



Cooperative Program in Agricultural Marketing and Business

Department of Rural Economy
University of Alberta



Symposium 2002 Structural Change in the Agribusiness Sector June 5, 2002

8:30-8:45 Welcome/Overview

8:45-9:30 **Structural Changes in the Rural/Agricultural Sector in Canada**

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Key Features of Canadian Agriculture – All indicators show the agricultural sector is Growing, except the indicators for the number of census-farms and the number of individuals employed in agriculture. Thus, from the perspective of rural development, a growing agricultural sector is not contributing to rural development. In fact, communities and regions with over 30 percent of their workforce employed in agriculture tend to decline, on average, over time. Within the agricultural sector, a consistently high share of production comes from farms where both the operator and the operators spouse report “farming” to be their main occupation. Although the share of family income from off-farm income continues to increase for the “average” farming family, it appears that farm family income from all sources has reverted to its long run plateau of about 80 percent of the income of families in the no-farm sector.

9:30-10:15 **The Diffusion of Innovative Organizational Structures in Saskatchewan’s New Agriculture**

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As the agriculture industry evolves, the role that producers play also changes. Agricultural producers are faced with a decision on whether they should pursue activities that depart from their typical role as commodity producer. The decision to become involved in some value added activity, and the subsequent choice of organizational form selected to pursue that activity is influenced by a variety of factors including economies of scale, path dependence, and the presence of social cohesion within the given community. This presentation reviews a research project that considered how these factors influence, or combine to influence such choices. Three Saskatchewan based case studies – producer-owned inland grain terminals, community-based hog barns, and new generation co-operatives – provide data for this examination.

10:15-10:30 Coffee

10:30-11:15 **Structural Change in the North American Beef Industry**

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Cattle and beef markets have undergone substantial structural change over the last ten years and all indicators suggest recent trends will continue in the near future. In attempts to more effectively meet consumer demand, progressive producers have replaced traditional cash market fed cattle trade with marketing agreements, alliances, and other non-cash arrangements. This has caused cash fed cattle trade to decline substantially. Yet the cash market remains a center of base price discovery for many non-cash transactions. This, together with a highly concentrated beef packing industry, has motivated policy deliberations that could threaten some of these newly developed business arrangements. A significant challenge for the beef industry is to continue to move forward in improving vertical market coordination in an economically efficient manner while ensuring competitive market behavior. Cattle feeders themselves are quite divided on how best to accomplish this effort.

11:15-12:00 **Summary of Two Case Studies of Structural Change: UGG/Agricore and Dairyworld**

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The agribusiness sector in Canada has been facing rapid and profound structural change. The traditional position of cooperatives in two major industries has fallen with sales and mergers last year. In the dairy processing sector the cooperative market share has been as high as 70%, with the sale of Agrifoods International (Dairyworld) last year that share fell to 50% or less. The cooperative share of the grain and oilseed sector has been falling; the sale of Agricore to UGG last year exacerbated that decline and the share of cooperatives may now be as low as 30-35% in that sector. The circumstances surrounding these two major transactions will be described. Some discussion of the implications of these transactions for the Canadian agribusiness economy will be provided.

12:00-1:15 **Lunch – Poster Display (See Summary of Poster Presentations)**

1:15-2:30 **Ongoing Research Projects at the University of Alberta**

Presented by Ellen Goddard, University of Alberta

Do Organic Grain Growers want a Cooperative?

Chantelle L'Hoir

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The producers in the Alberta organic grain market are facing various obstacles and have varying motivations for producing organic grain. These obstacles may be hindering the organic grain producers in Alberta from maximizing their return(s) from the market. This research assesses different organizational structures that might assist Alberta organic grain producers to optimize market potential. Focus groups including participants from industry, government and producers were used to address this issue.

Impact of Increased Poultry Meat Exports on the Canadian Poultry Sector

Xiaochao Qian

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The main objective of this research is to provide information that may help the Canadian poultry industry to find additional opportunities in the international market. An econometric simulation model will be constructed to examine the implications of different export policies and strategies on Canadian poultry producers. For example, we will look at the importance of the U.S. EEP (Export Enhancement Program) and European Union's subsidy program. We will also look into the potential for exporting differentiated products such as omega-3 poultry products or 'natural' poultry from Canada.

Impact of Foreign Direct Investment on the Canadian Food and Beverage Industry

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World economies are moving towards market liberalization. As part of globalization countries around the world are encouraging foreign direct investment (FDI), raising concerns about the real impact of FDI on national industries. Hanel (2000) found a positive and significant relationship of foreign and domestic expenditures on R&D on total factor productivity (TFP) for the Canadian manufacturing industry. Given that during the last decade multinationals have been actively investing in Canada's agri-food industry, the objective of this paper is to specifically evaluate the effects of FDI on TFP in the Canadian food and beverage industry and as a comparison the chemical industry. This analysis is at a lower level of aggregation than the previous analysis by Hanel. Further research in this project will examine the impacts of FDI on exports and productivity for individual food and beverage industries (and visa versa).

1:15-2:30 **Ongoing Research Projects at the University of Alberta -continued**
Presented by Ellen Goddard, University of Alberta

Is There a Role for Environmental Cooperatives in Alberta?
Kang-weon Nam
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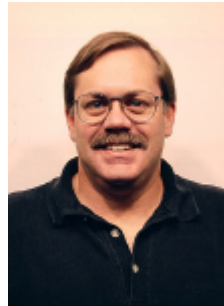
Environmental cooperatives have been used in Europe and to a lesser extent in the U.S. as part of a system to manage environmental concerns. In an environmental cooperative diverse stakeholders can manage environmental issues either for social and or economic benefit. In this research a detailed proposal for an environmental cooperative will be developed and its potential for success will be assessed through a survey and focus groups.

2:30-2:45 Coffee

2:45-3:30 **Cooperatives and the Commodity Political Agenda: A Political Economy Approach to the Evolution of a Cooperative**
Ellen Goddard, Mel Lerohl and Peter Boxall, University of Alberta



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Historically, major agricultural cooperatives in Canada have been intimately involved in commodity policy issues. Major cooperatives were created because farmers were concerned about the perceived lack of competition in buying farm inputs or selling farm outputs. In the case of marketing cooperatives, the resulting cooperative was the organization farmers saw as the logical organization to represent their view of commodity policy or competition policy. As cooperatives grew and diversified, the ability to represent their members coherently across policy issues was hampered. From public choice theory, this paper focuses on the implications for a cooperative of satisfying twin objectives of economic welfare and political lobbying on the part of farmer members. Does this objective function contribute to some of the current problems faced by cooperatives?

3:30-4:15 **Structural Changes in the Canadian Retail Food Industry**
Mike Trant, Statistics Canada
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This paper calculates an aggregate accounting rate of return for the Canadian food retail industry for the years 1990-98 and compares it with the rate of return in the retail sector as a whole and in the general economy during the same period. The study documented a number of observations. Large enterprises are more profitable than medium and small enterprises and the rates of return of large enterprises were consistently greater than or equal to the food retail industry average. The average returns in food retailing were 12% over the period 1990 to 1998. This was a much better performance than the rest of the retail sector where returns average 7%, an in comparison to the economy in general where returns averaged 7.3%.



4:15-5:00 Wrap-up and Questions

5:00 Close – GETU...

Summary of Poster Presentations

Poster: **An Economic Analysis of Productive Efficiency in Alberta Dairy Production**

Authors: Heather-Anne R. Grant and Scott R. Jeffrey

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This study investigates the presence of economies of size in Alberta primary dairy production, using a farm management approach in analyzing cost and revenue data. Herds are grouped based on two criteria; herd size and average milk yield per cow. The economic costs of producing milk are then estimated and compared across herd size group and milk yield group. Based on this analysis, it is concluded that both economies of size and yield are present in milk production in Alberta. Labour and capital costs are identified as having the most significant impact on total costs of production. A link between increased herd size, labour productivity and lower total labour costs is suggested. These results have potential implications for the future competitive position of the Alberta dairy sector, and for individual producers who may be considering adjustments in their own operations in order to prepare for a more "competitive" regulatory environment.

Poster: **Measuring the Risk of Debt Leveraging in Co-op Agribusiness Firms in Western Canada: Value-at-Risk Approach**

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Access to capital is a key constraint in the co-operative agribusiness. In corporate finance, the major concern is with the techniques of financing firms so as to ensure their survival and profitability. If capital markets are perfect the market value of the firms, both co-operative and investor-owned, are unaffected by financing decisions (Fama, 1978). Under conditions of uncertainty, the use of debt rather than equity funds to finance a co-operative or investor-owned firm may well increase expected returns to ownership, but at a cost of increased dispersions of outcomes (i.e., increased risks). Leverage (i.e., the ratio of debt to equity) reflects this financial balance, with its associated impact on profitability for co-op agribusiness firms. Debt leveraging may also have an impact on resource allocation decisions within co-op agribusinesses. Therefore, having a better understanding of the risk-return tradeoff implicit in the capital structure of co-op agribusinesses would appear to be a relevant and potentially significant research topic. It is also imperative to empirically investigate the potential cost of debt in terms of misallocated resources within the co-op. The general objectives of this study are to develop corporate Value-at-Risk (VaR) models that are applicable to Western Canadian co-operative agribusiness firms and to use these models to investigate the impact of debt leveraging on co-op resource allocation decisions.

Poster: **Evaluation of the Real Options Approach to Agribusiness Valuation: A Pork Investment Study**

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The application of financial option theory to the valuation of capital projects is termed the real options approach. The purpose of this study is to evaluate the real options approach by applying the technique to valuing an investment in a farrow-to-finish pork operation. Specifically, the study developed an NPV model and a real option model to evaluate a 2600 farrow-to-finish pork investment, and then compared the value of the project from both methodologies. Although the NPV analysis rejected the hog project in our case study, the value of the project improved when the managerial options were considered. Particularly, the option to delay the timing of the investment was highly valuable for this investment. However, if the price of finished hog increased by about 25% or more, it would be economically sensible for management to invest immediately. Options to abandon and expand also add value to the investment. Including options in the analysis provided results that more closely matched the decision actually undertaken by the case studied.

Poster: **Labeling of Genetically Modified Food and Consumer Perceptions**

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With the uncertainties surrounding genetically modified food, information revealed by product labeling is becoming more important. This study focuses on how consumers react to different food labeling strategies. Sliced bread has been selected for this purpose. Focus groups have aided in identifying important characteristics of bread. A survey that simulates different labeling choices will be developed. Key results expected may include the potential effects of labeling on product choices; trade-offs between GM content and product prices made by consumers; and effects of consumers' prior perceptions on product attributes and consumers' attitudes relative to uncertainty in their final product choices.

Poster: **The Cost Implications of Alternative Tolerance Levels: Genetically-modified Wheat in Western Canada**

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There has been mixed response of wheat consumers to the pending release of genetically modified (GM) wheat, indicating that a new market segment for non-GM wheat is likely to arise. This market brings with it the need for an Identity Preservation (IP) system that segregates GM and non-GM wheats. Such an IP system is designed to ensure that non-GM wheat consumers are receiving the product they desire, and that GM content is at or below an acceptable tolerance level. There have been several previous studies which have estimated the costs of IP systems for selected crops. This study undertakes to examine the ways in which costs of identity preservation in non-GMO wheat are affected by the level of tolerance for GM content in the wheat.

Poster: **Measuring the Risk of Debt Leveraging in Co-op Agribusiness Firms in Western Canada: Value-at-Risk Approach**

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With the growing influence of risks to Alberta livestock production sectors, the need and importance of using risk management tools is increasing. The Agriculture and Food Council's reports "Access to Capital for Alberta Agri-Business" (1998) and "Human Resource Development & Management Issues in Alberta's Agri-Industry – A beginning" (1998) identified a lack of sophistication and skills in finance as potential barriers to achieving the Growing Alberta vision, a program dedicated to the continued education and development of Alberta's agriculture economy. This project will help fill these needs by adapting two alternative risk management tools used in other industries and applying them to Alberta agribusiness. In addition, government and private consultants will be educated in the use of these tools to build the strength and flexibility of their clients. The two risk management tools that will be applied are Value at Risk (VaR) and Real Options Theory.

Poster: **Estimation of Differential Costs of an Identity Preservation (IP) System for Beef Production in Alberta**

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Beef production in Alberta is a major economic activity in the agricultural sector. Currently, practically all beef exports go to the US. The European Union (EU) has banned beef imports from North America due to the use of hormones in cattle. Background information on the European hormone ban is presented. This study is a first approach to appraise the cost of a separate, identity-preserved and hormone-free beef production system in Alberta, with the objective of expanding the market for Alberta beef into Europe. An IP system for beef cattle does exist in the US, and is known as the Non-Hormone Treated Cattle (NHTC) program. Using a partial budget framework, an estimate is made of the costs of such an IP system in Alberta. The premium necessary on the sale price to provide economic viability to the system is estimated to be \$14.73 (US\$9.28) per cwt, which is high but near premiums being obtained by US growers in the NHTC program.

Poster: **The Abundance and Use of Edible Wild Fruits in the Gwich'in Settlement Area**

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At the northern extreme of the boreal forest, traditional forestry is not possible for many of the communities. In these areas, the development of non-timber forest products may be a viable alternative for income generation. For this study, the non-timber forest product being investigated was edible berry species within the Gwich'in Settlement Area (GSA) in the Northwest Territories. During the summer of 2001 and 2002 the amount and variety of the various berries species that grow in the area, were measured in five distinct ecosystems. These quantities were then used to get an estimate of the potential of berry production in the entire GSA. Also during these two summers, local people were interviewed and surveyed to ascertain the local use of non-timber forest products within the GSA. Gwich'in from the four communities in the GSA (Inuvik, Fort McPherson, Tsiigethchic, and Akalvik) were contacted for the interviews and surveys. It was found that the first most utilized berries in the GSA were cloudbberries, blueberries, and cranberries, and that the uses of the berries included, to clean and serve them fresh, bake with the berries, produce itsu, and make jams and jellies.

Poster: **Consumer Preferences for Fresh Meat Attributes and Retail Outlets in China**

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Rapid economic development in past twenty years has been encouraging the increased contribution of livestock to human diets in China. With China's recent access to WTO and a more liberated trade system, identifying Chinese consumer preferences for fresh meat attributes and retail outlets might have important marketing implications for those who are interested in marketing fresh meat to China. Based on the survey data gathered from the cities of Hangzhou and Shanghai, eastern China, the study applied non-parametric test to identify the importance ranking of eighteen selected meat attributes and conditional logit model to identify the importance of store attributes; socio-economic and demographic characteristics associate with meat attributes and store choice were also examined. The implications for marketing meat to China were drawn.

Poster: **Attitudes Towards and Satisfaction with Co-operatives in Alberta**

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At the current time agricultural co-operatives in Western Canada are at a significant crossroads, two of the biggest players have become private firms over the past 12 months. For the first time in Canadian history the cooperative stake is less than 50% of the dairy processing and grain handling industries. Almost all agricultural cooperatives are struggling with issues around capital investment to expand or adopt new technologies and governance issues. At the same time consumer/retail co-operatives are evidencing success. With a changing business environment, as well as some of the difficulties traditional cooperatives are facing, knowing and understanding what economic, organizational, financial, and operational factors help some co-operatives to succeed can set the path for other co-operatives to follow. Committed membership is critical to any co-operative success thus, evaluation of public knowledge and perception of co-operative and credit unions presence in the community is needed. This information will help not only government authorities but also co-operatives in formation to determine the level of dissemination of information (education) on co-operatives necessary, and to improve ways of diffusion. This is particularly important given the current changes in legislation approved recently by the Alberta government.

Poster: **Interregional Dairy Cost Efficiency Differential with Imposition of Local Concavity: Alberta-Ontario Comparison**

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The Canadian dairy industry has taken advantage of technologies that have been instrumental in maintaining continuous productivity and genetic improvement. Given the potential changes facing Canadian dairy producers in the technological and the policy environments, its competitiveness in milk production will be increasingly important in determining both future performances for individual producers, and long-term viability for the sector. Thus, evaluations of the competitiveness between provinces are potentially useful in helping to predict the future geographic structure of dairy production following possible policy changes. The results from the stochastic cost frontier model suggested that there is no statistically significant difference in cost efficiency between the Alberta and Ontario sample dairy farms. The implication of this is that the change in/changing supply management policy does not have a preferential impact on the two provinces, other things being the same.

Poster: **An Examination of the On-Ranch Economics of Riparian Grazing Management Strategies**

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Riparian areas are ecologically sensitive zones adjacent to streams, rivers, and wetlands and produce more forage for grazing livestock because of their higher water table. Programs such as the Alberta Riparian Habitat Management Project (also called Cows and Fish) have promoted alternative grazing management strategies to improve riparian health in rangeland in Alberta. A simulation model of a ranch based in Southern Alberta was developed to evaluate the economics of adopting different grazing management strategies. The overall objective was to provide analysis of ranch grazing strategies designed to maintain or regenerate upland/riparian areas. Where range conditions are currently in generally good condition, the results provide economic support for adoption of conservative grazing strategies versus a non-sustainable overgrazing strategy. One policy outcome in this situation may be to explore rancher access to long term capital (i.e. borrowing) to implement this conservative grazing strategy. When range conditions are already in poor condition, the results suggest that continued use of overgrazing strategies rather than adopting regeneration strategies generates greater economic returns. Compensation may be required to induce ranchers in these situations to adopt regenerative grazing strategies.