The objectives of this study were to use the competitive ELISA for the determination of postpartum progesterone in cows' milk by using monoclonal antibodies against progesterone, to compare milk progesterone production between summer (March – May 2004) and winter (November 2004 – January 2005) and also between low and high milk production cows to level of milk progesterone, the day to first postpartum ovarian activity and amount of AI to conception rate in parturition dairy. Thirty milliliter of milk samples (7 crossbred and 7 purebred) were collected every Monday and Friday at Chiang Mai Livestock Research and Breeding Center over the period from calving until 135 days postpartum or until cows were diagnosed as pregnant. Progesteron-3 (O-carboxymethyl)oxim-BSA was used as an antigen to immunize BALB/c mice and the antibody production was measured by Indirect ELISA technique. Hybridoma production was done after BALB/c antibody was detected. It was found that there were hybridoma cells in 40 out of 576 wells (6.9%). Ninety – three percent (37/40) of these hybridoma clone were able to produce antibodies. After one limited dilution experiment, was produced One clone, 4B2. A monoclonal antibody was used in the competitive ELISA system. The standard curve of the ELISA showed that, at point of 50 % binding, progesterone at 10 pg/ 50 μl could be measured. Monoclonal antibody to determine the level of progesterone was found that by using the day to first postpartum ovarian activity in parturition dairy cows in summer, without breed
consideration, was longer (43.5 ± 10.75 days) than in parturition dairy cows in the winter season (15.83 ± 1.74 days) was significantly different (P < 0.05). Comparing parturition dairy cows in summer, it was found that the day to first postpartum ovarian activity in crossbred (40.00 ± 15.50 days) and purebred (47.00 ± 18.02 days) (P > 0.05) was not significantly different. Comparing parturition dairy cows in the winter season, it was found that the day to first postpartum ovarian activity in crossbred (18.25 ± 1.44 days) and purebred (15.47 ± 18.02 days) (P > 0.05) was significantly different, level of milk progesterone in dairy cows in winter was higher than dairy cows in summer season was significantly different (P < 0.05). Amount of AI to conception rate in parturition dairy, it was found that in dairy cows in winter less than dairy cows in summer season was significantly different (P < 0.05). High milk yield production of dairy cows had the day to first postpartum ovarian activity rapid than low milk yield production of dairy cows. The study could concluded that the produced monoclonal antibody could be used to determine milk progesterone of dairy cows and it was found that the level of progesterone, the day to first postpartum ovarian activity and amount of AI to conception rate in parturition dairy cows in winter was better than dairy cows in summer season. Cows with low milk production resume there ovarian activity higher than milk production group.