

Aree Laikul 2015: A Study of Estrus Cycle and Breeding Management in Thai Native Crossbred Mares. Master of Science (Agricultural Biotechnology),

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The aims of this study were to investigate the follicular dynamics, characteristic changes of luteal tissue and endometrium during estrus cycle, in attempt to set the optimal breeding time and to impose breeding management in Thai native crossbred mares. Follicular dynamics were studied by transrectal ultrasonography during 11 interovulatory intervals (IOIs) of 9 Thai native crossbred and 8 IOIs of 9 Thoroughbred mares. Maximum diameter of preovulatory follicles was smaller ($p < 0.01$) in Thai native crossbred (37.9 ± 4.6 mm.) than those of Thoroughbred mares (45.4 ± 4.1 mm.), but no significant difference was found in growth rate during 6 days before ovulation. The IOI was not significant difference between Thai native crossbred (23.5 ± 1.8 days) and Thoroughbred mares (22.3 ± 0.9 days). Thai native crossbred had fewer ($p < 0.01$) follicles (≥ 10 mm.) per ovulatory wave (2.7 ± 1.2) than those of Thoroughbred mares (10 ± 5.1). In 6/6 (100%) IOIs in Thai native crossbred mare, the follicular waves were major ovulatory waves which 50% of the waves had minor waves emerging before or after the major waves. Day of deviation was found to be $D -7.3 \pm 0.5$ (mean \pm SD.) when the mean diameter of the two largest follicles were 21.1 ± 1.9 mm. and 19.7 ± 2.6 mm. (Day 0 = ovulation). The breeding protocol according to follicular, luteal and endometrial dynamics during the estrus cycle was applied to 21 Thai native crossbred mares, resulting in 85.7% conception rate. In conclusion, the optimal breeding management requires transrectal palpation, ultrasonography, and heat detection. The optimal breeding time indicator consist of; time to show standing heat, softening of the dominant follicle with ≥ 35 mm. in diameter, decreasing tone of the uterus, and decreasing edematous of the endometrial folds.

Keywords: Thai native crossbred mare, estrus cycle, optimal breeding time, follicular dynamics, endometrial echotexture score

Student's signature

Thesis Advisor's signature

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