Sustainability Projects Fund

FINAL REPORT

PROJECT TITLE: SP0249 Season Extension Technology to Meet the Need for Local Food

Please answer the following questions and return the completed form to the SPF Staff via e-mail.

Final Report prepared by Mike Bleho
Email
Actual Project Start Date 2021-07-31 Actual Project End Date 2021-12-15

Questions

1. Please summarize the project and its key accomplishments to date. In your answer, consider the impact your project has had so far on McGill's campus(es).
   Unlimited characters, suggested minimum ½ page or ~250 words.

The Season-extension technology to meet the need for local food SPF 0249 project consisted of Installing a field high tunnel and a greenhouse to extend the production season of pesticide-free crops for the McGill feeding McGill project. At the time of application we had no idea the extent to which the University and the world would be impacted by the covid 19 virus pandemic.
After the project's acceptance we started to encounter the challenges that come with trying to put in place and build two sizable structures during a pandemic. Delays in receiving and sourcing materials along with starting construction during one of the hottest seasons on record added to the challenges. Despite all this and thanks to a very dynamic and hardworking crew of student workers, we started construction of the field tunnel on June 15th- 2020.
We benefited from the expertise provided by the greenhouse tech installer from Harnois industries (the manufacturer of the tunnel) who was able to guide our student staff who provided the muscle to put the structure in place.
Most notably one of our crew, Guillaume Cere (U2 Engineering) took a leadership role in the construction of the tunnel and greenhouse and not only was involved in every aspect of the construction but also in the planning, tracking and sourcing of all materials needed to complete the structures. The bulk of the tunnel construction was completed by the first week of July.

We had started the tomato transplants in late May and were able to transplant the 1000 new tomato plants into the tunnel on July 1st after most of the construction was complete. The production of tomatoes in tunnels is labor intensive, as plants have to be suckered, and tied on a weekly basis as they grow. Harvests of these tomatoes started in early September and continued to the frosts around November 1st.

Construction of the greenhouse started almost immediately after the tunnel was complete with a major levelling and renovation of the land on which the greenhouse would sit. A cement slab had to be constructed and loads of gravel spread and levelled to complete the base of the greenhouse. As was the case in the tunnel construction, we encountered a lot of rock that had to be excavated by machine before we could put in our posts to support the new greenhouse. Construction started on August 18th and was mostly done by the time school started in the first week of September. The finishing work was ongoing up to late October as we decided to install polycarbonate sheeting in the front and back of the structure instead of the regular plastic that was originally furnished. Power and water lines were dug in mid-October and their hookup to the greenhouse took place in spring (2021) once the snow melted.
In preparation for winter, we had to remove and wrap the plastic from the tunnel (this is re installed every year) and make sure that greenhouse was secured to withstand the weather.
In the spring of 2021, we succesfully applied for funds from the SPF (SPF0270) to install furnaces in the new greenhouse so that we could start growing cropŝ as early as April (original instal date). Again we encountered covid related delays in delivery of furnaces and materials which pushed the instalation date to June 1st. At that time of year we no longer needed the heat to produce crops and the University was out for the summer break so we missed our production opportunity.
With the University coming back to in person classes this fall and the expectation of nearly full residences and dining halls, our intentions are to use the greenhouse to produce vegetables for the McGill feeding McGill project as planned until early December 2021.

The new tunnel was put into tomato production in early June and will be the main supply of tomatoes going to our dining halls this fall (2021).
I am proud to say that we were able to put in place the 2 season extension structures as described in our SPF 0249 application.

2. Please describe the key successes and challenges of your project. Include a minimum of two examples for each.
Unlimited characters, suggested minimum ½ page or ~250 words.

2020 turned out to be a very challenging year because of the pandemic that essentially shut down many of the operations on the Macdonald and downtown campuses including the residences and dining halls that utilize the crops we produce.

Challenges encountered in 2020:
Delays in receiving the tunnel and greenhouse structures (1 month delay late May- June 2020)
Delays in receiving furnaces for greenhouse (initially planned for early April pushed to early June)
Difficulties in sourcing any extra materials, lumber, polycarbonate, screws, hardware for tunnels and greenhouse construction (multiple shopping sites for basic materials)
Difficulties in hiring students to work at farm (and consequently on projects) due to the fact that they weren't on Campus (some staffing shortages meant those remaining had to work harder and longer)
Implementing covid related safety protocols added to the time it took to finish the construction (social distancing and masking)
Hottest summer on record at the farm (Temperatures exceeding 35C on many consecutive days when we were building the tunnel and one of the driest until early August)

Key successes:
construction of a 200 foot tunnel and a 102 foot greenhouse.
Tomato production (a little late) in 2020 and ongoing now in 2021 (estimated at roughly 4000Kg of round and cherry type tomatoes per year)
Greenhouse production in fall 2021 (Lebanese cucumbers production)
Expected teaching opportunities in fall 2021 (Fmt production classes to resume in fall, crop production classes to be in person at farm in fall)

3. What key points of advice or lessons learned would you give to other SPF teams either regarding your experience managing your project or the project itself?
Unlimited characters, suggested minimum ½ page or ~250 words.

For any big wave projects, proper planning, budgeting and sourcing materials is essential. We encountered many delays and difficulties in finding materials due to covid but because our planning was good we had very few cost overuns.
Working out the timeline and trying to stick with it
Getting partners who have a different skill set than yours but complement what you are trying to achieve is very helpful.
We are very lucky to be able to work with an experienced administrator (Nancy Lavigne) who navigates all the financial accountability side of things for us, see if there is a possibility to have an Administrative assistant as a team partner.
Keep good records of all financial transactions.

4. How has your project helped to grow a culture of sustainability at McGill? You may consider social, economic, and/or environmental sustainability in your answer.
   Unlimited characters, suggested minimum ½ page or ~250 words.

Sp0249 is about using season extension technology (such as a heated greenhouse and high tunnel) to grow food for the McGill feeding McGill project. This project is about supplying locally grown fruits and vegetables from the Macdonald Campus farms to McGill's downtown residences and cafeterias.
We use all McGill resources to produce this food, our staff, our students, our machinery and all grown on the Campus farms to feed our students living in residence and eating in our dining halls. We have significantly reduced the distance that McGill's cafeterias food travels from farm to plate and are giving our student workers invaluable hands on training in food production and paying them for their hard work. The farm is an outdoor classroom for many students and professors from different departments at the Macdonald Campus from Horticulture, Plant Science, Engineering and Food Sciences. The farm is showing our students, staff and local community where our food comes from.

5. What recommendations do you have for the future of this project and are there any opportunities for complementary projects? Who will take responsibility for the project's future and how can interested persons be in touch? The SPF team may be in touch for updates on the project's progress in coming years, if ongoing.
   Unlimited characters, suggested minimum 1 paragraph.

My recommendation for the future of this project is to continue to put in place the initial goal that is to grow food for the McGill feeding McGill project. By doing so the Hort Center will be able to continue to provide excellent quality, locally produced, low impact food to our students and staff that eat in our various dining halls and come to the Mac Market.
The future management of the project will be in the hands of Laura Caralampides (Hort farm manager in 2022) and interested persons can contact her at laura.caralampides@mcgill.ca
There are many opportunities for complementary projects since we are only producing a small quantity of the food that McGill needs to feed it's population of students and staff.

6. Would you or your project team member(s) be willing to serve as a mentor to SPF project teams? Please choose one. If yes, SPF Staff will contact you with more information. ☒ Yes ☐ No

7. In your application, you listed the following additional sources of funding:

Mac Farm Budgets - $21,700; FMT Budgets - $1,500

Please confirm if you received this funding in the space below and list the actual amount (in dollars) that you received.

The Mac farm budget was an in kind amount for my time, Nancy Lavigne's administrative time and all the infrastructure (machinery etc..) that we provided to put the project in place. Nancy and I both put in more time than originally thought on the projects implementation. The FMT amount was for small tools for the greenhouse and these items were purchased and paid for by them.

8. How did you document your project, and did you include the SPF logo on any project materials (e.g. posters, promotional materials, social media posts, webpages, decals, etc.)? Please briefly describe in the field below.

The project was documented in photographs and video which were all sent to the SPF staff, the spf logo was included in our video, we still have the intention of putting up a plaque with the SPF logo on the front of our new greenhouse.

9. Did you purchase equipment or make an installation on campus? ☒ Yes ☐ No
   If yes, please briefly describe how these items will be maintained and used in the future.

The maintenance of both the high tunnel and the new greenhouse will be the responsibility of the Macdonald Campus farm from here on in. Their use will be for teaching, some research, to help support some student groups when we can and mostly to grow food for the McGill feeding McGill project.

10. The following Key Success Indicators were indicated in your project application and selected for tracking. Please indicate the actual results that you have achieved in the "Actual" column.

Selected Key Success Indicators	Target	Actual
Pesticide usage	0	**0**
Out-of-season deliverables	3000kg	**3000 kg**
Quantities produced and delivered to SHHS partners	3000kg	**3000 kg**
Numbers of students, classes and visitors	100-200 students	
Numbers of researchers and projects	2-5	

If there is a significant difference in the target numbers and the actual numbers achieved, please explain. If you have any additional information to share about these success indicators, please also include it below.

We were able to achieve the production targets we had set but because of covid restrictions, there was not nearly the anticipated student, research and project numbers we anticipated, this will improve once the pandemic is over.

11. Please report on your progress with the Standard SPF Key Success Indicators in the "Actual" column.

Standard SPF Key Success Indicators	Actual
# of people hired using SPF funding for the project	
# of volunteers directly or indirectly engaged in the project	
# of people (student, staff, or other) trained in the context of the project	22
$ raised for project activities subsequent to SPF funding	0
# of tons of GHG emissions reduced by your project	tbd
# of partnerships or collaborations developed between the project team and other McGill administrative units, student groups, community groups, other universities, and/or other groups/organizations	5

Please list the groups and/or organizations that you counted in the last Key Success Indicator. *Point form acceptable.*

McGill's FMT dept and students, Mseg, student housing and hospitality, Dana foods, Concordia University,

If you have any additional information to share about the Standard SPF Key Success Indicators, please include it below.

12. Please indicate the McGill stakeholder groups that were involved with your project as a team member or collaborator/partner. Select all that apply.

☒ Undergraduate ☐ Postgraduate ☒ Administrative Staff ☒ Academic Staff ☐ Alumni

13. Please rate your project team's overall satisfaction with the support provided by the **SPF Staff**.

☐ Very Dissatisfied ☐ Dissatisfied ☐ Neither Satisfied Nor Dissatisfied ☐ Satisfied ☒ Very Satisfied

Please provide any feedback or recommendations regarding your team's experience with the SPF Staff.

The SPF staff is always available to guide us through the application process (not easy) and always ready to answer any questions regarding feedback, budgets, report writing etc.. very helpful.

14. Please rate your project team's overall satisfaction of your experience with the **SPF**.

☐ Very Dissatisfied ☐ Dissatisfied ☐ Neither Satisfied Nor Dissatisfied ☐ Satisfied ☒ Very Satisfied

Please provide any feedback or recommendations regarding your team's experience with the SPF.

15. If there is additional information you would like to share about your project, please use the field below.
Unlimited characters.

16. Has your involvement in this SPF project positively impacted your team in the area of **professional growth**?

☒ Yes ☐ No ☐ Prefer Not to Share

If you would like to elaborate, please use the field below.

17. Has your involvement in this SPF project positively impacted your team in the area of **personal growth**?

☐ Yes ☐ No ☒ Prefer Not to Share

If you would like to elaborate, please use the field below.

18. Which of the following skills or attributes has your team improved through involvement in your SPF project? Select all that apply.

☒ Budgeting
☒ Communications
☐ Conflict Resolution
☒ Leadership
☐ Listening
☒ Mentoring
☐ Negotiating
☐ Networking
☒ Planning
☒ Problem Solving
☒ Project Management
☐ Public Speaking
☐ Stakeholder Engagement
☐ Stakeholder Identification
☒ Systems Thinking
☒ Teamwork
☐ Technology
☒ Time Management
☒ Writing
☐ Other *(Please specify in the field below)*

Other:

19. Since starting your SPF project, has your team improved its **knowledge of sustainability**?

☒ Yes ☐ No ☐ Prefer Not to Share

If you would like to elaborate, please use the field below.

20. (Optional) If applicable, please list the total number of team members voluntarily self-identifying as members of marginalized communities. Total number: _____

(Optional) Please identify the represented communities below.

THANK YOU FOR COMPLETING YOUR FINAL REPORT!

Please e-mail your report to the SPF Staff attaching any additional information that you would like to share (e.g. other reports, research, documents, photos, etc.). Please note that this Final Report will be shared publicly on your SPF Project Webpage.