Why would dairy farmers care about human resource management practices?

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ABSTRACT *Little is known about the use of human resource management (HRM) practices and their relationship with farm performance in Australian dairy farms. This paper explores the relationship between HRM practices and farm performance in 205 Australian dairy farms. Nine HRM practices such as hiring, selection, training, performance evaluation, compensation, career, OH&S, long work hours and SOPs are identified. Regression analysis results support that the use of HRM practices contributes positively to farm financial performance and employee retention. Although not all HRM practices identified led to better farm financial performance, lower employee turnover as a result of HRM practices did help improve farm financial performance.*

Keywords: organisational performance, recruitment, trainings, pays settings, OH&S

INTRODUCTION

A substantial literature exists on examining the use of human resource management (HRM) practices and their impact on firm performance in industries such as manufacturing (e.g., McDuffie 1995); financial sector (e.g., Huselid 1995); and services (e.g., Hoque 1999). Little has been studied on HRM in the dairy industry. Do farmers in dairy care about their people? Do dairy farmers actually practise HRM? If they do, how have HRM practices generated outcomes that help retain good farmhands, given substantial skill shortage reported in the dairy context (Hadley et al. 2002); and subsequently contributed to farm performance?

The use of HRM practices as a set of distinct but interrelated practices in the context of Australian dairy farms is currently unknown. It results in somewhat limited understanding of how these HRM practices could impact on dairy farm performance (Mugera and Bitsch 2005). Previous research on high performance HRM practices (e.g., Huselid 1995; Guthrie 2001) tend to focus less on small businesses such as the agribusinesses, with which many Australian dairy farms can be identified. The majority of Australian dairy farms has employed fewer than 20 employees (NDFS 2009), and is classified as small businesses (ABS 2001). Hornsby and Kuratko (2003) noticed that HRM research still remains a large firm phenomenon and there has been a lack of focus on the HRM research in small agribusinesses, particularly among Australian dairy farms.

The purpose of this paper is to answer the two key research questions: (1) have dairy farmers implemented HRM strategies via several practices identified in the literature? (2) If yes, have these

HRM practices created significant impacts, either on employee retention or on farm financial performance? By answering these questions, this paper contributes new knowledge in three areas. First, the outcomes of the study will provide a better understanding of the extent to which the Australian dairy farms have focused on HRM. Second, specific HRM practices relevant to dairy farms are identified to help improve farm performance. Third, use of dairy as a case study, this paper identifies some new constructs to confirm the HRM-performance link in the wider context.

The rest of the paper is outlined as follows. An overview of research background is provided first. This is followed by a review of general HRM research and several empirical studies focusing on the farming sector in order to develop hypotheses. Research methods used to test hypotheses are explained and results presented. Implications are discussed in the conclusion.

RESEARCH BACKGROUND

Australia's dairy industry is the third largest rural industry in Australia, with a farm gate value of $3.4 billion, an export value of $2.4 billion and a domestic retail value of $5 billion in 2009/10 (Dairy Australia 2010). The industry employs a workforce of approximately 32,000 people at farm level and a further 12,000 in processing (Dairy Australia 2011), and thereby generates significant economic activity and employment opportunities for regional Australia.

Several changes associated with employment structures within the Australian dairy farming have occurred in the past three decades. These are reflected in reduced number of registered Australian dairy farms to 7,511 (2009/10) from nearly 22,000 in 1979-80; increased average herd size from 85 cows in 1980 to over 274 in 2008-09; and corresponding demand for more paid employees (Dairy Australia 2010). In 2006, 55% of dairy farms had people other than the owner-operator and partner working on the farm in paid and unpaid roles. In 2011, this figure increased to 71%, this means that less than one third of farms now are run by one or two-persons (Dairy Australia 2011). Although family members remain an important part of the dairy farm workforce, more and more farms are relying on paid employees to operate their farm business. Similar structural changes have occurred in

Canada and the USA, and related research reported that there has been a decline in farm numbers and increases in farm and herd size, demanding more non-family labour to attend daily activities (Bewley et al. 2001; Hadley et al. 2002; Marchand et al. 2008).

Structural changes in dairy farms have led to changes in management responsibilities (Stup et al. 2006). Indeed, farmers appear involved more in addressing HRM issues, especially in many regional areas in Australia. There has been a lingering problem of attracting and retaining skilled farmhands. Yet, research on the changes of labour structures and development of HRM practices among the Australian dairy farms has not kept up to date. This paper intends to fill the gap.

LITERATURE REVIEW

Past theoretical models (e.g., Beer et al. 1984; Guest 1987, 1997) and empirical studies (e.g., Huselid 1995; Guthrie 2001: Guthrie et al. 2009) generally agree on the importance of HRM practices and their impact on firm performance in large businesses. Relatively little is known about HRM practices especially in small agribusinesses, e.g. dairy farms. HRM practices developed for large business often do not fit well to small agribusiness (Bitsch 2009). Thus, agribusinesses have little to rely on, when developing HRM practices especially in case of business expansion beyond labour capacity of immediate family members (Bitsch 2009). Further, the research into use of HRM practices in dairy farming has been limited, due to the prevailing idea that the farms usually with small number of employees are less likely to need highly developed HRM system.

Employees in dairy farming are often treated as non-substitutable resources (Mugera and Bitsch 2005), and can lead to sustained competitive advantage (Barney 1991). Full-time and part-time staff are often employed regardless the degree of mechanization of any dairy farms. HRM might become even more complex in the highly mechanized farms, as organizations might need to consider the diversity of people management issues relating to monitoring herd health, milk production and financial soundness. Contemporary technology and machinery tend to become obsolete over time, but talented

human resources are expected to retain their values (Mugera and Bitsch 2005), and could make significant contribution to enhance farm performance.

Despite of the importance of HRM and their impact on farm performance, most of prior studies carried out in dairy farming identified only management practices without explaining their impact on farm performance (e.g. Stevenson et al. 1996; Nettle et al. 2005; Tipples et al. 2004). The key issues highlighted in these studies are farm accidents, long working hours, unclear career planning, training and development opportunities, and social isolation. These aspects are generally relevant to HRM to some extent. Other authors describe the use of single HRM practice such as recruitment and selection (e.g. Kyte 2008), training (e.g., Maloney and Milligan 1992), employee compensation and milk quality incentives (e.g. Fogelman et al. 1999), careers opportunities (e.g., Searle 2002), and occupational health and safety (Guthrie 2007) and their impact on the farming sector. In sum, there appears some evidence that farmers implementing some HRM practices identified in the aforementioned studies have achieved better employee outcomes. However, to what extent Australian dairy farmers have adopted HRM practices is not overtly clear. Hence, our first task is to answer the key research question: *have Australian dairy farmers implemented HRM practices as those identified in the literature?* This is followed by testing the impact of HRM practices on farm performance if dairy farmers have adopted HRM practices.

DEVELOPMENT OF HYPOTHESES

There has been limited research into the impact of HRM practices on Australian dairy farm performance. Only handful of studies (e.g., Hyde et al. 2008; Stup et al. 2006; Gloy et al. 2002) explained, to some extent, the relationship between HRM and dairy farm performance in the US context. A survey of 42 Pennsylvania dairy farms by Stup et al (2006) examined the impact of five HRM practices (i.e. training, standard operating procedures, incentives, job descriptions, and the employment of Spanish-speaking employees) on four performance indicators (i.e. return on assets, return on equity, rolling herd average, and somatic cell count). The ANOVA results showed a significantly positive relationship between return on equity and training; and return on assets appeared

to be associated with incentives, even though standard operating procedures showed no relationship with any performance indicators. Similarly, a survey of 80 Pennsylvania dairy farms by Hyde et al (2008) re-evaluate the same HRM practices used by Stup et al (2006), adding performance feedback to replace employment of Spanish-speaking employees. The regression results indicated that milk quality incentives increased return on assets by over 14 per cent. These studies suggest that there might be some relationships between the use of HRM practices and farm financial performance. So, here we propose the first hypothesis:

Hypothesis 1: HRM practices adopted by dairy farmers are positively related to farm financial performance.

Among the existing literature on HRM and farm performance, the most widely used performance measures are financial performance. However, the financial performance alone is not enough to depict farm performance because of its presence on most distant end of HRM-performance link. It is argued that intermediate outcomes are more closely linked to HRM and performance effects (Guest et al. 2003). Yet, prior studies in the context of dairy farming tend to largely ignore the effects of HRM on intermediate outcomes such as employee turnover or employee commitment. It is believed that these outcomes better predict firm performance (Guest 1997; Zheng et al. 2006).

Review of the extant literature on staff turnover and retention among the farming industry (e.g. Bitsch et al. 2006; Tipples et al. 2004) indicates that employee turnover remains a serious concern and that turnover influences farm financial performance via associated direct and indirect costs. Regardless how low the turnover may be, employers still need to bear direct costs for staff turnover ranging from 50% to 150% of annual salary depending on the role and level of seniority (www.mercer.com accessed 11 May, 2011). Indirect costs are related to interruptions in production and synergy in work teams. Other performance impacts caused by understaffing are low moral exemplified by employee fatigue, increased injury risks, stress and low productivity (Kramar et al. 2011). It is likely that lower employee turnover and better staff retention would have a positive impact on farm performance.

Past research suggests the use of HRM practices to achieve low employee turnover in farming industry. For example, in surveys of pork industry in Ontario, Marchand et al (2008) proposed several practices such as setting HR policies, employee training, and competitive compensation etc. which help enhance employee retention. In another study of 305 vegetable field workers in the US-Mexican border, Nolte and Fonseca (2010) identified similar HR practices such as provision of health care benefits, flexible work schedules, and on-the-job training as effective approach to control staff turnover. Using a qualitative approach, Strochlic and Hamerschlag (2005) interviewed employees on 12 Californian farms and found that farm employees would stay on their jobs if farmers provided them with health insurance, professional development opportunities, respectful treatment, and housing allowances (Strochlic and Hamerschlag 2005, p. 2 and p. 15). Likewise, Bitsch and Harsh (2004) conducted five focus groups with about 30 greenhouses in the Michigan State. They concluded that use of HRM practices such as strategic HR planning, training new recruits, offering bonuses, offering flexible work, provision of benefits and occasional get-togethers had improved employee retention in the green industry (Bitsch and Harsh 2004, p. 743).

Previous research further suggests that the low employee turnover achieved by the use of HRM practices is positively related to better financial performance in the farming sector. For example, using a case study approach, Mugera and Bitsch (2005) interviewed both farm managers and employees on six dairy farms in Michigan State. They concluded that lower employee turnover achieve a higher level of competitive advantage because of retaining skilled employees. If not, employee turnover increases the risk of not having sufficient employees to perform critical production tasks such as milking and feeding (Mugera and Bitsch 2005, p.89). Consequently this would decrease farm productivity and farm financial performance. In another study, Bitsch et al (2006) conducted four focus groups comprising of 22 dairy farmers in the Michigan state. They found that the HRM practices such as hiring of employees without the required qualifications and skills and inadequate training procedures results in low individual performance and high employee turnover, which in turn leads to low farm productivity and a failure to meet farm goals (Bitsch et al. 2006, p. 131). Based on these literatures, it is hypothesized that:

Hypothesis 2a: HRM practices taken by dairy farmers help lower employee turnover.

Hypothesis 2b: Lower employee turnover is positively related to better farm financial performance.

RESEARCH METHODOLOGY

Validation of Selected Variables and their Measurement

The initial survey was developed, using relevant variables and their measures from several prior studies that examined the relationships between HRM and firm performance. A focus group, consisted of five dairy industry experts and practitioners, was conducted in March 2010, to verify HR variables and their measurement. This was also followed by face-to-face interviews of 10 dairy farmers in the period of May-June, 2010. As a result of these exercises, new items specific to the dairy industry were identified, and some irrelevant items were either deleted or modified.

In line with the prior research on examining the HR-performance link, several sub-items were included in survey questionnaire to represent each of HRM practices (Guest et al. 2003; Ahmad and Schroeder 2003; Akhtar 2008; Ngo et al. 2008; Guthrie et al. 2009). In order to establish the face and content validity, the survey questionnaire has been thoroughly reviewed by several academics and industry experts. The items for each HRM practice were measured using a 7-point Likert scale ranging from '1' (strongly disagree) to '7' (strongly agree). Using principal component analysis with varimax rotation method (Huselid 1995; Paul and Anantharaman 2003), nine HRM practice factors were extracted for further analysis. The Cronbach's alpha for HRM practice factors has acceptable alpha value of more than .7 (DeVellis 2003) except "performance based compensation" (alpha= .61), which might be due to the low number of items (only 2) used in the practice of "performance based compensation". Pallant (2007) confirmed that alpha values are quite sensitive to the number of items in the scale. All HRM practice factors and their subsequent tests of internal reliability are displayed in Table 1.

Employee turnover was calculated by the percentage of employees left farms in the past 12 months against the total number of employees, coded as 1- 4 (1= >50% - 4= 0-10%). Farm financial performance was measured by two variables: 1) percentage increase in farm profitability in the past 12

months, coded as 1-6 (1 ≤5% to 6 ≥25%); and 2) the extent to which net profit is shared with employees for the past 12 months (1= never shared to 7= always shared).

Data Collection Procedures and Analytical Techniques

Survey questionnaires with consent letters were mail-posted during August-September 2010 to 1549 randomly selected dairy farm businesses across Australia generated from the Action Mailing Lists (AML). Australia has a total of 6780 dairy farmers. Interestingly, the final selection of dairy farmers were proportionally corresponding to the national distribution of farms across different states in Australia, this indicates a general representation of population selected in the survey.

As recommended by Dillman (2007), a follow-up mail reminder was sent to encourage those farm businesses who had not responded to the survey within 2 weeks. A total of 205 useable responses were collected and included in the analysis, yielding a response rate of about 14 per cent. Although the response rate is not high, Cohen (1988) indicate that the useable responses of over 200 is deemed acceptable and would be sufficient to provide the statistical power needed for analysis. For data analysis, stepwise regression was adopted to get the best linear combination of HRM practices that was useful in predicting both employee turnover and financial performance, and to eliminate those practices that do not provide additional prediction to the practices already in the equation as suggested by Tabachnick and Fidel (2007, p. 135).

RESULTS

Table 2 provides a profile of Australian dairy farms. About 85 per cent of farms have less than 5 full time equivalent (FTE) employees and have herd size of less than 500 milking cows. About 93 per cent of farms are run by owner-managers, and 99 per cent farms have less than 20 FTE workers. It indicates that most of Australian dairy farms are small businesses primarily managed by owner-managers. This demographic information is consistent with the similar industry data available through the National Dairy Farmers Survey (NDFS 2009).

Table 3 provides only items of HRM practices with mean value greater than five on 7-point scale. These are the HRM practices considered to be commonly implemented by the surveyed Australian dairy farmers. It appears that validated selection process [e.g. skill assessment (M=5.9), job interviews (M=5.4)], and on-farm training (M=5.9) were more often adopted than other practices such as formal performance reviews (M=5.1), occupational health and safety (M=5.0), and career opportunities (M=5.3). Most dairy farmers paid their employees based on the Federal pastoral award (M=5.7), and offered performance based compensation (M=5.6). Dairy farmers are likely to implement standard operating procedures (SOPs) for maintenance and cleanliness of milk harvesting plant (M=5.9) and their employees are more often required to work overtime (M=5.3).

Table 4 provides stepwise regression results to test the proposed hypotheses. Results provide a strong support for Hypothesis 1, which suggest that an integrated set of HRM practices significantly predict changes in financial performance in Model 1 (R^2 = .23, F = 6.31, p<.001) except on-farm training and long work hours. Interestingly, 'validated selection' (β = -.18, p<.05), 'formal hiring', (β = -.28, p<.01), and 'career opportunities' (β = -.16, p<.05), have negative relationship with the financial performance, the reasons for these will be further explained in discussion. In Model 2, control variables such as herd size, number of employees and farm age are entered, together with HRM practices. Results showed that the control variables have somewhat moderated the relationship between HRM practices and financial performance, as R^2 has slightly increased to 0.25.

In Model 3, it is seen that the HRM practices significantly predict the changes in employee turnover (R^2 = .15, F = 10.26, p<.001). However, only variables such as 'standard operating procedures' (β = -.28, p<.001), 'validated selection' (β = .21, p<.01), and 'long work hours' (β = .20, p<.01) were related to employee turnover. In Model 4, similar control variables were entered, together with HRM practices. The results showed that the control variables have in fact moderately improved the model's predictability (R^2 = 0.22). In Model 5, employee turnover influenced by HRM practices showed the negative relationship with financial performance (β = -.15, p<.01). This suggests that lower employee turnover together with control variables help improve the financial performance of dairy farms by

15%, even though the model overall suggests that 95 per cent of variance for financial performance might be due to other unknown factors (R^2 =0.05, p<0.01).

DISCUSSION AND CONCLUSION

The purpose of this paper has been to investigate whether the use of HRM practices created significant impact either on employee retention or on farm financial performance in Australian dairy farms. The research has centred on the testing of two hypotheses that was informed by review of relevant literature. The two main hypotheses were tested, the first hypothesis focusing on whether the use of HRM practices influences farm financial performance, while the second sets focused on whether HRM practices influence employee turnover, and in turn, low employee turnover impact on Australian dairy farms' financial performance.

The results provided answer to our key research question; *have Australian dairy farmers implemented HRM practices identified in previous literature?* The dairy farmers in Australia largely emphasized on key aspects of HRM under study as mentioned in previous section. The findings are somewhat consistent with the previous studies in context of US, Canada and New Zealand, where farmers were found to focus on recruitment and selection (e.g. Kyte 2008; Maloney and Milligan 1992), training (e.g., Stup et al. 2006), performance evaluation (e.g., Hyde et al. 2008), compensation and incentives (e.g. Stup et al. 2006; Fogelman et al. 1999), careers opportunities (e.g., Searle 2002), standard operating procedures (e.g. Stup et al. 2006), long work hours (e.g. Tipples et al. 2004) and occupational health and safety (Guthrie et al. 2007) to some extent.

It was found that not all of the proposed HRM practices have significant positive effect on financial performance. In fact, career opportunities, validated selection and formal hiring were negatively related to financial performance. These results are consistent with the explanation provided by Bitsch et al (2006), who argued that hiring process without preparation and investment of insufficient time by farmers result in risks of hiring employees without required skillsets. The selection problems further interact with inadequate training may lead to low individual performance, increase turnover, and low

productivity (Bitsch et al. 2006, p.131) eventually effect financial performance. The second reason could be that the use of these HR practices is likely to associate with high costs, which in turn lower the financial returns.

The positive farm performance effects of incentives and compensations are found to be consistent with previous studies (e.g. Hyde et al. 2008). The performance-based compensations are related to subsequent financial success of firms (Ettington 1997), and is one of the most powerful motivation variable. However, it must be integrated with overall HRM system of firms (Harel and Tzafrir 1999). Also, OH&S practices and operating procedures are positively related to financial performance. The OH&S practices possibly reduce the risks of farm accidents, subsequent employee absenteeism and health insurance costs, and improved financial performance. In contrast, poor safety instructions and operating procedures resulted in milk quality problems, and bio-security risks (Bitsch et al. 2006), and reduced financial performance. Interestingly, training has no significant impact on financial performance. The result is inconsistent with findings of Stup et al (2006). Perhaps, the existing training practices in the Australia context may be relatively ineffective and also associated with high costs.

The results clearly indicated that the use of an integrative set of HRM practices has significant impact on employee turnover, even though only three specific HR practices (e.g., validated selection, long working hours and standard operating procedures) are significantly related to employee turnover. In fact, the majority of single practice has no significant effect on employee turnover. Among three HRM practices, only standard operating procedures (SOPs) were likely to contribute to lowering employee turnover. It has been cited that SOPs are more likely to improve individual performance (e.g. Stup et al. 2006), hence, lowers the chances of turnover. Bitsch et al (2006) stated that employees in dairy farms are more problematic if not following operating procedures, and may be discharged because of substandard performance. The results from this study appear supporting Bitsch et al.'s (2006) argument.

Among the proposed HRM practices, long working hours were likely to increase employee turnover because of increase tardiness, frustration and employees dissatisfaction. The result is consistent with findings of Searle (2002) that high employee turnover is likely to be the outcome of the long work hours in dairy farms. Similarly, the validated selection process could possibly result in high employee turnover because of hiring competent employees, which are more likely to be attracted by other dairy farms through head hunting or pouching. Furthermore, potential employees are likely to be dissatisfied by lengthy validated selection process such as review of job applications, series of interviews, skill assessment through several tests, as well as reference checks. Potential employees might be quickly hired by other dairy farms that cut short the lengthy hiring process. Therefore, the results in the current study indicate a negative relationship between validated selection process and low employee turnover. Whilst it is important to have a validated selection process in place to ensure getting the right people in the right place into farms, dairy employers might need to be innovative by reducing the hiring process in order to attract quality potential employees especially in the time of skill shortages.

In summary, the results generally support two main hypotheses: first is that the use of HRM practices directly improves farm financial performance, and second is that the use of HRM practices improved employee turnover which in turn leads to improved farm financial performance. However, the empirical evidence indicates that not all of the HRM practices variables studied are relevant in terms of improving farm performance in Australian dairy farms. It appears that HRM practices are more effective when implemented as an integrated set, and could produce a greater source of competitive advantage because of synergies between practices (Becker and Huselid 1998).

The results from this study have some practical implications for owner-managers of the Australian dairy farms. First, the owner-managers could reap the potential benefits of validated selection process and formal hiring in long term if implemented properly with adequate time investment and prior preparation. However, the manager must be aware of the costs associated with effective implementation may lead to low financial return, whilst potential delays in hiring process may result in hiring of talented workforce by other farms. Second, the performance based compensation is an

appropriate way to improve individual performance via employees' motivation but might not be fruitful if owner-managers fail to integrate it with key performance indicators, OH&S practices and standard operating procedures. Third, the owner-managers should be made aware of the importance of maintaining work-life balance that reduce the risk of high employee turnover because of long work hours, whilst at the same time providing adequate flexibility in managing work and family needs.

Although this study has made significant contribution to address an important, yet under researched area; HRM practices in small agribusinesses in particular the Australian dairy farms. There exist limitations in terms of use of perceptual farm performance data. Thus, future research is warranted to collect the objective measures of farm performance in context of Australian dairy farms. Further investigation of HRM in dairy farming should seek more in-depth analysis of the skill sets needed for owner-managers, in particular in the area of day-to-day management, which has been rarely researched. Future research into HRM practices across different farming sectors could yield additional insights into the practices used and common to specific farming sector. Perhaps, repeating this study across different livestock farming sectors (e.g., beef and pork production) could provide more generalizable results.

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Table 1: HRM Practice Factors with their Reliability Coefficients (Alpha) Values

HRM practices	Alpha value	Items of each HRM practice factors
Validated selection process	.80	Selection of employees through job interview
		Review the job application before hiring
		Skills assessment of potential employees before making hiring decision
		Use the reference checks to select new employees
		Hiring of employees with multiple job skills
Formal hiring	.71	Sign formal employment agreement with hired employees
		Issue formal offer letter to new hires before making employment agreement
		Seek help from employment agencies/advisers in recruitment
		We hire family members through formal hiring procedures
On-farm training	.71	Induction training to new employees when they start work
		On-farm training to employees from immediate boss at work
Formal performance review	.82	Conduct formal performance review at least once a year Conduct formal performance review of family workers
Performance based compensation	.61	Employees are paid according to the relevant state or federal pastoral award
		Offer performance-based pay to employees
Career opportunities	.83	Employees tend to informally discuss career aspirations with their immediate boss frequently
		Discuss career planning of our employees individually once a year
		Talk about career opportunities within our farm to all our employees
		Other career opportunities within the dairy industry are made known to all employees
		Use internal promotions at our farm in the past three years
OH&S	.73	Monitor occupational health and safety practices on daily basis
		General information about OH&S practices is displayed clearly
		Documented risk management process at our farm
		Investigate workplace accidents formally at our farm
		Teach our employees to prevent accidents at our farm
Long work hours	.76	Employees are often required to work overtime
		Employees worked over 38 standard hours per week
Standard operating procedures	.83	Milk harvesting
		Maintenance and cleanliness of milk harvesting plant
		Calving procedures
		SOPs for managing reproduction cycle
		Pasture management

Table 2: General Profile of Australian Dairy Farms in the Survey

Profile	Categories	Number	Percentage (%)
Position responsible for HRM	Owner-manager	190	92.7
	Business manager	4	1.9
	Farm supervisor	4	1.9
	Other	7	3.5
Number of full time equivalent (FTE) workers	less than 5 workers	175	85.4
	Between 5 and 10	26	12.7
	Between 11 and 20	4	2
Types of farm	Family farm	180	87.8
	Family owned, but managed by others	19	9.3
	Corporate farm	1	.5
	Other	5	2.4
Herd Size	less than 500 cows	173	84.4
	Bet 500 and 1000	27	13.2
	Bet 1001 and 2000	5	2.4
	Sample Size	**205**	

Table 3: Mean Values (>5) for HRM Practice Items

HRM practice composite Items	Specific HRM practice	Mean (> 5)
Validated selection process	Selection of employees through job interview	5.42
	Review the job application before hiring	5.09
	Skills assessment of potential employees before making hiring decision	5.91
	Use the reference checks to select new employees	5.05
	Hiring of employees with multiple job skills	5.23
On-farm training	Induction training to new employees when they start work	5.51
	On-farm training to employees from immediate boss at work	5.92
Formal performance review	Formal performance review by immediate boss	5.14
Performance based compensation	Offer pay above the award rate	5.79
	Offer performance-based pay to employees	5.66
Career opportunities	Informally discussion about career aspirations with immediate boss on frequent basis	5.33
OH&S	Monitoring of occupational health and safety (OH&S) practices on the daily basis	5.05
Long work hours	Employees are often required to work overtime	5.34
	Employees worked over 38 standard hours per week	5.26
Standard operating procedures	Milk harvesting	5.37
	Maintenance and cleanliness of milk harvesting plant	5.90
	Calving procedures	5.20
	SOPs for managing reproduction cycle	5.27

Table 4: Stepwise Regression Results (Backward Deletion Method)
Relationship between HRM Practices and Farm Performance Measures

Variables entered initially in models	Model 1 Financial performance	Model 2 Financial performance	Model 3 Employee turnover	Model 4 Employee turnover	Model 5 Financial performance
	Beta (t)	Beta (t)	Beta (t)	Beta (t)	Beta (t)
(Constant)	(t = -.16)	(t = 1.61)	(t = 24.10)	(t = 6.78)	(t = 2.99)
Validated selection process	-.18* (t = -2.21)	-.15* (t = -1.80)	.21** (t = 2.85)	.18** (t = 2.48)	
Formal hiring	-.28** (t = -3.07)	-.26** (t = -2.96)	-	-	
On-farm training	-	-	-	-	
Formal performance review	.32*** (t = 3.61)	.30*** (t = 3.36)	-	-	
Performance based compensation	.21** (t = 2.81)	.22** (t = 2.86)	-	-	
Career opportunities	-.16* (-1.68)	-.18* (t = -1.89)	-	-	
Occupational health and safety	.26** (t = 2.88)	.27** (t = 3.01)	-	-	
Long work hours	-	-	.20** (2.72)	.20** (2.86)	
Standard operating procedures	.18* (2.22)	.18* (2.26)	-.28*** (-3.88)	-.28*** (-3.98)	
Number of FTEs workers		-		-.22* (-2.25)	-.17** (-2.39)
Herd size		-.14* (-1.79)		.34** (3.42)	-
Farm age		-		-	-
Employee turnover					-.15* (-2.01)
Model R^2 Model F n	.23 6.31*** 205	.25 6.01*** 205	.15 10.26*** 205	.21 8.87*** 205	.05 5.00** 205

The t-scores are in parentheses.
p<.05, p<.01**, p<.001****

Model 1 & 3 (HRM practices only); Model 2 & 4 (HRM practices and control variables together
Model 5 (Employee turnover and control variables only)