

Suphawadee Yeamkong 2011: Characterization of Factors Affecting Milk Yield, Milk Quality and Revenue of Dairy Farms Supported by a Private Organization in Thailand. Doctor of Philosophy (Animal Science), Major Field: Animal Science, Department of Animal Science. Thesis Advisor: Assistant Professor Skorn Koonawootrittriron, Ph.D. 152 pages.

The aims of this dissertation were to determine factors affecting milk quantity, quality and revenue of dairy farms supported by a private organization and to compare milk yield and revenue of dairy farms from this private organization with farms supported by a dairy cooperative in Central Thailand. Data consisted of monthly records collected from dairy farms from 2004 to 2009 and information from questionnaires. Traits were monthly milk yield per farm (MYF), milk yield per cow (MYC), milk revenue per farm (MRF), milk revenue per cow (MRC), fat percentage, protein percentage, lactose percentage, solids not fat percentage, total solids percentage and somatic cell count. Data were analyzed using mixed linear models that considered the subclasses of year-season, farm location-farm size, organization-farm size, experience, education, record keeping, labor, and decision making on sire selection as fixed effects, and farm and residual as random effects. Least squares means (LSM) were estimated for each trait, and then pairwise comparisons were made using Bonferroni t-tests. All traits were affected by year-season and farm location-farm size effects, except for protein percentage. Monthly milk yield per cow tended to decrease and somatic cell count tended to increase from 2004 to 2007. Similarly, MYC was found across farm sizes and locations. Large farms had higher somatic cell counts than small and medium farms. Revenues depended primarily on milk yields. Longer experience increased ( $P < 0.05$ ) monthly milk yields and revenues. Farms that hired people produced the highest ( $P < 0.05$ ) monthly milk yields and revenues. Farmers with higher levels of formal education produced more MYC and MRC ( $P < 0.05$ ) than farmers with lower levels of formal education. Farms that kept records had higher MYF and MRF ( $P < 0.05$ ) than those without records. Although differences among farms were non-significant, farms that received help from staff of the supporting organization had higher monthly milk yields and revenues than those that took decisions by themselves or with help from government officials. An interaction effect between organization and farm size was found for monthly milk yields and revenues. Farms supported by a private organization had higher ( $P < 0.01$ ) monthly milk yields and revenues than those farms supported by a dairy cooperative in small and medium size farms, except for MYF and MRF of the large size farms. These findings implied that dairy farmers needed systematic training and continuous support to improve farm milk production and revenues in a sustainable manner. Exchange of experiences and strategies among dairy organizations in Thailand could help accelerate the rate of improvement of milk yield and revenue per farm and per cow at regional and national levels.

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Thesis Advisor's signature