

A Case Study on Farm Business Management Styles: A Survey of Rice Farm Businesses in New South Wales, Australia, Applied to the Japanese Context

Yukio Kinoshita^{1*}, Suzanne O’Keefe², and Nobuo Kimura³

This paper presents a case study of the business management styles of Australian rice farms using a questionnaire survey of member farms of the “Environmental Champions Program.” Specifically, we highlight the competitiveness of Australian farm business management styles as a point of comparison with Japanese farm management. A focus on rice farms enables a comprehensive analysis of farm business management styles, including the capabilities and attitudes of farmers; farm innovation; farm business strategies; and production, marketing, and financial management.

Key words: global competitiveness, management improvement, farm innovation

1. Introduction

1) Background of the study

Discussions on Japan’s international agricultural competitiveness have typically focused on its limited land resources as compared to other agricultural produce exporters. Researchers often argue that Japan is unable to achieve a similar scale of agricultural inputs and outputs as other prominent agricultural countries because of land constraints. However, another factor affecting Japan is the increased global competition that is forcing the Japanese agricultural industry to undergo unprecedented social, economic, and environmental change. To survive, the industry must modify current business management styles and production processes.

2) Research perspective

We argue that Japanese farmers should modernize their farm management practices, consider change as an opportunity, and leverage their resources. In-depth research is required in the area of Japanese farm business management, to identify methods and provide practical business information. This would motivate farmers and agricultural extension service officers to address the increasing global competition.

In this study we seek to address challenges in international competitiveness from a management perspective, rather than by employing an economic or international politics lens. There are the basic problems faced by farm management in this age of international competition such as the need for sophisticated management even in areas outside traditional production management; thus, farmers are increasingly required to have

managerial capabilities (Malcolm, Makeham, and Wright [5], Kimura [3], and Olson [8]).

The purpose of this study is to compare rice farming management styles in Australia to identify potential marginal improvements, assuming that an Australian case is an exemplar of farm management styles for the Japanese industry. We explore farm management styles in essence; that is, what are the core management goals, what kind of organization or controls are required for achieving these goals, and what managerial capabilities are required for successful construction and control. A number of prior studies have used this approach (e.g., Ronan and Cleary [9] and Jack [1], etc.). There were also some notable studies focusing particularly on farm managers (Muggen [6], Kimura [2], and Nuthall [7]).

In this study farm management styles, in detail, cover the roles and capabilities of farm business managers, competitive strategies, marketing management, farm and workforce management, financial and accounting management, and integrated management for business development. An international comparative study of the business management styles of farms could be valuable to farm managers, practitioners, and researchers globally (Kinoshita, Kimura, and Min [4]). On this point, we focus on the Australian rice industry and obtain a consistent comparison between Australian and Japanese farm businesses, for whom rice farming is the primary enterprise.

3) The Australian rice industry

The Australian rice industry is almost exclusively located in the New South Wales (NSW) Riverina region, which includes the Murrumbidgee and Coleambally irrigation areas and the Murray Valley. The industry includes approximately 1,600 farm

¹Iwate University

²La Trobe University

³Emeritus, Iwate University

Corresponding author* : kinop@attglobal.net

businesses, the majority of which are family owned and operated. The average area for rice cultivation in an Australian farm is approximately 400 ha; the rice-growing area has been restricted to two-thirds of total farm area because of excess irrigation and salinity problems. The industry produces approximately one million tons of rice annually and typically generates approximately 800 million Australian dollars in revenue per year. Although Australian rice farmers typically possess a reputation for efficiency and productivity, attain the world's highest yields, and produce the best quality medium grain, a decade-long drought from 2002 to 2012 significantly affected the Australian rice industry.

The three main players in the Australian industry are the Rice Marketing Board for the State of NSW, Ricegrowers Limited (trading as SunRice), and the Rice Growers Association of Australia (RGA). The NSW Rice Marketing Board issues domestic marketing licenses in addition to exclusive export licenses. SunRice processes and markets rice products at home and abroad. In a non-drought year, Australia exports up to 80% of grown rice to 60 international destinations, including Japan. The RGA represents the interests of rice growers, develops and implements policy for the rice industry, and supports and facilitates grower development and rice research.

The Australian rice industry must address environmental challenges related to water management, stubble management, the assurance of biodiversity, and the development of a greenhouse gas strategy. Therefore, the RGA has initiated the Environmental Champions Program (ECP), which is an innovative voluntary improvement program designed by farmers for farmers. The program commenced in 2002, and 280 rice farm businesses in 35 groups are now involved in the ECP. The farm businesses that participated in the present study's survey questionnaire are drawn from this group.

2. Survey Overview

1) Survey methodology

The purpose of the survey was to obtain business management data, including the nature, attitudes, and strategies of farm management in rice farms in NSW, where the Australian rice industry is concentrated. The questionnaire comprised 17 questions and was structured around five themes: (i) farm business structure, enterprise, and income; (ii) farmer response to rural and non-rural national and international drivers; (iii) strategic planning principles and processes; (iv) farm workforce planning and accounting management; and (v) selling and marketing practices.

We randomly selected 60 farms from a target group that was composed of ECP participants from the RGA. We administered the survey between August 16 and September 17, 2013. Hard-copy questionnaires, in addition to file attachments to email communications, were used to collect data. An ECP regional coordinator appointed by the RGA delivered the questionnaires to selected farms. Fifty participants (80%) completed the survey and represented a relatively balanced sample in terms of rice farm locations, which included Conargo (18% of the total sample), Murray (18% of the total sample), Griffith (16% of the total sample), Jerilderie (12% of the total sample), Finely (10% of the total sample), Leeton (8% of the total sample), and Wakool (8% of the total sample). Other locations represented 10% of the total.

Therefore, the survey is likely biased toward more environmentally concerned samples, as the samples were selected from ECP member farms, even though they were selected randomly from such farms and represented the principal Australian rice areas. The data from this survey is used in this case study; the findings of the case study are not generalized to Australian rice farm management as a whole.

2. Overall information on sample respondents

Sample respondents had a mean age of 46 years. The survey revealed that, on average, sample respondents began farming in 1993. In terms of income sources, full-time farm businesses were dominant and accounted for 80% of the total sample. Sample respondents formed business structures that include partnerships (30% of the total sample), trusts (30% of the total sample), companies (26% of the total sample) or sole proprietors (10% of the total sample), with the exception of 4% of respondents who provided unclear responses.

The farms had various types of crops and livestock, and included rice (produced by 100% of the total sample); wheat, barley, or oats (produced by 100% of the total sample); sheep or beef cattle (raised by 76% of the total sample); pasture (produced by 60% of the total sample); oil seed (produced by 52% of the total sample); corn (produced by 8% of the total sample); and other crops (produced by 10% of the total sample); with possible simultaneous enterprises. Mixed enterprises arise from the crop rotation systems practiced by Australian rice farms for environmental regulation and benefit. Rice is often a summer crop, while grains such as wheat, barley, and oats are winter crops; the grazing of sheep or cattle with legume pasture occurs between the crop growing seasons for a period of three years per field.

The sample farms possessed a mean family labor force of 2.5

persons and a mean full-time hired labor force of 0.6 persons per farm. A total of 36% of respondents from the sample reported that family labor comprised one man and one woman, 28% reported that family labor comprised two or more men and one woman, 18% reported that family labor comprised an individual man, and an additional 18% of respondents had various combinations of family laborers. The sample farms showed a mean part-time labor amount of 55.5 person-days, which included 20 samples with no part-time labor. We presume that these are typically husband and wife family farms and that labor from other family members or non-family members is sometimes available.

The sample farms had a mean total land area of 2,152 ha. A detailed examination of land distribution revealed that the sample farm businesses had a mean farmland area of 1,332 ha for annual crops. Moreover, the mean area of native vegetation land for the sample farm businesses was 617 ha, and the mean pasture area was 353 ha. The results revealed that a significant portion of rice farmland is utilized for non-farm purposes because of environmental management constraints. The survey did not effectively obtain gross income data because the relevant questionnaire options were off-target.

3. The Survey Results

1) Farmer capabilities with respect to business management

The ideal farm manager capabilities fulfill the three functions of entrepreneurship, adaptability, and administration (Kimura [3]). Entrepreneurial capability requires philosophical values, hopes, vision, the setting of ambitious goals, entrepreneurial development, and risk-oriented behavior. Adaptive capability requires predictive abilities, knowledge-gathering abilities, curiosity, and preparedness. Administration capability requires rational thinking and analytical behavior. To obtain data concerning respondent ability with respect to these capabilities, we developed and implemented a self-rated Likert scale with five levels. Table 1 presents the results; a positive response includes "agree" and "strongly agree."

Over 90% of the total sample agreed that they possessed the factors included in entrepreneurial capability, with the exception of the setting of ambitious goals. Over 75% of the sample agreed that they possessed all of the factors included in adaptive capability, with the exception of predictive capability. Additionally, over 80% of the sample agreed that they possessed all of the factors included in administrative capability. Thus, we found a high level of capability among Australian rice farm managers. The total sample scored an average of 8.1; the

study recorded an individual capability score according to each positive response to 10 questions. In terms of the distribution of individual capability scores of respondents, 26% of the total sample scored seven points and under, 34% scored eight points, 28% scored nine points, and 12% scored 10 points.

Table 1. The capability of farm business managers

Descriptions	Positive (N=50)
Entrepreneurial capability	
Holding philosophical values, hope, and vision	98.0%
Entrepreneurial development	98.0%
Risk-oriented behavior	98.0%
Setting ambition goals	34.0%
Adaptive capability	
Knowledge-gathering ability	94.0%
Curiosity	78.0%
Preparedness	78.0%
Predictive ability	52.0%
Administrative capability	
Rational thinking	98.0%
Analytic behavior	82.0%

2) The motivation of farm managers

Consistent with Kimura [3], farm managers' motivation is categorized as follows: (i) a desire to continue the family tradition, (ii) a desire to maintain a rewarding and enjoyable livelihood, (iii) a desire to achieve business profit, and (iv) a desire to maintain a socially acceptable business. The survey addressed the motivations for farming using the same method that was used to examine the capabilities. A total of 98% of the total sample respondents affirmed that their motivation for farming was to practice innovative farming or to maintain a socially acceptable business, 90% affirmed that their motivation was the maintenance of a rewarding and enjoyable livelihood that would sustain their standard of living or their income level in comparison to other industries, 88% affirmed that their motivation was to maximize net profit, and 80% affirmed that exploiting consumer demand and appreciation was their motivation. A total of 46% of respondents affirmed that continuing the family tradition was their motivation. Thus, we found that, rather than the maintenance of family traditions (which was the case for Japanese rice farms), business-oriented or higher-level farming purposes were motivators for Australian farms.

3) Farmer attitudes to internal and external drivers

The questionnaire examined two aspects with respect to farmer attitude towards drivers: (i) perspectives concerning agriculture, and (ii) perspectives concerning external industry drivers. The survey addressed farmer attitudes using the same method as the capability analysis; Table 2 presents the results. The majority of the farm business sample affirmed the

importance of extensive skill, knowledge, and information with respect to business approaches; however, the majority also held controversial opinions with respect to the general industry and corporations. Additionally, the majority of the sample affirmed the influence of external circumstances, such as the national economy and politics concerning agriculture; however, the majority also claimed that they did not influence customers and consumers.

Table 2. Farmer attitudes to internal and external drivers

Descriptions	Positive (N=50)
Agriculture requires extensive skill and knowledge	96.0%
Farming should be approached as a business	94.0%
Farm business objectives are superior to technologies	74.0%
Agriculture is not viewed as a special industry	40.0%
Corporate farms are more dominant than family farms	18.0%
The future is influenced by external drivers	76.0%
Changes in external drivers present opportunity	70.0%
Farmers should produce what sells	66.0%
Changes in external drivers cause farmers to change	60.0%
Farmers can influence consumers and their demand	22.0%

4) Innovation in farm business

Innovative farm products, agro-technology, the distribution of products, and farm management organization were examined to identify the different styles of farm business management. From the total sample, 68% of respondents had accomplished agro-technological innovation without management organization innovation (defined as Group I), and 28% of respondents had accomplished management organization innovation with or without other types of innovation (defined as Group II). Two respondents from the total farm business sample represent the residual sample.

5) Farm business strategy and planning

From the total sample, 88% of respondents possessed a vision or goals, and 78% of respondents had developed strategies to realize their vision or goals; 42% of respondents possessed action plans for the upcoming two-year period. The open-question responses produced data that summarized the general vision or strategies as innovative technology development, high-quality product development, economic viability, environmental sustainability, the succession of family farms and retirement, and off-farm investment.

The survey examined more important specific strategies and planning (up to four), and Table 3 presents the results. We found that a significant direction of strategy and planning was the development of farm businesses as investments and included the expansion of the farming area, the number of livestock, and mechanization for efficient operations. Another significant direction was the creation of a portfolio of off-farm

investments, presumably as insurance against insecure farm income from the constant threat of drought and accumulated debt. However, minor strategy direction, or the absence of strategic planning, was noted for diversification linked with agriculture such as offering branded or differentiated farm products, relocating marketing activities closer to consumers, and the development of processing businesses in the food/fabric industry. The pursuit of less intensive (more extensive) farming to achieve environmental sustainability was not always a strategy or plan, despite respondent membership in the ECP.

Table 3. Farm business strategies and planning

Descriptions	Total (N=50)	G I (N=34)	G II (N=14)
Invest in technology methods	58.0%	58.8%	57.1%
Expand farm area and livestock numbers	48.0%	44.1%	57.1%
Develop off-farm investments	48.0%	55.9%	28.6%
Intensify farming with machinery	46.0%	44.1%	57.1%
Introduce new farm enterprises	26.0%	20.6%	42.9%
Rethink the overall enterprise mix	26.0%	23.5%	28.6%
Arrange to reduce price risk	20.0%	11.8%	35.7%
Develop extensive farming for environment	18.0%	20.6%	14.3%
Use contractors for better financing **	16.0%	5.9%	35.7%
Maintain with no changes	16.0%	17.6%	14.3%
Engage qualified staff	16.0%	20.6%	7.1%
Intensify farming with labor	14.0%	20.6%	0.0%
Downsize farmland and livestock	6.0%	2.9%	14.3%
Expand differentiation of products	4.0%	2.9%	7.1%
Expand sales and marketing activities	0.0%	0.0%	0.0%
Initiate food processing business	0.0%	0.0%	0.0%

Note: 1) * shows $p < 0.05$ and ** shows $p < 0.01$ for two-sample z-test for the difference between proportions among GI and GII.

Table 3 also presents differences in strategy and planning between Group I and II. Group II is significantly more inclined to use contractors, introduce new farm enterprises, and strive to reduce price risk, as compared to Group I. In contrast, Group I is inclined to build an off-farm investment portfolio. We expect that the two groups would manage risk, specifically drought risk, in different ways using off-farm or on-farm strategies.

6) Production management

The survey addressed certain aspects of production management (see Table 4). From the total sample, 70% of respondents optimized natural advantages and 42% harvested and sold according to an optimal timing strategy. Only a very small portion, or no farms at all, attempted organic farming or product differentiation. Table 4 also indicates certain differences in production management between the two groups. Group II was inclined to adopt the majority of the production management strategy presented, particularly with respect to maximizing natural advantages and harvesting and selling using an optimal timing strategy. Group I, however, did not exhibit such strategy inclinations.

Table 4. Production management

Descriptions	Total (N=50)	G I (N=34)	G II (N=14)
Exploit natural advantages	70.0%	61.8%	85.7%
Harvest products in best timing *	42.0%	32.4%	71.4%
Use special material or method	36.0%	29.4%	57.1%
Acquire environment certifications	34.0%	23.5%	50.0%
Introduce traceability	28.0%	23.5%	42.9%
Produce along customer demands	26.0%	20.6%	42.9%
Commit to organic farming	2.0%	0.0%	7.1%
Develop differentiate products	0.0%	0.0%	0.0%
None in particular	22.0%	26.5%	14.3%

Note: the same as the note of Table 3.

7) Marketing and customer management

The survey also addressed marketing management (see Table 5). From the total sample, 80% of respondents offered safe and trustworthy products, 52% produced in accordance with specific codes of production practice, and a small proportion of respondents utilized other various marketing management strategies. Table 5 also indicates clear differences in marketing management between the two groups. Group II approved of the majority of the management strategies presented, particularly production in accordance with specific codes of practice, products with good form and appearance, and relatively inexpensive products.

Table 5. Marketing management

Descriptions	Total (N=50)	G I (N=34)	G II (N=14)
Safe and trustworthy products	80.0%	85.3%	71.4%
Following specific codes of practice *	52.0%	44.1%	78.6%
Good form and appearance *	32.0%	20.6%	50.0%
Especially fresh products	12.0%	5.9%	21.4%
Ripe and tasty products	12.0%	8.8%	14.3%
Relatively inexpensive products **	10.0%	2.9%	28.6%
Not compromising on authenticity	8.0%	5.9%	14.3%
Providing production information	4.0%	2.9%	7.1%
Providing information on products	2.0%	0.0%	7.1%
Presentation of the product concepts	2.0%	0.0%	7.1%
Hard-to-find, rare products	0.0%	0.0%	0.0%
None in particular	10.0%	8.8%	14.3%

Note: the same as the note of Table 3.

Table 6. Customer management

Descriptions	Total (N=50)	G I (N=34)	G II (N=14)
Alter production to meet needs demand **	12.0%	0.0%	35.7%
Offer new products to meet demand *	12.0%	5.9%	28.6%
Provide customers farm tours **	6.0%	0.0%	21.4%
Provide information over the Internet	6.0%	2.9%	14.3%
Offer special deals to first customers *	4.0%	0.0%	14.3%
Maintain mail communications	0.0%	0.0%	0.0%
None in particular **	76.0%	91.2%	42.9%

Note: the same as the note of Table 3.

In addition, Table 6 presents the survey results concerning specific aspects of customer management. From the total sample, 76% of the respondents adopted no particular management strategy, whereas a small portion offered custom-

made or new farm products. Table 6 also indicates very significant differences in customer management between the two groups. Whereas Group II is inclined to develop closer relationships with consumers, with the exception of mailed communications such as newsletters, Group I was not inclined towards any of these strategies at all.

8) Financial and accounting management

Table 7 presents the results of the survey concerning certain aspects of financial and accounting management. From the total sample, 70% of respondents analyzed and diagnosed their farm business results, 36% of respondents paid regular compensation to family laborers, and approximately 30% of respondents maintained double-entry bookkeeping records, and set revenue and expense targets for financial management. Table 7 also indicates clear differences in financial and accounting management between the two groups. Group II approved of the majority of the management practices, with the exception of regular compensation for family laborers and managers, whereas Group I was not inclined to maintain double-entry bookkeeping records and set financial targets.

Table 7. Financial and accounting management

Descriptions	Total (N=50)	G I (N=34)	G II (N=14)
Results are analyzed and diagnosed *	70.0%	61.8%	92.9%
Regular compensation for family is paid	36.0%	32.4%	35.7%
Double-entry bookkeeping is recorded *	32.0%	23.5%	57.1%
Revenue and expense targets are set **	30.0%	14.7%	64.3%
Regular remuneration for manager is paid	14.0%	17.6%	7.1%
None in particular	12.0%	17.6%	0.0%

Note: the same as the note of Table 3.

In addition, Table 8 presents the results of the survey concerning certain farm business goals. Popular goals were financial in nature, such as reducing farm business expenses and improving net farm profit and loss, in addition to the introduction of specific agricultural technology. Increases in agricultural investment and savings with respect to family budget were popular goals. It also indicates certain differences in business goals between the two groups. Group II is significantly inclined to stress financial goals concerning farm expenses, net farm profit and loss, and net farm business income. Group II also shows greater attention to increases in investment to input-related goals such as the introduction of high-performance machinery. Furthermore, the survey reveals that principals possess the day-to-day responsibility for financial accounting in approximately 80% of the total farm business sample, as opposed to employees or accountants. The results also reveal that 42% of respondents use annual intervals for financial review, 38% conduct seasonal reviews, and 20%

of respondents conduct monthly reviews. Group II preferred monthly review intervals (43% of the Group II sample) to annual review intervals (29% of the Group II sample).

Table 8. Farm business targets

Descriptions	Total (N=50)	G I (N=34)	G II (N=14)
Amount in dollar value sales	34.0%	26.5%	50.0%
Net farm business income *	46.0%	35.3%	71.4%
Farm business expenses *	60.0%	47.1%	85.7%
Savings in family budget	52.0%	52.9%	50.0%
Net farm profit/loss **	54.0%	41.2%	85.7%
Expansion of farm and the number of livestock	48.0%	50.0%	42.9%
Contract farming	24.0%	17.6%	35.7%
Yield per crop	44.0%	38.2%	57.1%
Increases in investment in agriculture	52.0%	47.1%	71.4%
Introduction of specific technology	58.0%	58.8%	57.1%
None in particular	2.0%	2.9%	0.0%

Note: the same as the note of Table 3.

4. Remarks

This study revealed the typical behaviors and attitudes of the business managers of Australian rice farms. The findings are as follows: (i) the existence of a high level of business farm manager capability, (ii) the existence of business-oriented rather than family-oriented motivations for farming, (iii) the existence of a strong awareness of business approaches and extensive skill and knowledge of non-rural drivers in farm management, (iv) the existence of two types of farm business innovation including agro-technology with respect to the majority of respondents, and management organization with respect to a minority of respondents.

Moreover, this study revealed the typical farm business management strategies of Australian rice farms as follows: (i) strategies of long-term vision rather than short-term planning, direction of farm business strategy, and planning for the enhancement of farm production or for the creation of a portfolio of off-farm investment, (ii) widespread exploitation of natural advantages in production management, (iii) widespread offering of safe and trustworthy products that sometimes conform to specific codes of practice in marketing management, but the general unpopularity of customer management, and (iv) well-administered financial and accounting management.

This study notes that the Australian rice farms that accomplish management organization innovation possibly require advanced farm business management styles that accomplish agro-technological innovation. In contrast, Kimura [3] demonstrates that few farm businesses in Japan have the requisite knowledge and practical experience to improve their management styles. The majority of businesses practice poor

business management strategies.

However, toward process-benchmarking for management improvement, an important Japanese farm strategy would be the creation of diversification links with agriculture that, in the present study, proved not to be popular in Australian rice farms. Australian rice farms are beginning to exhibit an enlargement and efficiency trend in farming by taking advantage of abundant resources. This paper demonstrates that it is possible and useful to review Japan's international agricultural competitiveness to determine the possibility of creating efficient and creative management styles for farm businesses. In this respect there is the scope for marginal improvement in Japan's competitiveness through on-farm management adjustments.

Acknowledgment: This research is supported by JSPS KAKENHI, Grant Number 2433011. The authors appreciate Ruth Wade, Executive Director of the RGA; Neil Bull and Katrina Marshall, ECP regional coordinators; and Dennis Tooheys, independent agribusiness consultant.

References

- [1] Jack, L. *Benchmarking in Food and Farming: Creating Sustainable Change*. Surrey, UK: Gower, 2009.
- [2] Kimura, N. *Gendai Nogyo Keiei no Seicho Riron (Growth Theory of Modern Farm Business)*. Tokyo: Norin Tokei Kyokai, 2004.
- [3] Kimura, N. *Gendai Nogyo no Manejimento (Management of Modern Agriculture)*. Tokyo: Nihon Keizai Hyouronsya Ltd., 2008.
- [4] Kinoshita, Y., Kimura, N. and Min, S. K. "Seicho Nogyo no Nikkan Hikaku (Comparative Study of Farm Growth Management between Japan and Korea)," *Japanese Journal of Farm management*, Vol.45, No.1, 2007, pp. 109-113.
- [5] Malcolm, B., Makeham, J. and Wright, V. *The Farming Game: Agricultural Management and Marketing (second edition)*. Melbourne: Cambridge University Press, 2006.
- [6] Muggen, G. "Human Factors and Farm Management: A Review of the Literature," *World Agricultural Economics and Rural Sociology Abstracts*, Vol.11, No.2, 1969, pp.1-11.
- [7] Nuthall, L. P. *Farm Business Management: the Human Factor*. Wallingford, UK: CABI, 2009.
- [8] Olson, K. *Economics of Farm Management in a Global Setting*. Hoboken, US: Wiley, 2010.
- [9] Ronan, G. and Cleary, G. "Best Benchmarking practice in Australian Agriculture: Issues and Challenges," *Agribusiness Perspectives*, Paper 39, 2000.