, but don't include the entire document, due to length issue.

Faculty	Program	Self-Study				External Review			QA Plan		Annual Follow-up			Progress Update The table includes only the reviews in progress.
		Planning Began	Data Collection Concluded	Report Due	Report Approved	Site Visit Deadline	Date of Site Visit	Report Received	QA Plan Due	QA Plan Approved	Report Due	1st Report Approved	2nd Report Approved	
ACP	English Upgrading	Dec-18 re-start: Sep-21	Admin Data: Feb-19											The review will start in September 2021. Timeline is on the agenda for the September meeting.
Arts	Anthropology	Sep-18	Admin Data: Feb-19 Survey Data: Feb-19	Sep-20	Apr-21	Nov-20			Jun-21		Jun-22			External review site visit to take place on October 18 & 19, 2021.
Arts	Criminology	Jan-19	Admin Data: Feb-19 Rev. Admin Data: Feb-20 Survey Data: May-20	Dec-20		Feb-21			Jun-21		Jun-22			Self-study report was due in December 2020.
Arts	Creative Writing	Mar-21		May-22		Jul-22			Oct-22		Nov-23			The program is conducting the curriculum review.
Arts	Education Assistant	Sep-19	Admin Data: Oct-19 Survey Data: June-20	Feb-21	May-21	Mar-21			Sep-22		Sep-22			External review site visit to take place in October 2021.
Arts	Minor in Counselling	Feb-18	Admin Data: April-18 Survey Data: April-18	x	Apr-19	x	Oct-19	Jan-20	Sep-20	Oct-20	Sep-21			Annual follow-up is due in <b>October 2021</b> .
Arts	English	May-20	Admin Data: Jan-21 Survey Data: April-21	Sep-21		Nov-21			Apr-22		Apr-23			Self-study report is due in September 2021.
Arts	History	Dec-18	Admin Data: Feb-19 Survey Data: March-20	Aug-20	Feb-21	Oct-20	June 17/18	Jul-21	May-21		May-22			External Review Report is in.
Arts	Philosophy	Sep-17	Admin Data: Sep-18 Survey Data: Dec-17 (Discipline Survey: Mar-18)	x	Apr-19	x	Jul-19	Jul-19	Jan-20	Apr-21	Jan-21			Annual follow-up is due in <b>April 2022</b> .
Arts	Political Science	Dec-19	Admin Data: Dec-19 Survey Data: June-20	Jan-21		Mar-21			Sep-21		Sep-22			
Arts	Psychology	Dec-16	Admin Data: Oct-17 Survey Data: Apr/Jun-17	x	Apr-18	x	Jun-18	Jul-18	x	May-20	May-21	May-21		SSCPR asked program to report on their progress one more time in <b>May 2022</b> .
Arts	Sociology	Sep-15	Admin Data: Nov-17 Survey Data: May-16	x	Dec-17	x	Apr-18	May-18	x	Oct-18	Oct-19	Apr-20	May-21	SSCPR asked program to report on their progress a third time in <b>May 2022</b> .
Business	Accounting	Nov-17	Admin Data: Jun-18 Survey Data: Jan-18	x	Sep-18	x	Jan-19	Feb-19	x	Feb-20	Feb-21	Feb-21		SSCPR asked program to report on their progress one more time in <b>February 2022</b> .
Business	Computer Science and Information Technology	Apr-19	Admin Data: May-19 Survey Data: Jan-20	Aug-20	Nov-20	Nov-20	Mar 1/2-21	Mar-21	Aug-21		Aug-22			Quality assurance plan is due in <b>September 2021</b> .
Business	Business Management	Sep-15	Admin Data: Jun-18 Survey Data: Mar-18	x	Jun-18	x	Jul-18	Jul-18	x	Mar-20	Mar-21			Annual follow-up is expected in <b>September 2021</b> .
Business	Entrepreneurial Leadership	Jun-16	Admin Data: Aug-16 Survey Data: Apr/Aug-17	x	Apr-18	x	Jul-18	Sep-18	x	May-19	May-20	Oct-20		SSCPR asked program to report on their progress one more time in <b>October 2021</b> .
Business	Human Resource Management	May-14	Admin Data: Sept-16 Survey Data: Mar-17	x	Jun-17	x	Nov-18	Dec-18	x	Sep-19	Sep-20	Oct-20		SSCPR asked program to report on their progress one more time in <b>October 2021</b> .
Design	Fashion Marketing Diploma	Oct-17	Admin Data: Sept-18 Survey Data: Dec-17	x	Oct-18	x	Feb-19	Mar-19	x	Sep-19	Sep-20	Sep-20		SSCPR asked program to report on their progress one more time in <b>September 2021</b> .
Design	Fashion Design & Technology	Sep-20	Admin Data: Feb-21 Survey Data: Mar-21	Jun-21		Oct-21	Sep 28 & 29		Jun-22		Jun-23			External review site visit will take place on September 28 & 29, 2021.
Design	Foundation in Design Certificate	Oct-17 re-start: Oct-19	Admin Data: Aug-17 Survey Data: Nov-17 (Student Data: Feb-18) Revised Admin Data: Oct-19 Survey Data: Aug-20	Sep-20	Apr-21	Oct-20	June 29/30	Jul-21	May-21		May-22			External review report is in.
Design	Graphic Design for Marketing	Oct-17	Admin Data: Oct-18 Survey Data: Mar-18	x	Dec-18	x	Mar-19	Apr-19	x	Oct-19	Oct-20			SSCPR asked program to report on their progress one more time in <b>October 2021</b> .
Design	Interior Design	Sep-18	Admin Data: Nov-18 Admin Data: Sep-19 Survey Data: Nov-18	x	Jan-20	Jan-20	Jun-20	Aug-20	Jun-20	Feb-21	Jun-21			Annual follow-up is due in <b>February 2022</b> .



Faculty	Program	Self-Study				External Review			QA Plan		Annual Follow-up			Progress Update The table includes only the reviews in progress.
		Planning Began	Data Collection Concluded	Report Due	Report Approved	Site Visit Deadline	Date of Site Visit	Report Received	QA Plan Due	QA Plan Approved	Report Due	1st Report Approved	2nd Report Approved	
Design	Product Design	Feb-19	Admin Data: Feb-19 Survey Data: Oct-19	Feb-20	Jun-20	Apr-20	Feb 24/25-21	Apr-21	Oct-20		Oct-21			Quality Assurance Plan is due in <b>October 2021</b> .
Design	Technical Apparel Design	Jun-18	Admin Data: Dec-18 Admin Data: Oct-19 Survey Data: Dec-18	x	Jan-20	Sep-20	Sep-20	Oct-20	Jun-21	Jan-21	Jun-22			Annual follow-up is due in <b>January 2022</b> .
Health	Bachelor of Psychiatric Nursing	Sep-18	Admin Data: Feb-19 Survey Data: Feb-19	x	Oct-20	x	Feb-20	Mar-20	Aug-20	Nov-20	Aug-21			Annual follow-up is due in <b>November 2021</b> .
Health	BSN - New BSN - Revised	Sep-16	Admin Data: Jan-18 Survey Data: Faculty: Jan-17 Discipline: Feb-17 Student + Alumni: Sep-17	x	Feb-18	x	Mar-18	May-18	x	Feb-20 Dec-18	Feb-21 Dec-19	Feb 21 Feb 20		SSCPR asked New BSN program to report on their progress one more time in <b>February 2022</b> . Note that the Revised BSN review has been completed.
Health	Health Care Assistant Certificate	May-19	Admin Data: Jun-19 Survey Data: Sep-19	x	Jan-20	Sep-20	Dec 9/10-20	Feb-21	Jun-21	Jun-21	Jun-22			First annual follow-up report is due in June 2022.
Health	Health Unit Coordinator Certificate	Jan-18	Admin Data: Jun-18 Survey Data: Discipline + Alumni: Mar-18 Student + Faculty: Aug-18	x	Dec-18	x	Jun-19	Jul-19	x		x			All intakes are suspended. The review is on hold until the future of the program is determined.
Science	Biology	Oct-19	Admin Data: Nov-19	Oct-21		Jan-22			Sep-22		Sep-23			Self-study report is due in <b>October 2021</b> .
Science	Brewing and Brewery Operations	Jan-21		May-22		Sep-22			Feb-23		Feb-24			PR Kick-off meeting took place in January 2021. Program review will start in the fall.
Science	Health Science	Sep-18	Admin Data: Nov-18 Survey Data: Nov-18	x	Mar-19	x	May-19	Jul-19	x	Jan-20	Jan-21	Jan-21		SSCPR asked program to report on their progress one more time in <b>January 2022</b> .
Science	Bachelor of Horticulture Science	Jan-18	Admin Data: Jun-18 Survey Data: Apr/Jun-18	x	Mar-19	x	Apr-19	May-19	Aug-19	Apr-21	Aug-20			Annual follow-up is due in <b>April 2022</b> .
Science	Horticulture Technology Diploma	Dec-20												PR Kick-off meeting took place in December 2020. The review will start in the fall. Timeline will be on the agenda for the October meeting.
Science	Mathematics	May-19	Admin Data: Jul-19 Survey Data: Faculty: Jul-19 Alumni: Sep-19 Discipline/Sector: Sep-19	Sep-19	Oct-20	Nov-19	Mar 10/11-21	Apr-21	May-20		May-21			QA Plan is due in <b>October 2021</b> .
Science	Physics for Modern Technology	Jan-21		Jan-22		Mar-22			Sep-22		Oct-23			The program is conducting the curriculum review.
Science	Sustainable Agriculture	Oct-19	Admin Data: Nov-19 Revised Admin Data: Feb-21 Survey Data: Student: Aug-20 Faculty & Alumni: Jan-21 Discipline/sector: Feb-21	Aug-20		Oct-20 or Nov-20			May-21		May-22			Self-study report is in.
Science	Turf Management Diploma	May-19	Admin Data: May-19 Survey Data: Sep-19	Oct-19		Jan-20			Sep-20		Sep-21			Turf Management will be reviewed as part of Horticulture Technology program review.