

## Farm Level Policy Agricultural Policy Research Network

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### **Farm Level Policy Annual Report (April 2006 to March 2007)**

#### **Overview**

The primary focus of the FLP in 2006-07 was undertake research and to organize the workshop in October 2006. Progress on individual research projects are reported below.

#### **Workshop**

The FLP teamed up with CAES and CATPRN to host the workshop on October 15, 16 and 17 in Calgary. The topic theme was “Crises in Agricultural and Resource Sectors Workshop: Analysis of Policy Responses”. Approximately 70 people attended the workshop. There were 18 papers presented on various policy issues. Authors were from the across Canada, the United States and Europe. The papers and authors are listed in Appendix 1. A number of these papers have been invited to undergo peer review for a special issue in the CJAE. The December 2007 issue will be a special issue based on this workshop. Since the CJAE follows a blind review process, the specific papers under review cannot be identified. Dr. Unterschultz (FLP), Dr. Baylis (CATPRN) and Dr. Adamowicz (CAES) are the editors of the special issue. Additional sponsorship funding to bring in guest speakers was provided by the Alberta Agriculture and Food.

A post workshop session had graduate students and researchers update the FLP network members as to progress on their research. Presentations are found at <http://www.farmlevel.re.ualberta.ca/Meetings/> .

#### **Management Team and Leader Activities**

The management team had limited activity during the year. All funding in 2006-07 was allocated in the first round of research proposals. A work plan submitted to AAFC to increase the funding in 2006-07 to recapture funds not spent in 2004-05 or 2005-06 was not approved by AAFC.

#### **Finances**

Financial report for 2006-07 submitted separately to AAFC.

## **Education**

The network continues to emphasize the training of graduate students. The network is supporting graduate student salaries and/or research at NSAC (1 student), U. of Guelph (2), U of M. (1), U of S. (2), U of A (1) and U of Victoria (1) for a total of eight students (two PhD and 6 M.Sc.). Several students who received partial support completed their degrees in 2005 or 2006. Other post graduate M.Sc. students have also worked on research for the network as research associates/assistants. As appropriate, graduate student names are listed in the individual research updates provided by the researchers.

## **Planned Activities 2007-08**

-Fund new round of short term research and this research to be completed by December 31, 2007.

-Complete research funded under the first round of research.

-Sponsor CAES principle paper session on “The Farm Level Framework for APF II: The Next Generation” for the Portland academic meetings July 29 to August 1. Presenters will be Dr. Dave Sparling, Dr. Alfons Weersink and Dr. Scott Jeffrey.

-Publish the CJAE special issue on “Crises in Agricultural and Resource Sectors Workshop: Analysis of Policy Responses”.

-Publish FLP policy briefs arising from network research.

## Research Progress Reports by Project

### **FLP-500 – Dr. D. Clark - NSAC**

Project title: Environmental Impacts of Crop Rotations in PEI.

Project Director: Dr. J. Stephen Clark, Nova Scotia Agricultural College

Progress:

Work is continuing on the thesis.

### **FLP-501 – Dr. C. van Kooten – University of Victoria**

Project title: Mitigating and Compensating Agricultural Land Use Externalities in British Columbia

Progress:

RESEARCH RESULTS:

Revised Research Objectives

1. Conduct an intensive literature review of economic issues at the urban-rural fringe, building on Hardie, Parks and van Kooten (2004)
2. Based on the literature review, develop the framework for a hedonic model of farmland values.
3. Construct a GIS model of a region in BC where there exists conflict between rural and urban uses of land. Candidate areas are the lower Fraser Valley, southern Vancouver Island and the Okanagan. We chose southern Vancouver Island.
4. Collect land-use and land-value data and develop a GIS-based hedonic (econometric) model of farmland values.

Results

We have met all of the objectives indicated above. We have now used the GIS model to construct the variables of interest (e.g., distances of residential properties to open space/farmland, distance of agricultural properties to urban developments and transportation corridors, variables dealing with spillovers from adjacent properties, etc.). We are now in the process of developing the econometric models and estimating them. We have also begun writing papers. It will be several months before the first drafts of papers are available. Nonetheless, we are currently on schedule.

Additional Support: In-Kind contributions of data from BC government, al. This in-kind contribution is very important to the success of the current

project. Likewise, received support from the Agricultural Land Commission and various regional planning bodies. Additional financial support for the project has been provided by funds from the PI's Canada Research Chair.

At this time, we have no results to report. These will be forthcoming in the next six months. The project has to date contributed significantly to Agricultural policy in the Province because we have brought together disparate data from various provincial and municipal governments, and quasi- and extra-governmental agencies, into a single aggregated data base, namely, a geographical information system for the Saanich Peninsula, an area under extreme development pressure. Policy makers are only now beginning to realize what we have done because we have only now completed the GIS model.

### **Contributions to Education, Training and Technology Transfer**

STUDENTS (PhD students):

Tracy Stobbe (fully supported)

Geerte Cotteleer (some support to facilitate collaboration)

RESEARCH ASSISTANTS:

Alison Eagle

Linda Voss

Popular press articles

Stobbe, Tracy, "More housing is good, but not at the expense of farmland", Delta Optimist, editorial section, March 17, 2007.

Conference Presentations (\* indicates presenter)

Calgary: GIS and Spatial Econometrics: A Proposal for Analyzing Farmland in the Rural-Urban Fringe. Paper presented at the Canadian Agricultural Economics Society Workshop, Calgary, AB, 16-17 October 2006. (Cotteleer\* & Stobbe\*)

Future Conference presentations to which we are committed (papers have been accepted and we are on the program; authors in parentheses):

Victoria: Joint 2007 Annual Meetings of the Agriculture, Food and Human Values Society (AFHVS) and the Association for the Study of Food and Society (ASFS), 30 May to 3 June 2007 (Eagle\*, Stobbe, van Kooten)

Wageningen, Farmland conservation near urban areas: Is B.C.'s Agricultural Land Reserve able to protect farmland from development? Conference on Rural Landscapes, 30-31 May 2007 (Stobbe\*, Cotteleer\* and van Kooten)

Portland: Expert Opinion vs Transaction Evidence: Using the Reilly Index to Measure Open Space Premiums in the Urban-Rural Fringe. Joint Annual Meetings of the AAEA and CAES. 29 July – 1 August, 2007. (Cotteleer, Stobbe\* and van Kooten)

Victoria: Protection of Agricultural Land: A Comparative Analysis of British Columbia's Agricultural Land Reserve and Farmland Protection in the Netherlands. Conference on 'Agricultural Policy Changes: Canada, EU and the WTO' 13-15 September 2007 (Cotteleer\*, Stobbe\* and van Kooten)

### **FLP-502 – Dr. D. Schoney – University of Saskatchewan**

Project title: Typical Cash Crop-Farms – Saskatchewan (IFCN)

Progress: No report. Research work ongoing.

### **FLP-503 – Dr. D. Schoney – University of Saskatchewan**

Project title: Development of Agent-based Models of Farm and Rural Structural Change

**Schoney / Nolan  
University of Saskatchewan  
Summary of 2005-2006 Progress**

#### **Introduction**

This project has funded a portion of one M.Sc. thesis (Tyler Freeman graduated Winter 2005) and is currently supporting two other master's students: Adam Arsenault and Peter Stolniuk. The following report is divided into three sections: 1) theses which were/are supported by this project, 2) papers and presentations and 3) student honours and recognition.

#### **Theses**

- 1. Thesis title: "From the ground up: An agent-based model of regional structural change"**

*M.Sc thesis by Tyler Freeman (Agricultural Economics, U. of Saskatchewan)*

Prior research sought to identify the determinants of structural change in farming, for reasons varying from the nature of farm programs to a lack of labour mobility. Others offered that changes in the farm sector in North America were the consequence of heterogeneous production efficiency among farms. The story in the latter case is that efficient farms acquire the assets, both land and machinery, of the less efficient producers. This results in the consolidation of farm assets among the most efficient. Clearly, a full understanding of the nature of structural change in agriculture is far from complete.

The primary contribution of this thesis is the development of an agent-based simulation environment for a large and important sector of Canadian agriculture. Agent-based models are detailed computer simulations that consist of a set of programmed agents situated in an artificial world. Each agent is programmed to act both individually and interactively within this computer environment. While relatively new to agricultural economics, agent based models are popular for conducting research on human behaviour across a number of social sciences, including work in psychology, sociology and geography.

Land ownership and leasing markets are the sole source of interaction between agents. In the case of farmers in the early and middle part of their careers, land acquisition is a primary behavioural driver. Structural and evolving characteristics such as farm size and financial structure of Canadian prairie agriculture are simulated over the period 1960-2000. The base scenario represents the historical period and closely mirrored historic actual farming trends.

An alternate policy scenario was simulated in order to test various hypotheses as to the impact of government programs on farm structure. This scenario included simulations of farm production in the region without government stabilization and support programs (the “zero-transfer scenario”). It is concluded that that Canadian farm programs merely delayed an inexorable decline in total farming population in the region.

## **2. A Multi-Agent Systems Approach to Farmland Auction Markets (Adam Arsenault)**

Currently, the effects of heterogeneity in farmland and farmer characteristics on macro level phenomena are not well understood. The goal of this research is to build better understanding of the effects of individual interactions and adaptive learning in a repeated game of bidding in farmland auction markets. By focusing on Prairie farmland markets as the basis of this study, we will capture the salient features of the decision making process that accompanies a farmland owner’s decision to buy, sell, and bid on land. As such, we will incorporate modern auction theory applicable to Canadian prairie farmland markets. For this study, this entails incorporating individual heterogeneity into farmers and land, inclusion of adaptive learning mechanisms into bidding behaviour, and modeling farmer interactions in the repeated structure of farmland auction markets.

Inclusion of such complex elements, however, leaves classical economics unable to easily handle such problems (Tsfatsion 2002). We have chosen to model this issue using Multi-Agent Simulation (MAS) and the Netlogo® software. Netlogo is a freeware program designed specifically to facilitate MAS modeling. We contend that Netlogo®, and MAS as a general methodology, will be a more effective means for understanding complex farm land auction markets than traditional analytic economic methods. If modeled correctly, MAS will create a more realistic picture of the land market place and the micro-level interactions between farmers. Finally, we note that this research and methodology is based upon the work of Freeman (2005) and Balmann (2003).

Currently, we are developing the simulation model and designing several different auction types into NetLogo. A working model is running and Adam is developing continued expertise in MAS programming.

### **3. A Multi-Agent Simulation Approach to Farm and Rural Structural Change in Saskatchewan (Peter Stolniuk)**

The purpose of this research is to project the future structure of agriculture under alternative policy scenarios. It is posited that long term trends in structural change such as farm size (or number of farms) and a shift from land ownership to leasing will continue, while new trends such as a shift to more mixed cropping and livestock farms or even new farm types such very large crop and livestock may emerge.

This research also builds on Freeman's (2005) original multi-agent model of structural change in Saskatchewan. The major contribution of this research is to 1) endogenize land use by allowing agents to shift land from/to field crops to/from beef cow production, 2) add an additional local forage market and 3) much further develop, expand and formalize the relationship between farmland ownership (a primary market) and leasing (a secondary market). Finally, the geographic region will be expanded to include more land and greater numbers of farmer agents.

#### **Papers and presentations:**

J. Nolan, T. Freeman and R. Schoney, 2004. From the Ground Up: An Agent-Based Model of Regional Structure. Atlantic Canada Economics Association meetings, Mt. Allison University, October 15-16.

J. Nolan, T. Freeman and R. Schoney, 2005. From the Ground Up: An Agent-Based Model of Regional Structure., Joint WEAI - CAES – WAEA meetings, San Francisco, 6 - 8 July.

R.A. Schoney, 2005. An Agent-based model of farm and rural structural change, IAMO, Halle, Germany. November 7.

J. Nolan, T. Freeman and R. Schoney, 2006. Farmland markets and Auctions in Agent-Based Simulation Models, Canadian Agricultural Economics Society Meetings, Montreal, May.

In review:

J. Nolan, T. Freeman and R. Schoney, 2006. **Agent based simulation of farming and structural change. Under revision, AJAE.**

### **Honours**

Canadian Agricultural Economics Society (CAES) - honourable mention award for Tyler Freeman for his Master's thesis "From the Ground Up - An Agent-Based Model of Regional Structural Change", May, 2006.

#### **FLP-504 – Dr. A. Weersink – University of Guelph**

Project title: Effects of Urbanization on Canadian Agriculture

Progress: Project transferred to Dr. Deaton. See report below for . Awaiting final report.

#### **FLP-505 – Dr. E. Yiridoe – NSAC**

Project title: Determinants of On-Farm Investments in Environmental Protection

### **Activities and Progress**

A Farm Environmental Management Survey data collected by Statistics Canada is currently (i.e., April 2007) being analyzed in Ottawa by a research assistant, under a work attachment agreement with Statistics Canada. A considerable amount of time and effort was spent cleaning and organizing the survey dataset. Preliminary results have been generated using a base Double-Hurdle econometric model developed. It is expected that the econometric analysis will be completed in May 2007. The data analysis and research project work are on schedule to being finished and the research report completed by August 2007.

### **External Funding**

Statistics Canada provided top-up (living) allowance of \$4,500 for the living expenses in Ottawa for a three-month work term attachment for a research assistant.

## **Results**

Preliminary results suggest that government environmental grants and other financial support schemes influenced farmers' decision to invest in farm environment protection (i.e., manure storage systems; wind breaks, buffer strips and fences for waterway protection; and chemical and fuel storage system), and significantly affected the level of investment, for all commodity groups. Poultry farmers were less willing to decide to invest in farm environmental protection compared to other livestock producers. Larger crop and animal farm operators tended to be less willing to participate in the three farm environmental protection categories, compared to smaller farm operations. However, those larger farm operators who made a decision to invest to protect their farm environments tended to spend more compared to smaller farm operations.

### **Significance to Canadian Agriculture.**

The results reported above are initial (i.e., preliminary) results and make drawing conclusions based on this premature. Further analysis of the survey data is on-going.

### **Contributions to Education, Training and Technology Transfer:**

The project contributed to the training of one research assistant, David Thibodeau.

### **Conferences, Publications and Meetings.**

Data analysis is in progress. Publications and conference presentations will follow, after final results have been generated

### **FLP-506 – Dr. P. Boxall – University of Alberta**

Project title: A Farm Simulation Model of BMP Adoption for Improvements to Off-Farm Water Quality

This project involves the development of a farm simulation model for examining the on-farm economic implications of adopting beneficial management practices (BMPs) to improve off-farm water quality in a representative watershed in southern Manitoba. The model will characterize the input and output relationships of farm production and the adoption of one or more beneficial management practices by the farm manager. The list of BMPs examined will include those proposed by AAFC and Manitoba Agriculture specialists such as riparian buffer and conservation tillage

## **2. Activities and Progress**

Yu Deng (graduated M.Sc student) and Danyi Yang (M.Sc. student) used data from the South Tobacco Creek (Manitoba) to estimate production functions and the yield response of crops to Best Management Practice (BMP). The results are being placed into a poster, project report and will also be developed into a policy brief.

**3. External Funding** (*may be used for public release*)

WEBS (PFRA/AAFC) also funds this project and further research is progressing under the funding of the WEBS program.

**4. Results**

The results show that oilseed and legume crops grown in the previous year have a positive effect on wheat yields. But other rotation variables are either statistically insignificant or having negative signs on coefficients. Zero tillage has a small positive effect on wheat yield at 10% level, and has negative signs or statistical insignificance in other crops. Zero till is one of the key BMP for annual cropping.

Susan Robertson, Ph.D. undertook assistantship research on this project.

**FLP-507 – Dr. J. Unterschultz – University of Alberta**

Co-Researchers: Dr. T. Nilsson (U of A)  
Dr. D. Brewin (U of M), Dr. J. Carlberg (U. of M.)

Project title: Farm level Pricing and Risk Management of Canola in Western Canada

- The overall objective is to undertake an integrated evaluation on the canola market in Western Canada includes farm pricing, testing for market power, and risk management:
  - o Measure the market efficiency of the domestic canola industry and the ability of the market to competitively price canola
  - o Evaluate the relationship between canola market and competing markets such soybean
  - o Determine the impact of regulations and policies on the canola market and pricing of canola
  - o Provide recommendations
- Evaluate methodologies for studying other crop markets and in particular barley

Progress:

This study is being developed by the University of Manitoba and the University of Alberta. The reports of the results achieved to date are:

University of Manitoba:

M..Sc. student Janelle Mann is undertaking this research and completing her graduate course work in April 2007. The research is progressing nicely and results are expected by the end of the upcoming summer. To date, an overview has been completed of the

Canadian oilseed industry focusing on canola seed, oil and meal as well as soybeans.

The overview includes:

- Canadian canola buyers
- Crushing margins
- Crushing plants and capacities (in progress)

The overview has been extended to include Winnipeg Commodity Exchange contract specifications, delivery regions and price discovery mechanisms for canola seed and meal.

Over 200 articles on various topics pertaining to market efficiency have been reviewed and pertinent information has been compiled into a literature review. Several key articles include Carter (1996), Elfakhani, Wionzek and Chaudhury (1999), Quagrainie, Unterschultz, Veeman and Jeffrey (2003), Foster and Havenner (1999), Moss and Schmitz (2002) and Carter (1993). The literature review includes a detailed list of market efficiency definitions, with Carter's (1993) definition of market efficiency appearing to be the most appropriate for the Canadian canola industry. A five page summary is available upon request.

University of Alberta:

M.Sc. student Ximena Amoroso is undertaking this research and will be completed her graduate course work in April 2007. During the semester of August- December 2006, a literature review was done, where the principal topics analysed were: review on the development of canola in Canada, the importance of canola in the oil market, how Canola production has increase in Canada since 2002 to 2006 and how the prices of canola have changed continuously in the last five years. Among other topics that were analyses of canola futures commodity market, and canola production in Europe, Australia, the United States and Asia.

In the former semester January-April 2007, a cointegration model is being developed between canola cash prices, canola futures prices, soybean cash prices, soybean futures prices and soybean oil futures prices. The data for this model were obtained from the Alberta Agriculture and Food, Winnipeg Commodity Exchange, CANSIM and USDA-Illinois (Department of Agriculture).

**External Funding:** U. of M. and AARI (Alberta Agricultural Research Institute) are providing approximately \$10,000 and \$25,000 respectively in 2006-07.

## **FLP-509 – Dr. B. J. Deaton, Jr. – University of Guelph**

Project title: The Effect of Land-use Restrictions on Agricultural and Residential Land Values

### **1. Project Objectives**

- (a) To gather data on farmland sales and farmland attributes in southern Ontario.
- (b) To estimate a hedonic price function for farmland and assess the effect of Ontario's "Greenbelt legislation" on farmland property values.

### **2. Milestones:**

<b>Due Date</b>	<b>Date Complete</b>	<b>Milestones Recorded From Research Grant Proposal</b>	<b>Percent Complete</b>
4/1/2007	1/1/2007	Gather Data on Farmland Sales in Ontario	100%
4/1/2007	4/1/2007	Summarize Data	100%
4/1/2008		Estimate Hedonic Price Function	30%

The primary objective of the project (FY 2006/2007) was to gather data on farmland sales in Ontario and digitize the information using geographic information systems. Data was collected from the Municipal Property Assessment Corporation (MPAC) for all farmland sales in twenty Counties from 2002-2006. Spatial information was also obtained and the data set was enriched by a number of spatial variables: e.g., whether the farm is located within Ontario's Greenbelt or not. We have summarized the data but the process of checking our results is still ongoing. We did not expect to estimate the hedonic price function until the second year of the project (2007/2008). (This project was funded for one year.) Hence, we expect the regression results will be available by, or before, the due date indicated in the milestones.

### **3. External Funding**

Ontario's Municipal Property Assessment Corporation (MPAC) provided data on farmland sales and farmland attributes – for requested counties in southern Ontario – between 2002 and 2006.

### **4. Results**

Estimating the effects of zoning on farmland values depends on the results obtained from estimating the hedonic price function. These results are expected to be available to FLP within a year.

## **5. Significance to Education, Training and Technology Transfer**

The project supports the research of a Ph.D. student at the University of Guelph: Richard Vyn.

## **6. Meetings related to the activities in this project**

This project has supported a number presentations at meetings. In some cases, the presentations have been oriented to academics. In other cases, the presentations have been coordinated with the Municipal Property Assessment Corporation and have been primarily focused to the public.

- “Farmland Preservation.” B. James Deaton. Places to Grow Food: Farmland Preservation Conference 2007 (April 12, 2007) Guelph, ON.
- “The Effects of the Greenbelt Legislation of Farmland Prices in Ontario.” B. James Deaton, Richard Vyn, and Alfons Weersink, Dairy Farmers of Ontario (February 21, 2006), Guelph, Ontario. [Presented by B. James Deaton]
- “The Effects of the Greenbelt Legislation of Farmland Prices in Ontario.” B. James Deaton, Richard Vyn, and Alfons Weersink, FARE Research Day (December 13, 2006), Guelph, Ontario.
- “The Effects of the Greenbelt Legislation on Farmland Prices in Ontario.” Richard Vyn, B. James Deaton, and Alfons Weersink. Canadian Agricultural Economics Society Workshop (October 17, 2006) Calgary, AB. [Presented by Richard Vyn]
- “Greenbelt and Farmland Values.” B. James Deaton and Richard Vyn, A Day with the Municipal Property Value Assessment Corporation (September 26, 2006) Richmond Hill, ON. [Presented by Richard Vyn]
- “Greenbelt and Farmland Values.” B. James Deaton and Richard Vyn, A Day with the Municipal Property Value Assessment Corporation (September 27, 2006) Mississauga, ON. [Presented by B. James Deaton]
- “Greenbelt and Farmland Values.” B. James Deaton and Richard Vyn. Institute of Municipal Assessors Conference (June 5, 2006), Niagara Falls, ON. [Two sessions]

## **FLP-515 – Dr. S. Henson – University of Guelph**

Project title: Understanding rates of farm-based agri-business start-up, failure and growth in rural Canada

No Reports Received. Other communication indicates that graduate student is working on survey response and analysis.

### **Other Research**

The FLP assisted in funding one graduate student to undertake agricultural productivity research.

Completed Thesis:

Bryce Stewart. 2006. Productivity Growth in Prairie Agriculture. M.Sc. thesis in Dept of Rural Economy. U of A. 195 pages. Terry Veeman, supervisor. Co-supervisor J. Unterschultz.

Presentations of Stewart Research:

Stewart, Bryce, T. Veeman and J. Unterschultz. Causes of Divergent productivity growth in the livestock and crop sectors. Prairie provinces 1940-2004. CJAЕ meetings. Montreal May 24-27. Presented by Stewart.

Unterschultz: AIC conference Winnipeg. Nov 5-7. Speaker. Selected Issues in Wetland Loss and Agricultural Productivity in Western Canada.

### **Other Activities not listed in reports above:**

Members of management team participated in APRN workshop in December 11 & 12 2006, Ottawa.

Members of management team participated in workshop on Farm Income Measures March 5 & 6. 2007, Ottawa.

## **Appendix 1: 2006-07 CAES-FLP-CATPRN Workshop Papers and Authors.**

Presentations are available at <http://www.farmlevel.re.ualberta.ca/Meetings/>

### **Plenary Session**

[\*Public Responses to Agricultural Disasters: Rethinking the Role of Government\*](#)

(Barry K. Goodwin, North Carolina State University)

[\*Risk and Crises Management in the reformed European Agricultural Policy\*](#) (Carlo

Cafiero, Università degli Studi di Napoli Federico II)

### **Alternative Approaches to Evaluating Crises**

· [\*Multiple Discourses on 'Crisis': Agricultural, Farm, and Rural Policy Implications\*](#)

(Kenneth C. Bessant, Brandon University)

· [\*BSE's 'Devastating' Impact on Rural Alberta: A Preliminary Analysis\*](#) (Michael

Broadway, Northern Michigan University)

· [\*Is Extension the Answer to Avert Agricultural Crisis? Examining Barriers and Motivators to Adoption of Environmentally Sustainable and Food Safe Practices in Alberta for Effective Policy Mechanisms\*](#) (Ross E. Mitchell, Marke Ambard, and Marian Weber, Alberta Research Council)

· Discussant: Sean Royer, Alberta Agriculture, Food and Rural Development

### **Lunch Speaker**

· [\*BSE, Trade and Government Response: The Policy Environment\*](#) (Nithi Govindasamy,

Director, Policy Secretariat, Alberta Agriculture, Food & Rural Development)

### **Crises in Invasive Species**

· [\*Economic Effects of Mitigating Apple Maggot Spread\*](#) (Zishun Zhaoa, Thomas I. Wahl and Thomas L. Marsh, Washington State University)

· [\*Dynamic Programming and Learning Models for Management of a Nonnative Species\*](#)

(Mark E. Eiswerth - University of Wisconsin-Whitewater, G. Cornelis van Kooten - University of Victoria, Jeff M. Lines - University of Toronto, and Alison J. Eagle - University of Victoria)

· [\*The Mediterranean Fruit Fly and the United States: Is the Probit 9 Level of Quarantine Security Appropriate?\*](#) (Michael J. Livingston, Economic Research Service, USDA.)

· Discussant: [Ted Horbulyk](#), University of Calgary

### **General Crisis Issues in Agriculture**

· [\*The Economics of Preventing and Controlling Avian Influenza\*](#) (Robert H. Beach, Christine Poulos and Subhrendu K. Pattanayak, RTI International)

· [\*The case for value added processing as a strategy for mitigating disease outbreak impacts: The PVYn outbreak in Prince Edward Island\*](#) (J. Stephen Clark and Emmanuel K. Yiridoe, Nova Scotia Agricultural College )

· [\*The reciprocal relationship between public policy making and consumer confidence in food safety: A cross-national perspective\*](#) (Janneke de Jonge - Wageningen University, Lynn Frewer - Wageningen University, Ellen Goddard - University of Alberta)

· Discussant: [Peyton Ferrier](#), USDA-ERS

## **Tuesday, October 17**

### **Crisis Issues in Forestry**

· [\*The State of Oregon Forests – An approach to policy analysis under complex demands\*](#) (Pamela Overhulser - Oregon Department of Forestry, John Sessions - Oregon State University, and David Johnson - Oregon Department of Forestry)

[\*Beetles, Trees, and People: Regional Economic Implications of the Mountain Pine Beetle Infestation in British Columbia, Canada\*](#) (Mike N. Patriquin - Canadian Forest Service/Natural Resources Canada, William A. White - Canadian Forest Service/Natural Resources Canada)

· [\*Does a Crisis Matter? Forest policy responses to the Mountain Pine Beetle Epidemic in British Columbia\*](#) (Harry Nelson, University of British Columbia)

· Discussant: [G. Cornelis van Kooten](#), University of Victoria

### **BSE Crises**

· [\*Impacts of BSE on World Trade in Cattle and Beef: Implications on the Canadian Economy\*](#) (Maury Bredahl - University of Guelph, Sudarma Samarajeeewa - University of Guelph, Jeevika Weerahewa - University of Guelph, and Randy Wigle - Wilfred Laurier University)

· [\*Responding to the BSE Crisis in Canada: Have We Learned Anything?\*](#) (Danny G. Le Roy and K. K. Klein. University of Lethbridge)

· [\*Understanding the Structure of Canadian Farm Incomes and the Design of Safety Net Programs\*](#) (Al Mussell - George Morris Centre, Terri-Lyn Moore - George Morris Centre, Ken McEwan - Ridgetown College University of Guelph, and Randy Duffy - Ridgetown College University of Guelph)

· Discussant: [Scott Pellow](#), AAFC