The Alliance for Food and Bioproducts Innovation (AFBI) Scholars Program is a network of scholars from the Department of Agricultural and Resource Economics (College of Agriculture and Bioresources) and the N. Murray Edwards School of Business, University of Saskatchewan. It is funded by Saskatchewan Ministry of Agriculture and the main idea of having the AFBI is to promote and develop the agriculture industry and capture the maximum economic, social and environmental benefits for the development and diversification of the Saskatchewan economy. It was established in 2008 and the funding is available until March 31, 2018. This report covers the period of April 01, 2016 to March 31, 2017.

During 2008/2017, the AFBI has provided funding for 45 research projects on a wide range of topics. As the AFBI is committed to invest in graduate education it has provided funding for 35 graduate student research projects – 26 MSc research projects and 9 PhD research projects - of the University of Saskatchewan during that period. Thirty-two projects have been completed already.

Similar to past years, 2016/2017 was also a productive year for the AFBI. The program has supported sixteen research projects that were initiated or continued in 2016/2017. Twelve graduate students- 3 PhD students and 9 MSc students- of the University of Saskatchewan were involved in these research projects during 2016/2017. Three research projects were completed during this year and now there are thirteen ongoing research projects.

To disseminate the knowledge created by the AFBI research, AFBI scholars and AFBI students have published several journal articles and final reports during 2016/2017. Also, they have presented their research output in various conferences during this time period. Other than AFBI scholar and student seminars there were several guest seminars under the AFBI/ Innovation seminar series of the Department of Agricultural and Resource Economics as well.
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Executive Summary</strong></td>
<td>2</td>
</tr>
<tr>
<td>1. About the AFBI</td>
<td>4</td>
</tr>
<tr>
<td>2. AFBI Executives and Scholars</td>
<td>4</td>
</tr>
<tr>
<td>3. AFBI Funded Research Projects 2016/2017</td>
<td>5</td>
</tr>
<tr>
<td>4. Progress Reports of the ongoing AFBI Projects -2015/2016</td>
<td>17</td>
</tr>
<tr>
<td>5. AFBI Publications</td>
<td>24</td>
</tr>
</tbody>
</table>
The purpose of the AFBI is to provide objective and timely analyses of innovation and commercialization processes, entrepreneurship, business strategies, value chain analysis and policy development related to bioproduct and value-added food innovations. AFBI supports research in three key areas of the food and bioproducts sector: Economics of Innovation and Commercialization, Innovation Policy- Public and Private, Innovation Management and Commercialization.

**AFBI Executive Members**

**Bill Brown**  
Professor & Head of the Department  
Department of Agricultural and Resource Economics, University of Saskatchewan

**Jonathan Gruel**  
Executive Director, Policy Branch, Saskatchewan Ministry of Agriculture

**David Zhang**  
Associate Professor, Edwards School of Business, University of Saskatchewan

**AFBI Scholars**

**Bill Brown** - Professor and Head of the Department  
**Lana Awada** - Professional Research Associate

**David Natcher** - Associate Professor  
**Murray Fulton** - Professor

**David Zhang** - Associate Professor  
**Peter Slade** - Assistant Professor

**Eric Micheels** - Assistant Professor  
**Richard Gray** - Professor

**Hayley Hesseln** - Associate Professor  
**Richard Schoney** - Professor Emeritus

**James Nolan** - Professor  
**Stuart Smyth** - Assistant Professor

**Jill Hobbs** - Professor  
**Suren Kulshreshtha** - Professor

**Ken Belcher** - Professor  
**William Kerr** - Professor
Brief History: Completed AFBI Funded Research Projects* 2008/2016

During 2008/2017, the AFBI has provided funding for 45 research projects on a wide range of topics. As the AFBI is committed to invest in graduate education it has provided funding for 35 graduate student research projects – 26 MSc research projects and 9 PhD research projects - of the University of Saskatchewan during that period. Thirty-two projects have been completed already.

Completed projects 2008/2016

**Project # 1: Innovation, Producer Group Decision Making and Member Heterogeneity**  
*Murray Fulton and Zhihua Xiao*

**Project # 2: Entrepreneurship and International Trade**  
*William Kerr and Carol Thomson*

**Project # 3: Grain Handling on the Prairies - evaluating the consequences of future wheat handling strategies on producer management decisions**  
*James Nolan and Houtain Ge*

**Project # 4: Mitigating the Risks to Commercializing Biofuels Innovations Posed by Barriers to International Market Access**  
*William Kerr and Alphanso Williams*

**Project # 5: Rate of Return to the Research and Development Expenditure on Zero Tillage Technology Development in Western Canada**  
*Richard Gray*

**Project # 6: An Economic Analysis of Innovation and Commercialization in Small Saskatchewan Agribusiness**  
*Bill Brown and Undrakh Ganbaatar*

**Project # 7: Targeting of Ecosystem Goods and Services: Directing Agri-Environmental Policy Innovation**  
*Ken Belcher and Lilani Samarakoon*

**Project # 8: Incentives for innovation across alternative agricultural organizations - assessing the consequences of protectionist policies in agriculture**  
*James Nolan and Savanaah Gleim*

**Project # 9: Factors Affecting Consumers Preferences for Specialty Eggs in Canada (Completed)**  
*Jing Zhang, Hayley Hesseln and Liou Huang*

**Project # 10: An Agent-based Simulation of Wheat Based Ethanol Plant Location Decisions for Saskatchewan**  
*James Nolan and Jason Wood*
Completed projects 2008/2016

Project # 11: Made in Saskatchewan: A marketing perspective on the sustainability and competitive advantage of branding food and bioproducts produced in Saskatchewan
David Zhang

Project # 12: An Assessment of Consumers' Willingness to pay for Milk and Milk Products Containing Credence Attributes
Eric Micheels, Jill Hobbs and Shelicia Forbes-Brown

Project # 13: The Economic Impacts of Livestock Disease: Animal Traceability Technologies and Regionalization Policies
Jill Hobbs and Michel St. Louis

Project # 14: Exploring The Adoption of Traceability Technologies in Canadian Agri-Food Sector: An Empirical Approach
Jill Hobbs and Albert Ugochukwu

Project # 15: Food Quality Innovations and Trust: Exploring the Role of Standards, Labels and Brands
Jill Hobbs and Rim Lassoued

Project # 16: Effect of climate change on farmers' choice of crops: An econometric analysis (Completed)
Suren Kulshrestha and Jolene Grise

Project # 17: Insights into Fresh Vegetable Sector in Saskatchewan (Completed)
Bill Brown and Maryam Ahooghalandari

Project # 18: A Productivity Analysis of Aggregate Public and Private R&D Investments in Canadian Wheat and Canola Industries (Completed)
Metin Cakir, Richard Gray and Liyang Huang

Project # 19: An Assessment of the Market Orientation and Entrepreneurial Orientation of Saskatchewan and Northern U.S grain and Livestock Farms (Completed)
Eric Micheels and Manglai

Project # 20: An Assessment of the effects of Market Orientation and Entrepreneurial Orientation on Farm Performance (Completed)
Eric Micheels and Eduardo Pina

Project # 21: Incentives for the Adoption of Socially-Beneficial Technologies: The Case of an E. coli Vaccine (Completed)
Jill Hobbs and Brian Ochieng’

Project # 22: International Wheat Royality Systems and Revenue Generation: An International Comparison (Completed)
Richard Gray and Seraina Giovanoli
Completed projects 2008/2016

**Project # 23: Market Prospects**  
*Kenneth Rosaasen*

**Project # 24: One Earth Farms: A Model for Private Agricultural Investment?**  
*David C. Natcher and Tom Allen*

**Project # 25: A Comparison of Prairie Cash Grain Farms with other Major Exporting Countries**  
*R.A. Schoney, and Eric Micheels*

**Project # 26: Measuring Innovation and the Productivity Growth in Canadian Agriculture**  
*Lana Awada and Richard Gray*

**Project # 27: Attitude Toward and Use of Risk Management Tools in Saskatchewan Agriculture**  
*Eric Micheels, Ken Rosaasen and Geoff Backman*

**Project # 28: The Proposed Canada-India Free Trade Agreement and the Market for Saskatchewan Lentils**  
*Bill Kerr and Marija Pavleska*

**Project # 29: Potential for New Markets for Saskatchewan Pulses and Lentils in the TransPacific Partnership**  
*William Kerr and Tekuni Nakuja*

**Project # 30: Attitude Toward and Use of Risk Management Tools in Saskatchewan Agriculture**  
*Eric Micheels, Ken Rosaasen and Geoff Backman*

**Project # 31: Comparing the Adoption of Genetically Modified Canola in Canada and Australia: The Environmental and Economic Opportunity Costs of Delay**  
*Stuart Smyth and Scott Biden*

**Project # 32: Ex-ante Impact Assessment of Genetically Modified Maize Adoption in El Salvador**  
*Stuart Smyth and Deigo Macall*

* Please visit the AFBI website to read the Final Reports of some of the completed projects.  
The program has supported sixteen research projects that were initiated or continued in 2016/2017. Twelve graduate students- 3 PhD students and 9 MSc students- of the University of Saskatchewan were involved in these research projects during 2016/2017. Three research projects were completed during this year and now there are thirteen ongoing research projects.

**Ongoing projects 2016/2017**

**Project # 1: Business Risk Management Programs and On-Farm Investment**  
*Peter Slade and Alistair Campbell*

**Project # 2: Building on the Saskatchewan advantage: Empirical investigations of leveraging the value of "Made in Canada/Saskatchewan" brand to enhance international market development**  
*David Zhang*

**Project # 3: Assessing the Economic and Environmental Impacts of Herbicide Tolerant Crop Production**  
*Stuart Smyth*

**Project # 4: Evaluation of the Effectiveness of the Market Prospects Program**  
*Bill Brown, James Lokken and Charles Appaih*

**Project # 5: Deconstructing Public Perceptions of Bioscience Innovations: Social Networks, Information, and Communication Strategies**  
*Jill Hobbs, Stuart Smyth and Yang Yang*

**Project # 6: Crop Research Allocation Processes in Producer Controlled Organisations**  
*Richard Gray and Seyed Hosseini Pozveh*

**Project # 7: Productivity Growth in the Crop and Livestock Sectors in the Prairie Provinces**  
*Richard Gray and Lana Awada*

**Project # 8: Identification and Management of Risk in Production Agriculture in Saskatchewan**  
*Eric Micheels, Kathy Larson and Cosmos Atta*

**Project # 9: Responses to CETA within the Canadian Beef Value Chain**  
*Eric Micheels, Jill Hobbs, Bill Kerr, Kathy Larson and Amanda Gabruch*

**Project # 10: Examining the Resources and Capabilities for Profiting from Technological Innovations in Production Agricultural Systems**  
*Eric Micheels and Tetiana Zmazhenko*
Ongoing projects 2015/2016 (cont.)

Project # 11: Irrigation Development as an Instrument for Economic Growth  
Suren Kulshreshtha and Jillian Panchuk

Project # 12: Barriers to Growth in Rural Saskatchewan -- A Case Study of Municipal Tax and Non-Tax Incentives  
Suren Kulshreshtha

Project # 13: Transporting regional commodities to export markets - what does the future hold for the Prairie grain handling system? A spatial analysis and forecast  
James Nolan and Azin Rahimi
Progress Reports of the ongoing AFBI Projects - 2015/2016

Project # 1: Business Risk Management Programs and On-Farm Investment

Lead investigator: Peter Slade
Graduate Student: Alistair Campbell
Duration: September 1, 2016 to March 31, 2018

PROPOSED TIMELINE AND PROGRESS TO DATE

<table>
<thead>
<tr>
<th>Description of milestone / activities</th>
<th>Start date</th>
<th>End date</th>
<th>In progress</th>
<th>Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate student coursework</td>
<td>01/09/2016</td>
<td>01/05/2017</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Primary analysis (BRM and investment)</td>
<td>01/05/2017</td>
<td>01/09/2017</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary analysis (BRM and land prices)</td>
<td>01/09/2017</td>
<td>01/11/2017</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comparative study of BRM programs</td>
<td>01/11/2017</td>
<td>01/03/2018</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing/completion of MSc thesis</td>
<td>01/03/2018</td>
<td>01/05/2018</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final report to AFBI</td>
<td>01/03/2018</td>
<td>01/04/2018</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presentation to government/industry groups</td>
<td>01/01/2018</td>
<td>01/04/2018</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presentation at CAES conference</td>
<td>01/06/2018</td>
<td>01/07/2018</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submission of peer reviewed publication</td>
<td>01/06/2018</td>
<td>01/07/2018</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

RESEARCH ABSTRACT

This project aims to assess the impact of business risk management programs on farm investment in Canada. The bulk of the research will be undertaken by a master’s student, Alistair Campbell. Alistair is just finishing his coursework, which has given him a solid background in microeconomics, agricultural policy, and econometrics. We will be using data from Farm Financial Survey that is available through Agriculture and Agri-Food Canada (AAFC). AAFC has shown interest in our research program and potential results. We have just signed a contract with AAFC provides Alistair with a stipend to visit Ottawa in order to access the data and share results with AAFC. The research should pick up in May when Alistair completes his courses.

The research plan is again unchanged from the proposal. The proposal has three primary objectives.
1) Analyze the impact of Canadian BRM programs on investment in capital equipment.
2) Analyze the impact of Canadian BRM programs on land prices.
3) Undertake cross-country comparisons of BRM programs in Canada, the United States, Europe, and Australia.

The overarching purpose of the study is to contribute to the ongoing discussion surrounding the impact of BRM programs on the Canadian agriculture sector. The first and second objectives address Canadian BRM programs in a vacuum -- asking whether these programs are effective in fostering investment. The third objective is to compare BRM programs across countries, thereby contextualizing the results of the first two objectives, while yielding insights into how Canadian programs can be improved.

RESEARCH OUTPUT

As mentioned Alistair is ready to begin the research phase of his degree in May – we expect preliminary results by the fall and a final report by March.
Project # 2: Building on the SK advantage: Empirical investigations of leveraging the value of 'Made in Canada/Saskatchewan' brand to enhance international market development

Lead investigator: David Di Zhang, Edwards School of Business
Duration: July 1, 2013 to June 30, 2017

PROPOSED TIMELINE AND PROGRESS TO DATE:

<table>
<thead>
<tr>
<th>Phases</th>
<th>Dates</th>
<th>Action</th>
<th>Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>01/07/2013 – 31/12/2013</td>
<td>Literature review, Solidify research questions</td>
<td>Completed</td>
</tr>
<tr>
<td></td>
<td>01/01/2014 – 30/06/2014</td>
<td>Establish partnership/network, Obtain Research Ethics approval, Implement phase-one study</td>
<td>Completed</td>
</tr>
<tr>
<td></td>
<td>01/07/2014 – 31/12/2014</td>
<td>Collect data, analyze data, Reporting preliminary results</td>
<td>Completed</td>
</tr>
<tr>
<td></td>
<td>01/01/2015 – 30/06/2015</td>
<td>Presenting result to industry partners and seek feedbacks and formulate 2nd round of strategy development research</td>
<td>Completed</td>
</tr>
<tr>
<td>Phase 2</td>
<td>01/07/2015 – 30/06/2016</td>
<td>Phase two research (Quantitative) on consumer attitude and willingness to pay for agri-food products with manipulation on value propositions.</td>
<td>Completed, Manuscript under review</td>
</tr>
<tr>
<td></td>
<td>01/07/2016 – 31/12/2016</td>
<td>Phase two research (Qualitative) on the diversity of consumer – producer attitudes and perspectives.</td>
<td>Data collection completed, Manuscript in development</td>
</tr>
<tr>
<td>Phase 3</td>
<td>01/07/2016 – 30/06/2017</td>
<td>Phase three research (Quantitative) – International comparative study of Chinese and Canadian consumers with respect to their attitude formation, responses to advertisements, and implications on marketing communication strategies</td>
<td>In progress</td>
</tr>
<tr>
<td></td>
<td>01/01/2017 – 30/06/2017</td>
<td>Finalize study and report results at seminars, conferences, and journals</td>
<td>In progress</td>
</tr>
</tbody>
</table>

EXECUTIVE SUMMARY OF THE RESEARCH:

The proposed research is intended to focus on exploring strategies for developing international markets and enhancing the market value of agri-food products produced in Saskatchewan. Specifically, this project aims to identify the "Saskatchewan Advantage" that is embodied in Saskatchewan products; assess foreign customers’ perceptions of Canadian products; and develop guidelines for future promotional strategies for international market development for Canadian (Saskatchewan) agricultural products.

This research project employs a mix of qualitative and quantitative research methodologies, including in-depth qualitative interviews, cross-cultural national surveys, and experimental studies. The project is divided into three (3) phases. Each phase of the research would build upon the findings from the previous phase.
Phase 1 of the study was a survey of Chinese consumers about their perceptions of Canadian agri-products. According to the Government of Canada and the Government of Saskatchewan, China is the second largest trading partner with Canada, and the second largest exporting destination for Canadian and Saskatchewan agri-food industry. The single largest cluster of Saskatchewan agri-food exported to China is canola (seed and oil). Accordingly, we surveyed the Chinese consumers about their attitudes and perceptions about Canadian canola oil. The results indicated that:

- There exists vast regional differences within China in terms of usage of canola oil;
- The Chinese consumers have a mildly positive attitude toward Canada as a country image;
- The Chinese consumers are not familiar with the health benefits associated with canola oil;
- The Chinese consumers are very skeptical about GM-foods.

Phase 2 of our study builds upon the findings from Phase 1. We focused on consultation with industry experts, interviewing with several clusters of individuals related to the food production and biotechnology. We also conducted an experimental study of consumer attitudes toward several alternative marketing approaches, using Canadian participants. The results indicated that:

- Stakeholder groups in Canadian society have very different perspectives on GM-food.
  - Biotech industry and most farmers appreciate the value in GM-food
  - General consumers are skeptical, some have strong negative attitudes
  - Consumers want GM-food labeling
  - Farmers and producers do not want GM-food labeling

- Consumers are typically seeking utility maximization in their product evaluation and selection processes. They want consumer-oriented value propositions – improved nutrition, better quality, lowered costs, etc.
- Prior communication strategies about GM-food have typically focused on the aspects of producer-oriented values, such as drought/disease resistance, better yields, etc.
- Experiments show that
- There is a segment of consumer are not willing to accept GM (35%), regardless of price.
- Other consumers willing to accept, but demand a discount for GM
- Consumers generally willing to pay a premium for added nutrition

Phase 3 of the study will be a study of better marketing strategies for Canadian agri-food exports that contains elements of biotechnology. The project development to date has employed the theory of planned behaviours in the future marketing strategy. More specifically, the theory involves better communication of the multitude of benefits of Canadian agri-food products; introducing persuasions by means of evoking social desirability, governmental approval, and regulation reliabilities as evidence for social acceptance; and enhancing the incorporation of the Canadian products in the consumers’ daily lives.

**SUMMARY OF STUDENT TRAINING BY THIS GRANT**

PhD student (Grant Wilson) – Grant was engaged as a research assistant and co-author in Phase 2. This study exposes Grant to a research project that is related, but independent of his own PhD dissertation research. The data analysis portion, in particular, helps him in learning and exercising advanced statistical data analysis in his PhD training.

Master’s student (Shunli Wei) – Wei was engaged in the Phase 1 of the study. Wei is a master’s student from one of our international collaborating institution (Beijing Institute of Technology). Wei participated in collection, and was invited to Canada as a visiting student scholar. He made presentations to faculty and the government. His Canadian experience enhanced his learning.
Master’s student (Bob Yuefei Wang) – Bob is an MSc student in Marketing at Edwards School of Business. His research on “Acceptance of GM-foods, the application of the theory of planned behavior in cross-cultural settings” (tentative title) will be his master’s thesis. His program is in progress.

Undergraduate Honours student (Jesse Kendall) – Jesse is a 4th year undergraduate marketing student. She is in the data analysis and reporting stage of her honour project – Attitudes toward GM-food, the farmers’ perspective.

OUTPUTS OF RESEARCH TO DATE:


Zhang, DD (2016) “Consumer perceptions of and willingness to pay for alternative value propositions in agricultural products that involve biotechnology”. Rupert’s Land Consumer Conference, Saskatoon


Zhang, D.D, & Wei, S.L. (2014) Is perceived health benefits enough to out-weigh potential risks? Exploring Chinese consumers' attitudes to and acceptance of genetically modified functional foods from Canada, A Presentation to The College of Agriculture Departmental Seminar, University of Saskatchewan, Saskatoon

Zhang, D.D, & Wei, S.L. (2014) Chinese Consumers’ Attitudes to and Acceptance of Genetically Modified Functional Foods from Canada: Exploring the Regional Differences, A Presentation to Edwards School of Business Research Seminar, University of Saskatchewan, Saskatoon
Project # 3: Assessing the Economic and Environmental Impacts of Herbicide Tolerant Crop Production

Lead Investigator: Stuart Smyth
Graduate Students: Scott Biden (Completed, August 2016)
Diego Macall (Completed, November 2016)
Duration: September 1, 2014- August 31, 2017

PROPOSED TIMELINE AND PROGRESS TO DATE

<table>
<thead>
<tr>
<th>Timeline</th>
<th>Action</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 2014- March 2015</td>
<td>Prepare survey and gather data</td>
<td>In progress</td>
</tr>
<tr>
<td>April 2015-September 2015</td>
<td>Prepare data for analysis</td>
<td>Not started</td>
</tr>
<tr>
<td>October 2015- June 2016</td>
<td>Analyze data</td>
<td>Not started</td>
</tr>
<tr>
<td>July 2016- December 2016</td>
<td>Format data for publication</td>
<td>Not started</td>
</tr>
<tr>
<td>January 2017- August 2017</td>
<td>Prepare research papers for publication</td>
<td>Not started</td>
</tr>
</tbody>
</table>

PROGRESS TO DATE

In collaboration with the Social Science research Laboratory (SSRL), located at the University of Saskatchewan, we have develop online surveys to gather the data for the project. While the original intent was to administer a single survey, the length was too long for one single survey and has been revised to the administration of four shorter surveys. The first three surveys have been fully coded and are beginning to be distributed to farmers. The first was launched in early 2016 and the following two went out in later in the year. The final survey segments is being finalized to launch online in the coming weeks. This has taken far longer than was originally estimated due to the technical complexity of coding the surveys so that they are able to be administered online.

Currently the registration has been open for a year and approximately 120 farmers have registered to participate, yet completion of the first survey is below 20%. While interest in the topic has been positive from farmers, convincing farmers across the nation to participate in sharing their information on the innovative progress of their industry has been a challenge.

RESEARCH ABSTRACT

The objective of this project is to undertake a survey of Canadian farmers to gain greater insights into crop rotation changes following the adoption of herbicide tolerant crops. This survey will seek to involve farmers that have a minimum of 25 years of farming experience to develop the benchmark data for crop rotation practices from the late 1980s to early 1990s, prior to the introduction of GM crop varieties. Farmers will be asked to describe what they did to a specific field during the entire crop rotation, including tillage, fertilizer applications, chemical use and rate, etc.
RESEARCH ABSTRACT Continued..

In an effort to truly identify what changes have occurred following the commercialization of GM crop varieties (i.e. canola, corn and soybeans), the survey will also seek respondents that can provide current crop rotation data. In many cases, the respondents will be the same person and what will occur is that first the farmer will be asked to describe his crop rotation data on a particular field prior to 1995 and then again over the most recent crop rotation on the same field. These two datasets will allow for detailed impact assessments as to what production practices have changed following the commercialization of GM canola, corn and soybeans. Once the two datasets have been assessed, the data will be used to explain what has changed regarding farm crop rotations following the adoption of GM crops.

The final component of the survey will be to ask a series of questions about any changes or observations about herbicide resistance in weed populations and management of herbicide resistance. Information of this nature will provide insights into how well the technology is being managed at the farm level.

RESEARCH OUTPUT


Project # 4: Evaluation of the Effectiveness of the Market Prospects Program

Principal Investigator: Bill Brown
Co-investigator: James Lokken
Graduate Student: Charles Appah
Duration: September 1, 2015 to August 31, 2017

EXECUTIVE SUMMARY OF THE RESEARCH:

The Market Prospects project of the University of Saskatchewan’s Agricultural and Resource Economics (formerly Agricultural Economics) Department has the stated primary goal of making high quality and timely market and related information, analysis and education available to virtually all Saskatchewan farmers through the use of mass media. For over 30 years, Market Prospects has produced a unique annual series of interviews with recognized experts, focusing on the market situations and outlooks for the major crops produced on the Canadian prairies but also providing education on a wide range of related topics and issues of importance to Saskatchewan farmers. Originally disseminated via satellite television, a partnership with CTV Saskatchewan’s weekly farm program Farmgate, with its large viewing audience, has been the principle mode of transmitting the Market Prospects series to its primary target audience of Saskatchewan farmers for many years. In recent years, the posting of interviews on an internet site (marketprospects.usask.ca) and on YouTube has expanded the potential audience both within the province and globally. Additional to television and internet dissemination, the Market Prospects project has also used public seminars and other electronic media such as DVDs to reach its intended audience. In addition to the primary audience of Saskatchewan farmers, the Market Prospects information is available to the entire prairie agricultural industry and to the general public.
EXECUTIVE SUMMARY OF THE RESEARCH: Continued

The last evaluation of the quality and effectiveness of Market Prospects programming and analysis of the profile of its primary farmer audience has been informal, based on:

1. Audience numbers for CTV Farmgate during the Market Prospect season. Numeris (formerly the Bureau of Broadcast Measurement) spring and fall surveys provide information on the numbers of Saskatchewan adult viewers and Saskatchewan farmers that view the program, among other categories.
2. Viewer numbers for the Market Prospects internet site and YouTube postings.
3. Interaction with farmers, other agricultural professionals, and the general public at trade shows and conferences.
4. Funding support from a broad and growing spectrum of agricultural organizations, particularly from producer groups in recent years.
5. On-going encouragement from and participation in planning and production of the series by a committee made up of agricultural economists drawn from academia, public institutions and the private sector.

The proposed research would formally evaluate the Market Prospects programming and its current and potential impact on its primary target audience through the following:

1. Quantification and profiling of the audience for Market Prospects programming, especially from among the primary target audience, Saskatchewan farmers, using entrepreneurial orientation theory.
2. Measurement and analysis of the perceived quality and value of the Market Prospects programming based on the primary target audience’s use of the information in business planning and economic decision-making.
3. Comparative analysis of the structure and function of Market Prospects programming with reference to other outreach programs for farmers, especially similar public extension programming provided to United States farmers through the land grant universities and public broadcasting as mandated by the Federal Smith Lever Act of 1914 that established the U.S. Cooperative Extension Service.
4. Comparison of the effectiveness of current methods of disseminating Market Prospects programming with other methods of disseminating information – both mass and more targeted methods - to the target audience of Saskatchewan farmers.

Evaluate the quality and effectiveness of Market Prospects programming in terms of uptake and use by the primary target audience of Saskatchewan farmers.

Develop a profile of Saskatchewan farmer viewers of Market Prospects programming, especially with reference to their entrepreneurial orientation.

Evaluate the impact of Market Prospects programming on public perceptions of Saskatchewan farmers and the prairie agriculture industry.

PROGRESS TO DATE

The graduate student has reviewed the literature with respect to the effectiveness of current methods of disseminating Market Prospects programming with other methods of disseminating information – both mass and more targeted methods.

The questionnaire has been developed and sent out to a sample of Saskatchewan farmers through a contract with Insightrix.

The data is expect to be delivered from Insightrix by the end of March.

The student will analyze the date with guidance from the advisory committee and should defend his thesis by the end of summer 2017.
# Project # 5: Deconstructing Public Perceptions of Bioscience Innovations: Social Networks, Information, and Communication Strategies

Principal investigator: Jill E. Hobbs  
Co-investigator: Stuart Smyth  
Graduate Student: Yang Yang  
Duration: September 1, 2015 – August 31, 2017

## PROPOSED TIMELINE AND PROGRESS TO DATE

<table>
<thead>
<tr>
<th>Dates</th>
<th>Action</th>
<th>Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015. 09 – 2015. 11</td>
<td>Literature review: Behavioural economics; experiments</td>
<td>Completed</td>
</tr>
<tr>
<td>2015. 12 – 2016. 03</td>
<td>Survey Design, testing, data collection</td>
<td>Completed</td>
</tr>
<tr>
<td>2016. 04 – 2016. 06</td>
<td>Analysis of survey data</td>
<td>In progress</td>
</tr>
<tr>
<td>2016. 07 – 2016. 10</td>
<td>Design and testing of behavioural experiments</td>
<td>Completed</td>
</tr>
<tr>
<td>2016. 11 – 2016. 12</td>
<td>Implementation of behavioural experiments</td>
<td>Completed</td>
</tr>
<tr>
<td>2017. 01 – 2017. 03</td>
<td>Analysis of experiment data</td>
<td>In progress</td>
</tr>
<tr>
<td>2017. 04 – 2017. 08</td>
<td>Write up results and prepare final report</td>
<td>In progress</td>
</tr>
</tbody>
</table>

## RESEARCH ABSTRACT

This study sought to better understand consumer decision-making and attitudes towards novel food technologies. First, the study examines whether attitudes to a controversial food technology is an expression of an individual’s underlying cultural values. A second objective is to compare the effectiveness of two information communication strategies – logical-scientific vs. narrative information formats – in shaping food technology perceptions.

Consumer data were collected from a diverse, national online sample of 1608 Canadian adults during the summer of 2016. Two versions of the survey were created, one dealing with a biotechnology food innovation and the second a nanotechnology food innovation. Each version of the online survey consists of three main dimensions. First, each respondent’s cultural worldviews were measured with a two-dimensional cultural cognition scale developed by Dan Kahan: Hierarchy-Egalitarianism and Individualism-Communitarianism.

Then, respondents were randomly assigned to one of the three information conditions: “no information”, “logical-scientific information” (information about novel food technologies – gene editing, genetic modification (nanotechnology) and edible coating – was developed based on scientific facts, and written in an impersonal language), and “narrative information” (written in a more vivid style and developed in a story-telling context).

The final dimension of the survey elicits consumer preferences and valuations through a choice experiment. Respondents were asked to choose between a set of 500g bags of pre-packaged apple slices that vary in features of appearance (non-browning vs. slices turn brown), health benefit (enhanced with antioxidants vs. not enhanced), production method (gene editing, genetic modification, (nanotechnology), edible coating, vs. conventional), and price.
RESEARCH ABSTRACT Continued…

Results from preliminary analysis of the biotechnology survey data reveal that cultural values have significant impacts on how people respond to novel food technologies. On average, individuals holding relatively hierarchical worldviews are more likely to favour novel food technologies. Also, analysis reveals that information provision affects attitudes and choices. Compared with logical-scientific information, narrative information (story-telling) that is written in a more vivid style appears to have a greater positive effect on choices.

The findings of this study have significant policy implications. The effectiveness of policy or information relies significantly on how to communicate. Deliberatively developed narratives can be more appealing than plain scientific facts and data. Also, fundamental human values play a role in attitude formation and affect how individuals respond to the same kind of information.

RESEARCH OUTPUT TO DATE


AFBI Seminars - 2016/2017

AFBI scholars, AFBI students and AFBI guest speakers held four-seminar presentations at the Department of Agricultural and Resource Economics during 2016/2017:

“How Controversial is the Use of Genomic Selection in Livestock Breeding in Canada?” - Presented by Dr. Ellen Goddard, Agricultural, Life and Environmental Sciences, Resource Economics and Environmental Sociology, University of Alberta, on March 10, 2017

“Relationships and Dynamics Between Ethanol and Gasoline Prices in Brazil” - Presented by Janelle Mann, University of Manitoba, on November 4, 2016

“Ex-ante impact assessment of genetically modified maize adoption in El Salvador” - Presented by Diego Macall, M.Sc. Candidate, Department of Agricultural and Resource Economics, University of Saskatchewan, on May 27, 2016

“Comparing the adoption of genetically modified canola in Canada and Australia” – Presented by Scott Biden, M.Sc. Candidate, Department of Agricultural and Resource Economics, University of Saskatchewan, on May 27, 2016