CALVING PERFORMANCE AND MORTALITY OF SHORTHORN CATTLE ON A PROPERTY IN NORTH QUEENSLAND

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Summary

Five groups of shorthorn cows each mated for nine weeks at five different periods each year for the years 1963 to 1966. There was no consistent pattern in the calving percentage of the mating groups over the period. In 1965, the group calving in April-May gave the best calving performance while in 1966, the September-October group was superior and, in 1967, the November- December group was superior.

Foetal wastage from pregnancy diagnosis to calving averaged 6 per cent of matings and only in 1966 was there any association between calving group and it.

There was no significant difference in mortalities of cows or calves between calving groups but there were significantly higher mortalities in cows in 1965, a drought year.

I. INTRODUCTION

Low branding percentages and high mortality in breeders and their progeny characterise the beef cattle industry in north Queensland. Donaldson (1962) and Churchward (1965) reported branding percentages in north and north-west Queensland, based on property records, ranging from 76 to 46 per cent. Surveys by Howard (1966a, b) and Jenkins and Hirst (1966) emphasised the mortality in breeders and calves in the north-west region where an average of 11 to 13 per cent females die annualy. Lamond (1968) and Donaldson (1969), in studies on individual properties in this region, demonstrated the overall low pregnancy and calving rate and showed that cow condition was an important predetermining factor. There is still, however, a lack of detailed information on the performance of beef cattle in north Queensland.

Plasto (1968), in a study of breeding performance on the "Swan's Lagoon" station at Millaroo, reported low conception percentages of Shorthorn cows mated at five different periods of the year. This paper records further information on their calving performance and mortalities in these cows and calves.

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II. MATERIALS AND METHODS

The outline of the experiment, conducted at "Swan's Lagoon" Research Station, has been described by Plasto (1968). The climate and vegetation of the region has been described by Christian and Slatyer (1953). The mean annual rainfall at Millaroo (12 years) is 790 mm. During the period under description, the rainfall was 982 mm in 1963, 900 mm in 1964, 855 mm in 1965 and 461 mm in 1966. While the 1965, rainfall was slightly above normal, in the critical June to November (inclusive) period only 38 mm of rain fell compared with a 12 year average of 140 mm in this period.

Mating commenced in 1963 when five groups, each of 45 heifers, were mated at five different periods of the year. Each group was mated for nine weeks and remated at the same period in subsequent years until 1966. Pregnancy diagnosis was carried out eight weeks after the end of mating. No replacement animals were used and no supplementary feed was given to cows or their progeny during the studies. Calving percentage of each group was calculated from the number of cows calved divided by the number mated for that calving.

Two pairs of bulls were used so that the pair used in any one period was rested during the next. They were maintained in working condition throughout the experiment. Semen was collected by electro-ejaculation (Watson 1964) before each mating period and checked for colour, density, sperm count, motility and live-dead ratio. No bull was rejected because of poor quality semen.

During the calving periods, the cows were inspected daily and new born calves were weighed, ear tagged and identified with their dams. These calves were weaned when the average age of the group was seven months. All cattle were weighed every six weeks. An animal missing for three consecutive musters was presumed dead. This was confirmed if possible.

Differences of calving percentage and mortalities between groups and years were analysed by chi-square analyses. Where necessary, the partitioning of the chi-square analysis was carried out by the method of Lancaster (195 1) .

III. RESULTS

In an examination of the relationship between the conceptions of these cows reported previously (Plasto 1968) and their calvings reported here, an overall chi-square analysis showed a significant residual or years x group x "aborted" interaction effect ($P < 0.05$), indicating that the differences between groups was not the same from year to year. Within groups, there was no significant difference between groups in 1963 and 1965; but in 1964 the effect of calving group approached significance ($P < 0.05$) and, in 1966, there was a significant influence of calving group on the number of losses from pregnancy diagnosis to calving.

The calving percentages, summarised in Table 1, indicate that the April-May calving group had a superior calving percentage in 1965. The September-October calving group gave a superior performance in 1966 and the November-December group was superior in 1967. No differences were detected between other groups within years.

There was no significant difference between groups in mortalities of cows or calves but, during 1965, there was a significant increase in cow mortalities

1TABLE 1

Calving performance, cow and calf mortalities in groups calved at different times

| | Calving Group | | | | | |
	Nov. Dec.	Feb. Mar.	Apr. May	July Aug.	Sept. Oct.	All Groups
Losses pregnancy diagnosis to calving (number)						No. of losses as % of matings in that year
1963	1	1	0	0	0	1
1964	5	4	1	2	0	7
1965	5	5	5	4	0	11
1966	0[b]	2[b]	4[a]	2[b]	0[b]	4
% loss in all years (%)	8	8	7	6	0	6
† Calving percentage (%)						
1964	66	55	45	47	65	56
1965	44[d]	62[b]	84[ac]	50[d]	57[b]	60
1966	48[b]	33[d]	56	37[d]	78[ac]	50
1967	74[a]	46[b]	46[b]	56	57	55
All years	58	49	57	47	64	55
† Calf mortalities (number)						Percentage of total deaths in all groups
1963	0	0	0	0	0	0
1964	1	0	3	0	0	13[d]
1965	6	5	4	0	6	68[c]
1966	1	1	2	0	1	17[d]
% mortality in all years (%)	18	13	20	0	16	13
† Calf mortalities (number)						Percentage of calves dying in that year
1964	2	4	1	0	2	11
1965	1	3	5	2	3	13
1966	3	1	0	0	3	8
1967	2	3	0	1	1	7
% mortality in all years (%)	11	10	15	7	5	10

a>b $P<0.05$
c>d $P<0.01$
† Nov.-Dec. figures refer to previous year.

($P < 0.01$) (Table 1) which is presumed to be related to the drought conditions in that year. Mortalities in cows occurred in October and November, mainly in animals six to nine months pregnant or with calves up to two months of age at foot.

IV. DISCUSSION

The mean calving percentages of the five groups in this experiment did not vary significantly, although there were significant group differences within three of the four years. Losses from pregnancy diagnosis to calving were influenced by time of mating in two years; the overall effect was to reduce calvings by 6 per cent. Some of this may be due to an operator effect (Hancock 1962) and some may be

due to inability to detect a dead calf at normal birth due to the extensive conditions, but it is considered these factors would have been minimal.

It is suggested that the better calving performance of the April-May calving group in 1965 was due to pastoral conditions during their mating period in July-August 1964. While grazing low quality pasture, unseasonal rain resulted in a flush of short green feed. This lift in the level of nutrition is considered to have improved the group pregnancy percentage. In December 1965, the 1966 September-October calving group were being mated when drought-breaking rain fell. The resultant rise in nutritional level at mating was probably responsible for the superior calving performance of this group.

There is a trend towards higher calvings in the September-December period and lower calvings in the July-August period. This is supported by the findings of Donaldson (1962) and Plasto (unpublished data) in commercial herds.

The drought conditions in the latter half of 1965 caused heavy mortality amongst breeders. Jenkins and Hirst (1966) reported 11 per cent mortality of breeders in north-west Queensland, and Howard-(1966a, b) also reported heavy losses in pregnant cows calving in the critical October-December period.

Calf losses from birth to weaning averaged 10 per cent over the four years These are of similar order to the losses reported by J. J. Daly (personal communication) and Smith and Alexander (1966).

V. ACKNOWLEDGMENTS

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