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Canadian Agriculture and Risk Management Programs in the Context of the COVID-19 Crisis: A Brief Assessment

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Canadian Agriculture and Risk Management Programs in the Context of the COVID-19 Crisis: A Brief Assessment

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Abstract/Résumé

In the wake of the announcement of numerous federal ad hoc programs to stimulate the economy in response to the COVID-19 crisis, it is worth discussing how the suite of business risk management tools that are part of the *Canadian Agricultural Partnership* is likely to respond to the negative impacts of the pandemic on Canadian agriculture. We argue for a short term bonification of AgriInvest and AgriStability to face the challenges ahead and to minimize the inefficiencies associated with ad hoc programs. More broadly, our arguments to use a risk management tool for a black swan event instead of ad hoc programs is likely to fuel the debate between risk management and income support.

Keywords/Mots-clés: COVID-19, Business Risk Management, Agricultural Sector, Canada

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1. Introduction

Emerging infectious diseases such as Ebola, influenza, severe acute respiratory syndrome (SARS), Middle East respiratory syndrome coronavirus (MERS), and most recently, COVID-19 cause large-scale mortality and morbidity, disrupt trade, food marketing segments, travel networks, and stimulate civil unrest (Pike, 2014). When local emergence leads to regional outbreaks or global pandemics, the economic impacts can be devastating as we are seeing in the course of the COVID-19. Authors show that the SARS outbreak in 2003, the H1N1 pandemic in 2009, and the west African Ebola outbreak in 2013-2016 each caused more than US \$10 billion in economic damages (Di Marco *et al.*, 2020). The current outbreak of a COVID-19 is keeping the world on its toes and is causing considerable economic and social impacts, with restrictions on international travel enforced by several countries, the quarantining of millions of people across the world, dramatic drops in tourism, and disruption of supply chains for agri-food, medicines, and manufactured products. The current crisis increases policy interest in the interactions between agri-food markets and human health, such as food supply chain and food insecurity.

In the wake of this coronavirus crisis, Canadians are somehow grateful that while large segments of the economy in North America and in the world is still on pause, their agri-food sector is running. However, as the crisis is likely to persist for months and as seasonal agriculture is about to start a new cycle in large segments of North America, numerous agricultural sectors in Canada are likely to face tremendous challenges. There is therefore concern regarding the economic impact that this pandemic might have on agricultural sectors in Canada.

A key issue is the ability of the business risk management tools implemented in Canada agricultural sector to mitigate the negative impact of the ongoing COVID-19 crisis. In 2017, the Canadian federal, provincial, and territorial government (referred as the government) unveiled a new 5-year agricultural policy framework. This framework, termed the Canadian Agricultural Partnership (CAP), runs from 2018 to 2023. As part of the CAP, Canada has developed a suite of business risk management (BRM) programs. Although BRM programs have been developed to cover standard risk, one wonders if they can appropriately handle a black swan type of events such as the current COVID-19

international crisis. Taleb (2010) refers to a black swan as an event with the following three characteristics. Firstly, it is an outlier, as it lies outside the realm of regular expectations, because nothing in the past can convincingly point to its possibility. Secondly, it carries an extreme impact. Thirdly, in spite of its outlier status, human nature makes us concoct explanations for its occurrence after the fact, making it explainable and predictable. To summarize, a black swan is a rare event that has considerable and exceptional consequences when it materialized (Aven, 2013).

The objective of this paper is to discuss the ability of the Canadian BRM suite to respond in the context of the COVID-19 crisis. To this effect, the next section will broadly assess the situation and potential risk of sectors of the Canadian agriculture with the information in hand at the time of writing this paper. Follows a description and brief review of strength and weaknesses associated to the BRM tools. Finally, a discussion-regarding the structure of the BRM tools and their efficacy in a time of crisis will take place, before concluding.

2. Current situation and potential risk, by sector

Given that we are at the beginning of the impact of the confinement and of other measures of mitigation of the COVID-19 pandemic, it is difficult to assess how the various sectors of the Canadian agriculture will be affected.

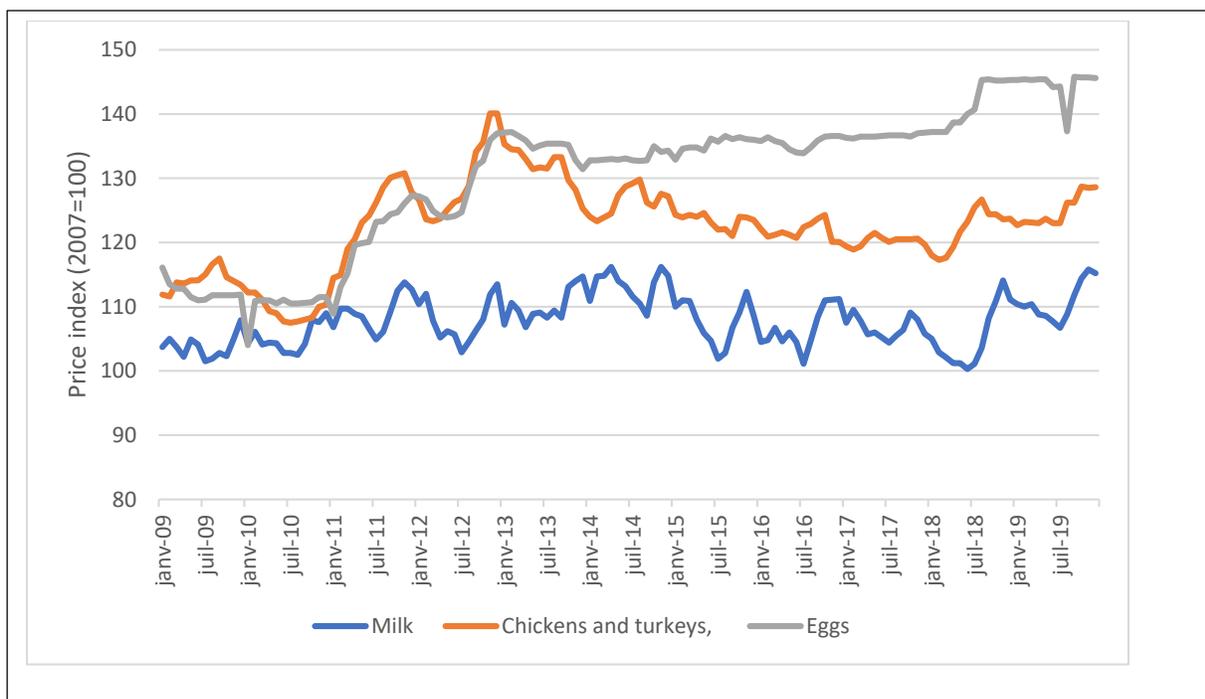
2.1. Supply managed-dairy-eggs-poultry

In Canada, the production of milk, eggs, chicken and turkey is governed by a supply management system. The objective of this regulatory mechanism is to ensure a balance between domestic supply and demand by regulating the targeted agricultural production. The system is based on three main components: supply regulation by means of production quotas, which makes it possible to meet the needs of the Canadian market, determining the prices to be paid to producers, which allows to cover their production costs, as well as import controls. Supply management is not exempt of critics (Desrochers *et al.*, 2018; Doyon, 2011) but it has also been praised for its price stability (Figure 1) and the wealth it creates for actors in the value chain (Larue and Lambert, 2012).

As for other sectors, the shock created by the rapid closure of most restaurants and hotels as reduced the demand for dairy and poultry products, as well as for eggs. This has resulted

in an increased in stocks of poultry products and eggs, and the unfortunate dumping of milk. Once this initial shock passed, demand will readjust and given their focus on the domestic market, supply managed productions will be able to adjust rapidly supply to demand through production quota cuts or increases. Thus, given their price stability, their ability to adjust to demand and the financial capability of the sectors to adapt, we expect supply managed productions to fare better than other animal protein sectors through the COVID-19 crisis. Of course, has for all sectors, problem can occur if a large portion of workers can get sick at the same time or get scared and refuse to carry on important activities. Truckers refusing to deliver food to supermarkets in New York City neighborhoods with a strong prevalence of COVID-19 is an illustration (Bloomberg, 2020)¹.

Figure 1. Trends in farm prices for milk, chicken and eggs in Canada, 2009-2019



Source: Statistics Canada, 2020

¹ <https://www.supplychainbrain.com/articles/10416-as-retail-sales-improved-inventories-rose-less-in-february-than-expected>

2.2. Livestock sector

The cattle and calves sector was at the time of the crisis in the lower part of its price cycle after seeing record high prices in 2015 (Figure 2). Still, one might expect more difficult days ahead for beef consumption and thereof for farm price. Demand will likely be negatively affected by the worldwide recession that will result from the current events, as consumers substitute beef for cheaper animal proteins. Moreover, potential trade restrictions would have a devastating effect on farm prices, as exemplified by the mad cow crisis that hit Canada in 2003.

Farm prices for hogs in Canada were relatively good at the time of the crisis (Figure 2). However, the Canadian hog sector is largely dependent of exports, Canada is the fifth-largest world exporter², and is therefore at risk of being displaced by competitors on export markets if lower demand was to create a situation of world surplus. While the United States remains Canada's top destination, total exports of pork to China has almost quadrupled in quantity since 2011³. On the other hand, the progression of African swine fever is likely to keep downward pressure on supply in Asian countries. China, the largest hog producer in the world, is now the second-largest pork importer (Worldstoexports.com, 2020⁴) as well as the country the most affected by the African swine fever. Thus, past the initial negative shock due to the cut in demand of the service sector, the hog sector might be able to limit the damages due to the COVID-19 crisis.

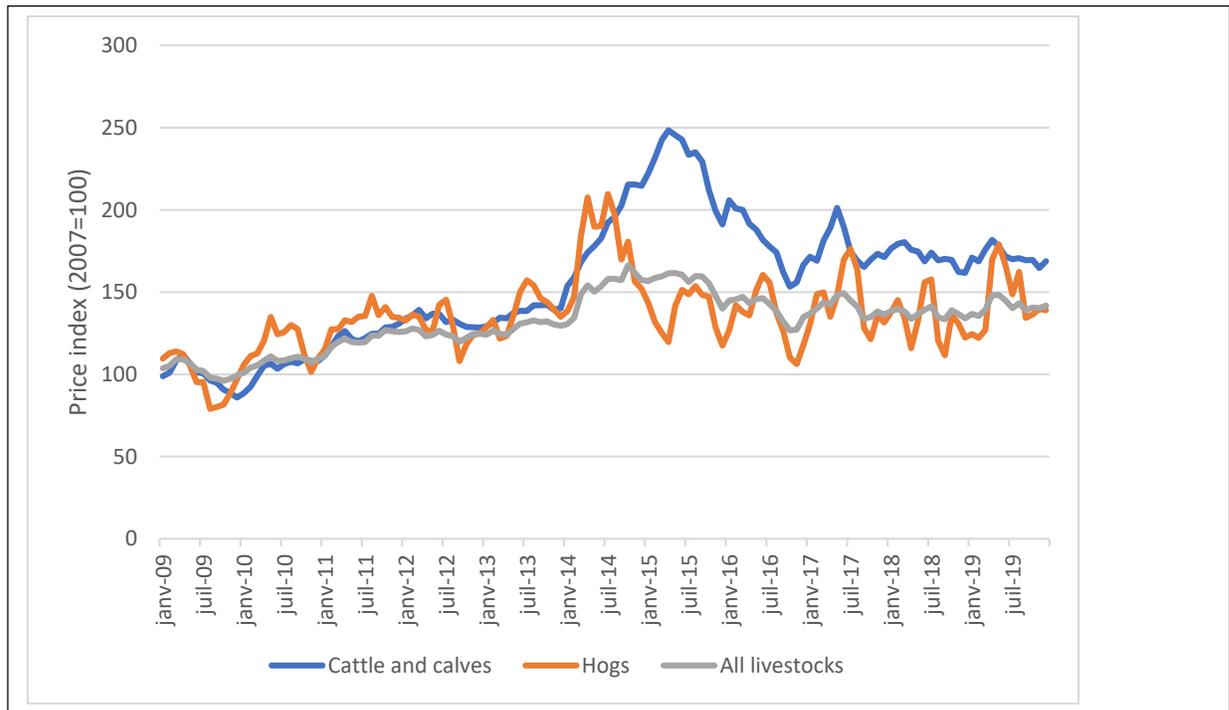
In summary, the Canadian cattle and hog sectors have high probability to be negatively affected, especially if trade restrictions were to be put into place because of COVID-19. If trade flows are kept intact and slaughterhouses do not face labor problems, the beef sector is still likely to face a lower demand while the hog sector might see the negative impacts diminished by the ongoing African swine fever and substitution.

² Worldtopexports.com, 2020

³ <http://www.canadapork.com/en/industry-information/hog-production-in-canada>

⁴ <http://www.worldstoexports.com/>

Figure 2. Trends in farm prices for livestock in Canada, 2009-2019



Source: Statistics Canada, 2020

2.3. Cash crop

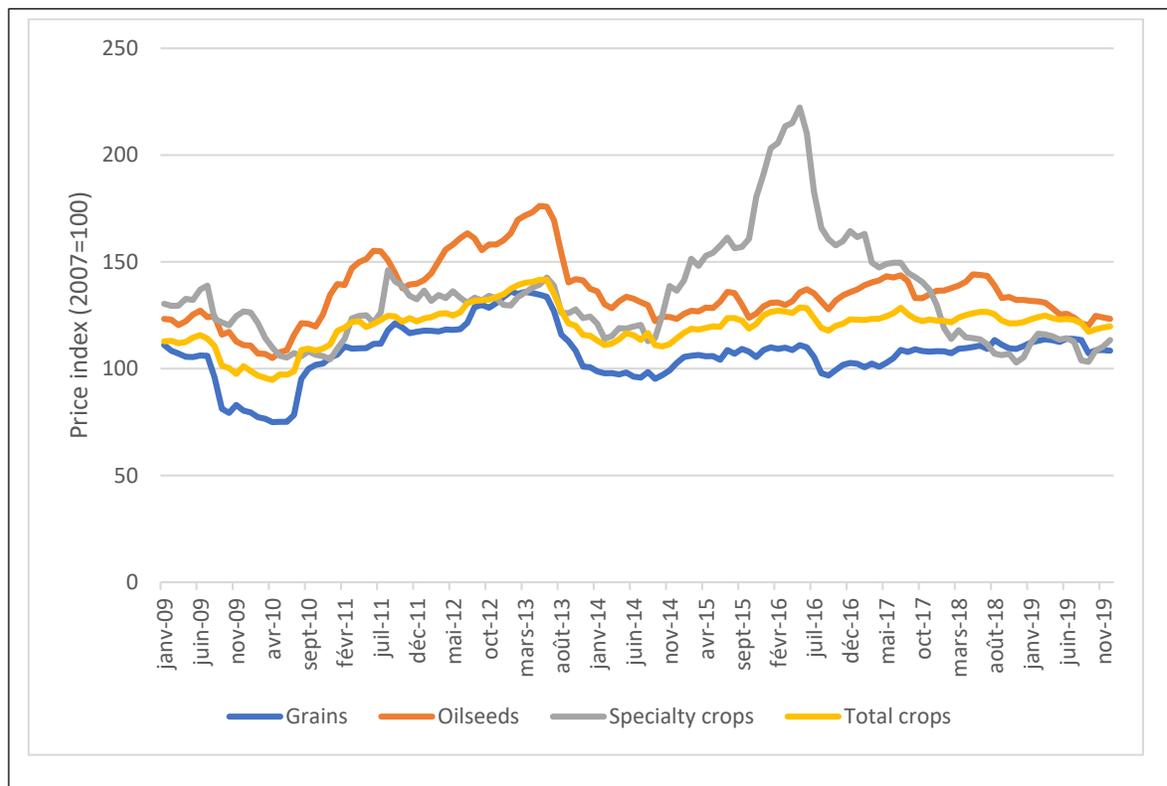
Canada represents roughly 8% of international exports for grain and oilseed. Major exports are oat (59% of world exports), canola (47% of world exports), wheat (11% of world exports) and lentils (64% of world exports) (Statistics Canada, 2020). Soybean (3% of world exports) and corn are the two most important cash crops in Canada, although Canada's corn is mostly used domestically. Figure 3 shows that prices for cash crops are in the low range of the last three years.

Given that corn and soybeans are mostly used for animal feed, their future will rely on how COVID-19 will affect the world's consumption of animal proteins. Two effects can be expected from a global recession: 1- a reduction of animal protein consumption, especially in developing countries, 2- substitution from animal proteins produced with low conversion rates (beef) to protein produced with higher conversion rates (chicken, eggs). Both movements reduce the demand for corn and soybean, impacting price negatively.

China is by far the largest importer of soybeans while Canada is the third-largest exporter (Worldstoexports.com, 2020). Given that the Chinese economy was slowing down before the COVID-19 crisis, one can expect more difficult days ahead as major Chinese export markets such as the U.S. and Europe have halted major segments of their economy to contain the pandemic.

As for wheat, oat and other grains for human consumption, a surge in demand in the early stage of COVID-19 due to consumers' stocking of staple food products has had a positive impact on the market. However, in the longer run demand is also likely to be negatively impacted by a global recession. The uncertainty generated by COVID-19 is likely to generate higher price volatility for cash crops until consumption patterns become clearer.

Figure 3. Trends in farm prices for grains, oilseeds and specialty crops in Canada, 2009-2019



Source: Statistics Canada, 2020

2.4. Horticulture, Fruits and Vegetables

Ornamental horticulture is directly hit by the COVID-19 crisis as it is a non-essential service and horticulture centers are therefore closed while their high season is starting. Various provincial governments in Canada have recently announced a longer period of confinement, reducing the hope of salvaging this spring season for horticulture centers.

Fruits and vegetables producers face the uncertainties related to the recruitment of foreign workers while a ban on travel is effective. If, as expected, an exception is made, the question of who will bear the cost of the worker while in quarantine remains. At the moment of writing this paper, there was no clear direction from governments on the issue, while decisions to plant are being made. This will create significant volatility to an already volatile market. For instance, before the pandemic, the price of tomatoes in the U.S. could be multiplied or divided by four within a few weeks⁵.

As the demand for fruits and vegetables was strong and prices were good just before the crisis (Statistic Canada, 2020), one can expect that a reduced supply will have difficulties to meet the demand and that as a result price will increase. There are already speculations that supply from California will be reduced and that the Americans might limit exports to Canada. The recent decision of the U.S. to bar exports of some medical supply to Canada exacerbates this type of speculation and create further uncertainty on the market.

It is therefore difficult to assess how the fruits and vegetables sector will fare in the crisis. If the government facilitates the availability of foreign workers, that are essential to the sector, chances of a successful season are increased. If so, it is possible that higher price will be sufficient to cover the extra costs that confinement measures will impose. At this time, the option of an ad hoc program to pay for foreign workers quarantine is not excluded.

2.5. Specialty meats, short circuit and agritourism sectors

A significant number of farmers have successfully developed businesses with value added products such as specialty meats (milk lamb, rabbit, deer bison) that are sold to specialty stores, to restaurants and directly to consumers. Similarly, direct sales of weekly basket of

⁵ <http://economagic.com/em-cgi/data.exe/blsap/apu0000712311>

organic fruits and vegetables have multiplied lately, as well as sales of fine cheese or of other high-value-added products processed at the farm and associated with agritouristic activities were booming in numerous regions of the country (Agriculture Census, 2016).

Confinement, the temporary or permanent closure of restaurants and lower income are already causing serious hardship to these farms. Traditional seasonal agritouristic activities such as sugar shacks and consumer picking of fruits (strawberries, raspberries and apples) are also seriously affected. While some are redeploying their activities online and are successfully offering delivery directly to the consumers, expanding their revenues. For many this possibility does not exist because of the nature of their product (agritourism), their localization (delivery costs would be too important) or their access to technology (no access to fast speed internet). As the pandemic expands in time, the demand for high-value-added foods might also diminish. According to Azima and Mundler (2020), 80% of Canadian farms that relies heavily on direct sales have net income of less than \$40,000, making them vulnerable to external shocks such as COVID-19. In addition, the severity of the negative impact of the post outbreak of COVID-19 on agritourism industry will depend on the public perception of the risk factors presented as demonstrated by Grand (2016) in forecasting the potential impact that viral outbreaks might have on the United States tourism industry. The author uses Convention and Visitor Bureau data and applies an autoregressive model to calculate the potential decrease in the number of yearly visitors as the degree of impact that a viral outbreak could have on the tourism industry in one or more than ten major U.S. cities within two weeks of its initial exposures. Grand (2016) finds a range of 14.4% to 15.9% of predicted percentage decrease in visitors. These predictions did not, however, envision a global pandemic as large as Covid-19 and might therefore underestimate the current crisis impacts.

3. Brief overview of business risk management program in Canada

The 2018-2023 *Canadian Agricultural Partnership* provides a range of tools to support agricultural producers through access to a suite of BRM programs to help manage significant risks that threaten the viability of their farm and are beyond their capacity to

manage⁶. Producer paid top-ups program can be separated in three categories namely, margin insurance, revenue insurance and price insurance. Each program operates in conjunction with provincial programs. Table 1 summarizes business risk management tools by agricultural product in Canada (MAPAQ, 2018). Slade (2020) provides a full overview of the existing suite of BRM programs. Four BRM programs co-exist in Canada namely, AgriInsurance, AgriInvest, AgriRecovery, and AgriStability. The initial estimated federal cost of these programs in 2019-2020: CAD \$628 million for AgriInsurance, CAD \$152 million for AgriInvest, CAD \$442 million for AgriStability, and CAD \$124 million for AgriRecovery for a total of CAD \$1.35 billion. This compares with total farm revenue of CAD \$62 billion in 2017 in Canada⁷. The costs of the BRM programs are shared between the federal government and provinces at a ratio of 60:40.

In comparison with the U.S. Federal Government direct program payments amount to US \$23.65 billion in 2019 with a total revenue of US \$413.88 billion and total net cash farm income of US \$75 billion in 2017.⁸ The same trends can be seen in France with a total farm revenue of EUR 72.37 billion and government direct payments of EUR 7.19 billion in 2018 (European Commission, 2019). All these statistics show that government direct payments represent about 6% of total farm income in the U.S. and about 10% in France compared to 2.2% in Canada.

Table 1. Business risk management tools in over Canada by agricultural product

Agricultural products	AgriInsurance	AgriInvest	AgriStability
Milk, chicken, turkey, consumption and hatching eggs			#
Pork, piglet, slaughter steer, fattening calf, grain-fed calf, lamb		#	#
Apple, wheat for human consumption, wheat for animal feeding, barley, oats, canola	#	#	#

⁶ <http://www.agr.gc.ca/eng/about-our-department/key-departmental-initiatives/canadian-agricultural-partnership/canadian-agricultural-partnership-business-risk-management-programs-effective-april-2018/?id=1500475317828>

⁷ <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3210010101>

⁸ <https://data.ers.usda.gov/reports.aspx?ID=17830>

Greenhouse vegetables, ornamental horticulture, calf, lamb, deer, bison rabbit, other animals		#	#
Grain corn, soybeans, potatoes, maple syrup, honey, berries, vegetables, other plants	#	#	#

Source: MAPAQ, 2018

3.1. AgriInsurance

AgriInsurance is a commodity-specific crop insurance program that insures a certain percentage of a producer’s historic yield. Producers pay a premium equal to 40% of the actuarially fair price, with the government paying both the remaining portion (60%) of the actuarially fair premium and the administrative costs of the program. Participation rates in AgriInsurance is high, between 66% and 90% across regions in the country (Slade, 2020). Although the program can in theory be deployed for livestock, it is currently targeted toward crops (some plans for bees exist). It can be linked with AgriStability.

3.2. AgriInvest and AgriRecovery

Along with AgriInsurance, AgriInvest is a revenue insurance in which the government matches producer deposits in a savings account up to the lesser of 1% of allowable net sales or \$10,000. AgriInvest accounts are held in non-governmental financial institutions and receive market interest rates (Agriculture and Agri-Food Canada, 2019). Since there is no restriction on how government contributions can be spent, AgriInvest is more associated to an income support program than a risk management tool. Across the years, both the percentage of sales that is matched and the upper limit on the matching contribution have declined (Table 2). Between 2009 and 2014, producer participation in AgriInvest ranged from 75% to 82%, making it a very popular program amongst farmers. A critic of AgriInvest is that it favors cash crop productions over animal productions given that the percentage of allowable net sales⁹ will generally be higher for cash crops than for beef and hog productions.

⁹ Allowable net sales are total sales and program payments, minus allowable commodity purchases and program benefits repayments.

Table 2. AgriInvest government matching contributions over time

Policy framework	% of allowable net sales	Maximum
Growing forward 1 (2008-2013)	1.5	\$22,500
Growing forward 2 (2013-2018)	1	\$15,000
CAP (2018-2023)	1	\$10,000

Note. Adapted from Slade (2020)

AgriRecovery provides ad hoc assistance to producers affected by natural disaster. The program is triggered by a request from a provincial government, which is followed by a joint provincial–federal assessment.

3.3. AgriStability

The AgriStability program is a margin-based insurance program refers to as an insurance product that would provide farmers protection against drops in margin (revenues – expenses). AgriStability which provides support when producers experience a large margin lost ensures a producer’s net margin, calculated as allowable revenues less allowable expense. Allowable revenues include sales and insurance indemnities and allowable expenses include most variable expenses other than family labor. AgriStability payments are based on a producer’s reference margin, which is equal to the Olympic average of the last 5 years of its net margin. In 2013 the program lost a lot of its interest for numerous farmers when the payment trigger was reduced from 85% to 70% and the net margin calculation was made more stringent¹⁰. As an illustration, if a producer’s reference margin was \$100,000 and his net margin dropped to \$65,000. As indicated in Table 3, he/she will currently receive a payment of \$3,500 to compensate its drop in margin of \$35,000 while before 2013, in the same situation the farmer would have received \$14,500 (more than 4 times the current amount).

¹⁰ Previously the program calculated reference net margins by dropping the highest margin and the lowest margin of the past five years and averaging the remain values. Currently, the net margin cannot exceed the average of allowable expenses in the years included in the reference margin calculation.

Table 3. Trigger payment before and during CAP (2018-2023)

Parameters	Current AgriStability trigger point (70%)	Former AgriStability trigger point (85%)*
Reference net margin (RNM)	\$100,000	\$100,000
Potential post COVID-19 net margin	\$65,000	\$65,000
Potential lost	\$35,000	\$35,000
Calculation procedure	$(\$70,000 - \$65,000) * 70\%$	$(\$70,000 - \$65,000) * 80\% + (\$85,000 - \$70,000) * 70\%$
Receive payment	\$3,500	\$14,500

* The trigger point would be \$85,000 and the payment is a two steps computation. Step 1: 80% of the drop below 70% of the RNM (\$70,000). Thus (\$70,000 less \$65,000) times 80% equal \$4000. Step 2: 70% of the difference between 85% of the RNM (\$85,000) and 70% of the RNM (\$70,000). Thus (\$85,000 less \$70,000) times equal \$10,500. Total \$4000 plus \$10,500 equal \$14,500.

In sum, AgriStability has become less generous, shifting from covering net margin losses to providing disaster-level assistance.

4. Discussion

4.1. Program design and inefficiencies

The design of a governmental program can take time, especially if important sums are involved and the beneficiaries heterogenous. This is understandable given that arbitrage must be made with sometimes objectives tough to reconcile. For instance, a good program would be efficient, meaning that administration costs are minimized while it would benefit only those targeted to the right level intended, yet it will be easy to comprehend, to apply for and to administer. Once design, the program will be tested through simulations, it will be discussed back and forth with stakeholders and finally be offered.

In the wake of this unprecedented crisis, the federal government has put forward numerous ad hoc programs to help businesses and citizens on top of increasing payments of existing programs. As an example, the temporary wage subsidy for employer program pays 10% of wages for 3 months, up to \$1,375 per eligible employee to a maximum of \$25,000 per

small business. Roughly 10 days later, the federal government announces a 75% wage subsidy, for 3 months, that expands the eligibility of the previous program to all businesses but necessitates the demonstration of a 30% revenue reduction from the same month the year before, as opposed to the 10% wage subsidy program. For small businesses, the two programs will run in parallel. At the same time, an interest free (for the first year) loan of up to \$40,000 was announced for small businesses. Up to \$10,000 of the loan could be forgiven. The government also offers the Canada Emergency Response Benefit (CERB) that would provide \$2,000 a month for four months to workers who lose their income because of the COVID-19 (at the time of writing this paper, the program does not distinguish between part-time or full time, it is a one size fits all program). This program replaced the previously announced emergency benefits for workers who are not eligible to employment insurance. Although it is difficult to estimate the cost precisely of these programs, it is likely to be in excess of \$110 billion if the crisis does not extend over 3 months. These are significant programs given that the Canadian federal budget was \$356 billion in 2019.

These programs did not go through the long process previously described and are likely to generate inefficiencies. Some persons or business will get benefits not destined to them or improved their economic situation relative to pre-crisis through the programs, which is not the intent. They can also create unintended incentives. As illustrated by the first version of Canada Emergency Response Benefit (CERB) program that created incentive for part-time workers to quit their jobs given that they were not eligible and would have been better off on the program. Some hospital workers in Quebec were making less than CERB benefits, forcing the government to increase the wages of these workers to keep them at work and by the fact of to increase wages of other workers to maintain a relative differential. As demonstrated with these programs, in a time of crisis and needs the time response supersedes inefficiency costs.

On the matter, the BRM suite of programs is good news. These programs have been designed to minimize countervailing risk, so they are decoupled and by the fact of should minimize moral hazard, not impede market or production signal and they apply to the stability of the entire farm entity. This should, in theory, be an advantage to manage the negative impacts that COVID-19 will inflict to agriculture.

4.2. Program responsiveness

Although the design of a program is important, its responsiveness is crucial, especially when facing a black swan event such as the current COVID-19 crisis. AgriInsurance is a crop insurance, thus it is unlikely to provide relieve specific to the COVID-19 crisis.

On the other hand, AgriInvest has a high level of participation and no restriction on how government contributions can be spent. AgriInvest can therefore provide instant cash flow for any use and any risk associated with COVID-19¹¹. However, the sums involved are by design unlikely to provide sufficient support for severe losses. In addition, the program better suits farms that have high commodity net sales, such as cash crops as opposed to hog and beef production. It should also be noted that although some farms might have accumulated significant amounts in their AgriInvest account, there are no obligations to withdraw first before accessing other current or future programs. Thus, no individual incentive to use this money to face losses associated with COVID-19, if the government is to bail out the sector.

AgriStability can cover, in theory, most of the risks associated with COVID-19 since it is an individualized margin-based insurance program. For example, if vegetables cannot be harvested due to foreign labor shortage, that prices of an exported commodity collapse due to new trade restrictions or that a lower demand due to a global recession depresses prices of an agricultural good; all of these situations would negatively affect the net margin of a farm and be covered by AgriStability. Unfortunately, in its current form AgriStability might not be the best vehicle to respond to the potential impacts of COVID-19 for a few reasons. First, of the BRM suite, it is the program with the lowest enrollment at roughly 30% (AAFC, 2017). Participation has been declining especially since 2013 when the payment trigger was reduced from 85% to 70% and the net margin calculation was made more stringent (Table 3). As mentioned before, the program conditions to make payment are harsh and the payment can take more than 10 months after the event (it is based on ex-post tax records) which is not appropriate in a crisis mode. To be fair, interim payments

¹¹ In the unlikely event that a farm would have no net sales, it would not be eligible to AgriInvest. However, the program is not intended to cover severe losses.

can sometimes take place. Finally, farmers find it more complicated (red tape) for what it is worth to them. The program cost for farmers is relatively low at \$4.50 for every \$1,000 of reference margin plus an administration fee of \$55.

AgriRecovery is an ad hoc program that is a joint with the provinces. It has been designed to respond to punctual events such as natural disasters at the regional scale. It faces the problems associated with ad hoc programs (described earlier) if it was to be used to respond to the COVID-19 crisis. It might also lack the flexibility and speed required to be applied to an ongoing national crisis, given that it would require coordination between the federal and each provincial and territorial governments.

4.3. Recommendations

Given market price uncertainties that agricultural sectors dependent of exports are likely to face, given the difficulties and extra cost that labor-intensive sectors will soon face, given the impact in shifts in demand due to the pandemic and given the already tangible disruption for short circuits and/or value added producers, the bonification of the current BRM suite appears preferable to the creation of numerous ad hoc programs.

This option would allow to take advantage of the structure/design of the current BRM programs while improving their responsiveness and efficacy in a crisis situation. To inject money rapidly at the farm level, AgriInvest could be modified to 2% of allowable net sales to increase the number of farms that can qualify, up to \$15,000. Banks would usually loan the money so that farmers can access the government share quickly. The government can also have a grace period for the deposit of the farmers' share and impose simple withdrawal conditions on its share to insure a crisis usage. AgriStability could be reverted to a trigger of 85% and the rules related to the net margin relaxed. To improve the time response of AgriStability, interim payments could be more frequent according to the evolution of the crisis. Figure 4 illustrates a simulation that compares the current situation for AgriStability and AgriInvestment and our suggested modifications, for the average Canadian farm that has a reference margin of roughly \$150,000.¹²

¹² <https://www.statista.com/statistics/468483/average-farm-family-income-in-canada/>

Table 4. Comparison of the current and the proposed AgriStability and AgriInvest programs

Panel A: AgriStability

Parameters	Current AgriStability trigger point (70%)	Proposed AgriStability trigger point due to COVID-19 (85%)
Reference net margin	\$150,000	\$150,000
Potential post COVID-19 net margin	\$97,500	\$97,500
Potential lost	\$52,500	\$52,500
Calculation procedure	$(\$105,000 - \$97,500) * 70\%$	$(\$105,000 - \$97,500) * 80\% + (\$127,500 - \$105,000) * 70\%$
Receive payment From AgriStability	\$5,250	\$21,750

Note. The value \$105,000 equals 70% of the reference net margin; the \$127,500 is 85% of the reference net margin. See Table 3 note for more explanation of the calculation.

Panel B: AgriInvest

Parameters	Current AgriInvest	Proposed AgriInvest (COVID-19)*
% of allowable net sales	1%	2%
Maximum of the government matching contribution	\$10,000	\$15,000

* The 2% of allowable net sales will increase significantly the amount of maximum deposit for farms that would not have attained the \$15,000 maximum, compare to the previous 1.5% (Table 2)

These suggestions are foreseen for the time of the current crisis. Our suggestions are likely to fuel the larger debate between risk management and income support. On the one hand, tenant of a greater support of the Canadian agriculture might argue for a permanent change, while, on the other hand, purist of minimal government risk management intervention might prefer ad hoc programs to deal with an ad hoc crisis such as a black swan. Our position is that BRM program should be distinct from farm support program. Nevertheless, we believe that using the current vehicles design with bonifications is, although imperfect, a more efficient way to deliver in a timely fashion the level of support needed to pursue the operations of farms that are and will be affected by the COVID-19 crisis. This does not

exclude the creation of specific ad hoc programs, but should limit the need for broader ad hoc programs.

5. Conclusion

Farmers are exposed to challenges with the COVID-19 spread over the world and the resulting economic and political order that will result after the crisis. It is difficult to assess which sectors will, at the end, be the most affected and how. Thus, we argue for a temporary bonification of AgriInvest and AgriStability to face the challenges ahead while reducing the negative impacts (inefficiencies) associated with broad ad hoc programs.

The COVID-19 crisis is likely to change societal attitude regarding what is vital and what is not. It would not be surprising if governments and the population are more supportive of a greater level of self-sufficiency in food and in medical supply following the crisis. Therefore, they will be willing to put the appropriate resources to achieve it. The current BRM suite, while designed to provide support for severe risks that threaten farm viability, is a strict minimum that leaves farms vulnerable after a series a bad outcome. Aiming for more support, if the objective is to improve self-sufficiency, would be a rational use of resources. However, BRM programs should not be the vehicles for such objective.

While other pandemics might reappear in the future, another challenge for Canadian farmers is gradually taking shape with climate change and everything it entails. Different rain patterns, temperature alterations, new diseases and insects are already forcing farmers to adapt. If Canada was to develop a more aggressive vision of its agriculture, we argue that it would be best to separate future BRM tools from agricultural support tools. As economists, we know that choices entail opportunity costs, one will need to see what a post COVID-19 world looks like politically and economically before making such choices.

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