

PROJECT TITLE: SP0248 Phase 2: Dairy Cow Pasture

Please answer the following questions and return the completed form to the [SPF Staff](#) via e-mail.

Final Report prepared by Paul Meldrum

E-mail paul.meldrum@mcgill.ca

Actual Project Start Date 2020-05-04 Actual Project End Date 2020-11-11

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 approximately 250 words)

In Phase 2 of the Dairy Cow Pasture project, there were a number of goals: 1) to implement a portable irrigation system that could move through the pastures to provide water to continue the growth of pasture grass through periods of dry weather, especially in the pastures with shallow soils; 2) to plant trees along fields to trap snow to improve snow cover and reduce winter kill and provide shade as well as habitat for wildlife; 3) to plant shrubs and grass buffer zones along drainage ditches to prevent erosion while complying with provincial regulations and MAPAQ guidelines, and provide habitat for wildlife; and 4) to demonstrate best management practices and the value of farming in harmony with the environment to students and visitors (general public and ag community). We have accomplished the first three goals, and now look forward to achieving goal #4 in the coming years as students and visitors return to the Macdonald Campus once we have moved past the Covid-19 pandemic. The impact on the Macdonald Campus has been immediate, with the tree belts and ditch enhancements and improvements very visible from both northern entry roads to the campus, the irrigation system for the trees and shrubs keeping them alive, and the irrigation system for the pastures allowing us to continue grazing during a hot, dry summer.

2. Please describe the key successes and challenges of your project. (Minimum of two examples for each)

(Unlimited characters, suggested minimum ½ page or approximately 250 words)

The key successes are the planting of more than 1,200 trees and shrubs along the edges of fields and ditches in a highly visible area between Autoroutes 20 and 40, the implementation of drip irrigation on timers to provide the proper amount of water to ensure good establishment of the trees and shrubs (something that will remain in place for 5 years), the installation of grass buffer zones along the ditches to prevent erosion, and the installation of a portable irrigation system for the dairy pastures (also on a timer). Both irrigation systems proved to be critical to the success of the project early on as we experienced a very hot and dry spring and summer - without the irrigation systems, we would have lost most of the trees and shrubs, and we would not have had any grass in the pastures after the first week of June. Instead, the trees and shrubs are thriving, and we had lush growth in the pastures all summer long and well into the fall. We also partnered with volunteers from the McGill Bird Observatory (MBO) to build and install 25 bird houses amongst the trees and on fence posts. The biggest challenges were the hot dry weather and the overabundance of rocks where we had to plant the trees, shrubs and grass. The hot weather was taxing on the workers, who toiled in the sun preparing the ground, laying the mulch, planting the trees, picking stones, and then weed-whacking around the trees and shrubs so they would not be choked out. We also had to use a trenching machine through very rocky soil to bury the supply lines for the irrigation system, and then cover the lines (minus the rocks!). The rocks were a challenge that could not be overcome with manual labour, no matter how deep the resolve, so we had to bring in a contractor with a rock-grinding machine to pulverize the rocks and work up the soil. This still left us with many smaller rocks to pick, some of which was one by hand and some with a tractor and rock fork attachment on the loader.

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 approximately 250 words)

For other SPF teams, we would advise and encourage them to not give up when faced with tough weather conditions and unforeseen challenges. Be adaptable, seek out advice from those with experience and be open to methods and technologies you might not have originally considered. Be open to other opportunities within your project that you might not have seen when first designing the project (eg. we saw the opportunity to install bird houses and were able to engage community volunteers who will monitor these bird houses).

4. What recommendations do you have for the future of this project to be continued 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 will also be in touch with this contact for updates on the project's progress in coming years, if ongoing.
(Unlimited characters, suggested minimum 1 paragraph)

For the next 4 years, the success of the tree and shrub plantings will depend on Farm staff monitoring the trees and shrubs for pests and disease, replacing trees/shrubs as needed, ensuring the proper operation of the irrigation system, including evacuating the water line before winter, and mowing the grass buffer zones and controlling weeds. This has been planned for, with one person to be designated each year for this purpose. The success of the pasture program will require monitoring the grass growth, the need for irrigation and the maintenance of fences and water lines for years to come. This has been assigned to the Farm technician responsible for feeding the dairy herd; he has been involved in the project this year and knows how the systems work, and will be mentored by the Farm Manager, who has been involved in both pasture projects and has a lifetime of experience pasturing dairy cattle through intensive rotational grazing. The Farm Manager is responsible for the future of the project in conjunction with Farm staff. Interested persons should contact the Farm Office at 514-398-7701. As the years progress and people retire, it will be the responsibility of those taking over to continue with the project. In the succession planning, those leaving will apprise the incoming people of the details of the project, and the procedures and resources required to ensure that things continue to run smoothly.

5. 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.
(800 characters maximum)

Yes No

Yes, I would be willing to serve as a mentor to SPF project teams, as I have done in the past.

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

MAPAQ - \$4,000

Please confirm if you received this funding in the space below. In your response, please list the actual amount (in dollars) that you received. Note: If you received funding from a McGill Department or Unit, please attach a letter from its Financial/Budget Officer confirming the actual amount of support.

(1,800 characters maximum)

We actually received more than the original estimate. The MAPAQ funding we received was \$14,116

7. 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.
(1,800 characters maximum)

We purchased a portable pasture irrigation system and installed water lines underground to feed the system. We purchased irrigation pipe and drip nozzles to irrigate trees and shrubs, and installed water lines both above and underground. We purchased a rock rake attachment for a loader tractor. The portable pasture irrigation system will

be maintained and managed by the Farm employee who is responsible for feeding the dairy herd. The irrigation system for the trees and shrubs will be maintained by the above Farm employee, and managed in season by a summer student for the next 4 years, under the supervision of the Farm Manager. The rock rake has become the responsibility of the Chief Agronomy Technician in charge of field operations.

8. 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
Trees planted	1200	1261
Ability to continue rotational grazing during dry weather	100%	100%
Decrease in winter kill alfalfa fields	20%	TBD

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.

(1,800 characters maximum)

While agro-forestry professionals report a decrease in winter kill of 20%, we will not be able to measure the effects of the tree shelter belts until the trees are large enough to trap snow.

9. Please report on your progress with the standard SPF Key Success Indicators in the “Actual” column.

Standard SPF Key Success Indicators	Actual
# of volunteers directly or indirectly engaged in the project	3
# of people (student, staff, or other) trained in the context of the project	7
\$ raised for project activities subsequent to SPF funding	\$14,116
# of tons of GHG emissions reduced by your project	567 tonnes
# 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.	2

Regarding the last Key Success Indicator, please list the groups and/or organizations that you counted.

(Unlimited characters; point form acceptable.)

MAPAQ; McGill Bird Observatory

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

(1,800 characters maximum)

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

Undergraduate Postgraduate Administrative Staff Academic Staff Alumni

11. Please rate your project team’s overall satisfaction with the support provided by the SPF Staff. Choose only one response.

Very Dissatisfied Dissatisfied Neither Satisfied Nor Dissatisfied Satisfied Very Satisfied

12. Please provide any feedback or recommendations regarding your team's experience with the SPF
(Unlimited characters, suggested minimum 1 paragraph)

The SPF team members were extremely helpful in the preparation of the SPF application, and very supportive through the process of adapting to the challenges. Their positive manner always sets a good tone and is very encouraging.

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

14. Has involvement in this SPF project positively impacted your team in the area of professional growth? Please choose one. If you would like to elaborate, please use the field below.
(800 characters maximum)

Yes No Prefer Not to Share

The team learned about effective irrigation techniques that use water efficiently, about managing young trees, how to manage time and prioritize tasks. Underpinning all of this is the approach that the job must be done well in order to be successful.

15. Has involvement in this SPF project positively impacted your team in the area of personal growth? Please choose one. If you would like to elaborate, please use the field below.
(800 characters maximum)

Yes No Prefer Not to Share

See #14 & #16

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

- | | | |
|---|---|---|
| <input type="checkbox"/> Budgeting | <input type="checkbox"/> Networking | <input type="checkbox"/> Systems Thinking |
| <input type="checkbox"/> Communications | <input checked="" type="checkbox"/> Planning | <input checked="" type="checkbox"/> Teamwork |
| <input checked="" type="checkbox"/> Conflict Resolution | <input checked="" type="checkbox"/> Problem Solving | <input checked="" type="checkbox"/> Technology |
| <input checked="" type="checkbox"/> Leadership | <input type="checkbox"/> Project Management | <input checked="" type="checkbox"/> Time Management |
| <input checked="" type="checkbox"/> Listening | <input type="checkbox"/> Public Speaking | <input type="checkbox"/> Writing |
| <input checked="" type="checkbox"/> Mentoring | <input type="checkbox"/> Stakeholder Engagement | <input type="checkbox"/> Other (Please specify in |
| <input type="checkbox"/> Negotiating | <input type="checkbox"/> Stakeholder Identification | the field below) |

Other:

17. Since starting your SPF project, has your team improved its knowledge of sustainability? Please choose one. If you would like to elaborate, please use the field below.
(800 characters maximum)

X Yes No Prefer Not to Share

I believe the team learned that sustainable practices don't have to be grandiose to have an impact; that something as simple as planting a few trees and moving farm fields back from waterways can have huge and lasting effects on improving the environment and creating a more sustainable agriculture. I also believe that the team learned that sustainability encompasses fiscal responsibility - that money has to be spent wisely in order for a project to be sustainable.

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

Please identify the represented communities below. (e.g. women, Indigenous people, people of colour, LGBTTTQI, student parents, members of ethnic minorities, immigrants, people with disabilities)
(1,800 characters maximum)

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 about your project (e.g. other reports, research, documents, photos, etc.). Please note that this Final Report will be shared publicly on your SPF project's webpage.