VI. SUMMARY

Studies were conducted to evaluate the efficacy of various techniques available for prediction of parturition date in bitches. An attempt was made to predict the parturition date. (a), at the time of recommendation of mating on the basis of initial rise in preovulatory serum progesterone (P₄) concentration. (b), at the time when the bitch of unknown breeding date was presented for pregnancy diagnosis using ultrasonic measurements. (c), during advanced pregnancy using behavioral, genital and mammary changes and (d), on the basis of changes in rectal temperature close to the time of whelping.

107 bitches were recommended to be mated on the basis of a distinct rise in preovulatory serum P₄ concentration. The preovulatory serum P₄ concentrations averaged 3.01 ± 0.03 ng/ml and ranged between 2.02 to 3.95 ng/ml Parturition date in these animals was predicted as 65 days from the initial rise in serum preovulatory progesterone concentration and the accuracy of prediction of parturition date to within ± 2 days was 87.85%.

In 44 bitches, the prediction of parturition date and litter size was attempted by determination of gestational age on the basis of ultrasonographic measurements of gestational sac diameter (GSD). In another 69 animals, the gestational age was estimated through measurements of fetal head diameter (HD). Both GSD and HD were inaccurate in determination of gestational age or prediction of parturition date. Ultrasonography was also not very accurate for prediction of litter size.
The present study also attempted to determine if the body size of the bitch has any influence on the ultrasonic measurements used for prediction of parturition date in bitches. For this purpose bitches presented for pregnancy diagnosis were categorized into three classes namely, small to medium sized breed (< 25 kg), large sized breed (25 to 50 kgs) and giant sized breed (>50 Kg). In each class of bitch, the gestational age and parturition date was estimated on the basis of GSD and HD using previously published formulae for calculating the gestational age and predicting date of parturition. An attempt was also made to determine the ultrasonographic accuracy of determining litter size in each category of body size of the bitch.

The study could not clearly establish that ultrasonography is accurate for prediction of parturition date in bitches, in spite of categorizing the bitch with respect to their body weight. The prediction of litter size was also not very accurate with ultrasonography. It was concluded that it may be inaccurate to predict the date of parturition on the basis of ultrasonographic measurements using a single universal formulae although correction factors may have been suggested. It was recommended that, parturition date may be predicted more accurately when the prediction tables are developed for each class of breed.

A prediction table was formulated for non descript breeds from early to late gestation and its accuracy (prediction of parturition date) was verified and found accurate to within ±2 days. The same prediction table, however, could not predict the parturition date when the measurements made in other breeds was applied for determining the parturition date.
Behavioral signs like nesting, panting, mammary changes such as onset of lactation and genital changes like vaginal discharges and relaxation of vulva, commenced at variable times before the onset of parturition and were found to be unsuitable for predicting the parturition date.

A prepartum drop of rectal temperature to less than 99 °F was identified in 81 percent of the animals, 12 to 24 hours prior to parturition. The temperature drop was transient and had returned to normal level at the time of whelping. It was concluded that although a prepartum drop in rectal temperature is an easy technique for predicting parturition date, the technique allows very short time for the management of parturition by the breeder.

It was concluded that under clinical conditions, prediction of parturition date may be estimated with a fairly high degree of accuracy using initial rise in preovulatory serum progesterone concentration. The technique predicts the parturition date at the time of initial mating itself, is available in many human diagnostic laboratories, besides being less expensive.