



AIC • 2016

Disseminating Agricultural Research

Bridging the Gap Between Idea and Adoption

Conference Report

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EXECUTIVE SUMMARY

Researchers, government officials, industry representatives, and other agricultural research stakeholders came together on April 13-14 in Ottawa to help develop recommendations on research dissemination that will reinforce best practices and identify concrete actions for implementation in the agriculture sector. Over two days, conference participants attended workshops and provided advice based on their experiences and expertise in:

1. Dissemination Strategies and Participation Channels for Agricultural Research
2. Knowledge Transfer and Extension
3. Intellectual Property (IP) Protection, Cooperation and Collaboration

Several overarching themes and points of consensus emerged during discussion:

Policies are needed that clearly identify structures and conditions that will boost knowledge sharing and the dissemination of agricultural innovations in the sector. Human and financial resources to address infrastructure, staffing, training and retention issues are needed to achieve this.

Dissemination strategies need to unpack the complexity of agricultural innovations when communicating with end-users. Innovations should be explained to farmers, ranchers, and producers in an understandable manner using targeted channels including but not limited to social media, print material, and continuing education platforms.

Communication efforts must also target the consumer and public at large who are increasingly removed from understanding food production. On-farm learning opportunities such as field days and open farms, as well as public broadcasting programs could encourage a better understanding of the impacts of agricultural R&D and engage the public in informed, open, and constructive dialogue.

Agricultural extension and knowledge transfer programs are crucial to the adoption of research outputs on Canadian farms. However, structural changes and the diminishing role of provincial and federal governments have resulted in the need for a new participatory research and extension model that is based on knowledge-sharing and co-learning. This will benefit both the research and farming communities. The delivery of these programs requires increased intervention from other key actors including commodity groups, agrologists and the private sector, as well as built-in funding for knowledge transfer activities.

EXECUTIVE SUMMARY

Interdisciplinary and cross-sectoral partnerships speed up the introduction of new innovations to the market, making new technologies available to consumers and producers and ensuring broader dissemination of information. However, a formal mechanism is needed for the exploitation of IP resulting from agricultural research by stakeholders involved in partnerships.

Participants called for:

- Further financial resources for capacity-building including infrastructure, staffing, training, and retention to address research dissemination, knowledge transfer and IP issues.
- Recognition of the crucial role of producers and consumers in the research value chain.
- The implementation of new participatory research and extension models that engage end-users and stakeholders throughout the research process.
- Enhanced intellectual property management structures for collaborative research to enhance the socio-economic impact of agricultural research and to accelerate knowledge transfer through commercialization opportunities.

Participants also stressed that sharing best practices for research dissemination strategies, IP and knowledge transfer would help the sector examine the opportunities and pitfalls of possible exploitation and dissemination routes.

The Agricultural Institute of Canada (AIC) will release a document outlining these best practices as well as an updated version of AIC's national agricultural research, innovation and development policy in the summer of 2016.



BACKGROUND

An important contributor to agricultural growth and productivity is the knowledge system underpinning agriculture in Canada. Yet, Canada's full potential cannot be realized without research that is informed by real problems on the ground and efforts are made to appropriately disseminate research outcomes to end-users.

Researchers, governments, industry and other key players in the value chain are examining new ways in which research results and their applications are being communicated to a much broader audience. Agricultural research has become an increasingly shared responsibility among actors in the public and private sectors. These new models of partnership emphasize the need for improved communication schemes and broad dissemination strategies. Strong linkages among researchers and other stakeholders are essential to increase cooperation and improve the flow of information.

Agricultural research in Canada must respond to this changing landscape by increasing its ability to weave dissemination and knowledge exchange into the research process maximizing its impacts on society and help Canada reach its full potential in productivity and innovation.

Between November 2015 and February 2016, the AIC conducted an online pre-conference consultation on the dissemination and utilization of agricultural research results that sought to gather additional views from a sample of key players in the agricultural research value chain from across Canada.

Their input formed the basis of our conference work and drove the key questions discussed in the conference workshop sessions.

AIC 2016 aimed to develop recommendations on research dissemination that will reinforce best practices and identify concrete action items for implementation in the agriculture sector. Over two days, conference participants attended workshops where they provided advice based on their experiences and expertise in the following three conference themes:

1. Dissemination Strategies and Participation Channels for Agricultural Research
2. Knowledge Transfer and Extension
3. Intellectual Property Protection, Cooperation and Collaboration

This report summarizes the conference workshop discussions that took place at AIC 2016.



Conference Presentations

We would like to acknowledge and thank our conference panelists whose valuable contributions helped set the stage for the important discussions that took place at the conference.

Workshop 1-A

Drew Black, **Canadian Federation of Agriculture**
Dr. Andreas Boecker, **University of Guelph**
Tracy Herbert, **Beef Cattle Research Council**

Workshop 1-B

Gabrielle Bauer, **Award-winning author and science writer**
Mary Ann Binnie, **Canadian Pork Council**

Workshop 2-A

René Mongeau, **Ordre des agronomes du Québec (Order of Agrologists of Quebec)**
Michael Toombs, **Ontario Ministry of Agriculture, Food and Rural Affairs and Agricultural Research Institute of Ontario**

Workshop 2-B

Amy Argentino, **Canadian Horticultural Council**
Dr. Bronwynne Wilton, **Synthesis Agri-Food Network**

Workshop 3-A

Lana Culley, **Vineland Research and Innovation Centre**
Dr. Chidi Oguamanam, **University of Ottawa**

Workshop 3-B

Christine Teixeira and Seema Bissoon-Haqqani, **Canadian Intellectual Property Office**
Jonathan Roch, **MBM Intellectual Property Law LLP**
Christine Piché, **National Research Council of Canada**

Summaries of the panel presentations as well as presentation and workshop files can be found on the [Conference Resources](http://www.aic.ca/aic2016resources/) page: www.aic.ca/aic2016resources/

Theme 1

Dissemination Strategies and Participation Channels for Agricultural Research

WEDNESDAY, APRIL 13, 2016

KEY THEMES

- Barriers to research dissemination: financial, administrative and communication
- Challenges facing science communication
- Multi-stakeholder collaboration in the development of a new national research policy framework
- Value-based and interactive communication strategies
- Social license for agricultural research
- The role of consumers in agriculture
- Written communication techniques

A scientific breakthrough that could dramatically change how farmers harvest, or manufacturers prepare a certain product, is discovered in a lab. How do we get this vital information from the research lab to benefit the end user? Workshop 1-A: *Dissemination Strategies and Policies* explored the policy opportunities and strategies associated with how researchers transfer and disseminate knowledge.

Summary of workshop discussions

Participants were asked to identify what stands in the way of the dissemination of agriculture-related research results.

The lack of budgetary resources, a scarcity of incentives, significant administrative burdens and reduced timelines for research dissemination activities within increasingly reduced project length times were highlighted as precluding the undertaking of dissemination tasks.

Research dissemination has been disregarded and neglected in past policy development and priority setting efforts for agricultural research. Current outreach and dissemination requirements have also been wrongly placed at the end of the research project cycle, hindering the uptake of new technologies and knowledge.

Uncoordinated communication strategies have resulted in duplication and reduced impact of research findings. Increased motivation is therefore needed to find innovative ways to share research results with end-users.

The shortage of knowledge transfer or dissemination specialists and extension staff has increasingly affected the dissemination of research findings in all provinces.

Some end-users have difficulty understanding complex technical information and untargeted messaging does not emphasize the role agricultural research plays in contributing solutions to economic, sustainability or social issues. Producers are also frequently unequipped

to distinguish between truthful and unreliable sources of information.

“ Research results should be reported in a transparent and interactive manner through different methods and formats.

A better understanding of end-users' needs and behaviors is needed to identify target audiences for research messaging. Scarce opportunities for interactions between the research and farming communities however, hamper the movement from research into practice.

Research findings are not often translated in both official languages, further preventing smaller francophone organizations with fewer financial resources from accessing the latest research.

Workshop participants also stated that existing dissemination strategies¹ need properly defined goals, scope and target audience and must demonstrate the practical value of research to key influential individuals – community leaders, extension specialists, and agrologists among others.

Research results should be reported in a transparent and interactive manner through different methods and formats that provide evidence of their applicability under different conditions.

Smooth administration of communication programs would catalyze adoption of agricultural innovations. A reasonable timeframe is also required to implement effective communication strategies in the development of collaborative projects.

Researchers should have better support from other stakeholders or specialized staff – knowledge translators or research-based communications professionals – to carry out comprehensive communication plans throughout the research process.

¹ Strategies are the actions used to achieve long-term objectives, in this case to communicate research to key actors in the research value chain.

Distributing fact sheets for researchers on how to execute extension programs and creating a researcher database were suggested as ways to help disseminate new research information.

Participants called for the sharing of lessons learned and best practices between commodities, better coordination at the local, provincial and national levels and the creation of a national agricultural research network that engages the whole research value chain. It was noted that provincial and national commodity groups must enhance their communications to avoid duplication, share costs and exchange expertise.

Participants also pointed out several guidelines to achieve common long-term objectives through policy recommendations for enhanced dissemination of new knowledge and technologies.



The dissemination process must be integrated in the research project cycle allowing for increased stakeholder engagement and reduced administrative burdens. A knowledge transfer and translation component should be a mandatory condition for conducting research with public funds.

Regular follow-ups with end-users also have the potential to provide a greater understanding of the impact of new research on Canadian farms.

Key actors in the research value chain should undertake mandatory training in dissemination and public communication – including knowledge transfer and translation (KTT). Agricultural education curriculums should include this component as well.

End-users should be given the opportunity to choose the technology that works best for them by providing alternative solutions addressing the same issue.

A funding stream for dissemination in the next Federal-Provincial-Territorial Agricultural Policy Framework or joint funding mechanisms may provide the financial resources needed for capacity building (staffing and infrastructure), research communications and information exchange.

Federal infrastructure to improve broadband services in rural communities would allow farmers greater access to new technological tools, as well as participate in the transfer of new discoveries and knowledge.

Participants finally analyzed a sample of dissemination strategies and tactics and put forward several ideas on how to better spread information on agricultural research findings to potential end-users.

The use of channels other than academic publishing including online knowledge resources – websites, social media, databases, wikis, blogs, infographics, videos, and podcasts – can be used to share knowledge and help ensure stakeholders outside academia can utilize new knowledge. Yet, equal priority should be given to face-to-face and technology-based communications.

Continuing education activities such as multidisciplinary workshops or seminars and e-learning communities – LMS platforms, online courses, web-based learning tools – have an increasingly important role to play in facilitating the understanding of technical knowledge given their multimedia capacity and user interactivity.

Finally, multi-stakeholder consultations, regular meetings with farming or commodity associations, demonstrations at exhibitions and with local producer groups, one-on-one conversations with local farmers, and inter-provincial collaboration would enable more interactions between researchers and producers and facilitate the development of participatory research teams.

While some conference attendees discussed dissemination strategies and practices, others talked about how building public trust in research is becoming increasingly important in today's era of instant news. Workshop 1-B *Bridging the Gap between Research and the Public* examined how to take complex research findings and effectively communicate them to the public in order to encourage social engagement and acceptance of agricultural research.

Summary of workshop discussions

Workshop participants noted that farming has become an increasingly complex undertaking. The sector must find ways to unpack the complexity and tell stories in clear, uncomplicated ways to deliver strong, but accurate messages using adequate channels.

“ Consumers have not been sufficiently recognized as part of the research value chain.

The wealth and overload of information available for the public along with untrustworthy sources of information – inconclusive science, mixed messages from detractors of agricultural research – are some of the biggest challenges facing communication with consumers.

Others recognized that consumers have not been sufficiently recognized as part of the research value chain. As such, efforts should be made to engage consumers in an open and constructive dialogue rather than to educate them about the importance of agricultural research.

Farmers, scientists and knowledge brokers have an important role to play in connecting agricultural research to what is important to the public, while helping the sector remain credible and authentic.

The digital age is creating opportunities to more easily reach target audiences. Public broadcasting programs may be used to explore issues and

share attractive and meaningful success stories on agriculture and food production. A long-running program in western Canada - Farmgate - is evidence of the value of using this medium.



On-farm research and experiential learning opportunities – field days, open farm days – could encourage a better understanding of the impacts of agricultural R&D.

Others highlighted that traceability tools – labelling, packing – may help protect and strengthen the social license for agricultural research by providing consumers with accurate information of various agricultural products from one point in the supply chain to another.



MOVING FORWARD

As agriculture continues to become an increasingly complex undertaking, the sector must find ways to unpack that complexity to communicate information in clear, uncomplicated ways that will deliver strong, but accurate messages using adequate channels.

Dissemination must be part of the research project cycle to allow for increased stakeholder engagement in research. A knowledge transfer and translation component should be a mandatory condition for conducting research with public funds.

Traditional knowledge diffusion, such as publication in peer-reviewed journals and presentations at academic conferences remain a necessary condition and first step for communicating research results. The use of other channels such as online knowledge resources, continuing education activities and face-to-face communications are also necessary to ensure stakeholders outside academia can utilize new knowledge.

With over 80% of Canadians living in urban areas and only 1% of the population belonging to the farming community, the population as a whole is becoming less aware of contemporary agriculture. This has led to a lack of actual knowledge and understanding with respect to current farming practices and agricultural R&D.

Efforts should therefore be made to engage consumers in an open and constructive dialogue rather than to educate them about the importance of agricultural research. Farmers, scientists and knowledge brokers can provide opportunities to connect agricultural research to what is important to the public, yet remain credible and authentic.

A funding stream for dissemination in the next Federal-Provincial-Territorial Agricultural Policy Framework and joint funding mechanisms are needed to provide the financial resources required for capacity building (staffing and infrastructure), research communications and information exchange.

The key consideration in moving forward on policies that benefit research dissemination is to achieve greater collaboration among all key stakeholders involved in agricultural research. Sharing of lessons learned and best practices between commodities as well as better coordination at the local, provincial and national levels must also be considered.

Theme 2

Knowledge Transfer and Extension

WEDNESDAY, APRIL 13, 2016

KEY THEMES

- The evolving role of key actors in the delivery of extension services
- Extension and agricultural research as a shared responsibility
- The shortage of agricultural extension specialists and services
- The benefits and challenges of various extension models
- Provincial and sectoral differences in the delivery of extension services
- Recruitment and retention of extension staff
- Existing and potential participation of researchers in knowledge transfer initiatives
- Knowledge transfer as a complex and dynamic system of interaction, dialogue and exchange between stakeholders
- Capacity-building for knowledge transfer – funding, infrastructure, staffing, tools

In recent years, funding priorities for government and other entities have shifted focus and led to a redefinition of the role of extension services for agricultural research. What used to have only a few players, suddenly has many more. Workshop 2-A: *Models of Extension in the 21st Century* examined various extension models and collaborations and the evolving roles and responsibilities of academia, agrology professionals, farmers, governments and producer-led organizations.

Summary of workshop discussions

Workshop participants expressed concern about the shortage of agricultural extension specialists and services in their provinces. In recent years, there has been a gradual reduction in publicly-funded agricultural extension services in Canada which has contributed to an increase in private sector involvement.

“ A new model based on knowledge-sharing and co-learning might benefit producers, and promote greater collaboration.

There was a sense that privately-provided extension should be approached cautiously to prevent biased knowledge transfer. However, it could be more flexible in its goals than government-funded extension, leading to a greater ability to adapt rapidly to changing landscapes.

The private sector – specifically agri-retailers – develop a close relationship with clients and are more familiar with their personal needs – meeting one of the key success factors for extension: trust and accountability.

Some participants felt other actors – national and provincial industry associations, or even academia – should take the lead in providing funding and management for extension activities. Some believed that Canadian universities should invest and be directly involved in extension activities.

National and provincial producer groups have increasingly used revenue from producer check-offs to co-fund large research projects, including extension and knowledge transfer activities. These groups have been representing a more consistent source of funding for extension however the great diversity of existing extension models poses additional barriers to cross-provincial and cross-sectoral collaboration.

Many felt that the traditional extension - based on bringing advice - is no longer needed. A new model based on knowledge-sharing and co-learning, instead of a simple transfer of information, might benefit producers, and promote greater collaboration. Through participatory approaches, researchers may respond more effectively to producers' needs by developing technologies that can be adopted more widely.

A flexible and up-to-date national policy framework could enable mechanisms to provide long-term and consistent funding for extension programs including recruitment and retention of human resources. Nevertheless, any nationwide initiative must take regional and sectoral particularities into account.



How can we be assured that our findings are being used to their full potential by those who would stand to benefit the most? Workshop 2-B: *Maximizing Technological Transfer* discussed ways that agricultural researchers can better engage end-users in the research and development process in order to achieve a higher return on investment and maximize the impact of new information, processes, products and technologies.

Summary of workshop discussions

Participants noted that there are many online tools available for knowledge transfer however the broadband infrastructure in rural areas must be accessible for end-users to take advantage of these tools.

Allowing end-users a seat at the table when determining research priorities and goals will help ensure relevancy to the issues farmers and ranchers face in their fields. Researchers and KT staff should then jointly design communication strategies considering end-user needs, the particularities of the innovation and the desired outcomes of the research project.

This focus on end-users' needs demands consideration of timing requirements to meet the challenge of getting new research peer-reviewed and into growers hands when it will be most effective and reflective of the market.

Effective communication and regular agricultural extension are an essential part of the knowledge transfer process and require financial support within the research project budget – including the incorporation of KT into research incentive programs. It would allow for staff training, field research and continuous monitoring of the uptake of new technologies. Financial and structural support for short- and long-term education and training for farmers is also needed.

Adequate risk mitigation measures – i.e. insurance – should support the management of R&D projects and the development of technology transfer actions.

Some farmers have adopted a proactive approach to innovation by adapting new technologies and knowledge to their specific needs. Farmers open to innovation may generate new leadership at the grower level to advocate for greater adoption of new technologies. Incentives for this group – from profit-sharing mechanisms to risk management compensation for early adopters – were also suggested.

National mandatory regulations to ensure the inclusion of innovation-oriented processes in food production may force farmers to abandon unsustainable farming practices and embrace technological change.

When asked how producers could be better brought into the R&D or product development process, participants suggested an exchange: researchers visit farms, and farmers visit their labs for a day. As an example, the Research Committee of Egg Farmers of Canada which is mostly made up of producers visits academic research facilities annually.

Opening up research facilities for tours would also encourage greater knowledge of the research taking place. Participants noted that this would require organizational support and sometimes a culture shift to embrace allowing others into research facilities.



MOVING FORWARD

The public sector is no longer a “paternal” organization with centralized agricultural research and extension programs. The role of all key actors in the agriculture sector – farmers, producers, commodity organizations, producer advisors, researchers, industry, and agribusinesses – has dramatically evolved in response to this shift.

These actors have been gradually taking the lead in providing funding and management for extension activities. Agri-business and private extension are also increasingly reaching out to commodity groups for collaborative projects - representing an opportunity to improve extension services.

These new organizational structures demand a new model of extension and knowledge transfer based on information exchange, participation and co-learning, rather than a simple transfer of data.

Participatory research approaches bring valuable opportunities to engage end-users in research projects and knowledge transfer (KT) activities, as well as foster trust and relationships between researchers and producers. They may also help researchers respond more effectively to farmers’ needs by developing technologies that can be adopted more widely.

This focus on end-users’ needs demands consideration of timing requirements to meet the challenge of getting new research peer-reviewed and into growers hands when it will be most effective and reflective of the market.

The inclusion of funding for KT and extension activities in the next Federal-Provincial-Territorial Policy Framework, the integration of KT objectives into the mandates of key institutions – from academia, industry, to the provincial and local ministries of agriculture – and enhanced collaboration across the sector can enable the environment needed to implement new participatory research methods and enable effective knowledge transfer.

A man in a white shirt and blue vest is examining a corn cob in a field. The background is a lush green cornfield with tall stalks and ears of corn. The man is looking down at the cob he is holding, which is partially husked, revealing the yellow kernels.

Theme 3

Intellectual Property Protection, Cooperation and Collaboration

THURSDAY, APRIL 14, 2016

KEY THEMES

- Commercialization strategies in collaborative research
- IP ownership in interdisciplinary and cross-sectoral partnerships
- Opportunities and threats for agricultural research and research dissemination arising from Intellectual Property Protection
- Risk of increased focus on applied and commercializable research
- The current role of intellectual property rights in agricultural innovation
- Patent information as an important resource for research
- Plant breeders' rights and their benefits
- Business opportunities for research projects

Intellectual property rights (IPR) add complexity to any partnership, and agricultural research is no exception. *Workshop 3-A: IP Management in Interdisciplinary and Cross-Sectoral Partnerships* examined the challenges and opportunities that present themselves in agricultural research partnerships, as well as the key issues that need to be addressed before entering into licensing agreements.

Summary of workshops

Participants in Workshop 3-A felt that there are significant threats and challenges posed by IP in agricultural research that outweigh the opportunities it can provide.

They felt that researchers often lack basic knowledge on IP and the business skills required to manage and negotiate their own IP. Knowledge transfer offices are often outdated and lack access to legal and intellectual property advisors. In many cases, the primary function of academic research managers does not include identifying, evaluating or protecting intellectual property.

There is a struggle reconciling the perceived goals of both the research and business communities when it comes to intellectual property. Unrealistic expectations on both sides can decelerate the commercialization progress.

Participants believed that IP management contributes to overwhelming and time-consuming processes that add additional expense and complexity to research partnerships. Endless negotiations, costs associated with maintaining IPR, project management challenges, and protecting innovation on a global scale seem costly, daunting and difficult to manage for stakeholders in the sector.

As we heard at AIC2015, there was a feeling that an increased focus on IP and commercialization may lead researchers to lean towards applied research and “commercializable technologies”, hampering

the development of basic research. There is a risk that creating IP could be prioritized over other research priorities grounded in sustainability goals.

“ IP exploitation may also play an important role in attracting, retaining and motivating good scientists interested in the entrepreneurial aspects of agricultural research.

Unclear terms in the ownership of new technologies and knowledge as well as an unfair distribution of IP benefits pose additional challenges. Participants mentioned that patents are often owned by individual researchers thereby allowing some individuals to benefit unfairly from publicly-funded research.

Nevertheless, others believed that IP offers many potential benefits; providing revenue stream for reinvestment into future research, bringing a greater and faster return on investment, and allowing commodity groups to actively contribute to the development of high-impact research projects.



IP exploitation may also play an important role in attracting, retaining and motivating good scientists interested in the entrepreneurial aspects of agricultural research. IP agreements and partnerships can also help Canadian agricultural research achieve a competitive advantage at the international level.

Enabling IP exploitation demands a new understanding of research collaboration, specifically in the context of interdisciplinary and cross-sectoral partnerships. Common goals and shared decision-making when choosing an appropriate exploitation route are fundamental prerequisites for establishing research agreements between the public and private sector. Ultimately, trust must be the bedrock of any partnership.

Participants emphasized that non-commercializable research projects – such as environmental projects and best management practices whose results might serve as input for both basic and applied research – should not be lost.

Others included the need for a formal mechanism to set roles for key stakeholders involved in the exploitation of IP resulting from agricultural research. In this context, there was a suggestion that all university IP and Tech Transfer offices be eliminated and replaced by one office to serve and be supported by all Canadian universities.

Further funding for IP and KTT incorporated from the outset of research projects is needed, as well as further resources for capacity-building including staffing, training and retention. Specialized staff able to identify and manage knowledge resources with business potential in early stage agricultural R&D is essential for achieving greater utilization of new technologies and knowledge.

Finally, participants wanted increased transparency among research partners and organizations with inter-provincial and inter-institutional projects. Similarly to universities, they suggested a common IP office or policy be implemented to handle IP issues.



Intellectual property rights (IPR) affect nearly every part of the research process from initial development to the sharing of results with other researchers. It is also an area of great debate and misunderstanding not only in agricultural research but also in other areas of scientific research.

Workshop 3-B: *IP 101* attempted to demystify intellectual property rights and help participants better understand how the strategic use of patent information, licencing and other exploitation routes can contribute to greater innovation in the sector by clarifying key concepts such as patents, plant breeders' rights and research commercialization.

Summary of workshops

Many participants in the workshop felt that their views on IP had changed somewhat – now recognizing that IP can be a beneficial tool for research. Others noted that knowing how IP builds in as a communication tool was also useful knowledge for the industry.

Participants suggested that simplified explanations of IP would help stakeholders better understand IP issues and recognize the advantages of protecting, managing and exploiting intellectual property.

“ Simplified explanations of IP would help stakeholders better understand IP issues and recognize the advantages of protecting, managing and exploiting intellectual property.

Agricultural stakeholders – from producers to academia – should learn how to manage innovations with business potential and choose adequate exploitation and dissemination strategies. Case studies, best practices and training resources should be made available for promoting a better understanding of IP management and anticipating issues in advance in agricultural research and public-private partnerships.

Finally, participants stressed the positive contribution of protected technology to the Canadian economy by allowing a high rate of return on innovations. Nevertheless, the group stressed the need for risk management regarding IP procedures and an evidence-based ROI analysis is needed to determine the real impact of IP on agricultural innovation.



MOVING FORWARD

IP offers a revenue stream to reinvest into future research and may bring greater return on investment. Its exploitation may play an important role in attracting, retaining and motivating skilled scientists interested in the entrepreneurial aspects of agricultural research in Canada. Stronger IP agreements and partnerships can also help Canadian agricultural research achieve a competitive advantage at the international level.

Nevertheless, enabling IP exploitation in the sector demands a new understanding of research collaboration, specifically in the contexts of interdisciplinary and cross-sectoral partnerships.

A formal mechanism is needed to set roles for key stakeholders involved in the exploitation of IP resulting from agricultural research. Common goals and shared decision-making are also fundamental prerequisites for establishing research agreements between the public and private sector.

Agricultural stakeholders should learn how to manage innovations with business potential and choose the most beneficial exploitation and dissemination strategies. Case studies, best practices and training resources should be made available for promoting a better understanding of IP management and anticipating issues in advance in agricultural research and public-private partnerships.

Collaborative research projects need to incorporate funding for IP management from the outset including capacity-building measures for staffing, training and retention of IP experts.

Finally, defining how progress towards outcomes will be measured is of equal importance to the establishment of specific responsibilities for each stakeholder regarding IP. Monitoring the impact of agricultural R&D will help research institutions promote what has been achieved for the public good, develop goal-specific research initiatives and assess research projects based on their potential impact.

ANNEX A.

CONFERENCE PARTICIPANTS

AGB Lawyers
Agricultural Research and Extension Council of Alberta
Agriculture and Agri-Food Canada
Alberta Agriculture and Forestry
Alberta Barley Commission
Alberta Canola
Alberta Canola Producers
Association of Canadian Faculties of Agriculture and Veterinary Medicine
BC Cattlemen's Association
Beef Cattle Research Council
British Columbia Institute of Agrologists
Canada Foundation for Innovation
Canadian Agri-Food Policy Institute
Canadian Angus Association
Canadian Association of Agri-Retailers
Canadian Cattle Identification Agency
Canadian Centre for Swine Improvement
Canadian Federation of Agriculture
Canadian Food Inspection Agency
Canadian Hatching Egg Producers
Canadian Horticultural Council
Canadian Intellectual Property Office
Canadian Pork Council
Canadian Poultry Research Council
Canadian Seed Growers Association
Canadian Seed Trade Association
Canola Council of Canada
Centre de référence en agriculture et agroalimentaire du Québec
Centre d'expertise et de transfert en agriculture biologique et de proximité
Céréla
Chicken Farmers of Canada
Dalhousie University
Egg Farmers of Alberta
Egg Farmers of Canada
Farm Management Canada
Farming Smarter
Fédération des producteurs acéricoles
Fertilizer Canada
Genome Prairie
Glacier FarmMedia
Goodman School of Business - Brock University
Grain Farmers of Ontario
Grain Growers of Canada
Grober Inc.
Inter-American Institute for Cooperation on Agriculture
Livestock Research Innovation Corporation
Manitoba Agriculture, Food & Rural Development
Manitoba Canola Growers Association
MBM Intellectual Property Law LLP
McGill University
National Research Council of Canada
National Sunflower Association of Canada
Nova Scotia Department of Agriculture
Ontario Genomics
Ontario Ministry of Agriculture, Food and Rural Affairs
Ontario Sheep Marketing Agency
Ordre des agronomes du Québec
Peace Country Beef & Forage Association
PEI Department of Agriculture and Fisheries
Potatoes New Brunswick
Prince Edward Island Potato Board
Producteurs de grains du Québec
Quebec Farmers Association
Saskatchewan Institute of Agrologists



ANNEX A.

CONFERENCE PARTICIPANTS

Saskatchewan Wheat Development Commission

SaskCanola

Swine Innovation Porc

Synagri S E C

Synthesis AgriFood Network

University of Guelph

University of Manitoba

University of Ottawa

University of Saskatchewan

Valacta

Vineland Research and Innovation Centre

ANNEX B.

RESOURCES

1 - A Dissemination Strategies and Policies

- [Balanced Biotech Reporting? in FARE Share: Sharing valuable insights, University of Guelph](#)
- [Standing Policy, Canadian Federation of Agriculture](#)
- [Beef Research School, Beef Cattle Research Council](#)

1 - B Bridging the Gap Between Research and the Public

- [Livestock Environmental Assessment and Performance \(LEAP\), Food and Agriculture Organization of the United Nations](#)
- [On the Farm, Egg Farmers of Canada](#)
- [ProAction - on-farm excellence, Dairy Farmers of Canada](#)
- [Social Responsibility, Ontario Pork](#)

2 - A Models of Extension in the 21st Century

- [Understanding Knowledge Translation and Transfer \(KTT\), Ontario Ministry of Agriculture, Food and Rural Affairs](#)
- [How to build Your Knowledge Translation and Transfer \(KTT\) Plan, Ontario Ministry of Agriculture, Food and Rural Affairs](#)
- [Research Management System, Ontario Ministry of Agriculture, Food and Rural Affairs](#)
- [The Gryphon's LAAIR: Leading to Accelerated Adoption of Innovative Research, University of Guelph](#)
- [SPARK*Air Videos, University of Guelph](#)
- [Clubs conseils en agroenvironnement \(French only\)](#)
- [Les Groupes conseils agricoles du Québec \(French only\)](#)

2 - B Maximizing Technological Transfer

- [Fresh Thinking, Canadian Horticultural Council](#)

ANNEX B.

RESOURCES

3 - A IP Management in Interdisciplinary and Cross-sectoral Partnerships

- [Intellectual Property Training and Education: A Development Perspective](#), Jeremy de Beer and Chidi Oguamanam
- [Patents and Pharmaceutical R&D: Consolidating Private–Public Partnership Approach to Global Public Health Crises](#), Chidi Oguamanam
- [The Innovation Report](#), Vineland Research and Innovation Centre

3 - B IP 101

- [Tutorial on How to Prepare a Patent Application](#), Canadian Intellectual Property Office

Free Patent databases:


- [PATENTSCOPE](#), World Intellectual Property Office
- [Espacenet](#), European Patent Office
- [United States Patent and Trademark Office \(Patent Full-Text Databases\)](#)
- [Canadian Patents Database](#), Canadian Intellectual Property Office
- [J-Plat Pat](#), Japanese Patent Office
- [GooglePatent](#)

Fee-based Patent databases:

- [TotalPatent](#)
- [Intellectual Property Solutions](#)
- [QuestelOrbit](#)
- [STN](#)
- [Scopus](#)
- [GenomeQuest](#) (for Sequence searching)
- [Traditional Knowledge Data Library](#)
- [International Union for the Protection of New Varieties of Plants](#)



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