

THE RESILIENCE OF FARMERS IN QUÉBEC IN THE FIGHT AGAINST CLIMATE CHANGE AND COVID-19

Presenter

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Description

Climate change has already started affecting farming in Québec. Warmer temperatures have permitted agricultural activities to start earlier in the spring and end later in the fall. In the winter, the snow coverage has diminished, and farmers have less continuous days of extreme cold which, unfortunately, increases the winter survival of certain crop-damaging insects and diminishes the protective effect of thick snow on our fields. Winters are getting shorter. Farmers also experience more frequent extreme weather conditions such as heavy precipitations and seasonal droughts. Moreover, farmers have to cope with new insects and weeds that have migrated from the south because they can now survive with this climate.

Many Québec's farmers depend greatly on seasonal foreign workers for tilling the soil, sowing the seeds, weeding and harvesting. The COVID-19 pandemic greatly threatened the number of available seasonal workers but the union representation (UPA) has negotiated quickly with the government in order to open the borders to seasonal workers. When workers arrived, they had to isolate for two weeks before actually starting to work. Many farms also had to adapt workers' housing units in order to respect the COVID-19 restrictions, often requiring additional housing be made available.

Quebec has an environmental legislation regarding farming. Producers must respect rules with regards to manure spreading to limit the amount that could leach into the groundwater. Agronomists have to calculate the amount of manure that can be spread on a certain surface to protect the ecosystem while still providing the nutrients that the crop can absorb. Farmers are also encouraged to plant trees between their fields to form wind breaking hedges. These hedges limit wind erosion by diminishing the wind's speed, they reduce pesticide drift, and in the winter, they also help to keep the snow on the ground longer. Farmers also have to respect riparian strips. These strips are a minimum distance of 10 to 15 meters that the farmer has to respect if the crop is next to a lake or river. It's a wooded zone where it is not possible to apply any pesticides and it serves as a buffer zone between the farming activities and the aquatic environment.

Quebec has a lot of dairy farmers. The cows' nutrition is composed mainly of corn silage and alfalfa, either in silage or in hay. The alfalfa fields are normally sown once every 4 years. The crop is mowed 3 times a year (during the production season) and the harvest is dried or silage to last all year. There is normally enough snow in the winter to isolate the crop, thus it survives and grow back the following year. This is good for the environment because it is low maintenance and alfalfa fixes a lot of nitrogen in the soil.

As discussed while describing climate change effects, shorter and warmer winters decrease the survival rate of this crop.

Some farmers use cover crops in the fall, after they have harvested the main crop. A cover crop is a crop that grows quickly, to cover and protect the soil from the wind and increase biomass. It is destroyed in the spring before sowing the crop.

Healthwise, the pandemic is an added stress for the farmers because if they get sick, they don't necessarily have employees or family members that can take over for them.

In Quebec, the pandemic has mainly affected the meat processing chain because the volume of slaughters had to be diminished in



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order for the workers to respect the distancing measures. Slaughter and meat processing are managed by a few companies and one of them had a COVID-19 outbreak and had to close for a few weeks. The impact on the farmers was important. Many of the pig farmers had to keep their animals a lot longer than expected and the situation is still not fully resorbed even though the slaughterhouse has been reopened for many weeks.



Most of the restaurants and hotels are closed or have very little clients. This has impacted the dairy industry because 30% of the milk products (fresh milk, yogurt, cheese) is destined to that market. Fortunately, the supply management has allowed the farmers to reduce their production rather quickly. Restaurants and hotels closings have also impacted niche product markets as veal, boar, rabbit and deer.

On a positive note, when it comes to food, COVID-19 has had an encouraging impact on a lot of local businesses thank to the increase in local purchases. The citizens want to encourage local growers, thus many of the smaller farmers have seen an increase in their revenue this year.

Results

During this pandemic, Québec's government and citizens have seen the importance of growing food locally. New programs have been announced to help local farms adapt to the environmental and animal welfare standards.

Farmers throughout the Québec province organized a virtual seminar on climate changes impacts on farming during the year 2020. The seminar was held in each region: some farmers talked about the impacts they are already seeing and prepare for what is coming next. In the case of dairy farmers, the challenges raised were about the increase of the temperature in the barn and at pasture. It has been recommended investing in good ventilation equipment in the barn and plant trees around it to prevent the sun rays from entering. For the pasture, the farmers will have to provide shade for the cows and more fresh water.

Climate smartness

The various practices promoted in the project significantly contribute to the three pillars of CSA (Climate-Smart Agriculture), since they are focused on both climate mitigation and adaptation, and increase productivity of crops. The project includes practices assessed in the global evaluation of Climate-Smart Agriculture carried out by Sova et al., 2018.

It is worth noting that practices such as the use of organic fertilizers based on soil analysis and the use of plant covers with nitrogen-fixing species are especially related to mitigation, which is understood as the reduction of greenhouse gas emissions. Likewise, sowing of living barriers with hedges can be considered to be a practice that contributes to mitigation, due to trees potential for carbon sequestration, thus helping to reduce greenhouse gases in the atmosphere.

On the other hand, practices focused on the use and conservation of water sources increase the adaptive capacity of productive systems. Practices such as covering the soil and planting hedges to retain humidity are also important for adaptation purposes.

It is recommended for the optimal implementation of climate-smart agriculture to strengthen the flow of climate information³ to the producers, as well as empowerment regarding that information. The participatory spaces mentioned in the project, where farmers join training sessions, could be useful to build capacity on climate information used and its link with crop management and development.

³ It is advisable to use climate information from official institutions. However, in case this information cannot be accessed, it is possible to use global secondary information such as CHIRPS (<https://climateserv.servirglobal.net/>). To transfer agroclimatic information, it is advisable to create spaces such as the Local Technical Agroclimatic Committees (LTACs) (<https://www.sciencedirect.com/science/article/pii/S2212096316300298>) and use methodologies such as PICSAs (<https://climateserv.servirglobal.net/>).