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Executive Summaries

RESEARCH

Applying a Sectoral System of Innovation (SSI) Approach to the Australian Red Meat Industry with Implications for Improving Innovation and Entrepreneurship in the Australian Agrifood Industry *Christine Pitt and Susan Nelle*

The paper describes the results of an action research study conducted over four years (2002-2006) in the Australian red meat industry. Increasingly, industry leaders and government policy makers in the agri-food sector understand that the continued competitiveness of the food industry will depend on the extent and rate of innovation within the sector. Innovation studies have provided substantial empirical evidence of a high correlation between innovation performance and economic growth. The systems approach to understanding innovation presents a new economic paradigm which acknowledges that firms do not innovate alone and that innovation (at the firm, value chain and sector level) requires effective functioning both within and across the system. However, there is, as yet, very little practical information to inform either policy development or the design of improvement strategies in this area. The key research question addressed by this study was therefore to determine how best to integrate the various views of innovation systems thinking and to develop and test a new Systems Innovation Intervention Framework that would build innovation capabilities within firms and facilitate the emergence of a much stronger culture of innovation and entrepreneurship across the red meat industry.

A conceptual framework was developed from a review of the literature with further testing of the components for relevance based on industry input via a series of 28 in-depth interviews with a cross-sectional sample of the key stakeholder groups. An iterative triangulation methodology was used that involved systematic engagement with the literature, analysis of emerging data from the interviews with industry stakeholders, and critical reflection by the research team. Based on the conceptual framework, the red meat industry's innovation system was analysed to identify stresses and failures. Priorities were identified as a result of the analysis and specific intervention projects to address system failures were designed. Preliminary acceptance-testing of the proposed interventions was undertaken and the outcomes

were consolidated into a new integrated innovation intervention framework underpinned by innovation systems theory which was successfully launched into the Australian red meat industry.

While the timeframe for this study did not permit an extensive evaluation of the impact of the interventions, a number of early indicators pointed to industry acceptance and improved practice. In particular, industry investment in innovation more than doubled during the implementation phase following a relatively slow growth in the period prior to the study. Positive feedback was received from firms participating in the study and there are early indications of significant improvements in innovation culture and capability across the sector.

Based on these early results, it is proposed that this study will assist future researchers to develop a more comprehensive understanding of the elements within a sectoral system of innovation that must be evaluated. The approach will also be of particular relevance to industry practitioners and managers who are attempting to improve competitive performance through innovation.

India's Agrarian Crisis and Corporate-Led Contract Farming: Socio-economic Implications for Smallholder Producers

Vijay Paul Sharma

Agriculture is and will remain the mainstay for a large part of the rural population in India in the coming years. Promoting more rapid and broad-based agricultural growth will be extremely important not only for achieving higher economic growth but also for alleviating poverty in rural areas. Most farmers are small and marginal, who have poor linkages with market and who have low risk-bearing capacity restricting their participation in fast changing dynamic agrifood markets. Corporate agriculture, especially through contract farming, is being promoted by central as well as state governments as a part of the strategy to solve some of these problems. Contract farming is expected to enable farmers to access better quality inputs such as seeds, fertilizers, pesticides, extension services, and credit from the corporate sector. Contract farming has also potential to eliminate and/or reduce market and price risks, which farmers face. However, it all depends on the nature of contracts, legislation for regulation of contract farming, enforcement, dispute resolution mechanisms, role of government, etc.

In this study we used a two-stage Heckman model to explain determinants of participation in contract farming. Primary data were collected through formal household survey conducted during May-October 2007 with the use of questionnaires administered to 150 households selected through stratified random sampling from three districts of Punjab, India. The study results indicate that contract farming has a positive impact on crop productivity and farm income. The socio-economic factors that influenced participation in contract farming were education, age, farm size, access to institutional credit, source of off-farm income and membership to an organization. Factors related to the likelihood of

participation in contract farming slightly differed from the factors affecting farm income.

The results of this study have wider significance in connection with the question of how successful approaches to contract farming can be developed. First, there is a need to assist farmers to have better education, access to timely and quality inputs such as extension services, institutional credit, and better opportunities of off-farm income to improve financial status. The results have shown that membership to farmers' organization was positively related to the likelihood of being a contract farmer. Thus, there is a need to promote non-political farmers' organizations to improve smallholders' bargaining power as well as reduce transaction costs to agribusiness companies. Second, it is important to provide an integrated set of inputs and services including credit and not just extension services and seed, as is being done. In order to provide these inputs and services, partnership between public and private sector is needed. Collaboration between public and private sectors for providing extension services can take place easily. Government should initiate amendments in legal and regulatory frameworks in input and output markets, land market policies, etc. to promote private sector participation in agriculture. Finally, small farmers will be able to participate in the changing markets effectively and establish links with new market chains (supermarkets, agribusiness companies, processors, exporters, etc.) only if they have access to better infrastructure, inputs and services, and are better organized. Policy makers can support farmers through provision of required infrastructure and technology, timely information, extension services, enabling policy environment, and promoting public-private partnership through providing incentives.

Economic Value Added versus Traditional Performance Metrics in the Czech Food-Processing Sector

Gabriela Chmelíková

This paper was motivated by the increasing popularity of Economic Value Added (EVA) and by the need to increase management efficiency of Czech agribusiness companies. EVA advocates often consider it superior to the other common performance measures. This article investigates the relationship between Economic Value Added and two traditional performance measures, Return on Assets (ROA) and Return on Equity (ROE), and the ability of each to measure the creation of shareholder wealth in food-processing firms in the Czech Republic. The method of comparison used for this study is similar to those used in studies of firms in the U.S. and EU. However, a critical difference arising from the specific Czech economic conditions must be addressed: high quality information from capital markets which serves as an exogenous criterion for assessing the quality of performance measures in the main world studies is not available for Czech firms. Therefore, a criterion for assessing the information content of performance measures suitable for Czech economic conditions is developed in this paper.

The conclusions of this paper are developed around simple regression tests of the following hypotheses:

- 1) A strong positive linear relationship exists between EVA and the traditional performance measures of ROA and ROE. A strong linear relationship indicates very similar information content in each measure; rejection of this hypothesis suggests different and perhaps valuable information is contained in EVA that is not available in ROA and ROE.
- 2) The EVA measure reflects changes in shareholder wealth more consistently than the traditional performance measures ROA and ROE; acceptance of this hypothesis suggests following EVA leads to enhanced creation of shareholder wealth.

The regression results support both hypotheses and are also consistent with corporate finance theory which considers EVA a superior performance measure from a theoretical point of view. In each test, the results indicate a positive correspondence between EVA and the traditional performance measures. The results also suggest EVA is a more consistent indicator of a firm's ability to create shareholder wealth.

Virtual Investment Concepts and the Ethanol Industry

John W. Siebert, Amy D. Hagerman and John L. Park

The US ethanol industry has grown at a rapid pace, attracting large amounts of new investment capital, particularly from farmers. Factors underlying this growth include low crop prices, high oil prices, government subsidies, usage mandates, and more. As with any future investment, capital entering this particular industry faces risks that are not fully understood. Consequently the authors examine a virtual alternative farmers and other investors might instead consider; that of using publicly-traded equities (as opposed to physical construction) in order to make such investments. The VEST formula from Siebert, Jones, and Sporleder's work is presented and modified. The potential of virtual (i.e., stock) investments in ethanol manufacturing, petroleum marketing, and railroad transportation are all examined as to their applicability for assisting those engaged in farming and/or ethanol manufacturing. In regard to the farmer investing in ethanol, the costs of twenty-three new ethanol plants are examined and then compared to the costs of investing in four publicly-traded ethanol manufacturers. It is found that the stock market has discounted the investment cost per bushel substantially below that of current construction costs, indicating that farmers can save money by making a virtual (as opposed to bricks and mortar) investment. At the very least, this valuation imbalance should signal caution to those considering building ethanol plants. However, stock price trend performance itself has not been positive. Regarding the downstream marketing of ethanol, eight refiner-blender-marketers are examined using the VEST model. The cost to participate in blending/marketing profits by means of investing in these companies is found to approach the cost of ethanol plant

construction itself. Using the VEST model, the cost to invest in a railroad transporting ethanol is determined and found to be much less than a refining/blending/marketing investment.

Consumer Preferences and Trade-Offs for Locally Grown and Genetically Modified Apples: A Conjoint Analysis Approach

Nadezhda K. Novotorova and Michael A. Mazzocco

Using conjoint analysis methodology, this study used an online survey to measure consumers' preferences for the following apple attributes: place of production, method of production, and price. Consumers responding to the online survey were asked to rate hypothetical products. The products were defined by combinations of different levels of attributes. The study results indicate that consumer preferences for apples are influenced by place and method of production. While price is still one of the most important attributes, it may play a lesser role for consumers who are willing to pay a premium for locally grown apples with a combination of benefits provided by laboratory transfer of apple genes. The results of the conjoint analysis indicate that some consumers are willing to make trade offs between the studied attributes. The results also suggest using a targeted approach to consumer markets. Four groups of consumers were identified based on respondent's relative factor importance scores. These groups were assigned to four market segments: Place-oriented consumers, Method-oriented consumers, Price-oriented consumers, and Balanced consumers. Segment analysis indicates that Place-oriented consumers may be willing to pay 60% to 70% premiums for locally grown apples. The high consumer preferences for locally grown products combined with environmental benefits transferred through genetic modification provide an opportunity for producers to capture and build their markets, especially within certain market segments.

CASE STUDIES

Competing in a Mature Market: The Case of Super AM Food Markets

Kenneth Harling

The EXPO-AM supermarket entered the Rochester, Massachusetts food market using a retailing format that its parent company had used successfully in England where it went under the store banner "Super EU." This case describes how the concept was developed and implemented in Rochester over a three year period, 2000-2003. At the time of the case, 2003, Ted Edwards, the general manager of Super AM Food Markets has been asked to prepare a turnaround plan for the banner after it has shown poor performance.

The case provides the basis for a discussion of five issues. First, the source of new supermarket formats is often based on the adaptation of retailing concepts found

elsewhere to a local situation. Second, a new strategic approach has significant organizational implications: new tasks, a new organizational structure and systems, and appropriate staffing. Third, top management needs to set reasonable expectations so the new venture time has time to grow and prove itself. And it needs to decide how much time is enough. Fourth, competitors react to a new competitor which enters their market space. Anticipating their reactions helps inform decisions when setting reasonable expectations of performance. Fifth and final, the personal commitments required to make a strategy work have a significant impact on one's career.

The Clustering of Organizational Innovation: Developing Governance Models for Vertical Integration

Molly J. Burress, Michael L. Cook and Peter G. Klein

This case describes the revival of a rural town, population 1300. As farm families dwindled and farm size expanded, Renville area farmers realized horizontal expansion of their farming industry through the acquisition of additional acreage would not allow their community to prosper. A dwindling population threatened to erode the local tax base making it increasingly difficult to support local infrastructure development. To overcome this threat, Renville producers chose to pursue a collective entrepreneurial strategy rooted in joint vertical integration and organizational innovation.

Over the next twenty-five years, farmers developed business experience, professional contacts, and a well-seasoned group of investors as they began to invest in processing facilities, animal agriculture, and the development of new agricultural products. Due to the high levels of investment and risk inherent in their ventures, these collective entrepreneurs advanced an innovative organizational form: the New Generation Cooperative (NGC). This organizational form allowed for the creation of investment incentives inaccessible to traditional forms of producer group action. After two well-publicized, profitable ventures, farmers decided to pursue a similar NGC strategy for several of the crops in their rotation. Producer-owners developed ventures to add value to their sugarbeet, corn, and soybean crops. What began by chance after the closing of a sugarbeet processing facility, evolved into an interconnected agglomeration of local agribusinesses with a similar governance structure. Through deviant case analysis, we examine the role of organizational innovation in the development of this cluster.

Farming Fish in a Transitional Economy: A Case for East Timor

Toby Ryan Wood a and Catherine Chan-Halbrendt

This case study considers the transitional status of East Timor while exploring the potential of introducing an offshore mariculture enterprise as an income generating and capacity building development opportunity. Specific objectives include exploring the economic potential of farming fish in East Timor, defining a feasible and sustainable investment opportunity and providing a blueprint for conducting a

market analysis intended for developing a mariculture enterprise in a transitional nation.

To better understand East Timor's economic potential, this study uses data collected during a 2005 USAID funded research project and highlights various strategic costs and benefits afforded by the nation's investment climate, the availability of feasible markets and the region's production capacity with regard to the prevailing environmental, social, economic and political atmosphere. Particular to this case study focus on the development of a small-scale offshore grow-out mariculture enterprise with respect to two recommended species of fish: orange-spotted and humpback grouper. Scientific and technical recommendations were fielded by the Gondol Research Institute for Mariculture (GRIM), a leading research and extension program in the region, and through consultations with East Timor's Ministry of Agriculture, Forest and Fisheries (MAFF), international mariculture experts, local planning agencies and USAID officials. In addition, on-site face-to-face surveys were used to collect baseline data to assess the communities' willingness to participate in such a project.

Both domestic and international demands for grouper are evaluated and marketing scenarios are considered in support of a local fishery cooperative. Export markets for grouper are assessed using current and historical wholesale market prices for grouper in Hong Kong markets. Hong Kong was selected due to its role as a hub for the region's live reef food fish (LRFF) trade. The two marketing scenarios evaluated in this study include selling grouper at farmgate prices in East Timor or shipping the cultured grouper directly to Hong Kong to be sold at wholesale market prices. An enterprise budget is constructed to analyze cash flow logistics of each marketing scenario. A sensitivity analysis is then performed and it is concluded that positive internal rates of return ranging from 13% to 67% could be obtained if the higher valued humpback grouper were transported directly to Hong Kong and sold at an average wholesale market price of US\$60/kg.

The overall purpose of this study is to encourage the sustainable development of grouper mariculture and its potential as a capacity building and poverty reducing development project in East Timor, and for transitional economies in general. As a case study, readers are encouraged to consider alternative parameters for the development of a mariculture enterprise and formulate alternative strategies that might play an important role in enhancing a transitional nation's economy.

INDUSTRY SPEAKS

Reflections on the Irrational

José Gobbée

José Gobbée analyzes the various components of the current financial crisis and its implications for agriculture. While financial markets have been overrun by steep

losses, violent price movements, and irrationality associated with a classic bubble, agricultural markets still have sound fundamentals and their underlying real assets may prove to be a safe haven during these trying times.

INDUSTRY INTERVIEW

Trends and Opportunities in Agriculture

Lowell Catlett

Agriculture will change more in the next decade than it did in the last century. Lowell Catlett is a futurist sharing his knowledge and insight on the new trends and technologies shaping the future of agriculture and how those working in this sector can take advantage of new opportunities.