GRAZING BEHAVIOUR OF STEERS

by

P.J. BAILEY*, A.H. BISHOP* and C.T. BOORD*

Summary

Steers receiving a supplement of oat grain grazed for a shorter period each day than unsupplemented steers. Grazing time of supplemented steers was unaffected by the presence of unsupplemented steers. However, mixed stocking reduced the grazing time of unsupplemented steers.

Steers which had been fed hay in a feedlot for 20 weeks, gained less weight when released to graze pasture than steers continuously at pasture, but there was no difference between the groups in time spent grazing.

I. INTRODUCTION

Cattle given a supplement at pasture spend less time grazing (Castle, Drysdale and Watson 1968) and their intake of pasture is reduced relative to unsupplemented animals (Corbett 1958). Tribe (1950) showed that the time spent grazing by sheep which received a daily supplement was greater if they grazed with unsupplemented sheep than if they grazed alone (social facilitation). In contrast, Holder (1962) reported that unsupplemented sheep grazing with others given a supplement at pasture reduced their grazing time. Observation of social facilitation in cattle has not been reported.

The effect of feeding cattle in confinement upon their liveweight change when returned to graze pasture has been studied by several workers (Ivins and Morgan 1957; Tayler, Alder and Rudman 1957; Hidiroglou, Charette and Paterson 1965 and Bailey and Bishop 1973). Bailey and Bishop suggested that the recorded weight losses may have been due to an alteration in the normal pattern of feeding. In two experiments reported here, social facilitation of steers supplemented with oat grain or grazing without supplements was studied, and the effect of hand feeding upon subsequent grazing behaviour was examined.

II. MATERIAL AND METHODS

Both experiments were conducted at the Pastoral Research Station, Hamilton, Victoria.

(a) Experiment 1

In November 1971, 16 Hereford steers, eight 18 months old and eight 24 months old, were fitted with neck harnesses for vibracorders which measure grazing time (Allden 1962) and accustomed to supplementary feeding. The steers of groups 1 and 2 grazed in separate pastures but only those of group 2 received a daily supplement of 3.6 kg of whole oats (Table 1). The steers of groups 3 and 4 grazed in the same paddock and those of group 3 received a daily supplement similar to those of group 2.

Observations commenced three weeks after steers were introduced to the experimental routine. Each morning the steers were removed from pasture at 0900 hours and those receiving a supplement were fed in individual pens. When these steers had consumed their daily ration all were returned to their respective paddocks. During the experiment, all paddocks had similar amounts of available green pasture. The daily grazing time of all steers was recorded for two intervals of six days separated by seven days (period 1). During observations in June 1972 (period 2) the daily grazing time was recorded continuously for 13 days. During the interval between periods, the steers remained in their respective paddocks.
TABLE 1
Treatment of steers, daily grazing time and liveweight during periods of observation (experiment 1)

<table>
<thead>
<tr>
<th>Group</th>
<th>Grazing</th>
<th>Grain Supplement</th>
<th>Period 1</th>
<th>Period 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Daily grazing time</td>
<td>Live-weight</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(hr)</td>
<td>(kg)</td>
</tr>
<tr>
<td>1</td>
<td>alone</td>
<td>-</td>
<td>6.8</td>
<td>355</td>
</tr>
<tr>
<td>2</td>
<td>alone</td>
<td>oat</td>
<td>5.3</td>
<td>355</td>
</tr>
<tr>
<td>3</td>
<td>mixed</td>
<td>oat</td>
<td>5.2</td>
<td>352</td>
</tr>
<tr>
<td>4</td>
<td>mixed</td>
<td>-</td>
<td>6.2</td>
<td>347</td>
</tr>
<tr>
<td>L.S.D.</td>
<td>(P=0.05)</td>
<td></td>
<td>0.5</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>(P=0.10)</td>
<td></td>
<td>0.7</td>
<td></td>
</tr>
</tbody>
</table>

* Factorial combinations of two supplement levels with mixed or separate grazing.

... paddocks without supplements until three weeks before observations commenced.

Steers were weighed three days before observations on grazing time commenced, and at the completion of the observation period, the steers were deprived of feed and water for 24 hours prior to each weighing.

(b) Experiment 2

Twenty Hereford steers with a mean liveweight of 280 kg were allocated from liveweight classes to two groups of ten steers. The steers of one group grazed pasture for 20 weeks; whereas those of the other group were given unlimited access to good quality hay in a feedlot during the same period. After 20 weeks all steers grazed pasture together, but the steers from the pasture group had gained 24 kg more (Table 2). At the commencement and conclusion of common grazing the steers were weighed after 24 hours without feed and water.

TABLE 2
Liveweight change and daily grazing time of steers (experiment 2)

<table>
<thead>
<tr>
<th>Liveweight gain per head (kg)</th>
<th>Pasture</th>
<th>Feedlot</th>
<th>L.S.D. (P=0.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>treatment period (20 weeks)</td>
<td>34.0</td>
<td>10.4</td>
<td></td>
</tr>
<tr>
<td>common grazing (6 weeks)</td>
<td>45.4</td>
<td>30.4</td>
<td>7.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Daily grazing time (hr)</th>
<th>Pasture</th>
<th>Feedlot</th>
<th>L.S.D. (P=0.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>common grazing (first 4 weeks)</td>
<td>8.2</td>
<td>8.1</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Grazing behaviour of individual steers was observed at intervals of 5 minutes for 24 hours during each of the first four weeks of common grazing.
III. RESULTS

(a) Experiment 1

There were no interactions between the age of the steers and grazing time. The daily grazing time of steers fed supplements was less than that of unsupplemented steers during both observation periods (Table 1). The supplemented steers grazing alone had similar grazing times to those grazing with unsupplemented steers. On the contrary, unsupplemented steers grazed for a shorter time when grazing with supplemented steers (Table 1).

(b) Experiment 2

During the six weeks of common grazing, the steers of the pasture group gained more weight than those previously fed in confinement (Table 2), but the average time per day spent grazing by the steers from the two groups was similar (Table 2).

IV. DISCUSSION

The effect of supplementary feeding on grazing time was similar to that reported by other workers (Corbett 1958; Castle, Drysdale and Watson 1968). The reduction in grazing time of unsupplemented steers grazing with supplemented steers is attributable to social influences within the mixed herd as previously observed with 'sheep (Tribe 1950; Holder 1962). Producers attempting to increase pasture intake of supplemented steers by grazing them with unsupplemented steers will encounter many problems in feeding a portion of the mixed herd and are unlikely to increase pasture intake. Performance of the unsupplemented steers may even be depressed.

The lower liveweight gain during common grazing of steers released from feedlot compared to those continuously at pasture confirmed previous reports (Ivins and Morgan 1957; Tayler, Alder and Rudman 1957; Hidiroglou, Charette and Paterson 1965 and Bailey 1972). The differences in liveweight gain could be due to the following factors, singly or in combination: differences in the weight of gut contents, differences involved in adapting to different diets and differences in efficiency with which the steers grazed pasture following hand feeding. All these factors could have been operating but Bailey and Bishop (1973) in an earlier experiment suggested that a decrease in grazing efficiency following hand feeding was the main factor affecting liveweight change. This decrease in efficiency may have resulted from a decrease in either grazing time, intake per bite, bites per minute or a combination of these factors. However, the differences in this experiment could not be attributed to differences in grazing time, although grazing time of steers from one group may have been influenced by the other steers.

The results from these experiments indicate that where treatment and control animals might be grazed together to assess the relative effect of a treatment, grazing behaviour may be disrupted and further studies are required to determine if this occurs and what effect this might have on intake and performance.

v. ACKNOWLEDGMENTS

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VI. REFERENCES


