Late summer and autumn calving for beef production (An Experiment at "Cranmore Park," Walebing, 1956-57)

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BEef producers in the agricultural areas are becoming increasingly aware of the importance of calving at a time most suitable to their environment, to the milking ability of the mothers and to marketing practice. The most common time of calving is at the break of the season. The commencement of lactation thus approximates to the advent of the new growth and the cow can make use of the whole of the green pasture period for milk production. By the time the feed has dried off at the beginning of summer the calf is well advanced and able to cope with dry grazing.

A considerable proportion of the surplus drop is sold as calves or weaners during the early summer. By selling at this time, breeders avoid carrying them over the remainder of the dry period when weight losses of varying degrees can usually be expected. It is not surprising therefore that a tendency is developing to market older, heavier animals by calving earlier than usual, even up to three months or so.

Thus weight and development at weaning as affected by the time of calving has become an important aspect of production and marketing.

INVESTIGATION AT "CRANMORE PARK"

In order to obtain information on this question, an experiment was initiated in 1956 at "Cranmore Park." The object is to compare the effect on the growth rate and weaning weight by calving early, i.e., about February as against later about May.

Sixty high-grade Aberdeen-Angus cows were used, ranging in age from two to ten years old, and these were mated to two Beef Shorthorn bulls.

The cows were divided into two groups of 30 with a similar age distribution in each. One group was mated, half to each bull, on April 25, 1956, and comprised the Early Calving section. The other was similarly mated to the same bulls on July 16 as the Later Calving section.

Although the 1956 season was below average, with the result that paddock grazing remaining for the following summer was less than usual, adequate provision was made for the cows during this period until the commencement of
supplementary feeding early in May. The dry grazing was of good quality and comprised subterranean clover, burr trefoil, so-called "native clovers," Wimmera ryegrass and volunteer grasses and other common species.

Weighing.

The cows were weighed immediately before mating; the cows and calves as soon after calving as possible and then at approximately four-weekly intervals until mid November, when the experiment was terminated.

Nutrition and Management.

During those periods between mating and calving when the sections were run separately the grazing was managed to ensure similar nutritional conditions for both sections. All cows were taken off as they calved and were run together for the remainder of the experimental period.

The cows of the early calved section were not fed a supplement either before or shortly after calving, nor were they given preferential grazing.

Most of the cows of the later calving section calved on dry paddock grazing only; for, of the 30 cows only eight calved after the commencement of supplementary feeding on May 10. A grain ration of half wheat, half oats was fed commencing with 5 lb. per day. This was increased to 10 lb. per day over the following ten-day period and continued until June 6. No hay was fed throughout the trial. With the exception of about a fortnight in July on young cereal crops, winter-spring grazing consisted of improved pasture.

1957 was also a season of sub-average rainfall and frosts were numerous during July and August. Although May rains were satisfactory and the June rainfall was abundant, only 349 points were recorded for the remainder of the growing period. Pasture production of the latter part of the season was therefore, well below average. The low spring rainfall had the effect of causing the pasture to mature and dry prematurely very early in October, at least a fortnight earlier than under average conditions.

RESULTS

Calving.

The numbers of male and female calves born in both sections are shown in Table 1.

<p>| Table 1: Analysis of Calving of Time of Calving Experiment at Cranmore Park, Walebing, 1956/57 |</p>
<table>
<thead>
<tr>
<th>Calves</th>
<th>Number of Calves Born</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Section</td>
<td>Late Section</td>
</tr>
<tr>
<td>Females</td>
<td>15</td>
</tr>
<tr>
<td>Males</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
</tr>
</tbody>
</table>

* Indicates one calf born deformed and destroyed.

Deaths.

In addition to the slaughter of the deformed calf one cow of the early calving section died during May, three months after calving. The animals involved were not taken into account in the final data.

Weight Data.

The trial was terminated on November 14, as by November each year the marketing of weaners from the agricultural areas has become general. Data showing the relative weight changes and growth rates of the calves of both sections are set out in Table 2. Separate treatment is included for males and females.

The drop was satisfactory in both sections. Calving percentages of 90 and 93 in the early and later calving sections respectively are similar to those usually obtained from the commercial herd on this property. Either one or two cows were barren in each group which indicates that there was no unevenness in fertility between the cows of either section. The bulls were equally efficient and sired the same number of calves in both sections.

All cows, particularly those of the early section lost weight rapidly subsequent to calving and it became necessary to feed a ration of grain for a month before the young green grazing became available.
TABLE 2
Liveweight and Growth Rate Data of Calves of the Time of Calving Experiment at "Cranmore Park,"
Walebing, 1956/57

<table>
<thead>
<tr>
<th>Section</th>
<th>Number of Calves</th>
<th>Average Period from Birth to first Weighing</th>
<th>Average Date of Post Calving Weighing</th>
<th>Liveweight at Post Calving</th>
<th>Liveweight at July 1</th>
<th>Liveweight at Nov. 14</th>
<th>Weight gain due to Early Calving</th>
<th>Daily Growth Rate for Period</th>
<th>Age at Slaughter from first Weighing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early Calving (Mated April 15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>13</td>
<td>days</td>
<td>Feb. 13</td>
<td>69</td>
<td>236</td>
<td>480</td>
<td>76</td>
<td>1.21</td>
<td>1.91</td>
</tr>
<tr>
<td>Males</td>
<td>14</td>
<td></td>
<td>Mar. 1</td>
<td>73</td>
<td>228</td>
<td>491</td>
<td>27</td>
<td>1.27</td>
<td>1.93</td>
</tr>
<tr>
<td>All Calves</td>
<td>27</td>
<td>1.5</td>
<td>Feb. 21</td>
<td>71</td>
<td>232</td>
<td>486</td>
<td>61</td>
<td>1.24</td>
<td>1.87</td>
</tr>
<tr>
<td>Later Calving (Mated July 16)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>17</td>
<td></td>
<td>May 17</td>
<td>73</td>
<td>149</td>
<td>404</td>
<td>69</td>
<td>1.72</td>
<td>1.98</td>
</tr>
<tr>
<td>Males</td>
<td>9</td>
<td></td>
<td>May 2</td>
<td>76</td>
<td>179</td>
<td>464</td>
<td>...</td>
<td>2.10</td>
<td>1.98</td>
</tr>
<tr>
<td>All Calves</td>
<td>26</td>
<td>2.6</td>
<td>May 12</td>
<td>74</td>
<td>159</td>
<td>425</td>
<td>...</td>
<td>1.70</td>
<td>1.96</td>
</tr>
</tbody>
</table>

The calves were born strong and healthy and no deaths occurred at or subsequent to calving.

With regard to birth weights, by far the majority of these weighings were made within two days of birth, during which time weight change is quite small. The difference in the average birth weights between the sections is slight, and the level of birth weight is normal. Male calves were slightly heavier than the females in both sections.

At the end of the experiment the liveweight of the calves of the early section was 61 lb. more than that of the later section. When the comparative effect of the sexes on this increase is examined it is seen that the differences between the weights of the females was 76 lb. while for the males it was 27 lb. This was due to the fact that there was three months difference between the average birth dates of the females while, by chance there was a difference of only two months between the males (column 4). Male calves grew faster than females in both sections.

While the growth rate of the calves of both sections was very similar after early July, before then the early calves did not grow as fast in fact about ½ lb. a day less. This was reflected in the average daily growth rates of both sections when considered over the whole experimental period. These rates were 1.56 lb. and 1.89 lb. respectively, a difference of 1/3 lb. in favour of the later calving section.

Liveweight increases from July onwards followed the same pattern for both sections. Average daily rates were 2.0 lb. for July and August, 2.5 lb. for September, 1.8 lb. for most of October and falling further to 1.0 lb. for the last three weeks before slaughter on November 14.

It is the usual practice on this property to dispose of the surplus drop, as calves, during late spring and early summer. However, these experimental animals were not sold and their value was assessed from official market quotations. The price of such beef on the hoof at the Midland Saleyards in mid November was 170s. per 100 lb. of carcass. Assuming the dressing out percentage to be 50 per cent. for this type of animal, the liveweight gain of 61 lb. of the early calving section represents 30 lb. of carcass. There was thus an advantage of 50s. a beast by calving in February compared with calving in May.

DISCUSSION

Mention should be made of the fact that although, before calving the cows of both sections were restricted to paddock grazing only, the calves were born robust and of normal weight. Supplementary
feeding until then had not been essential and it is obvious that during the last three months or so before calving the level of nutrition had been satisfactory. However, such a result is not general and breeders commonly find that some degree of pre-natal feeding is necessary according to the value of the grazing in order to ensure a satisfactory calving and development of the milk potential.

The quality of paddock grazing is at its lowest during autumn and at the break of the season and, irrespective of the time of calving, the provision of ample supplements such as grain, hay and silage for feeding during this period is essential to good husbandry practice.

Until the new season's growth became available the daily growth rate of the calves of the early section was only 1.2 lb. while for the calves of the later section it was 1.7 lb. Although the rate of the early calves could have been improved through a more extensive supplementary feeding programme it is very unlikely that this would have been economic. The early calves were healthy and proved capable of making similar weight gains to those of the later section from the time green grazing became available. The average increase of both sections during this period was 1.9 lb. which is quite a satisfactory figure for this environment in view of the early termination of the season.

As there was no difference in treatment throughout the experiment between both sections, the liveweight margin of 61 lb. in favour of early calving was produced at no extra cost. In other words this advantage is due solely to the longer growing period through earlier calving.

It is possible that, with less favourable grazing conditions than existed for this experiment, breeders may find more extensive supplementary feeding necessary for early calving, and hence greater cost to offset against the increased returns.

The growth rate of calves is determined primarily by the amount of milk consumed. Thus calves from grade cows bred from dairy stock can be expected to grow faster than those from the beef breeds. For this reason many producers who practice selling their drop as weaners favour these grade animals as mothers and mate them to a pure-bred bull.

With such a breeding programme and apart from the aspect of weaning at heavier weights there is a tendency to calve quite early so that the calf is sufficiently developed to cope with the increased flow of milk which results from the new seasons pasture. Breeders have found that cows of high milking ability can have trouble in early lactation if the very young calf is unable to cope with the flow of milk.

While calves from grade cows can be expected to be heavier at weaning than those from beef breed mothers, from that time onwards the superiority of the beef breeds asserts itself and calves of full beef blood soon show to advantage in development and conformation.

**SUMMARY**

An experiment was conducted with beef cattle in the early subterranean clover belt to enquire into the effect on the birth weight, growth rate and weaning weight of calves born early (February) compared with those born later at the usual time (May).

There was only slight difference in birth weight between the early and later born calves.

Until the advent of the new season's pasture, the growth rate of calves of the early calved section was ½ lb. lower than that of the later calved section. From then onwards, growth rates were similar for both sections at the satisfactory average of 1.9 lb. per day over that period. Final weights were affected by the early finish to the season.

Male calves grew slightly faster than females in both sections.

The average weaning weight of the early born calves was 61 lb. greater than that of the later group. This liveweight margin was valued at 50s.

As the cows and calves of both herds received similar treatment, the margin was due solely to earlier calving.
ACKNOWLEDGMENTS

Grateful acknowledgment is made to Mr. P. Lefroy for his valuable advice and very willing assistance in conducting this investigation which because of its nature called for a considerable amount of management and attention to detail.

The general assistance throughout the experiment rendered by Mr. B. Carlin, Agricultural Adviser, Moora, is appreciated.

Finance for purchase and installation of the weighing facilities was made available by the Australian Meat Board and by the Commonwealth Bank.

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