CAPI
THE CANADIAN AGRI-FOOD POLICY INSTITUTE

"Optimizing Land Use for Sustainable Growth" 2019 CAPI Dialogues

Key Findings Report

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PREAMBLE

There is an impending global challenge of producing enough affordable and accessible food to meet the demands of an increasing population, while maintaining and improving natural capital (land, water, air, biodiversity). To ensure that growth in the Canadian agricultural sector will be sustainable, *quality* growth is essential. In agricultural production, soil use and quality are closely connected to farmers' choices between producing crops versus livestock. These factors are also linked to environmental outcomes, including biodiversity, soil, air and water quality, and carbon sequestration. Farmers allocate their land to optimize economic returns. However, optimizing land use to maintain and improve its productive capacity over the long term requires more than just responding to market signals. The key question becomes: "how can land use be optimized to improve environmental outcomes, while ensuring long-term competitiveness and growth?"

To seek answers, the Canadian Agri-Food Policy Institute (CAPI) and partners convened two dialogues in February and April 2019 in Calgary, Alberta and Guelph, Ontario respectively.[1] The objective of these dialogues was to bring together a transdisciplinary group of experts from industry, government, academia and NGOs to start a conversation on "Optimizing Land Use for Sustainable Growth." The *Calgary Dialogue*[2] focused on land use choices, agronomic practices and policy instruments and their impacts on soil, air and biodiversity, while the *Guelph Dialogue*[3] had more of an emphasis on land use and water quality.

With over 200 participants, the dialogues helped raise awareness about sustainable land use practices and their impacts on GHG emissions, air and water quality, biodiversity and sector profitability and competitiveness, as well as the options available to optimize land use for sustainable growth. Another integral part of the dialogues was discussing the most effective policy instruments and voluntary and industry initiatives that can be used to promote sustainable production. Some of the key findings from what we heard are provided below.

KEY FINDINGS

1. As there is significant diversity and heterogeneity in agricultural production a "one size fits all" does not work for sustainable production practices. It became clear from the dialogues that producers will adapt sustainable production practices and technologies according to their individual circumstances, which are determined by the state of their natural capital, regional differences in agronomic conditions, production practices that suit the region, cost considerations that vary by farm type and size, and farmers' individual time and risk preferences, and land tenure differences. All these factors influence the willingness of farmers to adopt sustainable practices and the resulting environmental outcomes. At a regional level, this translates into Western Canadian producers using more conservation tillage to improve soil productivity, while those in Eastern Canada using more cover crops.

2. Adopting new technologies is key to producing more sustainably. Presenters at both dialogues emphasized the importance of new technology and farm-level innovations for more sustainable production. The improvement in soil organic carbon and negative net emissions from crop production on the Prairies has been a direct result of the widespread adoption of no till practices. These practices primarily aimed at

[1] The Agenda for both dialogues and the papers and presentations are available here.
[2] A summary of the *Calgary Dialogue* is available here.
[3] A summary of the *Guelph Dialogue* is available here.

maintaining soil moisture and resulted in sequestering carbon, and improving soil quality, while reducing operating costs and increasing productivity. In Eastern Canada, new dairy genetics, and new feed rations, robotics and bio-digesters have led to a reduction in livestock producers' carbon footprint, while reducing phosphorous and nitrogen run-off into waterways, thereby improving water quality.

3. The development of data and metrics is needed to improve our understanding of sustainable production practices, and our ability to communicate it to markets. It also became clear during the dialogues that timely data and metrics are essential for measuring and monitoring agriculture's impact on the environment and for providing direction for the areas that require action. Metrics are critical for measuring progress over time, identifying policy priorities and strategies. They also provide evidence to inform consumers and markets of the improvements made in sustainable production. They also provide guidance for researchers and funding agencies to know where to focus research funds. In Guelph, it became clear that updated indicators are needed for public drinking water quality in Ontario, and in Calgary, data for measuring soil carbon.

4. Agricultural extension remains important for promoting adoption of Best Management Practices (BMPs) for sustainability. There was general agreement in both the Calgary and Guelph dialogues that agricultural extension continues to be important for providing producers with the knowledge and know-how to produce profitably, and improve their natural capital. In the past, agricultural extension was provided by both provincial governments and federal governments. The federal research stations helped develop new technologies and BMPs that were then disseminated to farmers through field days and demonstration pilots. No-till production practices that came out of the Indian Head, Saskatchewan Research Station, is one such example. Increasingly, extension services have been provided by third-party service-providers, mostly input-suppliers. This raises concerns about potential conflicts of interest for the input suppliers, who both provide training on and supply the products they sell. However, the *4R Stewardship Program*, which was developed and promoted by *Fertilizer Canada*, is an example of an effective way of disseminating BMPs for nutrient management, with excellent environmental outcomes, as its adoption becomes more widespread. Otherwise, the current state does not allow producer-generated knowledge to disseminate effectively.

5. The externalities associated with agricultural production can be addressed through effective policy instruments and the right initiatives (voluntary, community and industry). Several presentations discussed the concept of negative externalities associated with agricultural production. Externalities reflect the "good" or "bad" outputs from agriculture that are not captured in input and output prices. "Bad" outputs (or negative externalities) reflect the environmental degradation or costs that are imposed on society that could be mitigated, if they were included in market prices, while positive externalities reflect the benefits of agricultural production, such as conserving wildlife habitats and landscape aesthetics. Several speakers provided estimates of the value of these externalities, from GHG emissions, particulate matter and air pollution, to soil quality, water quality, biodiversity, and loss and/or conservation of wildlife habitat. These estimates help identify the most serious environmental impacts by region and help target areas where government or industry measures are needed to address them. For example, water quality is considered more of an issue to address in Central Canada, while soil erosion is more important in the West.

To address externalities, various instruments were proposed that can be used to incent producers to take these costs and benefits into account and produce more sustainably. These include economic instruments, such as taxes and subsidies, or regulations related to nutrient management plans, pesticide disposal guidelines and moratoria on hog barns. Other initiatives include community or voluntary programs, such as conservation easements, protected wetlands, and watersheds protected through conservation societies, NGOs and foundations. In the West, programs initiated by Ducks Unlimited Canada (DUC), the Nature Conservancy of Canada (NCC) and the Alternative Land Use (ALUS) initiative have played an important role in preserving wetlands, preventing land from being converted to cultivated land and in strengthening wildlife habitat. More innovative programs, such as tax credits for bequeathing land for conservation, or cross-compliance programs, such as the Conservation Reserve Program (CRP) in the United States, could also help achieve environmental outcomes. However, the best way to address externalities in agriculture could still be through promoting BMPs, and this implies more funding for extension services and education.

6. It is imperative to effectively communicate to consumers and markets the progress being made in agriculture as a solution-provider for climate change and sustainability. A recurring topic of discussion during the dialogues was the issue of not properly communicating to markets the positive actions taken by farmers for addressing climate change and improving sustainability. In this era of online media where information is readily available, coupled with consumers who are increasingly requesting environmentally-sustainable products, it is essential that the message get out loud and clear. It is also imperative that consumers, who may be willing to pay more for these products, are assured that the products can live up to their claims of sustainability. The ability to signal and verify a product's sustainability will also open up markets both domestically and internationally. It is important for the industry to develop pre-competitive metrics, the processes and the verification and authentication systems. The Canadian Roundtable for Sustainable Beef (CRSB) and Crops (CRSC), as well as the Canadian Organic Trade Association (COTA) have made significant progress developing systems exactly for this purpose. It is important that industry associations foster innovation in these areas as government policy alone cannot always address public trust issues, sustainability of the sector, and Canada's natural capital.

WHAT'S NEXT

CAPI was encouraged by the enthusiastic response from these dialogues and remains optimistic about the continued progress on land use and environmental sustainability in Canadian agriculture. CAPI looks forward to playing an active role in future work based on the key findings from the dialogues, with the goal of bettering Canadian agriculture and the health, wealth, and well-being of Canadians.