

PARTNERS IN INNOVATION
Workshop, April 12, 2011
Ottawa, Ontario

Workshop Summary and Report

Agenda Item	Summary and Report
Welcome and Introductions	<p>The workshop Co-Chairs, Don Kenny, President Grain Farmers of Ontario and Lorne Hadley, Chair, CSTA Intellectual Property Committee welcomed all the participants and thanked everyone for participating. It was noted that this is the first time that this diverse group has come together, and that hopes are high for a positive learning experience and dialogue.</p> <p>A list of workshop participants is Appendix #1</p>
Farmer/Producer Panel	
Farm sector representatives were asked to identify their innovation needs and objectives to begin the dialogue in this area.	
Gerrid Gust, Western Canadian Wheat Growers Association	<p>WCWGA is a membership funded and driven association of full time professional farmers. WCWGA members represent the farmers who produce 80% of Canada's wheat.</p> <p>WCWGA's objectives are:</p> <ul style="list-style-type: none"> • Increased funding for public research • An environment that promotes private sector investment in R &D • Removal of regulatory impediments to investment and the successful operation of farm businesses • An end to the monopoly operated by the Canadian Wheat Board <p>Sees a future where the wheat industry will have three streams:</p> <ol style="list-style-type: none"> 1. Premium hard red spring wheat which will likely be produced and sold under contract in Identity Preserved systems for premium prices 2. Commodity Wheat – that will compete on the world market on price 3. Starch wheat –High energy, low protein high yielding wheat for the ethanol and livestock sectors. <p>Western wheat producers need varieties that can reduce water, pesticide, nutrient and fuel requirements, and varieties that can help increase processing efficiency, and perhaps increase shelf life of baked goods.</p> <p>Farmers will pay for seed if they can get the attributes they want.</p> <ul style="list-style-type: none"> • There is merit in commercial funding solutions like variety specific end point royalties and offsets in crop insurance and Business Risk Management programs for the use of certified seed.

<p>Crosby Devitt, Grain Farmers of Ontario</p> <p><i>Presentation is attached</i></p>	<p>In Ontario there has been steady upward trends in acreage planted to corn, soybeans and wheat, with the largest increases in soybean acreage</p> <p>The trend has also been upward for yield, with corn yield trending up about 2 bushels/acre per year for the last few years; Winter wheat has been increasing about 1 bushel/acre per year and spring wheat has had a much smaller year over year increase.</p> <p>Ontario yield increases compared to those in Germany show about the same trend line, although overall yield in Germany is higher</p> <p>A survey was recently conducted around priorities for plant breeding and research.</p> <ul style="list-style-type: none"> • Respondents ranked “wheat breeding for improved disease resistance” as the highest priority <p>Other priorities identified where:</p> <ul style="list-style-type: none"> • Varieties that can counteract environmental stress (temperature, water stress) • Breeding varieties for specific markets • Value added traits • Improved quality for specific processing needs • Continued availability of food grade soybean varieties
<p>Kofi Agblohr, Saskatchewan Pulse Growers</p>	<p>Saskatchewan produces about 80% of Canada’s pulse crops. The success is build on a partnership between the Government of Saskatchewan, Universities and growers. Every \$1 in check-off generates over \$20 in return. The return is 80% from new genetics and 15% from production methods.</p> <p>Pulse crops benefit the environment and the diet. With the growing world population and changing dietary needs, plant sources of protein are going to become more and more important.</p> <p>The objectives for Saskatchewan Pulse are:</p> <ol style="list-style-type: none"> 1. Pulses must remain competitive in the global marketplace <ul style="list-style-type: none"> • Meeting that objective will require huge increases in the number of varieties and traits (e.g. 10 market classes of lentils instead of 1). Pulses are excellent candidates for bio-fortification e.g. zinc, iron and beta carotene sources 2. Pulses must be competitive in the cropping systems in Canada – they must be more attractive to farmers than other crop options (e.g. canola or wheat)

	<p>Objectives in pulse crop breeding include:</p> <ul style="list-style-type: none"> • Reduced nutrient requirements • Maximize use of light intensities • Reduced pesticides and herbicides • Increased disease resistance <p>No tool should be left unused in the effort to reach the objectives, this includes the use of genomics to reduce the time required to bring new varieties to the market.</p>
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<p>Theresa Bergsma, Manitoba Corn Growers Association</p> <p><i>Presentation is attached</i></p>	<p>Farmers in Manitoba are looking for cropping alternatives to wheat because of weather and disease</p> <p>Corn is becoming more attractive, and the hope is that corn will occupy as much as 300,000 acres in Manitoba this year.</p> <p>Manitoba Corn Growers need:</p> <ul style="list-style-type: none"> • Research to create varieties with increased cold tolerance to ensure growth in cooler soils and in cooler spring temperatures • Varieties that reach physiological maturity earlier • Dedicated breeding for earlier varieties that will improve yields • Herbicide approvals for corn on a national basis.
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Key Messages from the Producer Discussions

	<p>Farmers need:</p> <ol style="list-style-type: none"> 1. Plant Breeding for: <ul style="list-style-type: none"> • Improved yield • Improved quality • Disease resistance • Adaptability to specific regions • Tolerance to abiotic stresses • More efficient use of water and nutrients • Varieties that are designed for specific, high value markets 2. An appropriate return on investment. 3. Farmers will pay for seed that will deliver what they need to generate an increased return on their farms. 4. More choice so that varieties can be selected that work the best on the farm 5. Increased public investment in research and plant breeding <p>It is understood that technology can bring change very quickly, and the pace of change in the industry is going to have to be fast because of factors like climate change.</p> <p>Farmers are taking a more active role and are more willing to take the leadership in partnerships with other stakeholders to direct the future.</p>
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Researcher/Plant Breeder Panel

Plant breeders and researchers were asked to respond to the needs identified from the discussions of the producer issues, and to identify challenges to addressing the needs.

Jim Bagshaw, Syngenta

Presentation is attached.

- Global agriculture faces tremendous challenges – but the outcome is that “we need to grow more with less”.
- Technology for seed isn’t just about yield. It’s yield +
 - Profitability
 - Input efficiency
 - Quality and safety
 - Environmental sustainability
- Water use, nitrogen and other nutrient efficiency will be key in the future, and needs to be priority
- Technology can drive improvements significantly and quickly
 - Led by corn but soybeans, canola, vegetables and cane, and rice. Wheat is the lowest on the technology “S curve”.
- Current technology advances are so rapid that they are outpacing both the regulatory process and consumer understanding. Those two issues need to be addressed by governments and industry
- Keys to success:
 - Public/private partnerships to develop and advance technology – used the example of Syngenta and CIMMYT (international maize and wheat improvement centre) partnership to advance technology in wheat.
 - Private/private partnerships – used the example of Syngenta and Bayer
 - A regulatory environment that is flexible, nimble and keeps pace with market needs and the technology pipeline
 - Plant variety protection that is clear, well understood and enforceable
 - New innovation models that are more open and consultative

<p>Ron DePauw, Wheat Breeder, Agriculture and Agri-Food Canada</p> <p><i>Presentation attached</i></p>	<ul style="list-style-type: none"> • In the next 50 years, world agriculture will have to produce as much food as has been consumed over the entire human history. • The knowledge and genetic potential is there to create varieties <ul style="list-style-type: none"> - With increased yield - Increased productivity - Increased tolerance to abiotic stresses - Increased water use efficiency - That make better use of inputs - that capture new market opportunities • However current cereal biology is a balance between protein, yield and maturity rate. Increasing one factor reduces one or both of the others • We need to build a better plant and protect it – from disease and pests and environmental stressors • Yield of hard red spring wheat (Katepwa as a base) has been increasing steadily, but the cost per unit of improvement continues to increase. The high investment requirement is a reason that the EU is so far ahead – more investment • There is potential for success, but a successful wheat breeding program needs: <ul style="list-style-type: none"> - Stable funding to employ competent staff - A network of nurseries in targeted ecological areas - Capital such as land and buildings - Specialized equipment - All must be preceded and undergirded by the proper political and economic climate, and governance structure.
<p>Andre Comeau, Cereal Breeder, Agriculture and Agri-Food Canada</p> <p><i>Presentation attached</i></p>	<p>There is a shortcut to get beneficial results faster and less expensively. It is through quantitative genetics with a systemic approach</p> <p>Focusing on one trait can damage many others, so a systemic approach is required</p> <p>With this approach his research has reduced vomitoxin levels 10 to 12 times those of Barrie in just 8 years.</p>
<p>Key Messages from Research and Plant Breeding</p>	
	<ul style="list-style-type: none"> • There is general consensus that research and plant breeding can deliver all of the requirements identified by farmers, and new knowledge will be created in the process. • What is required is: <ul style="list-style-type: none"> - A reasonable return on investment for both public and private sector researchers and plant breeders – rewards for success - Increased, long term, stable funding, from government, the private sector and farmers

	<ul style="list-style-type: none"> - Increased collaboration and cooperation throughout the system, including expanded public/private partnerships, and coordination of priorities between public and private breeders and farmers. <ul style="list-style-type: none"> ▪ At the same time clear commitments that increased farmer funded and/or private sector investment is not a reason to reduce government investment - steps to clarify and address the restrictions around how public sector researchers and breeders can use funding (set objectives), including those generated from royalties on their varieties – rewards for success - Improved plant variety protection, but also the facilitation of access to germplasm for research and further breeding
<p>Regulatory Session Presentation attached</p>	<p>Pete Marshall of Monsanto Canada addressed the question: Does Canada’s regulatory environment stifle innovation?</p> <ul style="list-style-type: none"> • Canada’s regulatory approval system for novel products differs from other countries, because Canada’s system focuses on the product, not the process that was used to develop the product. • The Canadian system is out of synch with the world, but is it viewed as the most effective and rigorous approach to protecting human, and animal health and safety, and the environment. • While it is slow, and somewhat cumbersome, Canada’s regulatory system is science based and relatively predictable. <p>There are some threats to an effective regulatory system. They include:</p> <ul style="list-style-type: none"> • Efforts to inject non-science based requirements like market assessments or labelling requirements into the regulatory approval processes <ul style="list-style-type: none"> - Where health and safety are not at issue, there are voluntary labelling standards in existence - The industry does its due diligence on market assessments • Legal challenges to regulatory systems <ul style="list-style-type: none"> - More prevalent in the United States (e.g. GM alfalfa and GM sugar beets) • Lack of harmonization in regulatory requirements – e.g. PMRA requirements for pesticide efficacy data and different minimum residue limits in different markets • Regulatory Capacity • The pipeline is expanding but the capacity to assess and review the applications is shrinking <ul style="list-style-type: none"> - there needs to be a balance between the amount of data required and the amount submitted for a complete review package.

	<ul style="list-style-type: none"> • New interpretations of existing regulations <ul style="list-style-type: none"> - e.g. Environment Canada's proposal to regulate the introduction of microorganisms used for research, even though they are present in Canada, or the restrictions on the import of pest eggs for research <p>There are also opportunities for Canada to lead in the work to improve regulatory systems</p> <ul style="list-style-type: none"> • More flexible variety registration system to enable more timely registration of varieties for farmers • Canada can lead the process to develop and implement international policies and procedures on low level presence • Joint reviews and work sharing between government departments and internationally.
Key Messages on Regulation	
	<ul style="list-style-type: none"> • Canada's regulatory system is slow, but it is based on science, is effective and predictable • Government needs to take an active role to defend its regulatory systems and the decisions that it makes based on science • Risk also needs to be a clear consideration in regulatory decisions • The capacity of Canada's regulatory system to accommodate the pace of new technology needs to be a priority issue because it is the issue that could have the greatest impact, and where there is the greatest chance of success. • Niche markets are important to farmers and industry – the regulatory system needs to ensure that niche markets (such as non-GM) can be developed and expanded.
Plant Breeders Rights	<p>Kate Steiflemeyer from the George Morris Centre made a presentation on a paper that was done to assess the market impact of amending Canada's Plant Breeders' Rights to comply with UPOV 1991.</p> <p>She compared UPOV 1991 to 1978 and reviewed the amendments that would be required to Canada's PBR legislation. She reviewed the results of an industry survey that the George Morris Centre did around amendments to PBR. The majority of the respondents were supportive of amending Canada's legislation to comply with UPOV 1991, but it was conditional on the retention in Canada's legislation of the farmers' privilege to save production to use as seed on their own farms.</p> <p>The main benefit of amending PBR was identified as ensuring that Canada is standardized with the rest of the world. However survey participants also indicated that amendments would:</p> <ul style="list-style-type: none"> • increase the use of PBR • increase investment in plant breeding • increase choice for farmers • increase return for public sector breeding

	<p>It was clearly identified that if farmers and others don't break the law, amending PBR legislation would have no negative impact on them.</p> <p>Clarification provided during the discussion included:</p> <ul style="list-style-type: none"> • While PBR and patents are both forms of intellectual property, they are governed by different laws and regulations. PBR is protection for varieties, which patents are on traits, events and genetic material. • UPOV 1991 does not specifically provide for the collection of royalties on farm saved seed. However some countries have interpreted the UPOV requirement "to respect the legitimate interests of the breeder" to mean that royalties can be collected on farm saved seed • UPOV makes it clear that royalties can only be collected on harvested material or products of harvested material if the breeder has not had a reasonable opportunity to collect the royalty on the seed. Double dipping is not permitted. • How and if the farmer's privilege is applied and administered is dependent on the legislation in each member country. e.g. some countries do not allow for farm saved seed; some have a wide open allowance; some only allow it on certain crop kinds.
<p>Alberta Pulse Growers Position statement</p>	<p>The representative from the Alberta Pulse Growers explained that the association supports amending PBR to comply with UPOV 1991, and that a mandatory, variety based, end point royalty should be implemented, with a rebate for the use of certified seed.</p>
<p>Key Messages on Plant Breeders' Rights</p>	
	<ul style="list-style-type: none"> • There is growing support for amending Canada's Plant Breeders' Rights legislation to comply with UPOV 1991 • Maintaining the farmers' privilege to save production to use as seed on their own farms is going to be important. • More communication and education is required so that farmers clearly understand the amendments that would be required, and what the impact might be.
<p>Ideas Panel</p> <p>Participants were asked to outline existing and proposed programs and activities to stimulate investment in innovation</p>	
<p>Jeff Reid, SeCan/CSTA – Tax Incentive</p>	<ul style="list-style-type: none"> • The private sector invests in research and plant breeding. In 2007, private seed companies invested 26% of their combined operating budgets in plant breeding and research. • The main source of funds for investment is the sale of certified seed. The crop kinds where certified seed use is high, have been the main beneficiaries of increased investment in plant breeding and research. • While all of Canada benefits from the innovation funded by the sale of certified seed, on average only 30% of the seed planted is certified.

	<p>That means that 30% of farmers are carrying all of the costs of the benefits to all.</p> <ul style="list-style-type: none"> • CSTA, supported by the CSGA and a number of organizations, is proposing the implementation of a tax incentive for producers who purchase certified seed. It will increase the funds available for investment, and ensure that the costs of innovation are shared by all who benefit. • The concept is that farmers would report 155% of the amount they spend on certified seed, as expenses for income tax purposes. The resulting reduction in tax payable would offset the extra cost of certified seed. • The cost (tax income foregone) to government would be \$179 million if all seed planted in Canada is certified, and the George Morris Centre estimates that the resulting return to the economy would be over \$600 million.
<p>William Van Tassel, FPCCQ</p> <p><i>Presentations attached</i></p> <p>1. <i>Quebec program link to certified seed</i></p>	<ul style="list-style-type: none"> • Quebec is the only province that recognizes and compensates for the use of certified seed. The sale of certified seed is the main source of funding for private sector plant breeding and research. • The Quebec Crop insurance requires a number of best management practices including proof of the use of certified seed for coverage • The income stabilization program ASRA does not require certified seed, but if there is a loss, the compensation to farmers is adjusted downward when certified seed is not used. • There is a direct link between certified seed use and ASRA. When ASRA is not paying out, certified seed use falls. • Certified seed use in Quebec is very high, and as the result, there is much more private breeding in Quebec than in other provinces.
<p>2. <i>Grain Innovation Roundtable proposal</i></p>	<ul style="list-style-type: none"> • The Grain Innovation Roundtable is exploring a concept for funding plant breeding and research that starts with wheat, but could be expanded. • It is a combination of: <ul style="list-style-type: none"> - Producer research levy (likely 1%) which be collected on all delivered grain and would be matched by government - Variety based end point royalty collected on delivery and allocated to the owner of the variety. A rebate would be provided where certified seed is used. • A non-profit producer run entity would be established to collect and allocate the levy, and establish and oversee the royalty.

<p>Kofi Agblohr, Saskatchewan Pulse Growers</p>	<ul style="list-style-type: none"> • Saskatchewan Pulse Growers have operated a very successful funding program for pulse variety development at the Crop Development Centre • It began with an agreement with NSERC (Natural Sciences and Engineering Research Council of Canada) which provided a great deal of funding • There is a producer check-off on sales of pulses in Saskatchewan. 70% of the levy collected by Sask Pulse goes to plant breeding, and about 15% goes to market development and commercialization • Sask Pulse believes that one size does not fit all, and it works on a case-by-case basis with individual breeders. • Advice is not to duplicate the models used by other sectors or other countries – design for the need in a specific crop in a specific area. It works.
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Next Steps

	<p>This meeting was very constructive because it brought together the major stakeholders in the industry and the dialogue was open, frank and honest</p> <p>This kind of dialogue and cooperation needs to continue</p> <p>A working group with the following participants:</p> <ul style="list-style-type: none"> • Grain Farmers of Ontario • Grain Growers of Canada • La Fédération des producteurs de cultures commerciales du Québec • Canadian Seed Trade Association • Agriculture and Agri-Food Canada (Ron DePauw) <p>Will draft a set of principles and a strategy to move the principles forward, for the consideration of the other participants</p> <p>One of the elements of the strategy should be to take the principles forward to the Grain Round Table.</p>
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