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A STUDY OF SOME FACTORS AFFECTING THE
POST-PARTUM OESTROUS INTERVAL
IN SUCKLED ANGUS COWS

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ABSTRACT

The objectives of this study were to determine the length of interval from parturition to first oestrus and investigate factors that might influence this interval. Sixty-one records were collected in 1975 from the breeding herd at Massey University's No. 3 sheep farm Tuapaka, another 207 records covering the years 1971 to 1973 and 1975 were obtained from the herd of the Whatawhata Hill Country Research Station, Ministry of Agriculture and Fisheries, Hamilton. The Massey herd consisted of Angus cows aged 4-years and older while the Whatawhata Angus herd consisted of cows aged 2-years and older.

Oestrus was detected at each location by the use of chin-ball mating harnesses attached to entire or vasectomised bulls. Management of the cows followed normal New Zealand hill country practices with the exception that in the Massey herd post-calving treatments were imposed. These treatments were:

- (i) On the hill throughout the trial (H)
- (ii) Removed from the pad at birth (PB)
- (iii) Removed from the pad at 20 days (P20)
- (iv) Removed from the pad at 40 days (P40)

After calving, cows and calves were grouped into three blocks according to calf age with treatments nested within blocks.

The analysis consisted of a study of the relationships between the length of the interval from calving to first oestrus and the nutritional treatments, milk production, cow liveweight changes, and calf variables.

The least squares means for post-partum interval to first oestrus were 79.2 days and 74.5 days for the Massey and Whatawhata herds, respectively. The regression of

calving date significantly ($P < 0.01$) influenced the post-partum interval in the Massey herd, but the effects of block, treatment, age of dam and sex of calf were non-significant. For the Whatawhata herd, year of record ($P < 0.001$), age of dam ($P < 0.01$) and the regression of calving date ($P < 0.001$) all influenced the post-partum interval. The sire of calf at foot and sex of calf were non-significant while the regression of cow liveweight change post-calving to mating approached significance ($0.05 < P < 0.10$).

Milk production of the dam for the Massey data was assessed by the weigh-nurse-weigh method. Twenty-day milk production was significantly correlated ($r = 0.25$, for 59 df, $P < 0.05$) with post-partum interval to first oestrus, but 40- and 60-day milk production was not related to this interval. Calf pre-weaning gain was correlated ($r = 0.28$, for 205 df, $P < 0.05$) with this interval in the Whatawhata data.

Post-calving liveweights of the cows were influenced by treatments with the P20 and P40 cows being lighter than the H or PB cows. These differences in cow liveweight did not influence the length of the post-partum interval. This result indicated that pre-calving nutrition was more important than post-calving nutrition.

The calving interval for the Massey herd was 367.6 days compared with 365.1 days for the Whatawhata herd. Calving interval was positively and significantly correlated with post-partum interval to first oestrus ($r = 0.29$, for 49 df, $P < 0.05$, and $r = 0.54$, for 82 df, $P < 0.01$, for the Massey and Whatawhata herds, respectively).

It was concluded from this study that if the interval to first post-partum oestrus in Angus cows was 80 days, then mating should commence 70 days after calving and continue for 42 days. Young heifers experience a longer post-partum anoestrus and consequently should be mated 21 days before the mature herd. Particular attention needs to be given to pre-calving nutrition, while for the first 40-days post-

partum cows can be fed to maintain liveweight.

Adoption of these practices should lead to a substantial improvement in the reproductive status of a beef breeding herd.

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