

Thesis Title	Extrinsic and Intrinsic Factors Affecting Pregnancy Rate of Dairy Cattle
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ABSTRACT

The objective of this retrospective study was aimed to evaluate pregnancy rate of dairy heifers and cows affected by extrinsic factors (Temperature - Humidity Index of the day around breeding, farm management and service number) and intrinsic factor (milk yield). Data collection was divided into two parts : 1) 1101 data from breeding records and milk yield data from 3 private farms in Ratchabuir Province during 1994 – 1996 and 2) climatological data provided by Ratchaburi meteorology station.

The results from data distribution indicated that Temperature – Humidity Index (THI) on the day of insemination of dairy heifers and cows averaged 77.9 ± 3.5 and 77.8 ± 3.5 which were in danger category. Comparison of THI to pregnancy rate of dairy heifers and cows (average each month over 3 years), it was found that THI had more effect on pregnancy rate of dairy cows than heifers. As THI increased during March to November (77.0 – 82.0), pregnancy rate of dairy cows decreased (3.3 – 42.3%) whereas pregnancy rate of dairy heifers remained stable throughout the year (44.4 – 77.2%) excepted in September.

From the effect and correlation of each factor, it showed that farm management had the most effect ($P < 0.01$) on pregnancy rate of dairy heifers ($r = -0.33$) whereas farm management, Temperature -- Humidity Index, service number and milk yield had the most effect ($P < 0.01$) on pregnancy rate of dairy cows ($r = -0.25, -0.15, -0.10$ and -0.09 , respectively).

The results indicated that the crossbred Holstein heifers with farm management type 2 (tie stall, 16%CP concentrate mixed with soybean curd by product, chopped cornstalk and others,

breeding around the year) had lower pregnancy rate ($P < 0.01$) than the purebred Holstein heifers with farm management type 1 (freestall, 21%CP concentrate and chopped cornstalk, seasonal breeding) (45.3 vs 79.6%). Lower pregnancy rate of dairy cows were affected by factors ($P < 0.01$) as following : THI > 78 on the day of insemination compared to THI ≤ 78 (24.3 vs 38.5%), milk yield > 15 kg/d compared to milk yield ≤ 15 kg/d (27.5 vs 36.6%) and farm management type 2 compared to type 1 (18.8 vs 41.5%). For interaction between THI on the day of insemination and milk yield, it was found that pregnancy rate of dairy cows were the lowest ($P < 0.01$) when THI > 78 and milk yield > 15 kg/d.

The findings from this study indicated that heat stress condition and high milk yield had pronounced effect on pregnancy rate of dairy cows compared with heifers whereas farm management affected on pregnancy rate in both groups.