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National Food Policy Issue

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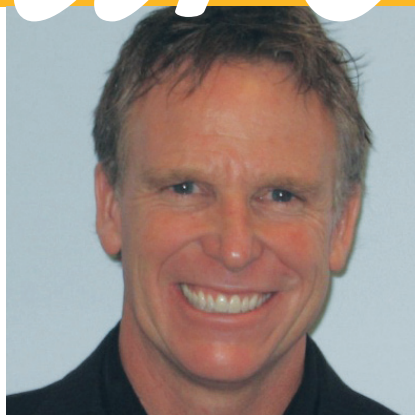
Experts Weigh in on a Food Policy for Canada



By: Alan Ker, Professor and Director, Institute for the Advanced Study of Food and Agricultural Policy, Department of Food, Agricultural and Resource Economics, University of Guelph

The federal government has announced plans to create a Food Policy for Canada. While there has been talk of this for quite some time, steam has markedly picked up under Trudeau's Liberal government. In 2012, the Institute for the Advanced Study of Food and Agricultural Policy hosted a conference titled "Making Sense of National Food Strategies." The Institute brought together four renowned agricultural economists – Professor James Vercammen (University of British Columbia), Professor Murray Fulton (University of Saskatchewan), Professor John Cranfield (University of Guelph), and Professor Bruno Larue (Université Laval) – to evaluate the various food strategies that were forwarded by numerous institutions (industry, commodity groups, consulting agencies, etc.).

In this special issue, I asked these four experts to provide their updated thoughts on various aspects of a National Food Policy. In addition, I asked Associate Professor Sebastien Pouliot (Iowa State University) to discuss the interaction between renewable energy policy and food prices.

The first of eight articles is by Professor Murray Fulton who suggests that although interested parties share similar visions of a National Food Policy, the necessary or best policies to achieve such targets will be met with a significant amount of disagreement. Moreover, making significant change in existing policies is exceedingly difficult. In the last of the eight articles, the author frames the issue of food security and its dependence on global markets, focusing on issues regarding individual entitlements.

The second article is by Professor John Cranfield. He outlines the role that a National Food Policy can have in shaping health outcomes and discusses the related issue of food security. In his second article (page 14), Professor Cranfield discusses the role of public investment in the food system, specifically to basic discovery science in the area of food and agriculture.

The two articles (pages 6 and 12) by Professor James Vercammen deal with specific aspects of two current programs: agri-environmental and business risk management. He notes how it appears that public funds dedicated to agri-environmental programs have surprisingly decreased despite the numerous problems caused by manure. He also discusses the need to make business risk management programs more efficient.

In our last two articles, Professor Larue discusses issues of trade while Professor Pouliot discusses Canadian biofuel policy. Professor Pouliot indicates that biofuel policy on food prices is permanent and has already been absorbed in the market. Professor Larue discusses the future of supply management in trade negotiations and suggests that while it does not appear to be leaving our policy landscape, it will not likely expand.

I hope that you enjoy reading commentary on these issues that will undoubtedly be an integral part of the discussion of a National Food Policy.

Also, included at the end of this *FARE Share* issue is the forward by Professor Brady Deaton and Professor Peter Boxall for the special Policy Issue of the *Canadian Journal of Agricultural Economics*. This special issue deals with current agri-food policy issues that are facing Canada and should be of great interest to you.

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What Will Be the Outcome of a Food Policy for Canada?

By: Murray Fulton, Professor, Johnson Shoyama Graduate School of Public Policy, University of Saskatchewan

The Government of Canada announced its intention to develop a food policy for Canada in 2017. Over the summer and into the fall, Canadians were given the opportunity to share their thoughts on what this policy might look like via online consultations and a series of regional engagement sessions. As this process unfolds, it is useful to understand what the outcome might be of a food policy for Canada.

Canada does not have a food policy – i.e., it does not have, to quote the Government of Canada website, "a long-term vision for the health, environmental, social, and economic goals related to food, while identifying actions we can take in the short-term."

Role of policies and regulations

Instead, Canada has a set of specific policies and regulations in place that affect food production, processing, distribution and sales. These policies and regulations include everything from payments to farmers to help insure them from income loss to regulations about manure application, to quotas on the production and importation of milk, eggs and poultry, to food safety regulations, to funding of research and development (R&D) and regulations on food labeling.

Taken together, these policies and regulations play an important role in determining the cost, quality, safety and nutritional value of the food we consume, as well as in determining the impact of growing and processing this food on our environment and the people involved in these activities. Of course, other factors are also at play, including consumer preferences for the type of food to consume.

A vision for Canada's food system

While it is expected that significant agreement will exist around the vision for Canada's food system, it is unlikely that agreement will be forthcoming around the policies and regulations needed to achieve this vision. This lack of agreement occurs because not everyone agrees about the policies needed to achieve a particular outcome – genetically modified food, for instance, is viewed by some as being good for the environment, while others believe it is detrimental. It also occurs because different policies affect different groups in different ways – a good example is supply management that increases and stabilizes producer returns while increasing food prices. As well, trade-offs always exist – policies that improve environmental sustainability, for instance, often result in more costly food production.

These disagreements mean that food policies and regulations are always contested, with different groups engaged in efforts to change the policy mix. Typically, policy change occurs as a result of activities by those groups that are either left out of, or disadvantaged in, a policy subsystem – the space in which a specific issue is debated, discussed and ultimately decided upon. To alter the equilibrium of existing interests, these disadvantaged groups need to change the image of the policy that prevails outside the policy subsystem in question and/or to find new policy venues that are more receptive to the new image than the existing policy venues.

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Invoking policy change

Policy change is difficult. In order for a new policy or regulation to find traction and be adopted, those supporting this policy will have to somehow shift the attention of people inside and outside the various policy subsystems. For most people in these subsystems, the problem is not too little information, but rather too much – new information is constantly being supplied by a range of sources from internal government documents to academic reports to think tank proposals to media reports. At the same time, people have limited capacity to handle and process information, and to draw conclusions from this information. Only those issues that somehow get prioritized will receive attention, and only issues that receive attention can invoke a policy change.

Given this framework, how likely will the development of a food policy in Canada actually change the current policy mix?

Consider first supply management, which has been in existence for roughly 50 years. The last few years have seen significant effort by think tanks and opinion makers to change the image of supply management in policy circles outside of agriculture (e.g., by stressing the cost to consumers), as well as to create new venues in which supply management is evaluated (e.g., by linking supply management to Canada's participation in various trade agreements, including the North American Free Trade Agreement). Thus, while change in this policy is possible, the groups supporting it are powerful and will work very hard to stop change from occurring.

Another key agricultural policy is the set of business risk management programs (BRMs) that help insure farmers from income loss. While it is expected that there will be efforts to limit the increases in spending on these programs, there have been no major attempts to try to change the image of BRMs or to move this issue to a new venue. Thus, change in this program seems unlikely.

What about local food, organic production and/or urban agriculture? Will they be the focus of agricultural or food policies

in the future? The players in these areas are trying very hard to change the image of agriculture and to appeal to a new group of individuals and interests. And they have had some success. Opinion polls have shown an increase in attention being paid to local food, with local food being one of the predictors of healthy food. However, while more attention is being paid to these issues, none of them appear to have reached the level at which policy makers believe there is any significant role for policy.

Significant change unlikely

Based on the analysis above, it can be concluded that, at least now and for the foreseeable future, the development of a food policy for Canada is not likely to lead to any significant changes in the set of policies and regulations that currently structure the production, processing, distribution and consumption of food in Canada. While change does not appear to be imminent, change will eventually occur. Seen in this light, the key thing to watch for is whether the development of a food policy for Canada provides those currently disadvantaged by, or left out of the current policies, with new ways of changing the policy venue and image at some point in the future.

"What about local food, organic production and/or urban agriculture? Will they be the focus of agricultural or food policies in the future?"

What Role Can Food Policy Play in Shaping Health Outcomes?

By: John Cranfield, Professor and Chair, Department of Food, Agricultural and Resource Economics, University of Guelph

If you asked me five years ago whether I thought Canada's existing Agricultural Policy Framework plays a role in shaping health outcomes, I would have said "no." The reason for this is simple – policy framework was not designed to do so, rather it was designed around supporting the agricultural and food sectors.

Times are now different.

While dialogue related to Canada's next agricultural policy is in full swing, so too is the dialogue around Canada's soon to be announced National Food Policy. Indeed, the development of a National Food Policy is a priority for the current federal government highlighted in the mandate letter to the Minister responsible for Agriculture and Agri-Food Canada (AAFC). A key objective in the priority outlining Canada's National Food Policy was a desire for this policy to promote healthier living through the provision of healthier foods for people in Canada (amongst other things).

As a country, we have not had anything resembling a National Food Policy or food strategy for some time. As such, we are in somewhat uncharted waters. In many respects, this is fortunate and unfortunate. It is fortunate in that we are more or less working with a clean slate. It is unfortunate as we lack a foundation or history upon which to build.

Policy design requires coordinated approach

The design of policy that aims to promote healthy living of Canadians through healthier food will be complex. This complexity arises, in part, from jurisdictional issues related to agriculture, food, and health. While agriculture is a shared federal/provincial/territorial jurisdiction under the Canadian constitution, legislative and regulatory responsibility for food and health reflects a complex layering of government agencies at the federal, provincial/territorial and regional level. In this respect, it will be important to ensure that any policy action is undertaken in a coordinated manner, lest different government agencies and policies end up working against each other.

One's health is a reflection of their genes, the environment in which one lives, and behaviours. The latter are particularly important, as the choices one makes about the food they eat and their level of physical activity have a profound influence on long-term health. If a food policy is going to influence the health of people in Canada, its design must recognize the role of consumer choice.

Changing food habits is challenging

Shaping consumer food choice is not easy. While prices and income are important, it is also important to recognize that many people in Canada are creatures of habit. Their food choices today will be reflected in their food choices tomorrow. Changing these entrenched food consumption habits is not easy. If food policy is to have any hope of contributing to the health of Canadians, its design should reflect the importance of helping people in Canada make informed food choices that can contribute to long-term healthier outcomes. This likely goes beyond existing nutrition label requirements and Canada's Food Guide, and likely needs to be more active in encouraging people in Canada to think about their food choices. If people do not want to change their diets, they will not.

Even then, for some who may want to change their diet, they may not be able to. The reason for this could reflect a lack of healthier food in their local grocery stores. However, for many, not being able to change their diet or consume healthier foods is fundamentally about the affordability of those foods. Affordability reflects two dimensions – prices and income. Episodes of price inflation for some food products and commodities aside, Canada benefits from relatively low food prices. This means prices are not a likely culprit of foods being unaffordable. This leaves income.

"The design of policy that aims to promote healthy living of Canadians through healthier food will be complex. This complexity arises, in part, from jurisdictional issues related to agriculture, food, and health."

Food insecurity tied to income

Recent evidence from the University of Toronto suggests that food insecurity is fundamentally tied to income. Households with lower income have a higher likelihood of being food insecure. If income is a factor limiting some households' access to food, what does this mean for food policy?

One suggestion is that Canada adopts a program like the United States' Supplemental Nutrition Assistance Program (SNAP). SNAP provides eligible participants with income support to assist with food purchases. The USDA estimates that in fiscal year 2015, there were 44 million participants in SNAP, and that the program cost $74 billion dollars. This is an expensive program to operate, but one which appears to lessen the impact of low income on one's ability to access food. Another option advanced by Valerie Tarasuk at the University of Toronto is a basic income guarantee for those most likely to be affected by food insecurity (i.e., households with no or very low income). Important in considering these options is developing evidence to inform whether such a program would work in Canada, understanding the cost of the program, and who would pay. The latter could be a particularly thorny question given the jurisdictional issues around food in Canada.

Pursuing market access and trade agreements

Some may argue that supply considerations need to be brought into the discussion. My question is supply of what and by whom? As a country, Canada grows more agricultural and food products than we can consume. Yet, we are still reliant on imports of various agricultural commodities and food goods that we cannot currently grow in Canada. To the extent that imports of such products figure into a healthier diet, then part of Canada's food policy should reflect the importance of agri-food trade. This likely means pursuing market access and trade agreements that allow Canada to export foods in which it is abundant, but also import foods that cannot be grown at home.

The timeline to develop a National Food Policy is ambitious. That, coupled with the complexity of the issues, likely means that whatever emerges will be aspirational in nature. Even so, such aspirations will make clear what we aim to achieve as a country, and will serve as the bedrock upon which subsequent policy action can be taken.

"If a food policy is going to influence the health of people in Canada, its design must recognize the role of consumer choice."

Agri-Environmental Programs: Why Are They Slowing Down?

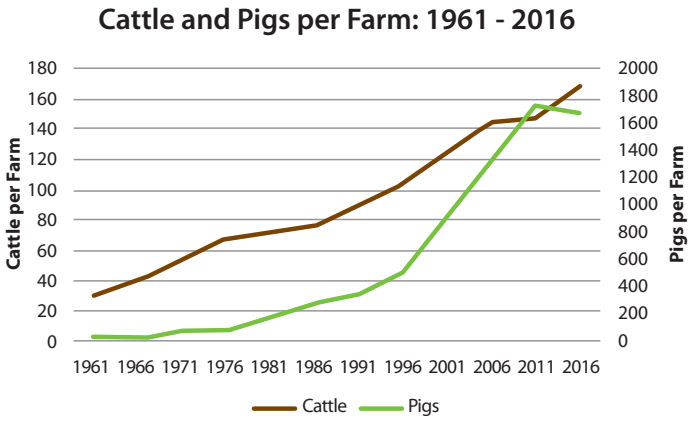
By: James Vercammen, Professor, Food and Resource Economics, University of British Columbia

Ground and surface water contamination from cattle, pig and poultry manure is a growing problem in Canada. Manure loading increases the level of phosphorus and nitrogen, both of which impact water quality. The algae blooms and aquatic weeds that result from excessive levels of these two nutrients impact aquatic life due to oxygen depletion. Moreover, the toxins contained in algae blooms are a health concern for livestock and humans, and excessive nitrogen in drinking water is unhealthy, especially for infants and young children.

Manure application regulations

Provincial regulations are intended to minimize manure ground and surface water contamination. For example, in Alberta, the *Agricultural Operation Practices Act (AOPA)* requires that manure be incorporated into the land within 48 hours of manure spreading, and subjected to pre-defined soil nitrate-nitrogen limits and setback restrictions. The problem is that unusual weather events can result in contamination problems even if farmers are in compliance with provincial regulations. Moreover, monitoring and enforcement of the regulations is usually difficult because of the nonpoint nature of manure-water contamination.

Figure 1



Source: Data from Statistics Canada, CANSIM tables 004-0004 and 004-0223

Growing livestock numbers and fewer farming operations has resulted in an ongoing spatial concentration of manure production. Figure 1 shows average cattle and pig numbers per farm operation for the years 1961 to 2016. Hog production is particularly concentrated in Manitoba, Ontario and Quebec. In 2016, these three provinces produced about 80 percent of Canadian hogs. A 2006 moratorium on new hog barns in the province of Manitoba, which is currently still in place, speaks to the public concern over excessive manure production and the relative ineffectiveness of manure application regulations.

BMP adoption

The alternative to manure-application regulation is the use of federal and provincial funds to induce farmers to complete environmental farm plans (EFP) and adopt manure-related best management practices (BMPs). EFPs have been shown to be highly effective at raising environmental awareness amongst farm managers. BMP adoption includes capital investments to improve manure storage and application methods, and the planting of buffer strips to reduce nutrient runoff from fields into waterways.

Figure 2 shows the cumulative number of BMPs that were jointly funded by AAFC and the provinces as of 2006. The majority of these projects are connected either directly or indirectly to nutrient management. One nutritional unit (NU) is approximately equal to 0.55 cattle or 6 pigs or 200 poultry. The graph shows a high degree of variation across the provinces. It also shows that, as of 2006, the scale of the BMP program was quite small. For example, in New Brunswick there were about 0.04 cumulative projects and $400 worth of cumulative BMP project expenditures per 100 nutritional units.

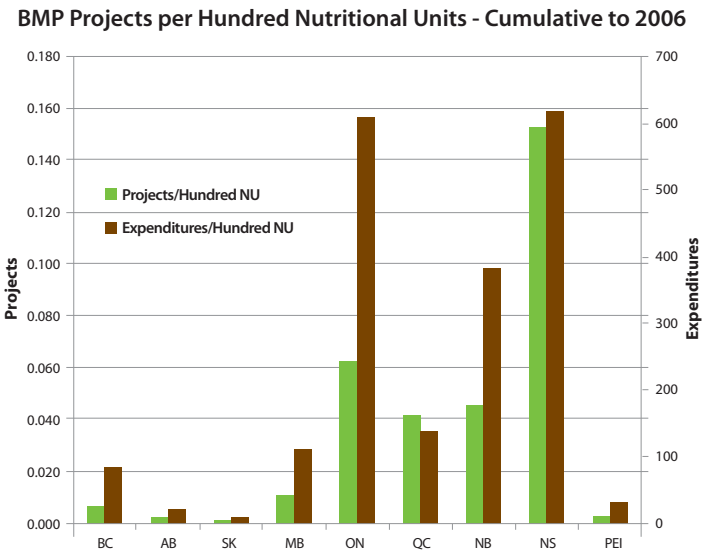
Decline in BMP investment

Detailed data such as that shown in Figure 2 is not available for the 2006-2017 period. However, some aggregate expenditure and project numbers data is available. As of 2006, there were approximately 227,000 BMP projects financed at a total cost of about $173 million for the federal and provincial governments.

"Growing livestock numbers and fewer farming operations has resulted in an ongoing spatial concentration of manure production."

"...it appears that federal and provincial government investment in EFP and BMP projects dropped significantly between Growing Forward 1 and 2."

Figure 2



Source: Data from Appendix 2 (undated internal AAFC document)

These values include all BMPs but, as noted above, the majority of BMP expenditures has either a direct or indirect link to nutrient management. According to the AAFC website titled "Evaluation of the Cost-Shared Non-Business Risk Management Contribution Programming under Growing Forward,"[1] combined federal-provincial expenditures on the EFP and BMP programs was about $297 million for three fiscal years within the Growing Forward 1 program (i.e., 2009-10, 2010-11 and 2011-12). Similarly, according to the AAFC website titled "2015–16 Report on Plans and Priorities,"[2] planned spending by AAFC on EFPs and BMPs was projected to be constant at approximately $37 million per year for the last three years of Growing Forward 2 (i.e., 2015-16, 2016-17 and 2017-18). Accounting for a 60/40 split of expenditures between the federal and provincial governments, this estimate implies total federal-provincial expenditures of about $62 million per year. These values suggest that average yearly expenditures on EFP and BMPs dropped significantly between Growing Forward 1 and 2 (i.e., from $297 million for three years in the first program to 62*3 = $186 million for three years in the second program).

Demand vs. supply driven

The previous websites indicate that during the Growing Forward 1 years (2009-2012) there were 39, 500 new EFP and 26,700 new BMP projects. During the Growing Forward 2 years (2015-2018) the goal was to achieve 17,600 new BMP projects. Therefore, measured with respect to both BMP expenditures and number of BMP projects, it appears that federal and provincial government investment in EFP and BMP projects dropped significantly between Growing Forward 1 and 2.

An important question to ask is whether the slowdown in government support of agri-environmental projects is demand driven or supply driven. Each particular BMP category specifies how the BMP cost is to be split between the producer and the government (30/70 and 50/50 splits are the most common) and the funding cap, both for an individual producer and for the category as a whole. Quite possibly the growth in demand for EFPs is slowing due to rapid uptake over the past 10 to 15 years. However, anecdotal evidence reveals that the demand for BMPs continues to be over-subscribed. For example, the message on British Columbia Sustainable Agriculture Management Program website reads as follows: "BMP Program Funds continue to be fully committed for the 2017-18 Program year. (Updated August 1st, 2017)."

If the federal and provincial governments are choosing to reduce BMP funding in the presence of strong demand then it is important to be critical of this decision. If Figure 2 was updated with more recent data it would likely continue to show that the scale of the agri-environmental programs remains modest when viewed from a per 100 NU perspective. Given the abundance of evidence that manure is the source of considerable environmental problems one might expect government-assisted investment in BMPs to be increasing rather than decreasing.

1 The website was accessed on August 2, 2017 at http://www.agr.gc.ca/eng/about-us/offices-and-locations/office-of-audit-and-evaluation/evaluation-reports/evaluation-of-the-cost-shared-non-business-risk-management-contribution-programming-under-growing-forward/?id=1378742489448
2 The website was accessed on August 2, 2017 at http://www.agr.gc.ca/eng/about-us/planning-and-reporting/departmental-plans/2015-16-report-on-plans-and-priorities/?id=1422918881954#s2.2.1.6.

The Economics of Canada Biofuel Policies

By: Sebastien Pouliot, Associate Professor, Department of Economics, Iowa State University

Most developed countries and several developing ones have renewable policies for motor fuels. In Canada, federal regulation has required minimum renewable contents in gasoline and diesel since 2010. On average, gasoline and diesel produced or imported into Canada must have a renewable content of at least 5% and 2%, respectively. Fuel producers meet these requirements by blending ethanol into gasoline and biodiesel into diesel.[1] Many provinces have blend mandates that exceed the federal requirements. Saskatchewan and Manitoba mandate 7.5% and 8.5%, respectively, of ethanol in gasoline. British Columbia and Ontario mandate 4% of biodiesel in diesel fuel.

Canada has two primary motives for mandating renewable fuels. The first is to reduce greenhouse gas (GHG) emissions. To qualify, renewable fuels must attain certain GHG emission targets in comparison to fossil fuels. Early literature shows that the net GHG emissions from biofuel results in increased GHG emissions, in particular because of indirect land use change. However, recent literature shows that biofuel policy leads to a small reduction in GHG emissions. A second motive for the adoption of biofuel policies in Canada is to support the agricultural sector. Indeed, the main feedstock in the production of first generation biofuels are grains (wheat, corn, canola and soy). Biofuel mandates effectively increase the demand for grains, hence increasing agricultural commodity prices and therefore providing indirect support to farmers. National security is a motive for the adoption of biofuel policy in several countries, including the United States, but not in Canada. These countries seek to reduce their reliance on imports of fossil fuels.

Consumption, production and trade of biofuels in Canada

We can quantify the obligation of Canada's renewable policies utilizing data on fuel consumption (Cansim Table 134-0004). In 2016, gasoline and diesel consumption was about 37 billion litres and 26 billion litres respectively. Applying the minimum federal blend rates of 5% for gasoline requires minimum ethanol volumes of 1.9 billion litres. Likewise, applying the 2% blend rate for diesel results in a minimum blending for biodiesel of about 500 million litres. We expect the actual consumption of ethanol and biodiesel to be larger because of provincial blend rates that exceed the federal mandates.

Indeed, the data indicate that the effective blend rate exceeds the minimum federal requirement. According to Renewable Industries Canada (see http://ricanada.org/), domestic production of ethanol was about 1.8 billion litres and production of ethanol

1 There are differences between biodiesel and renewable diesel such as the production processes and use in diesel blends. For simplicity, I will not distinguish between biodiesel and renewable diesel and will use the term biodiesel for both.

was about 400 million litres in 2016. Using data from the Government of Canada and the United States International Trade Commission, Canada's net imports in 2016 were about 900 million litres for ethanol and 1.14 billion litres for biodiesel. Summing up domestic production and imports of ethanol implies that Canada blended about 2.7 billion litres of ethanol in gasoline in 2016 for an effective blend rate of 6.8%. The higher blend rate reflects higher provincial mandates but also that blenders may use more ethanol than mandated because it adds octane to gasoline at a low cost. The import line for biodiesel is defined as biodiesel mixtures containing less than 70% petroleum oil by volume. Hence, the large import volumes of 1.14 billion litres exaggerate the actual import volumes for biodiesel. Most likely, Canada consumes just enough biodiesel to meet federal and provincial mandates because the cost of producing biodiesel significantly exceeds the cost of producing diesel. In addition, biodiesel does not have properties that make it more valuable than diesel. Thus, blenders will tend to use as little biodiesel as required by law.

Impact on food prices

One of the motives of biofuel policy is to increase prices of agricultural commodities to support farms. Canada is a small country and its biofuel policies, taken in isolation, have a marginal impact on agricultural commodity prices, which are determined on the world market. However, as several countries adopted biofuel policies around the same time, the global effects of biofuel policies are non-negligible. The impact of biofuel policies on agricultural commodity prices is perhaps its most controversial aspect and is often referred to as the "food versus fuel" debate. The debate heated up in 2008 when droughts, stock out conditions and trade policies contributed along with the new demand for biofuel production to cause a surge in prices for agricultural commodities.

The economic literature provides plenty of evidence that biofuel policies around the world have caused a surge in the price of agricultural commodities. The estimated impacts of biofuel policies on prices vary significantly across studies for methodological reasons. In general, studies find that biofuel policies increase the price of corn between 10 and 30 percent. These estimates use counterfactuals where there are no biofuel policies. It is safe to say that the demand for grains would be lower today without biofuel policies and the work continues as it did before developed countries adopted mandates on biorenewables. However, because ethanol is an octane enhancer that costs less to produce than aromatics, and because ethanol is less polluting, there would be a demand for ethanol without biofuel policies. The amount of demand for what ethanol would be today without biofuel policies is unknown.

Most Canadians and consumers in developed countries did not likely notice an impact on food prices as a result of biofuel policies. The reason is that the cost of agricultural commodities is a small share of the total cost of food purchased at retail. Indeed, most of the cost of producing food is from value adding after the farm. This is less true, however, for food in developed countries where the farm value share of food is much larger. Therefore, while biofuel policies increased agricultural commodity prices globally, and subsequently supported farmers in developing countries, they negatively impacted consumers, especially those in poor countries (even in those countries that do not have biofuel policies).

Note that biofuel policies also have a distributional impact among farmers. Grain farmers gained from increased grain prices but, livestock, hog and poultry farmers lost because of higher feed costs.

Biofuels going forward

Biofuel policies are here to stay but will evolve and even possibly expand in some countries. The absolute market impacts of biofuel policies are slowly diminishing as yields for agricultural commodities keep increasing. The technology to produce second-generation biofuels from crop and wood residues is slowly improving and reducing production costs. It is unlikely that these costs will diminish enough to compete with first-generation biofuels in the short-run.

"In general, studies find that biofuel policies increase the price of corn between 10 and 30 percent."

Supply Management Commodities & Trade

By: Bruno Larue, Professor, CREATE (Centre de Recherche en économie de l'Environnement, de l'Agroalimentaire, des Transports et de l'Énergie), Université Laval

Canada imposes very low tariffs on most goods it imports. A glance at the World Trade Organization (WTO) website reveals that 85% (91%) of Canada's ag (non-ag) applied tariffs in 2016 were in the 0-10% range. However, 5.1% of the ag tariff lines were over 100%, as opposed to 0% for non-ag tariff lines. Supply management (SM) commodities make up a sizeable portion of these highly protected goods and are "low-hanging fruits" from our trade partners' perspective. SM commodities are protected by tariff-rate-quotas (TRQs). Accordingly, a given volume called an import quota can be imported at a low within-quota tariff rate while any volume in excess of the quota is taxed at a high over-quota rate.

Cheese import quota

In the case of cheese, the within-quota tariff is $0.04/kg while the over-quota tariff is 245.5%. This means that 1kg of cheese valued at the border at $10/kg costs $10.04 for a quota license holder and $34.55 for an importer without a quota license. If the imported cheese is retailed in Canada at a price below $34.55/kg, at say $30/kg, there cannot be over-quota imports and retailers and quota license holders get to share a margin of $19.96/kg. Not surprisingly, nobody has its "fair" share in the recently announced allocation scheme.[1]

Under the Comprehensive Economic and Trade Agreement (CETA) with the European Union (EU), Canada will increase its current cheese import quota of 20,400 tons/year, which represents about 5% of Canada's consumption, progressively over the next 6 years at the end of which the import quota will be 36,000 tons/year. Similarly, an industrial cheese import quota will grow up to 1,700 tons/year. The EU already has two-thirds of the current import quota. Early in the CETA negotiations, the EU was asking Canada to follow its lead and terminate SM programs, but it settled for a small part of an uncontestable high-margin market. Quebec consumers will benefit most because they eat more specialty and fine cheeses than other Canadian consumers. However, Canadian cheese production is concentrated in Quebec and Ontario.[2] It is dominated by four very large entities – Saputo, Agropur, Kraft and Parmalat – that operate in several countries. There is also a fringe of many small fine cheese manufacturers, mainly located in Quebec.

Fine cheeses are differentiated products, just like wines, and this is why the largest exporting countries are also among the largest importing countries. Consumers in Canada and elsewhere value variety and they will cut their spending on any given variety to make room for new ones in their budget. Thus, small cheese manufacturers must prioritize export opportunities by developing export marketing strategies and by reducing their cost of production. Even when products are differentiated, lower prices entail larger market shares, and in this context the new cost-share programs helping dairy farmers and cheese manufacturers to invest in productivity improvements make a lot more sense than the previously announced compensation payments.[3]

Trans-Pacific Partnership negotiations

Canada made other TRQ concessions on SM commodities during the Trans-Pacific Partnership (TPP) negotiations. TPP will not be implemented because of the US withdrawal, but Canada's concessions will likely be its starting position in the NAFTA negotiations (Larue, 2017). In a way, the CETA precedent is unfortunate because it restricts Canada's trade liberalization options to import quota enlargements and disregard tariff reductions. In Larue, Gervais and Pouliot (2007), we compared over-quota tariff reductions and quota enlargements delivering the same domestic prices. Generally, tariff reductions are the best way to liberalize when targeted domestic prices are not too high above border prices or when the domestic industry is relatively "efficient." The point is that if the domestic industry is "fairly" competitive, it can displace foreign imports and gain market share under tariff reductions. Under TRQ enlargements, imports under the quota cannot be displaced. If the productivity gaps between Canadian dairy producers and cheese manufacturers and their US counterparts narrow over time, then tariff reductions would allow the Canadian industry to fully exploit these productivity gains. In contrast, if Canada's productivity was to slip, the SM system would transfer all cost increases to domestic prices and widen the

1 The 16,000 tons quota will be allocated as follows: 20% is for large cheese manufacturers, 30% for other manufacturers, 20% for large distributors and retailers, and 30% for other retailers and distributors. For more details, see http://www.international.gc.ca/controls-controles/prod/agri/dairy-laitiers/notices-avis/895.aspx?lang=eng .

2 Quebec and Ontario produced 43% and 39% of Canada's 152,540 tons of specialty cheeses in 2016. For more details, see http://dairyinfo.gc.ca/pdf/prod_specialty_e.pdf .

3 The details about the dairy farm investment program and the dairy processing investment fund can be found at http://www.agr.gc.ca/eng/programs-for-the-dairy-sector/?id=1494345318736.

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spread between domestic and border prices. Higher domestic prices mean net welfare reductions, but these can be avoided by binding non-prohibitive tariffs. This is because tariffs tie domestic prices to border prices and hence to the productivity of the most efficient foreign suppliers.

The TRQ in the chicken industry works differently than dairy TRQs because the import quota is set as a percentage of the previous year's domestic production. In Pouliot and Larue (2012), we showed that increasing the percentage of imported chicken can have perverse effects on prices along the Canadian supply chain. Simulation results confirmed that increasing the share of imports in Canada's market would yield either small decreases in prices or small increases and hence small welfare gains or small welfare losses.

New milk class

Another point of contention is the new milk class 7, which was recently added to provincial milk pricing systems to eliminate imports of duty-free diafiltered milk. The latter is a relatively new product that did not exist when Canada drafted its import control list and hence could not be taxed like other dairy products. The US will most likely file a WTO complaint on the ground that the new milk class directly nullifies a trade concession. If our cheese exports were to increase, our trade partners could also argue that class 7 is a disguised export subsidy. Other countries, like New Zealand, could then get involved, too. Of course, a WTO complaint can be withdrawn and it will be interesting to see whether the class 7 issue will be resolved in the NAFTA negotiations or at the WTO.

Finally, President Trump has indicated that he wants a major overhaul of NAFTA as well as a quick renegotiation. Trade negotiations are notoriously slow and if a deal is to be struck before the 2018 US mid-term elections, NAFTA 2.0 is likely to look either like the TPP or like NAFTA 1.0. Either way, it looks like SM commodities will remain low-hanging fruits for subsequent trade negotiations.

"Trade negotiations are notoriously slow and if a deal is to be struck before the 2018 US mid-term elections, NAFTA 2.0 is likely to look either like the TPP or like NAFTA 1.0. Either way, it looks like SM commodities will remain low-hanging fruits for subsequent trade negotiations."

Implications of Delays in Federal Direct Payment Programs

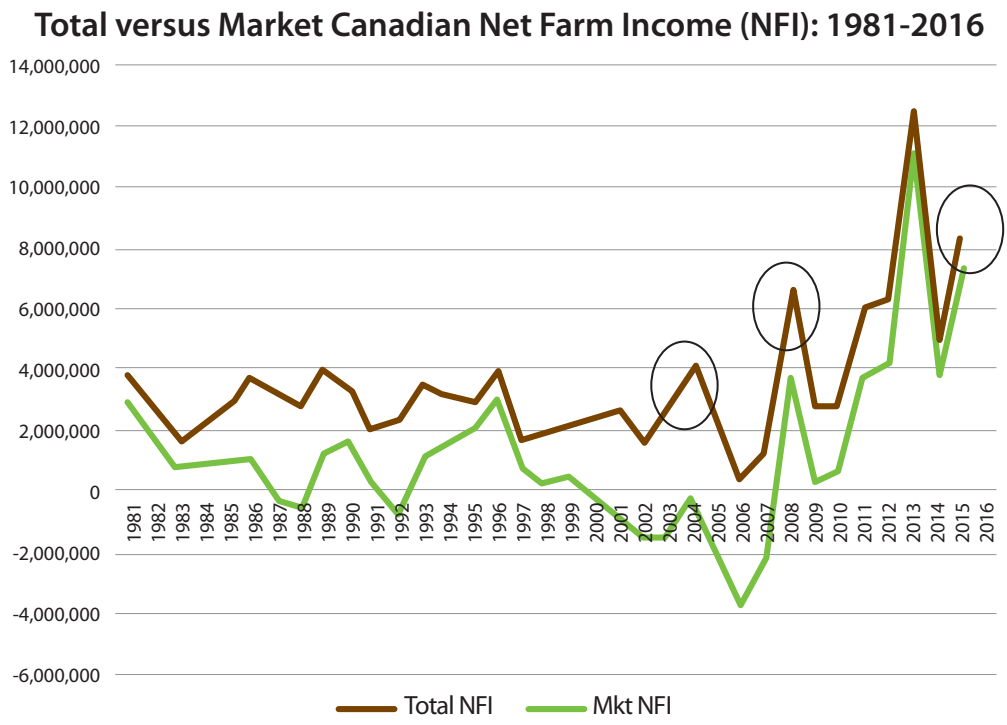
By: James Vercammen, Professor, Food and Resource Economics, University of British Columbia

The direct payment programs used by the federal government to support and stabilize Canadian farm incomes are continually being redesigned to better meet the needs of Canadian farmers and to conform with budget constraints and various trade agreements. The downside of redesigning a program is that it is often made more complex and there is typically a steep administrative learning curve. The combination of a complex program and a steep learning curve implies that payment delays are common. This is problematic for income stabilization programs that operate within volatile income environments.

Indeed, an important feature of any direct payment program is its responsiveness to a wide-spread negative farm income shock. Crop insurance generally makes payments to farmers in the same year that a loss incurs and therefore can be considered a responsive program. In contrast, AgriStability payments, which are based on income tax returns, typically flow to farmers a minimum of 10 to 15 months after the loss occurs. Thus, although AgriStability is a sophisticated program because it provides "margin" insurance, it scores relatively low with respect to responsiveness. If the administrative delays in programs such as AgriStability are lengthy and if net farm income is highly volatile, then the program may end up destabilizing rather than stabilizing net farm incomes (NFI).

Figure 1 shows total NFI and market NFI for the years 1981 to 2016. The difference between the two NFI series is equal to gross direct payments received by farmers minus the value of the

Figure 1



Source: Stats Canada: Net Farm Income, CanSim 002-0009; Direct payments to agriculture producers, CanSim 002 – 0076

"…payment delays have significantly reduced the short-run income stabilization properties of Canadian direct payment programs."

premiums that farmers paid to participate in the program. The graph shows that direct payments are partially effective at limiting sharp drops in market NFI. However, it should also be evident that payment delays have resulted in surges in total NFI in the year or two following the income shock. The three circles on the graph below identify situations where it is evident that payment delays have contributed significantly to unstable NFI.

Vercammen (2013) used formal statistical methods to assess the short-run and long-run stabilizing properties of Canadian direct payment programs. He estimated that between 1981 and 2010, a $1 million decline in market NFI resulted in a $772,000 decrease in total NFI for the year in question. This is equivalent to 23% NFI protection in the short-run. Vercammen also estimated that a permanent $1 million decrease in market NFI resulted in a permanent decrease in total NFI equal to $312,600. This is equivalent to 69% NFI protection in the long-run. These values support the conjecture that payment delays have significantly reduced the short-run income stabilization properties of Canadian direct payment programs.

Figure 1 also shows that since about 2010, market NFI and total NFI are well above their long-term average values. Over this same time period the difference between the two NFI series has shrunk considerably relative to the years preceding 2010. Recall that the difference between market and total NFI is equal to gross direct payments minus the premiums that producers pay to participate in that particular program. If the various stabilization programs were constructed to be actuarially fair then the long-run average value of gross direct payments received by farmers will equal the long-run average value of the premiums paid by farmers. The data from Figure 1 can be used to compare these long-run average values.

In the 1981-2016 period, Canadian farmers received an average of $2.867 billion per year in gross direct payments and paid an average of $ 0.610 in premiums. The ratio of premiums paid to direct payments received is 21.2% over this period, which implies a long-term average subsidy rate of slightly less than 80%. In more recent years (2000–2016), average direct payments per year equal $3.472 billion and average premiums paid per year equal $0.758 billion. The ratio of premiums to direct payments over this period is equal to 21.8%, which is very similar to the analogous value for 1981-2016. In the "high income" years covering 2012 to 2015, the ratio of premiums to direct payments rises to 45.1%, and thus a subsidy rate of approximately 55%.

Managing programs to benefit farmers

The high subsidy rate of 55% during years of record high net farm income is worthy of some discussion. Why are farmers receiving comparative large subsidies when market income is well above average? One possibility is that the programs are not well equipped to deal with price surges and/or the programs are not particularly effective at targeting within a highly heterogeneous farm base. A second possibility is that because of administrative delays, a portion of the direct payment received in a particular year can be attributed to losses in net farm income from previous years. If this is the case then the true subsidy percentage (i.e., based on payments for current year losses) is likely to be well below 55%. Whatever the reason, it is important for policy makers to manage program targeting and administrative delays in a way that benefits farmers to the maximum extent possible.

Direct payment programs are an integral component of Canadian agriculture. Some argue that ongoing subsidies provided to Canadian farmers are excessive whereas others argue that it is a small price for Canadian taxpayers to pay to maintain a viable, competitive and sustainable agricultural sector. Regardless of one's beliefs about the social value of Canada's direct payment program, everyone should agree that efficient targeting and ensuring prompt payments to farmers when a loss is incurred is an important consideration.

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"Some argue that ongoing subsidies provided to Canadian farmers are excessive whereas others argue that it is a small price for Canadian taxpayers to pay to maintain a viable, competitive and sustainable agricultural sector."

Discovery Science and Innovation

By: John Cranfield, Professor and Chair, Department of Food, Agricultural and Resource Economics, University of Guelph

Today's dialogue on Canada's National Food Policy stems from the policy agenda of the current government, and a priority item in the mandate letter for the Minister of Agriculture and Agri-Food Canada. Specifically, the mandate letter directs Minister MacAulay to:

Develop a food policy that promotes healthy living and safe food by putting more healthy, high-quality food, produced by Canadian ranchers and farmers, on the tables of families across the country.

I want to focus attention on a key passage in this priority, namely the provision of safe, healthier, and higher-quality food to families in Canada.

Safe. Healthier. Higher quality.

These are admirable goals, whose ultimate aim is to enhance the health, happiness, and prosperity of people in Canada. It is difficult to argue with such an aim.

Producing safe, healthy and higher-quality food

What is less clear is how to mobilize action to ensure that food in Canada continues to be safe, is produced in a way that enhances its healthfulness, and continues to be of exceptional (and increasing) quality.

The answer to this question lies in another priority in the Minister's mandate letter, namely, support of "…discovery science and innovation in the sector." Really what this means is public investment in research and development (R&D, or discovery science as laid out in the mandate letter to Minister MacAulay), as well as innovation and to some extent commercialization in the agricultural and food space.

It is important to make a distinction between discovery science, innovation, and commercialization. Discovery science is largely about fundamental breakthroughs in basic science – such as chemistry, physics, and microbiology. Innovation is about how these breakthroughs can be applied in new or novel ways. Commercialization is about the development of new products or processes that utilize these innovations, and which meet some market demand.

Discovery science-innovation-commercialization continuum

The extent to which there should be public investment in support of safer, healthier, and higher-quality food will depend on where in the discovery science-innovation-commercialization continuum one is focused. There is no clear-cut, one-size fits all policy solution. Indeed, this is a complex issue. This complexity hinges on a simple, but vexing issue – namely, who stands to benefit from and who bears the costs of the discovery, innovation, and commercialization activities.

The need for public investment in commercialization activities related to safer, healthier and higher-quality food is, I would argue, not compelling. The reason for this is simple. Businesses that undertake commercialization bear the costs of these activities, but they also receive the benefits from commercialization. In this respect, one might argue that the private sector will address the needs of the marketplace. This is certainly true for food products with enhanced quality characteristics, such as an improved flavour profile, longer shelf life, or some other attribute that consumers desire.

The same may not be true for safer or healthier food products. To be clear, no one in the food industry wants unsafe or unhealthy products – making people unwell, or worse, is not a sustainable business model. Nevertheless, the benefits from commercialization of safer or healthier food and food products do not accrue solely to the private sector. Indeed, safer food means reducing the risk of exposure of people in Canada to food-borne pathogens, compounds, or contaminants. Reducing this risk carries with it a reduction in the burden on the health care system – fewer sick people generally means lower health care costs. One can make a similar argument regarding healthier foods – in particular, access to a healthier diet generally leads to a lower risk of non-communicable disease (such as coronary heart disease), and again a reduced burden on the healthcare system.

"For discovery science and innovation to play a role in a food policy (as distinct from agricultural policy), more funding will be needed."

Government role in food innovation

In this respect, one may argue for public support of activities that enhance the safety and healthiness of food and food products in Canada. I am not arguing for governments to be in the food business. Rather, I am arguing that a case could be made for various levels of government to play a more active role in fostering commercialization of foods with enhanced safety and health characteristics, and that Canada's National Food Policy is an opportunity to promote and encourage such action. A caveat to this, of course, is that people in Canada will want to buy and consume such food products – if market demand does not exist, no novel food or food product will succeed.

Of course, to commercialize, one must have access to innovations that take advantage of fundamental discoveries in science. In this respect, it is important to recognize that Canada has a long history of public investment in agricultural discovery science. Indeed, public investment in agricultural research was the backbone of crop and livestock improvement that was instrumental in Canada's nation building in the early part of the 20th century. As the modern food sector emerged, so too did public investment in some aspects of food-related discovery science and innovation. However, we have seen a general reduction in overall public investment in agri-food related discovery science and innovation, with more and more of this investment occurring in the private sector.

For discovery science and innovation to help contribute to safer, healthier, and higher-quality food, and to help achieve the aims of Canada's National Food Policy, more will be needed.

But more of what?

A question of funding

For discovery science and innovation to play a role in a food policy (as distinct from agricultural policy), more funding will be needed. An important question to ask is from whence does this funding flow? Most governments, regardless of their political stripe, are reluctant to increase taxes. The reality of public finance is that it is largely a zero-sum game. Expanding policy action in one area usually pulls resources and funding away from another. If this is the case here, then allocating increased federal funds to food-related discovery science and innovation likely comes from elsewhere in the federal budget. We thus face a trade-off. If safer, healthier and higher-quality food is important to people in Canada, what are we willing to forgo to achieve this outcome? The answer to this question is not yet clear.

Food Security

By: Murray Fulton, Professor, Johnson Shoyama Graduate School of Public Policy, University of Saskatchewan

Food security is one of the major issues facing the world for the upcoming decades. The global demand for food will continue to rise as population and, more importantly, income expand, and as more people migrate from rural to urban areas. At the same time, the growth in the supply of food is slowing because of the degradation of key resources (e.g., water, land) needed for food production and because of a slowdown in research expenditures on agricultural technology. Climate change also adds considerable uncertainty to the production situation.

Food security emerged as a major issue in the early 1970s as a result of the food crisis in 1972-74 (brought about by a dramatic increase in the price of oil). The events of the mid 1980s – a famine in Africa in 1984-85, the impact of structural adjustment policies on the provision of basic needs in developing countries – consolidated the issue as one of major concern. Over this time period, the focus of attention shifted from adequate food supplies at the national and international level to concerns about the ability of individuals and households to access sufficient food.

Supply sufficiency

Sufficiency of supply is important – if there is insufficient supply it will be impossible for individuals to have access to the calories and nutritional requirements they need for an active and healthy life. At the same time, an adequate supply is not sufficient to ensure food security. Individuals only possess food security if they also have access to the food that is available.

Supply sufficiency has emerged as a major issue because the growth in the productivity of the global food system threatens to decline just as the demands on the system are becoming greater because of higher population and income. The problem is that instead of taking fewer inputs to produce an ever-increasing output, as has been the case in agriculture for the last 100 plus years, the growth in output per input is slowing. This slowdown in productivity is occurring for many reasons, including resource degradation, less investment in agricultural research, and poor coordination of activities across geographical regions and parts of the supply chain.

System productivity

Given the global nature of agricultural markets and the high degree of interdependency of the various parts of the value chain – the sequence of activities from the breeding of new crops through production and processing to transportation and marketing to the final consumer – supply sufficiency is the outcome of the interaction of the many component parts that make up the global food system. While much research is, and has been, targeted at the productivity and performance of individual components, very little research is being directed at improving the productivity of the entire system. A systems-wide perspective on productivity and food security requires the examination of a different set of questions than have typically been asked. For instance, not all the component parts of a system are equally productive. As a result, the productivity of the whole system depends importantly on the productivity of the least productive parts. Thus, one way of improving the performance of the system is to identify which parts of the system are the least productive and then to make investments or create incentives to improve the productivity of these components. For instance, moving resources from the more productive parts to the less productive parts can improve the productivity of the whole system.

"If Canada wants to address its food security problem, it will need to find a way to deal with issues of entitlements."

However, the right governance structures and incentives have to be in place for this transfer to occur. Thus, to improve productivity requires an examination of which parts of the system are less productive and an examination of how incentive and governance systems can be put in place so that resources can be enticed to move to those parts. In the language of economists, the system must be designed in such a way that it is incentive compatible – i.e., the incentives must be set up in such a way that those involved find it desirable to make the reallocations that are necessary.

"While much research is, and has been, targeted at the productivity and performance of individual components, very little research is being directed at improving the productivity of the entire system."

"Supply sufficiency has emerged as a major issue because the growth in the productivity of the global food system threatens to decline just as the demands on the system are becoming greater because of higher population and income."

Understanding entitlement

It is important to recognize that human well-being depends on more than just the price and quantity of food that is available – food quality and safety are important, as are income distribution, environmental quality, human health, and psychological well-being. These aspects are captured by the term "access to food." Access to food depends on an individual's entitlements – their initial resource bundle. If this resource bundle does not allow for either the generation of sufficient food or the generation of sufficient income to purchase food, then the individual suffers from an entitlement failure and they go hungry.

Focusing on economic growth (e.g., expansion of output), rather than on the expansion of people's capabilities, has not led to much success in dealing with issues of poverty. Indeed, famines can easily occur even when food supply is adequate if there is a collapse of the entitlements of particular groups or occupations. The understanding of entitlements has to consider more than just economic factors, since political factors, power relations, and cultural and social norms play a significant role in determining the resources that people have available.

While the concept of entitlement has traditionally been used in the context of developing countries, it can be used in developed countries such as Canada. Many of the problems facing the poor (both rural and urban) and Indigenous people in Canada can be viewed in terms of entitlements. Until these entitlement issues can be addressed, food security will remain an issue.

Agricultural and food policy is not equipped to deal with the issues of entitlement. Agricultural policy has been almost exclusively focused on production and productivity – i.e., at increasing the amount of output that can be produced from a given amount of inputs. If Canada wants to address its food security problem, it will need to find a way to deal with issues of entitlements. To do this it will have to consider policy options, such as a guaranteed income, that are not focused first and foremost on food.

Canadian Ag Policy in the 21st Century

By: Brady Deaton, Professor, Department of Food, Agricultural and Resource Economics, University of Guelph, and Peter Boxall, Professor, Department of Resource Economics and Environmental Sociology, University of Alberta

The 2017 Special Issue of the *Canadian Journal of Agricultural Economics* is dedicated to economic research that examines Canadian agricultural policy – government action (or forbearance) that guides present and future conditions in the Canadian food and agricultural sector. The research and ideas discussed in this issue are relevant to a broad suite of contemporary policy discussions, for example, the Canadian Agricultural Partnership "A Food Policy for Canada," the North American Free Trade Agreement (NAFTA) renegotiation, etc.

The relevance of our profession will broaden in the 21st century because agricultural production and the consumption of food are presently at the forefront of contemporary discussion and debates concerning competitiveness, sustainability, human health, food security, food sovereignty, labour rights, science and ethics, animal welfare, environmental quality, and climate change. This Special Issue does not (and could not) address all of these issues. However, this Special Issue does provide a basis for understanding a subset of policy issues and methods that will resonate with many present and future policy discussions.

Governance in agriculture

Douglas Hedley's article, "Governance in Canadian Agriculture," discusses how agricultural policy has evolved since the Canadian Confederation in 1867. Among the many issues he discusses is the federal-provincial-territorial relationship with respect to policy constructs. Unlike the United States, Canada did not have a common nationwide agricultural policy until the start of the 21st century. Hedley identifies a key historic reason for this; specifically, until 1949, any decision of the Supreme Court of Canada could be appealed to the Judicial Committee of the Privy Council in London. This Council favoured an interpretation of the British North America Act, 1867, that greatly limited the power of the federal parliament to remove powers from the provincial jurisdiction and coordinate a national policy. This is one example, from the many identified by Hedley, that helps us to understand present and future Canadian agricultural policy.

A fundamental feature of the quinquennial Canadian Agriculture Policy Frameworks has been a suite of so-called business risk management (BRM) programs. These involve whole-farm support, which in theory prompts minimal production incentives. These programs aim to offer protection from "severe market volatility and disasters" (AAFC 2014), hence the moniker BRM. The current suite of BRM programs includes *AgriInvest* (a subsidized savings account), *AgriStability* (a deficiency payment triggered by a margin-based measure of overall farm income), *AgriInsurance* (production or crop insurance), and *AgriRecovery* (a safety net program for disaster assistance), all of which pay out when current income is lower than a predefined threshold. Three papers in this issue deal with BRM policy issues.

Business Risk Management programs

The first paper by Scott R. Jeffrey, Dawn E. Trautman, and James R. Unterschultz, "Canadian Agricultural Business Risk Management Programs: Implications for Farm Wealth and Environmental Stewardship," examines the effects of participation in Canadian BRM programs provided by the two most recent policy frameworks: Growing Forward (2008-13) and Growing Forward 2 (2013-18). Using a representative farm to assess these programs they find, as intended, that these programs enhance farm income and that the benefits to producers depend on the degree of subsidization built into the specific programs, for example, AgriInsurance, AgriStability, and AgriInvest. Among the many issues discussed, their results suggest that BRM participation will reduce the adoption of some environmental stewardship practices, such as buffer strips or shelterbelts, to the extent that these practices require land use changes. Oversimplifying the matter a bit, if BRM enhances returns to farming, this increases the opportunity cost of adopting environmental practices that reduce the land available for farming. In this regard, as the authors point out, there is a need for future research that assesses the compatibility between income support objectives and environmental stewardship objectives.

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Production efficiency and government support

The second paper, "Do Farm Support Programs Reward Production Inefficiency?" by Getu Hailu and Kenneth Poon, asks the question: do farm support programs promote production inefficiency? Starting from the stated goal of Growing Forward to enhance the productivity and competitiveness of the Canadian agricultural sector, their paper examines the relationship between production efficiency and government program payments for Ontario cow-calf, backgrounding, and feedlot operations. In their Ontario case study, they find a negative relationship between production efficiency and the share and level of BRM program payments. Hence, their research suggests that present policies that distribute payment to farmers may be in conflict with the conventional policy objective of enhancing productivity and competitiveness.

BRM programs, policies and participants

The third contribution, "Canadian Business Risk Management: Private Firms, Crown Corporations, and Public Institutions" by Alan P. Ker, Barry Barnett, David Jacques, and Tor Tolhurst, examines the programs, policies, and participants that deliver BRM. A key contribution of this paper is its focus on the participants who actually deliver BRM. Specifically, the authors draw attention to the fact that provincial crown corporations play a primary role in administering BRM. A related observation is that these crown corporations often offset the risk of their public insurance program by purchasing private insurance. This creates a public-private relationship that may be underappreciated by researchers and policy makers alike. Indeed, the authors ultimately recommend that policy makers and researchers reassess the use of crown corporations as the key delivery agent. In addition, the authors question the decision of crown corporations to purchase private insurance. There are many other policy and programmatic dimensions to this paper. A thought-provoking list of specific policy and programmatic recommendations are developed at the end of the paper. This list complements other qualitative and quantitative discussions developed in the paper and should provide a great deal of food for thought for future policy discussions.

Quebec dairy quota

The last three articles focus on issues outside of BRM. In "Production Rigidity, Input Lumpiness, Efficiency, and the Technological Hurdle of Quebec Dairy Farms," Bruno Larue, Alphonse Singbo, and Sébastien Pouliot examine Canada's policy of "supply management." They assess the current and historic suite of policies that limit the exchange of dairy quota in Quebec. They argue that these policies discourage the timely adoption of lumpy inputs like milking technologies that would, if adopted for an appropriate herd size, enhance the competitiveness of Quebec's dairy sector. Their article focuses on dairy issues but they raise issues that resonate across the many organizations and policies that presently govern other important sectors of Canadian agriculture including chicken, eggs, and turkey. Importantly, as we write this introduction, concerns about Canadian dairy policy are front and centre in the conflict between the United States and Canada with respect to trade and NAFTA renegotiation. Given the important influence of international trade on both consumption and production of agricultural products, agricultural policies issues that influence trade disputes will continue to be relevant to Canadian policy in general.

Continued on page 20

"…we anticipate that some consumers will continue to seek out consumption choices that are consistent with a set of desired agricultural production processes."

Continued from page 19

Western Canadian grain transportation

In "Grain Transportation Policy Reform in Western Canada," Derek G. Brewin, Troy G. Schmitz, James F. Nolan, and Richard S. Gray focus their attention to the policies that have influenced grain transportation in Western Canada. They note the importance of rail transport in general – that is, by volume 50% of all Canadian exports are shipped by rail – and specifically to the movement of grains. Brewin et al, provide an overview of late 19th century policies as well as the current debate regarding the potential removal of Maximum Revenue Entitlement (MRE), which presently influences prices charged by railroads to move grain by rail. In addition to providing a detailed historical review, Brewin et al use theory and empirical techniques to assess the magnitude of removing MRE on farmers. Their assessment emphasizes the importance of transportation policies on farm level returns. For example, in their worst-case scenario, farmers would lose 90% of their current surplus if MREs were removed. Looking forward, transportation policies will continue to play an important role in the returns to, and competitiveness of, Canadian grain farmers.

Intellectual property rights for wheat breeders

Finally, in "Intellectual Property Rights and Canadian Wheat Breeding for the 21st Century," Richard S. Gray, Ross Stephen Kingwell, Viktoriya Galushko, and Katarzyna Bolek tackle an important issue regarding the lack of royalties to breeders working on self-pollinated, non-genetically modified wheat. The authors argue that attenuated intellectual property rights for breeders have contributed to this crop sector's dependence on public breeding programs for the development of new varieties. They examine possible consequences arising from the implementation of the 2015 *Agricultural Growth Act*, which will force Canada to become compliant with the International Union for the Protection of New Varieties of Plants 1991 (UPOV91) convention, and thereby strengthen the intellectual property rights of breeders. Since these changes have not yet been implemented, the authors examine royalty structures in other wheat-producing countries and develop *ex ante* cost-benefit ratios. The authors use this information to offer advice to Canadian policy makers on how best to construct effective royalty collection systems that enhance incentives to wheat breeders to develop improved varieties of wheat for Canadian growers.

The heavy focus given to the BRM suite of policies in this issue is not surprising, given the large amounts of money involved and that this is a fundamental feature of Canadian agricultural policy (Ker et al note that in 2014, BRM subsidies were just under $1.4 billion). However, it is important to recognize that there are many other important policy issues. While it is impossible to name and anticipate the many future issues that will be researched by our profession, a couple of trends are worth noting. First, as already mentioned above in the context of "supply management," trade policies will remain of central importance to the wealth and health of the agricultural sector and consumers. Second, 21st century agricultural policy will likely continue to address the use and allocation of key resources (e.g., water, land, forestry, fisheries, and wildlife) and environmental quality (e.g., soil quality, erosion, water pollution, and CO^2 emissions). Third, and importantly, we anticipate that some consumers will continue to seek out consumption choices that are consistent with a set of desired agricultural production processes (e.g., seed choice, animal welfare, local food, etc.). Producers will no doubt seek opportunities to meet and influence these demands. Health outcomes associated with food choice may also emerge as an increasingly important policy topic. Looking forward, we believe our profession is well positioned to address the many food and agricultural issues that will emerge in the 21st century.

Access the 2017 Special Issue of the *Canadian Journal of Agricultural Economics* online at http://onlinelibrary.wiley.com/doi/10.1111/cjag.2017.65.issue-4/issuetoc.

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