105 days, made the largest total gain, the largest full fed gain, returned more per heifer and graded the highest in the carcass.

2. Lot 2, full fed out on brome grass, gained slightly more than Lot 1 full fed in dry lot. In two previous tests, the reverse has been true.

3. Feed costs per heifer were higher for feeding out on brome grass than in dry lot due to the cost of brome grass charged at 10c per head per day.

### Table I—Full Feeding in Dry Lot vs. Brome Grass, 1950

<table>
<thead>
<tr>
<th>Lot number</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number heifers per lot</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Method of management</th>
<th>Winted well then full fed in dry lot for 104 days</th>
<th>Winted well then full fed on brome grass for 104 days</th>
<th>Winted well; grand on brome grass from April 15 to June 2; full fed 105 days from June 2 to Sept. 15, the first 30 days on brome grass and the rest in dry lot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average initial weight</td>
<td>583</td>
<td>582</td>
<td>585</td>
</tr>
<tr>
<td>Average final weight</td>
<td>785</td>
<td>800</td>
<td>870</td>
</tr>
<tr>
<td>Average pasture gain (48 days)</td>
<td></td>
<td></td>
<td>46</td>
</tr>
<tr>
<td>Average full fed gain (104 days)</td>
<td>202</td>
<td>218</td>
<td>230</td>
</tr>
<tr>
<td>Lot 3, 105 days</td>
<td>202</td>
<td>218</td>
<td>230</td>
</tr>
<tr>
<td>Average total gain—pasture and full fed</td>
<td>202</td>
<td>218</td>
<td>230</td>
</tr>
</tbody>
</table>

**Full feeding ration—average daily—pounds:**

- Ground shelled corn: 12.00
- Soybean oil meal pellets: 10.00
- Alfalfa hay: 3.20
- Prairie hay: 1.60
- Sorghum silage: 1.70
- Ground limestone: .05
- Salt: .05
- Brome grass: 4/15-7/28 6/2-7/1

<table>
<thead>
<tr>
<th>Corn consumed per heifer, bushels</th>
<th>22.4</th>
<th>22.3</th>
<th>21.8</th>
</tr>
</thead>
</table>

**Initial cost per heifer @ appraised value of $26.25 cwt—4/15/50** | $153.04 | $152.78 | $153.56 |

**Feed cost per heifer** | $38.02 | $40.31 | $42.56 |

**Heifer cost plus feed cost** | $191.06 | $193.09 | $196.12 |

**Selling price per cwt. @ market** | $30.00 | $28.00 | $28.00 |

**Selling price per heifer** | $227.05 | $232.00 | $247.08 |

**Margin per heifer above feed cost and initial cost** | $36.59 | $38.91 | $51.16 |

**Carcass grades—U.S.**

- Average good: 2
- Low good: 6
- High commercial: 5
- Average commercial: 2

**Feed prices:**

- Corn, 11.25 a bu: soybean pellets, $75 a ton; alfalfa hay, $17.00 a ton; prairie hay, $15.00 a ton; silage, $6.50 a ton; ground limestone or salt, $12.00 a ton; Brome grass, 10c per head per day.

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**Project 253-2: Wintering, Grazing and Fattening Heifers**

Wintering Heifer Calves That Are To Be Fattened for the Summer or Early Fall Market, 1950-51

E. F. Smith, D. L. Good, R. F. Cox

**INTRODUCTION**

This is a report of the wintering phase of this test. Following this phase the different lots of heifers, which were divided into seven lots of 10 head each, were managed for 100 days following the wintering period. The objective of the test is to develop a method of fattening heifers similar to the deferred full-feeding system for steer calves.

The 1950-51 wintering test included:

1. A comparison of grain and no grain in the wintering ration of heifer calves.

**EXPERIMENTAL PROCEDURE**

Seventy good quality Hereford heifer calves were used in this test. They were divided into seven lots of 10 head each. The system of management planned for each lot follows:

Lot (1) wintered with 3 pounds grain, soybean oil meal pellets (expeller type), sorghum silage and prairie hay; grazed May 1 to July 16 on bluestem pasture; full-fed 100 days in dry lot.

Lot (2) wintered with 2 pounds grain, soybean oil meal pellets (expeller type), sorghum silage, prairie hay; grazed April 16 to July 1 on brome pasture; started on feed on brome pasture June 1; moved to dry lot July 1 for completion of 100-day full-feeding period.

Lot (3) wintered with 2 pounds grain, cottonseed oil meal pellets (hydraulic extracted), sorghum silage, prairie hay; full-fed grain on brome pasture for 100 days following on brome pasture season.

Lot (4) wintered with 2 pounds grain, cottonseed oil meal pellets (hydraulic extracted), sorghum silage, prairie hay; full-fed 100 days in dry lot after wintering period.

Lot (5) wintered with 4 pounds of grain, soybean oil meal pellets, sorghum silage, prairie hay; full-fed 100 days in dry lot following the winter period.

Lot (6) wintered with sorghum silage, prairie hay, soybean oil meal pellets, bluestem pasture May 1 to July 15; full-fed in dry lot 100 days after July 15.

Lot (7) wintered with sorghum silage, prairie hay, soybean oil meal pellets, bluestem pasture May 1 to August 10; fed protein July 15 to August 10 on bluestem pasture; full-fed in dry lot after August 10 for about 75 days.

**OBSERVATIONS**

1. The addition of 2 pounds of milo grain to the ration increased the gain approximately a quarter of a pound per head daily. Compare Lots (1) and (2) with Lots (6) and (7).

2. The addition of 4 pounds of milo grain to the ration increased
the daily gain nearly one-half pound. Compare Lot (5) with Lots (6) and (7).

3. In this test, the heifer calves, Lots (1) and (2), fed expeller type soybean oil meal pellets, gained considerably more than those fed hydraulic extracted cottonseed oil meal pellets.

4. The gains of all lots are lower than might be expected. The slage fed was very acid, particularly the last third of the silage. Some of the lots did not clean up their slage each day until noon and it was necessary to withhold the prairie hay that was fed until the slage was eaten each day.

Project 253-4: Wintering and Grazing Yearling Steers
Methods of Wintering Yearling Steers on Bluestem Pasture, 1949-50
E. F. Smith, R. F. Cox

INTRODUCTION

The primary purpose of this study is to test the value of dry bluestem pasture as a winter feed for yearling steers fed different kinds and amounts of protein supplements.

EXPERIMENTAL PROCEDURE

Forty head of good quality, 625-pound Hereford yearling steers were used in this test which was started December 11, 1949. All of the pastures in which the steers were wintered had been grazed the previous summer but a plentiful supply of dry grass remained. From 6 to 10 acres of pasture were allowed each steer.

The forty steers were divided into four lots and received the following supplements in addition to bluestem grass from December 11, 1949, to May 1, 1950.

Lot 1: Two pounds of soybean oil meal pellets per steer daily.

Lot 2: Four pounds of soybean oil meal pellets per steer fed every other day (average of 2 pounds per steer daily).

Lot 3: Six and nine-tenths pounds of alfalfa hay per steer daily.

Lot 4: Soybean oil meal and salt self-fed (the salt was mixed with the soybean oil meal to limit its consumption and make it possible to self-feed the protein supplement). The proportions of soybean oil meal and salt were 100 pounds of soybean oil meal and about 35 pounds of salt.

After the wintering period, all the steers were grazed together on bluestem pasture until July 15, 1950.

OBSERVATIONS

1. The winter of 1949-50 was very mild, extremely dry, and ideal for wintering cattle.

2. This test indicates that daily feeding results in greater gains than feeding every other day when steers are on dry grass.

3. The steers fed alfalfa hay as a protein supplement and those self-fed a mixture of soybean oil meal and salt gained about the same but they gained only about half as much as steers that were fed soybean oil meal pellets every day.

4. No ill effects were noted from feeding the meal-salt mixture to the steers in Lot 4 although they did present a somewhat rougher appearance than the other lots at the close of the wintering period.

5. All lots lost weight during the month of March. Lot 1 lost six pounds per steer, Lot 2 lost 7 pounds per steer, Lot 3 lost 13 pounds per steer, and Lot 4 lost 43 pounds per steer. All lots made large gains during April.