

Mohammed Endris Seid 2012: Estimation of Direct Genetic Effect of Milk Yield and Lactation Length and Genotype by Region Interaction in Dairy Cows in Thailand. Master of Science (Tropical Agriculture), Major Field: Tropical Agriculture, Faculty of Agriculture. Thesis Advisor: Associate Professor Sornthep Tumwasorn, Ph.D. 64 pages.

Two studies were conducted with the objectives to estimate the direct genetic effect of actual milk yield and lactation length in the Aownoi dairy cooperative and to examine the existence of genotype by region interaction on milk production traits of Holstein crossbred dairy cows in Thailand.

The estimation of the direct genetic effects on actual milk yield and lactation length showed the significant effect ($P < 0.05$) of lactation number on actual milk yield. Breed group of cow, lactation number and year-season of calving had no significant effect on lactation length. Estimates of heritability for the actual milk yield and lactation length were 0.22 ± 0.08 and 0.26 ± 0.09 , respectively.

From the interaction of genotype and environmental effect, breed group of cow had significant effect ($P < 0.05$) on 305-d milk yield and highly significant ($P < 0.01$) on actual total milk yield and adjusted 305-d milk yield while the effect of year-season of calving and region had significant effects ($P < 0.001$) for all studied traits. Breed group by region had significant interaction ($P < 0.01$) for milk production traits. The presence of genotype by region interaction, this intern had inconsistent performance and ranking shift of genotypes across regions. Moreover, Sire by region had significant interaction ($P < 0.01$) on actual total milk yield and adjusted 305-d milk yield but not on 305-d milk yield. The results caused the ranking shift of sire's estimated breeding value across regions. The estimated heritability for milk production traits ranges between 0.17 to 0.24 for Central region and 0.29 to 0.57 for Eastern region.

Student's signature

Thesis Advisor's signature

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