

Crop Innovation in the Canadian Prairies

Report of the Breadbasket 2.0 Initiative



NOVEMBER 2013



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PREFACE

Throughout Canada's history, agricultural production has been an indispensable part of our national economy. For more than a century, the Prairie provinces, blessed with vast expanses of fertile, arable land and high yields of export crops, have been the heart of our agricultural sector. But while they play a vital role in Canada's prosperity, some still view the Prairies as adherents to entrenched, traditional systems, not drivers of innovation.

Today, Canada's agricultural producers, whether in the Prairies or elsewhere, are not isolated. They are fully interconnected with a dynamic, global agriculture and food production system, one in which increased yield has become imperative. For Canada to continue to be a leader, we will have to continuously improve our system, capitalizing on our distinctive strengths.

The world's population, economy and environment are changing. As we seek to understand the Canadian Prairies' role in this immense system, we must maintain a global mindset. This means finding ways to increase production and export capacity to meet growing demand from countries such as China and India, while also contributing to economic growth in Canada. It means taking a careful look at our priorities to understand how all sectors can become better aligned, creating a more cohesive, industry-led, market driven system. It means serious discussion about the mechanisms required to support collaboration and achieve production and export increases. Finally, it means re-committing ourselves to agricultural innovation as a critical component of increased productivity.

Canada's Public Policy Forum, in discussion with Prairie leaders, launched the *Breadbasket 2.0* initiative to explore this important policy priority. The objective was to bring together leaders with different perspectives from across the crop sector to explore Canada's capacity for agricultural innovation, and our ability to develop new markets and applications for crops.

Over the past year, the Forum has undertaken extensive research and convening efforts. In partnership with governments, the private sector and research leaders, we organized three roundtable sessions in the spring of 2013, followed by the *Breadbasket 2.0* Summit in June 2013 in Saskatoon, Saskatchewan. Reinforced by expert, multi-sectoral input throughout the project, the message has been clear: Prairie agriculture is at a critical juncture. We are on the cusp of a historic moment, one which will allow Canada and the world to more effectively address food production challenges and capitalize on emerging opportunities.

The Forum is pleased to share this summary of the Summit, along with a précis of discussions undertaken throughout the *Breadbasket 2.0* project. This report lays out the foundation for a renewed focus on Prairie crop innovation, and defines some important areas for action.

We look forward to continuing to work with our partners to better understand and support agriculture, one of our country's most innovative industries.



David Mitchell
President and CEO
Canada's Public Policy Forum

EXECUTIVE SUMMARY

Global population growth compels us to explore how to increase food production. It is estimated that by 2050, the world's population will grow by 2 billion people. Economic development, such as expanding middle classes in China and India, compounds the challenge by creating increased demand not only for more food, but for a greater variety of products. With all factors considered, some experts are forecasting that the world will need to increase its agricultural production by 70% in the next 35 years.

Growing demand is just one facet of the challenge. Another is that increasing global food production must be accomplished while conserving natural resources. Almost all available arable land has been developed, and water resources are dwindling in many countries. These constraints come at a time when food production is starting to compete for land with bio-energy, and as climate change is creating increasingly unpredictable growing conditions.

This presents a vital opportunity for Canada, and particularly for the Prairies. Crop production will be an essential component of increasing overall global

food production and a key driver of prosperity for Canada in the future. To take advantage of this opportunity, we need to focus on those areas of our agricultural system where the need for change is greatest: innovation, collaboration, and leadership.

Innovation will be key to increasing production, particularly with the challenges and constraints of climate shifts, increased scarcity and the rising cost of inputs such as land, water and nutrients. A renewed focus on agricultural research and development (R&D) is called for, including robust support for both basic and applied research. To gain greater global market presence, this R&D should build on our recognized strengths and successes, such as canola and pulse development.

Emphasis should also be placed on customer-centric innovation, providing the products which best meet the needs of the Prairie's global customer base. In addition, increased cross-sector collaboration is required between private companies, researchers and governments to better allocate R&D resources.



Breadbasket 2.0 Summit panelists: L to R: **Lionel Labelle**, President and CEO, Saskatchewan Trade and Export Partnership; **Janice Tranberg**, Vice-President, Crop Life Canada; **Brad Farquhar**, Co-founder and Vice-President, Assiniboia Capital Corp., **Mary Buhr**, Dean, College of Agriculture and Bioresources, University of Saskatchewan.



At present, knowledge-sharing across the broader agricultural value chain is sub-optimal. A full system approach, incorporating producers, researchers, shippers, marketers, regulators, and consumers, is needed. R&D collaboration is also of the utmost importance, and an integrated, pan-Prairie approach is viewed as a preferred method. New models of financing crop research proposed during the Summit—and worthy of further discussion—suggest the need for an integrated perspective that fully incorporates producers.

Collaboration and partnership to support innovation demands committed leadership. It is vital that we move beyond some of the old frustrations that linger in our agricultural system (e.g. balancing investments between basic and applied research) in order to develop more resilience. Canada will also need to take the lead on global issues such as trade. This will require policy leadership.

The Breadbasket 2.0 Summit convened leaders from across the sector to discuss these and other important issues. Summit participants expressed a keen desire to focus on several specific areas for action:

- *New products:* Canada should focus on global customers and develop unique, value-added products in key markets to meet the needs of a growing consumer base. Canada's reputation for safety and quality should be maintained as a critically important dimension of our international brand.
- *Systems alignment:* Breaking down barriers within the industry is essential. Priority areas include better knowledge-sharing (including R&D), regulatory reform and transport (logistics, inter-modality and infrastructure).

- *Partnerships:* New, more robust partnership models are needed to foster greater connectivity between producer organizations and researchers. Industry leadership is seen as essential for advancing these partnerships.
- *R&D:* A fully integrated system that engages producers, governments, post-secondary educational institutions, and private sector researchers throughout the Prairies is needed. A shift to greater industry leadership in R&D partnerships will be an important step. The adoption of a new R&D funding model (such as the cereals models proposed at the Summit) is also required.

The Summit concluded with a consensus on priorities:

- *Vision:* A pan-Prairie strategy for innovation and production leadership is required. Developing common goals and targets which can unify the industry around a specific purpose should be the top priority for agriculture leaders across all sectors. This vision should build on the collaborative efforts undertaken to support the *Growing Forward* and *Growing Forward 2* federal-provincial-territorial agricultural policy frameworks.
- *International markets:* Canada should abide by and, when possible, set global standards to reach customers. This may require changes at home, including a serious discussion of relaxing trade barriers.
- *Citizenship:* A mandate to increase food production is both an opportunity for Canada and a responsibility. We need to increase production and help advance ag-innovation globally to help secure food supply for a growing world population.



1. CONTEXT

The world's population is growing at a significant rate, and the increasing demand on food production has had a substantial impact on the global economy. Once known as the “breadbasket of the world”, the Canadian Prairies are a key supplier of crops and other agricultural products to international markets. However, challenges persist which may hinder the ability of the Prairies to take full advantage of continued growth in demand.

The purpose of the *Breadbasket 2.0* project, including the Summit discussed in this report, was to better understand the challenges facing Prairie agriculture, and what efforts are needed to enhance Canada's capacity for innovation in crop production.

Through a series of leadership-level roundtables in spring 2013, engaging the private, public and research sectors, the Forum laid the groundwork for a larger discussion of agriculture policy and practice in the Canadian Prairies. On June 17-18, 2013, in Saskatoon, the Public Policy Forum convened the Breadbasket 2.0 Summit. Many of the leading voices on agricultural policy in Canada were present to examine the issues and to explore how we might better collaborate across sectors.

To identify what must change in the agricultural sector, we first needed to understand the key challenges, implications and opportunities.

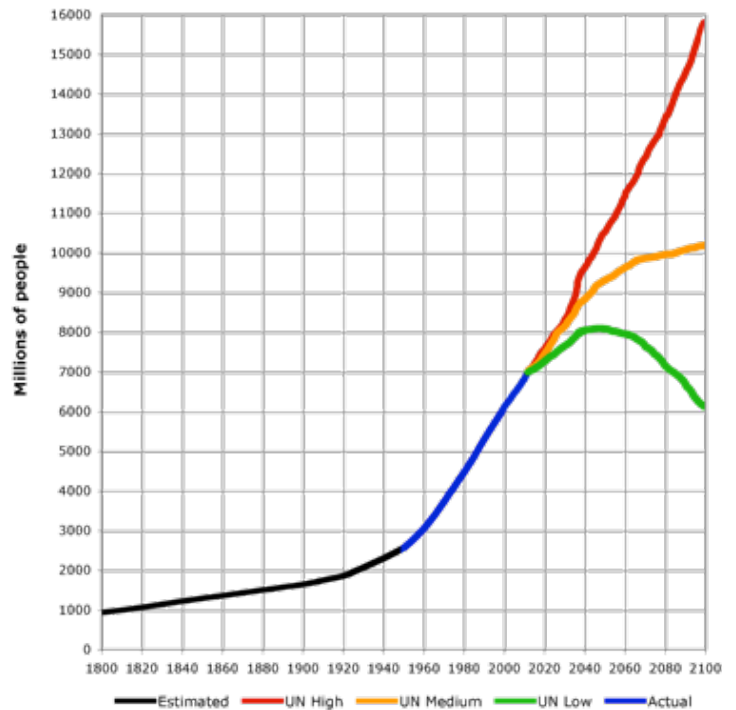
Challenges

The issues facing Prairie crop production are not unique to the region. Shifting centres of population and production and changing global trade patterns mean that the challenges are being grappled with on a world-wide scale.

By some estimates, within the next 35 years there will be an additional two billion people on our planet. The sheer numbers alone, coupled with the fact that even now more than 840 million suffer from chronic hunger, demonstrate the urgency of this issue.¹ However, growing demand for food is rooted in more than population expansion. Diets are changing in some of the largest population centres in the world. Burgeoning middle classes

in China and India, and shifting diets in other countries, have led to increased demand for more sophisticated foods, including animal proteins, which require greater levels of nutrient input intensity. The demand growth will be staggering – a projected 70% overall increase in production by 2050 to keep pace with both population growth and global affluence.

UN global population forecast




Source: Wikimedia commons, as presented by Dr. Alex McCalla at the Breadbasket 2.0 Summit

Simply increasing production will not be easy. We will be limited by the land resources we already have (or possibly less, if farmland decreases due to urbanization or soil degradation). There are no more unexplored areas with arable land. We will have to find ways to increase output on current acreage. And we must do this with less water. Water consumption is overtaxing systems throughout the world, and as demand increases it will become an even scarcer resource.

There is also the challenge of the unknown. For example, new markets are emerging which compete with agriculture for land, such as bio-energy. The extent to which this will supersede

¹ Food and Agriculture Organization of the United Nations, *The State of Food Insecurity in the World, 2013*.



food production capacity remains to be seen. Rising costs, particularly for fuel, will also have an impact on farmers' ability to produce; but the extent of this depends largely on market forces. Transport and trade issues will also be a vital concern.

Finally, crop production must cope with increasingly unpredictable environmental conditions created by climate change. This may affect the availability of necessary resources (land, water), and, consequently, the fundamental economics of the sector.

Implications

These challenges have widespread implications for Canadian agriculture, and create a need for a well-considered statement of priorities for the sector's advancement. The chief priority is the need to support innovation. Increasing productivity in the sector while effectively using dwindling resources and dealing with unpredictable climate conditions will require the ability to adapt and innovate. The vast majority of the increases in food production over the past 40 years came from productivity gains that leveraged applied R&D investments from industrialized countries. This feat will need to be repeated. However, in Canada, we experience slower productivity growth in the agriculture sector. Some suggest that this is due to a lack of recognition of agriculture's potential to contribute to the Canadian economy.

Increasing production to meet growing demand in different regions of the world also has implications for transport and trade. We need to take a closer look at the transportation systems that ship Canadian-grown food around the world, as well as the trade policies that expedite this movement.

Trade patterns and practices will need to adapt to the new realities of the global marketplace. These include fluctuating commodity prices and new demand from centres that have not traditionally accommodated substantial trade (e.g. rural China and India).

Jim Wispinski, President and CEO,
Dow AgroSciences Canada, opening Day 2 of the Summit.



2. A ROLE FOR CANADA, AN OPPORTUNITY FOR THE PRAIRIES

As the agricultural value chain evolves, Canada, and especially the Prairies, will become a global focal point. Our expansive land and water resources, coupled with our small population, mean Canada is poised to become an even more important leader in food production and export. The Prairies can indeed become the “world’s breadbasket” once more.

To achieve this vision, delegates at the Breadbasket 2.0 Summit felt that three areas in particular deserve attention: innovation, collaboration and leadership. Under these themes, key issues such as R&D systems, transportation requirements, regulatory adaptation, financing and human capital will be key contributing factors for success.

Innovation has to become a higher priority for the Prairie crop sector to increase production. To support innovation, we must become more adept at collaboration. This includes stronger industry-led partnerships across sectors in Canada (public/private/research/producers) as well as aligning ourselves more closely with global standards for trade and research. Focusing on systems alignment is vital, with elements such as financing and transportation especially important for change. Finally, Canadian international leadership will be critical. Food security is of paramount importance for global peace and stability. Canada will be called upon to help foster and abide by global standards for production and trade, ensuring the fullest potential for growth while respecting environmental constraints.

The Prairies can lead in meeting the challenges of food production in the future. If appropriate measures are taken, we are certainly equal to the task. This report of summit discussions outlines some proposed policy revisions or enhancements to help meet these objectives.

Innovation

Supporting innovation will be vital to future Canadian agricultural policy, whether provincial or federal. The development of more innovative practices, products and tools can allow us to increase yields while maintaining sustainability. As we noted in the *Breadbasket 2.0 Strategic Discussion Paper*:


“Innovation in the agriculture and agri-food sector has historically played an important role in creating new products, new production practices, new disease resistant crop varieties, as well as, creating new market opportunities, lowering costs, raising yields, and improving productivity and profitability for the sector. These innovations have in turn contributed to Canada’s economic growth and improved the well-being of Canadians. The crop sector in particular has experienced success through the development and adoption of innovative products, processes and practices.²”

Within the scope of an enhanced Prairie crop innovation agenda, several elements will need to be considered. The most prominent of these is R&D. Throughout the Breadbasket 2.0 project, sector leaders demonstrated they are strongly motivated to achieve an appropriate balance between the two ends of the R&D spectrum – discovery research and application and commercialization. Over the last few decades, both have seen breakthroughs and made substantial contributions, and several participants noted that one is of little use without the other. For example, the great Canadian innovation of canola owes its success to fundamental research *and* effective work to apply and commercialize this new oilseed crop. A system where research is productive across the entire spectrum of R&D is strongly preferred. Our goal should be to reach a state where Canadian agricultural innovation has the support to move efficiently from the lab bench to the farmer’s field. Summit participants felt the goal should be a stable, secure system to support research, science and general innovation awareness. Recognizing the need for an integrated innovation system, participants discussed where efforts should be focused. Customer-centered innovation, financing and human capital development resonated as the most prominent issues.

Customers

Customer-centered innovation relates directly to Canada’s competitive advantage over international competitors, and it can add the greatest value to meeting growing global demand. For the Prairies, this means that the objective should be to supply global customers who value high-quality, reputable products at price points that make the endeavors financially feasible for Canadian producers.

² Breadbasket 2.0 Discussion Framework: Enhancing Crop Innovation in the Canadian Prairies, March, 2013



Tailoring value-added processing that meets these criteria will result in bigger market share and more profit for Prairie producers. One example of this value-added strategy can be found in the area of high-protein pulse crops such as chickpeas and lentils. Once considered exotic, these crops have become strong staples of production, and are well-placed for export markets. With a customer-centric focus on value-added production, substantial profits can be made by exporting processed or semi-processed food products (e.g. pulse flours, which are in high demand in India and other countries) in addition to the traditional Canadian strength areas of bulk commodities.

Innovation is only successful if the market supports it. New products should be developed with a strong focus on customer demand.

Regina-based Alliance Grain Traders, one of the largest pulse crop processors in the world, has used this approach to create targeted products for markets around the world, such as the King Red™ lentil. By leveraging its expertise in value-added processing, the company is creating greater returns from the Prairies' growing pulse production capacity.

Financing

Financing innovation in the Prairie crop sector has challenges. Governments have long been the primary funders of research. Continued commitment to innovation is reflected through the new FPT agriculture policy agreement, *Growing Forward 2*. However, there is a concern that R&D funds are drying up, and that this will have long-term consequences on the sector's productivity.

Whether or not public sector investment in research is on the decline, there is a need to reconsider the arrangements which govern crop research and commercialization in the Prairies. A shift to a truly multi-sectoral, collaborative model is needed. Partnerships among post-secondary institutions, governments and the private sector

must reach the next level to have a measurable impact on innovation. Some business leaders noted that existing public-private-partnerships are only partially effective at achieving this goal, and that a reconsideration of their structure towards an industry-led orientation is called for. Recent developments, such as the establishment of the Global Institute for Food Security at the University of Saskatchewan, are encouraging. Based at a university, but funded by government and the private sector, this new institute may represent a model worth replicating. New ways of generating research funds are also needed, and are discussed in later sections of this report.

Financing issues are not limited to R&D, but also involve producers. Generational change is creating tremendous turnover in farm ownership, and increased operating costs, including fuel and seed, have placed strains on producers' budgets. New mechanisms for capitalizing farmers and sharing the risk of adopting new innovations were discussed at the Summit, including efforts to pool risk in crop production. Further exploration of creative arrangements in this area is encouraged.

Human capital

Human capital is one of the defining issues for crop production in the Prairies, as in many other sectors. The competition for talent is strong. The agriculture sector, and agricultural innovation in particular, needs to do a better job of selling itself as a viable, rewarding career for talented young people. Efforts to raise awareness of the impact of agriculture on the economy and our lives have seen success and are worthy of even greater focus. Recent efforts by Farm Credit Canada, such as the *Agriculture More than Ever* program were discussed and fully supported by Summit participants. Improving science literacy and awareness among the general public is essential, both for ensuring the marketability of new food science innovations and for raising the profile of this vital sector. Post-secondary institutes and private sector leaders should recognize the value in a renewed focus on training the next generation of innovators through university and college programs and internships.

3. COLLABORATION

If innovation is the imperative, then collaboration is the best way to achieve it. Throughout the Summit, participants expressed a strong desire for more authentic collaboration. This is viewed as a means to make the best use of limited resources and as the only way to pursue the substantial innovations needed to meet the challenges of global food production.

Two key elements are driving collaboration:

Full-system approaches

To analyze and improve the crop production system, Canada needs a full-system approach. Just as Canadian crop production exists in an integrated global framework, Producers, researchers, transporters and regulators work and co-exist within an interdependent system. At present, there is less than optimal knowledge-sharing across the value chain.

The full-system approach means considering all elements together, as opposed to seeing each as a separate link in a chain. Different actors, across different sectors, need to abandon the

silos that prevent them from working across boundaries. Researchers in educational institutions, government labs and the private sector should be able to collaborate more freely. Regulators and the people they regulate (researchers, transporters or producers) should be able to have open conversations about clarity and implementation of rules and regulations. The various stakeholders need to speak to each other on a more regular basis. Mechanisms for knowledge-sharing, such as the Agriculture and Agri-Food Canada Value Chain Roundtables, are important tools and efforts to build on them would be valuable. Participants also called for more sharing of data and research, with particular emphasis on the need for private companies to communicate information more effectively. Regulatory issues were also discussed at the Summit. Participants recognized that an evidence-based regulatory system will ensure an effective system while attracting and maintaining investment and. Suggestions for improvement included clearer triggers for regulatory reviews and a focus on new products/submissions. Canada should also take a global approach to regulatory reform, such as synchronizing approvals with



Cherilyn Nagel, past President, Canadian Wheat Growers Association, speaks at the Summit about the producer perspective.

other countries, recognition of regulatory and trade decisions made in other countries, and bolstering intellectual property (IP) protection. In the case of IP, Canada should comply with more global regulatory and research standards to facilitate integration. Transportation was part of the broader systems integration discussion. Summit participants commented that the current system is designed to move bulk commodities, but not smaller quantities of value-added or finished products. Earlier discussions in the project included a call for a cost/benefit analysis on segregation, identity preservation and bulk transportation systems. Identity preservation – i.e. tracking large shipments to ensure characteristics and quality – has the potential to help producers gain access to high valued markets by protecting the quality and safety that are synonymous with Canadian products. Transportation capacity that can meet the needs of value-added production (e.g. containers vs. bulk commodity cars) was also a noted concern, as were schedules to meet port timelines (where agricultural exports often face long waits).

Targeted R&D

One of the most prominent areas where collaboration is called for is in R&D of key staple crops, such as wheat. Many felt that the fragmentation of R&D resources in this area could be better addressed through collaboration.

With the expiration of existing check-off funding systems rapidly approaching, there is a pressing need for new research funding models. However, the current trend towards supporting and advocating for research in the crop sector (post-Wheat Board) has seen a tendency for certain stakeholders to advance independent, rather than cooperative, approaches. In the absence of a cohesive network of representation, with a parallel unified funding model, different crops in different provinces have instead splintered to form a plethora of councils and agencies, each tending their own sector and region. Some participants felt strongly that this atomization of leadership is detrimental to the effective representation of ag-innovation interests. Well-organized, and nimble innovation capacity is preferred to support Canada's place in a complex global system.



Roger Beachy, founding Executive Director and CEO of the Global Institute for Food Security, delivers the keynote address on Day 1 of the Summit.

Despite this collaboration challenge, substantial partnership work has begun throughout the sector, and many called upon these efforts to be redoubled in order to see the greatest results. Participants felt that better coordination of many different elements of the ag-innovation system could be highly effective, and if properly done, could spare the need to develop entirely new structures or commissions. One such area of potential for collaborative action is in research funding. No new model for research funding

Developing funding for R&D in key areas such as plant production is a critical component of supporting agricultural innovation.

During the Breadbasket 2.0 Summit, two new models for cereals research funding were put forward. Both proposals advocated a leading role for producers in deciding and fostering investment in innovative products, as well as a strong mandate for basic research residing with universities and government labs.

has been universally accepted or implemented since the end of the single-desk system. During the Summit, this issue was noted and thoroughly discussed. Two potential models for unified cereals funding were proposed for further discussion. The first model, developed on behalf of several western Canadian commodity groups,

proposes the creation of a producer-owned Grain Investment Corporation (GIC) that would undertake commercialization (or ‘finishing’) of varieties developed by AAFC. Importantly, this presumes a continued role for the federal government in basic research into new varieties. The GIC would be funded through an end point royalty (EPR), and would be open for investment from the private sector. EPRs are royalties paid on harvested materials, as opposed to the seed itself. This allows for the collection of royalties on production from farm-saved seed.

The second model also includes a role for producer-owned investment corporations. Under this model the producer-owned investment corporation is funded by a new, non-refundable check-off. This model also includes the establishment of an EPR in order to create a greater incentive for private sector plant breeding research. A long term commitment from the government to continue basic and applied research into plant breeding is also a key element of this model.

Both proposals show the importance of fully engaging producers to support and realize crop innovation. Summit participants across all sectors fully agreed on the vital role of producers in any prospective innovation model, along with government and industry. This implies what was termed by one presenter as the “4P Approach” – producer-public-private-partnerships.





4. LEADERSHIP

To foster collaboration and advance innovation, the Prairie crop sector will have to lead from within. Leadership will be required not only to champion changes in agricultural policy and practice, but to establish a better understanding of the sector from leaders in the broader community.

Greater public awareness of the importance of agriculture is essential for fostering not only human capital, but a new generation of leaders. To reinforce this effort, a focus on educational initiatives for youth is welcome, led by stakeholders from the public and private sectors. Given the rate of generational change within the sector (and the Canadian population generally), a substantial number of producers, researchers and policy experts will be retiring, with fewer emerging leaders ready to take their place.. Work to develop and foster younger leaders has already begun, with initiatives that include Farm Credit Canada's loans for young farmers and targeted post-secondary outreach campaigns.

In addition to training and recruiting new talent, the sector should adopt the mandate of addressing glaring information gaps and misconceptions which persist among Canadians, and which may hamper the social license to adopt agricultural innovations. Negative public opinion of genetic modification is an example. While respecting the individual consumer's right to choose what products they support, Leaders from the government, private and research sectors can address fears and questions through public information campaigns. While we should have realistic expectations about the level of literacy consumers can attain about new science, the overall effort should focus on increasing the general understating of the benefits of agricultural innovation and the vital role it plays in the Prairie economy, as well as in national and international food security.

Collaboration and partnership development will also require leadership actions. The initial steps to overcome entrenched institutional barriers and make progress towards "4P" relationships—public, private, and producer—will require committed advocates willing to take intelligent risks. It should be recognized that enduring policy issues, including

the quest for balance between basic and applied research, can only be addressed collaboratively through leadership-level actions.

If the appropriate actions are taken, the Prairie provinces, and Canada as a whole, will be viewed as leaders on the global stage. On the issue of trade restrictions that hamper Canada's agriculture sector, we need to recognize that leadership is a two-way street. It is not enough to call on others to lower tariff and non-tariff barriers; Canada must do so as well. Bilateral agreements are effective tools for the resolving tariff barriers, and large-scale agreements, such as the Canada-EU Comprehensive Economic and Trade Agreement (CETA), are especially relevant.

Canada can and should lead on agriculture issues of high global importance. Food safety and food security, for instance, are areas where Canadian leadership, production capacity and expertise can be of great benefit. We should not abdicate this responsibility. The establishment of the Global Institute for Food Security offers a promising example of how Canadian leadership can contribute to addressing global challenges.

The most important element of leadership discussed during the Summit was the need for a strong, guiding vision to help lead the Prairie crop sector as it strives to become more innovative and collaborative. A concise, well-articulated vision for a pan-Prairie crop innovation strategy is strongly desired. The collaborative efforts that created *Growing Forward* and *Growing Forward 2* should be expanded to elaborate a fully integrated, cross-sector strategy for Prairie crop innovation, with a focus on industry leadership. A plan which engages the various stakeholders concentrated in the Prairies is seen as the best means of reducing duplicative efforts, focusing scarce resources and encouraging the investment of private capital.. Many areas are outlined for attention in this report, but a unified vision, with ambitious but achievable targets, is needed to provide guidance and help the Prairie crop production sector reach its full potential.

5. TAKING ACTION

The *Breadbasket 2.0* project, culminating in the Saskatoon Summit, touched on a number of important issues. While many specifics were raised, and discussion will continue, the crucial next step is to define what the priorities for the sector are and what needs to happen in order to achieve them. With a view to establishing these priorities, the following areas for action are suggested:

- **R&D**

There is a need for an R&D system that more fully integrates producers, governments, universities, and private sector researchers in a way that both expands and leverages new resources. Research should focus on the full spectrum of potential outcomes (discovery to application/commercialization) and recognize that a long-term view is needed in order to assess success.

A shift to a pan-Prairie collaborative approach on R&D is also called for. Fragmentation, silo approaches (atomization) and duplication should be minimized. A new, integrated and expanded model for crop R&D funding to support strategic priorities should be established and fully supported across the value chain.

- **New products**

Canada should consider a more customer-centric approach to new products. Our strengths are quality, safety and commodity export. It would be prudent to add stronger capacity in value-added exports, particularly in the product classes we know the largest emerging markets will demand. Canada's strongest advantage is in competing in unique, high-quality value added products in specific markets – for example, the growing demand for new pulse varieties and pulse products in south Asia. Targeted efforts are needed to build on this strength and reach even more global customers.

- **Systems alignment**

The Prairie crop production system is too divided, and key information does not flow easily. Whole-of-system alignment among producers, transporters, regulators and marketers can help us meet global standards and access markets. Greater collaboration in the knowledge transfer is also needed. The key points for alignment are regulation, transport, and research systems, and their relationship to trade policy. Other elements of trade policy require political discussion, beyond the scope of this report.

- **Partnerships**

Partnership development is critical, and it begins at the leadership level. New business models are emerging that demonstrate the impact of effective partnerships. With constricting budgets and finite resources, the need to partner to advance the Prairie crop production sector will become even more urgent. Effective partnerships will be potent tools to attract investment, leverage resources, reduce costs, share knowledge and increase the development of highly qualified personnel. The Manitoba model, featuring a decentralized collection of organizations unified under collaborations on key issues, demonstrates the value of exploring multi-faceted ventures. Key successes in Manitoba, such as advances in functional foods and health research, bear this out.





6. KEY CONSIDERATIONS

The action items point to the themes which may be of greatest value for continued dialogue on Prairie crop innovation. To support these action items, some key considerations must be kept in mind. These are broader contextual issues which will define, and to a certain extent direct, Canada's efforts to enhance crop innovation.

Vision: A compelling vision for pan-Prairie crop innovation and collaboration is needed. The absence of such a vision hinders efforts to align the sector around common goals and practices. This should be a prime concern of leaders in the sector. Participants recognized throughout the Breadbasket 2.0 roundtable series and Summit that an industry-led, pan-Prairie approach could maximize innovation, economic efficiency and value-creation.

International markets: To reach an even wider global customer base, Canada needs to play by global standards. This means making changes regarding tariff and non-tariff barriers, and taking the steps to facilitate the trade of value-

added products from the Prairies (e.g. container shipments, new value-added processing facilities). Canada is already working diligently in this area. However, continued effort is needed in order to remain competitive.

Citizenship: Canada has an opportunity and a responsibility to apply itself to the task of increasing global food production. We are one of the few countries in the world which has substantial surplus to export. The need to help feed a growing global population should be front and center in any discussion of crop innovation. The responsibility to help secure global food supplies is distinct from the desire to build new markets for Canadian products. However, innovation and collaboration can help support both discussions.



CONCLUSION: A VISION FOR INNOVATION

The *Breadbasket 2.0* project launched a substantial discussion that must be continued by leaders of the agricultural sector in the Prairies. It is imperative that all stakeholders carry the dialogue forward, focusing on the changes necessary to develop effective pan-Prairie innovation.

The first step should be to establish a compelling vision. Ultimately, this should help align the major elements of the agricultural industry in the Prairies and articulate a strategy for future innovations. A vision is necessary to address the challenges, profit from the opportunities and to feed a growing, hungrier world.

This vision, while essential to future progress, must recognize the fundamental issues affecting innovation in the Prairie crop sector. The Prairie region represents a complex network of policy and jurisdictional priorities which must be understood and respected. The key focus of a pan-Prairie vision for innovation should not be to tear down and replace the existing system, but to support capacity building, information and knowledge-sharing, and human capital development, allowing for a more collaborative, efficient innovation system in the future.



Karen Wittenberg, Associate Dean, Faculty of Agricultural and Food Sciences, University of Manitoba, takes part in the Summit discussions.

DAY ONE
JUNE 17

AGENDA

BREADBASKET 2.0 SUMMIT

REGISTRATION (Grand Salon Lobby, 2nd Floor)

AFTERNOON SESSION: 1:30 - 5:15

1:30 **SUMMIT OPENING**
David Mitchell, President & CEO, Canada's Public Policy Forum

SETTING THE STAGE: THE OPPORTUNITY

1:45 **OPENING PLENARY SESSION**
Introduction of featured speaker
Scott Banda, President & CEO, Federated Co-operatives Limited

GLOBAL CROPS: THE CHALLENGE FOR CANADA AND THE WORLD

Alex McCalla, Professor Emeritus, Agricultural & Resource Economics, University of California, Davis

Questions/discussion

2:45 **COFFEE BREAK**

3:00 **DISCUSSION: WHAT DOES THIS MEAN FOR CANADIAN AGRICULTURE?**

Moderator: Lorne Hepworth, President & CEO, CropLife Canada
Stan Blade, CEO, Alberta Innovates Bio Solutions
Alanna Koch, Deputy Minister, Saskatchewan Ministry of Agriculture
Stephen Morgan Jones, Director General, Agriculture & Agri-Food Canada

4:15 **AFTERNOON PLENARY SESSION**
Introduction of featured speaker
John Cross, former President & CEO, Philom Bios Inc.
(now Novozymes)

THE ROLE OF INDUSTRY: PRAIRIE CROP PRODUCTION, RESEARCH AND INNOVATION

Jean-Marc Ruest, Senior Vice-President, Corporate Affairs & General Counsel, Richardson International

Questions/discussion

5:00 **DAY ONE WRAP-UP –WHAT'S IN STORE FOR TOMORROW**
David Mitchell, President & CEO, Canada's Public Policy Forum

EVENING SESSION: 5:15 – 8:30

5:15 **RECEPTION**

6:00 **DINNER**

6:45 **INTRODUCTION OF KEYNOTE SPEAKER**

Peter MacKinnon, Prime Ministers of Canada Fellow, Canada's Public Policy Forum and former President & Vice Chancellor, University of Saskatchewan

KEYNOTE SPEECH

GLOBAL AGRICULTURE: INNOVATION, RESEARCH AND THE IMPORTANCE OF PUBLIC POLICY

Roger Beachy

Founding Executive Director & CEO, Global Institute for Food Security

CORDIALS AND CONFECTIONS

DAY TWO
JUNE 18

MORNING SESSION: 8:00 – 11:45

7:00 **BREAKFAST**
Hot breakfast buffet

8:00 **WELCOME BACK**
David Mitchell, President & CEO, Canada's Public Policy Forum

CHALLENGES AND BARRIERS

8:15 **MORNING PLENARY SESSION**
Introduction of featured speaker
Jim Wispinski, President & CEO, Dow AgroSciences Canada

OPPORTUNITIES IN AGRI-BUSINESS: MOVING UP THE VALUE CHAIN

Murad Al-Katib, Founder, President & CEO, Alliance Grain Traders

Questions/discussion

DAY TWO

JUNE 18

9:15 **CANADIAN AGRICULTURE: IMPEDIMENTS TO GREATER PROSPERITY**
Moderator: Mary Buhr, Dean, College of Agriculture & Bioresources, University of Saskatchewan
Lionel LaBelle, President & CEO, Saskatchewan Trade & Export Partnership
Janice Tranberg, Vice-President, Western Canada, CropLife Canada
Brad Farquhar, Co-Founder & Vice-President, Assiniboia Capital Corp.

10:15 **COFFEE BREAK**

SOLUTIONS AND DIRECTIONS

10:30 **A POTENTIAL MODEL FOR CROP INVESTMENT AND INNOVATION**
Moderator: Dori Gingera-Beauchemin, Acting Deputy Minister, Manitoba Agriculture, Food & Rural Initiatives
Presenter: Stuart Garven, Partner, Garven & Associates
David Hansen, President & CEO, Canterra Seeds
Brian Otto, Producer & Chair, Barley Council of Canada

11:45 **BUFFET LUNCHEON**
AGRICULTURE AWARENESS – AGRICULTURE: MORE THAN EVER
Cherilyn Nagel, Producer & past President of the Western Canadian Wheat Growers Association
Lyndon Carlson, Senior Vice-President, Farm Credit Canada

AFTERNOON SESSION: 1:30 – 4:00

1:30 **INNOVATION AND RESEARCH – THE FUTURE OF CROPS**
Moderator: Ron DePauw, Senior Principal Wheat Scientist, Agriculture & Agri-food Canada
Presenter: Richard Gray, Professor, College of Agriculture & Bioresources, University of Saskatchewan
Roman Szumski, Vice-President, National Research Council
Jeff Rosichan, New Technology Leader, Dow AgroSciences
Karin Wittenberg, Associate Dean (Research), Faculty of Agricultural & Food Sciences, University of Manitoba

2:30 **COFFEE BREAK**

2:45 **REFLECTION PANEL: WHAT WE HEARD AND WHERE TO FOR CANADA**

Moderator: Pete Desai, Mustard 21 Canada
Hon. Dr. Grant Devine, Producer & Former Premier of Saskatchewan
Joanne Paulson, Editor, The Western Producer
Don Macyk, Alberta Producer & Feed Grain Coalition
Alex McCalla, Professor Emeritus, University of California, Davis

3:45 **WHAT NEXT AND CONCLUDING OBSERVATIONS**

Wilf Keller, President & CEO, AgWest Bio, and
Chair, Breadbasket 2.0 Advisory Network

4:00 **CLOSING REMARKS AND ADJOURN**

David Mitchell, President & CEO, Canada's Public Policy Forum



APPENDIX B

LIST OF ROUNDTABLE AND SUMMIT PARTICIPANTS

Manitoba Roundtable

Winnipeg, March 11, 2013

Chris Barker

Senior Project Manager, Department of Plant Sciences
University of Saskatchewan, Genome Prairie

Peter A. Burnett

Director, Grain Research Laboratory

Doug Cattani

Department of Plant Services
University of Manitoba

Ryan Conway

Project Lead
Public Policy Forum

Tim Feduniw

Senior Manager, Economic Development
Economic Development Winnipeg Inc

Nadia Gagnon

Economist, Agri-Food Chain and IRM Analysis
Agriculture and Agri-Food Canada

Garnet Garven

Senior Fellow
Public Policy Forum

Tracy Gilson

Assistant Deputy Minister
Government of Manitoba

Bert Innes

Director of Research
Prairie Fire Growth Ventures Inc

Dr. Wilf Keller

President and CEO
Ag-West Bio Inc.

Roland Kirouac

District Director
Farm Credit Canada (FCC)

Johanne Kristjanson

Policy Economist, Policy Analysis
Agriculture and Agri-Food Canada

Owen McAuley

Committee Member
Keystone Agricultural Producers

Peter Newfeld

Policy Economist, Innovation and Science
Agriculture and Agri-Food Canada

Lynda Nicol

Communications & Membership Manager
Canadian Association of Agri-Retailers

Grant Palmer

Manitoba Agriculture, Food and Rural Initiatives

Leloni Scott

Assistant Deputy Minister
Government of Manitoba

Curtis Sawatzky

Policy Analyst
Canadian Canola Growers Association

Alberto Velasco

Executive Director of Business Development
CentrePort Canada

Michael Wood

Senior Policy Consultant Rail and Business
Manitoba Infrastructure and Transportation

Robin Young

Project Coordinator
Food Development Centre

LIST OF ROUNDTABLE AND SUMMIT PARTICIPANTS

Saskatchewan Roundtable

Regina, March 12, 2013

Jodi BanksManager, Income and Statistics, Policy Branch
Saskatchewan Ministry of Agriculture**Fauzi Bekkaoui**Executive Director
Wheat Improvement Flagship Program
National Research Council of Canada**Rick Burton**Assistant Deputy Minister
Saskatchewan Ministry of Agriculture**Lyndon Carlson**Senior Vice-President, Marketing
Farm Credit Canada**Ryan Conway**Project Lead
Public Policy Forum**Ron DePauw**Senior Principal Wheat Breeder
Agriculture and Agri-Food Canada**Kari Doerksen**Senior Project Manager
Genome Prairie**Cheryl Ellis**Senior Market and Trade Officer, Mid-Western
Regional Office
Agriculture and Agri-Food Canada**Doug Faller**Policy Manager
Agricultural Producers Association
of Saskatchewan**Pierre Fobert**Senior Research Officer
NRC Plant Biotechnology Institute**Nadia Gagnon**Economist, Agri-Food Chain and IRM Analysis
Agriculture and Agri-Food Canada**Garnet Garven**Senior Fellow
Public Policy Forum**David Gauthier**President and CEO
Genome Prairie**Richard Gray**Professor, Department of Bioresource
Policy, Business and Economics
University of Saskatchewan**Ron Healy**Associate Vice President
Federated Co-operatives Limited**Royal Hinthier**Director of Business Development
Canadian Light Source Inc**Abdul Jalil**Executive Director
Agriculture Research
Saskatchewan Ministry of Agriculture**Ashley Kearns**Policy Economist, Policy Development
Agriculture and Agri-Food Canada**Dr. Wilf Keller**President and CEO
Ag-West Bio Inc.**Monte Kesslering,**Vice president of seed and crop protection
Viterra**Janice Tranberg**Vice President, Western Canada
Crop Protection Companies**Robin Young**Project Coordinator
Food Development Centre

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LIST OF ROUNDTABLE AND SUMMIT PARTICIPANTS

Alberta Roundtable

Edmonton, March 14, 2013

Shiferaw Adilu

Branch Head, Policy Coordination
and Research, Policy, Strategy and
Intergovernmental Affairs Division
Alberta Agriculture and Rural Development

David Bailey

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Genome Alberta

George Clayton

Senior Advisor
Agriculture and Agri-Food Canada

Paul Desai

President
Desai & Desai Inc

Kent Erickson

Chairman
Alberta Wheat Commission

Leanne Fischbuch

Executive Director
Alberta Pulse Growers Commission

Garnet Garven

Senior Fellow
Public Policy Forum

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and Quality Food for Health
Alberta Innovates Bio Solutions

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Member
Feed Grain Coalition

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Assistant Deputy Minister
Western Economic Diversification

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Dow AgroSciences Canada Inc.

StephenMorgan Jones

Director General, Science Partnerships
Agriculture and Agri-Food Canada

Jonathan Neutens

General Manager - Canada
Nufarm Agriculture Inc

Greg Porozni

Chair
Alberta Grains Council

Don Reiter

Marketing and Trade Officer, Alberta and
Territories Office
Agriculture and Agri-Food Canada

Rob Schmeichel

District Director
Farm Credit Canada

Doug Walkey

Executive Director
Alberta Crop Industry Development Fund

Bryan Walton

Chief Executive Officer
Alberta Cattle Feeders

Randall Weselake

Professor and Canada Research Chair
University of Alberta

LIST OF ROUNDTABLE AND SUMMIT PARTICIPANTS

Breadbasket 2.0 Summit

Saskatoon
June 17-18, 2013

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Founder, President and CEO
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Lana Awada

Graduate Student
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President and CEO
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Ernie Barber

Dean and Deputy Director and Chief Operating
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College of Engineering / Global Institute for Food
Security
University of Saskatchewan

Christopher Barker

Chief Scientific Officer
Genome Prairie

Roger Beachy

Founding Executive Director and CEO
Global Institute for Food Security

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Mustard 21 Canada

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Producer and Former Premier of Saskatchewan

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Farm Credit Canada

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Farm Leadership Council

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Barley & Oat Breeder
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