

THE EFFECT OF LACTATIONAL STATUS ON SUBSEQUENT FERTILITY OF MATURE SHORTHORN CATTLE

J.R. GALLAGHER*

Summary

A study was made of the effect of lactational status (presence or absence of lactation during mating) on reproductive performance and live weights of Shorthorn cows. Average time to conception was 9.6 ± 2.1 days in lactating (L) and 9.7 ± 2.8 days in non-lactating (NL) cows. Fertility levels of .93 and 1.00 viable calves per cow were recorded for L and NL cows respectively. Large differences in live weight of the two groups were noted reaching a maximum of 73 kg. in favour of the NL cows. Birth weights of calves from L and NL groups were 31.0 ± 1.14 and 30.3 ± 1.10 kg. respectively,

I. INTRODUCTION

The need for improved reproductive performance of beef cows is shown by average branding rates of 58% for the national herd (McClure 1973) and 77% for South Australia (Bowen and Howlett 1974). Many factors including lactation have been suggested for low levels of fertility. A report from Queensland (Plasto 1968) indicated lower levels of fertility in lactating than in non-lactating cows but in general contrary results were obtained in New South Wales by Young 1968. Because of this conflicting evidence and the absence of information on the Adelaide Plains, a programme of observations and measurements commenced in 1974 to study the effect of lactational status (presence or absence of lactation during mating) on reproductive performance and liveweights of cows and calves.

II. MATERIALS AND METHODS

(a) cattle

Two groups of 14 mature Shorthorn cows were each mated to a single bull in June 1974. These comprised a lactating group (L) which previously calved in March/April 1974 and a non-lactating group (NL) which calved in August/September 1973, and was not remated to calve in 1974. Calves from the NL group were weaned in April 1974 while L group calves were weaned in Nov. 1974. The average number of days from calving to bull entry was 277 in the NL group and 86 in the L group.

The cattle were observed daily during the three month mating period and oestrus was recorded with a chin ball harness. The presence or absence of a live calf at birth was recorded for each cow. cow live weights were recorded prior to mating and concluded after calving in 1975.

* Roseworthy Agricultural College, S.A. 5371

(b) pastures

The cattle grazed annual grass medic pastures and cereal stubbles, During the dry summer period the animals were supplemented at weekly intervals with one bale of meadow hay per head.

(c) statistical analysis

Results were subjected to analysis of variance and "t" test according to procedures presented by Steel and Torrie 1960.

III. RESULTS

It is shown in Figure 1 that lactational status had no significant effect on the period to conception which averaged 9.6 ± 2.1 days in the L group and 9.7 ± 2.8 days in the NL group. Twenty five cows conceived and held to first service while the remainder held to second service.

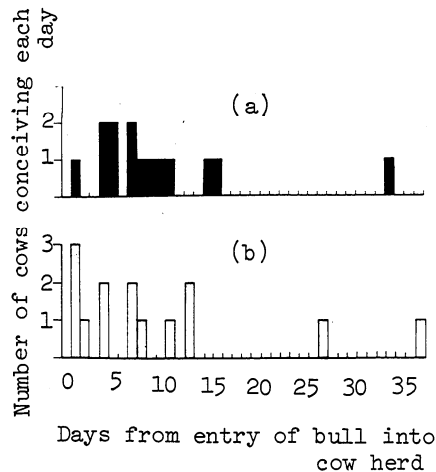


Fig. 1. The number of cows conceiving each day following the entry of the bull into the breeding herd of either L or NL cows as shown in (a) and (b) respectively.

It is shown in Table 1 that all cows calved but the number of viable calves per cow was lower in the L group. This difference was not significant. Birth weights of calves from the two groups did not differ significantly.

TABLE1
Number of cows calving, number of calves per cow and number
of viable calves per cow and calf-birth weights from L and NL
groups of animals

Cow performance	L group	NL group	Significance
Number of cows calving	14	14	N.S.
Number of calves per cow	1.07	1.00	N.S.
Number of viable calves per cow	0.93	1.00	N.S.
Calf birth weight (kg)	31.00 $\pm$ 1.14	30.30 $\pm$ 1.10	N.S.

It can be seen in Figure 2 that live weights of Land NL cows did not differ early in the mating period but later differences increased to a maximum of 73 kg. in favour of the NL group and remained significant thereafter.

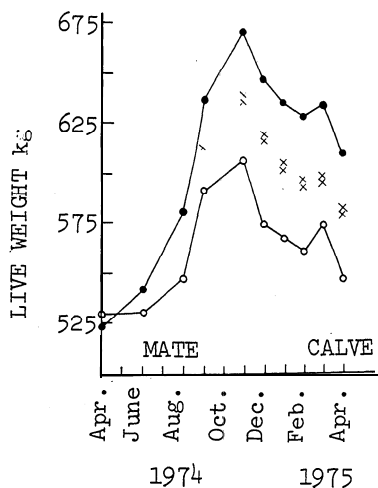


Fig. 2. Changes in live weights of lactating (○—○) and non-lactating (●—●) groups of cows. xx P<0.01, x P<0.05

IV. DISCUSSION

The production of a calf by a cow at the same time each year is dependent upon a rapid return to service post calving. This is sometimes inhibited by a protracted period of lactational anoestrus which Donaldson 1962 indicated can occur in Shorthorn cows which were suckling calves less than four months of age. In the present study all lactating cows were in calf by 128 days post calving thus lactational anoestrus was not a problem.

Reference to Figure 2 indicates that both groups of animals gained weight during the mating period. Wiltbank, Spitzer and Le Fevre 1973 observed that animals which gained weight during this period showed oestrus quickly post calving and also a high conception. Similar results were obtained also in this study as shown in Figure 1 and Table 1. Lactation was associated with reduced live weight but this did not prevent a high level of fertility as shown in Table 1. The effect of lactation on live weight was most marked just prior to weaning of L group calves. The decline in live weights during late summer early autumn was associated with low rainfall and the grazing of cereal stubbles. .

The slightly higher number of calves present at birth in the L group than in the other group is in agreement with the findings of Young 1968. However the loss of two calves at birth highlights the problem of producing viable calves.

It may be concluded from the study that under pastoral conditions on the Adelaide Plains, when mature beef cows gain weight during the breeding season, then lactation may not limit conception rate.

v. ACKNOWLEDGEMENTS

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VI. REFERENCES

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