

**EFFECT OF BURNING PASTURES ON GAINS OF STEERS**  
April 26 to Oct. 15, 1948—172 Days

|                                              | Bluestem Pasture Burned |        |        |        |        |        |        | Not Burned |
|----------------------------------------------|-------------------------|--------|--------|--------|--------|--------|--------|------------|
|                                              | 1                       | 2      | 3      | 4      | 5      | 6      | 7      |            |
| 1—Lot Number .....                           | 20                      | 20     | 20     | 20     | 20     | 20     | 20     | 15         |
| 2—Number of head per pasture .....           | 60                      | 60     | 60     | 60     | 60     | 60     | 60     | 15         |
| 3—Number of acres per pasture .....          | 526                     | 526    | 525    | 524    | 524    | 523    | 523    | 579        |
| 4—Initial weight per steer .....             | 139.00                  | 153.70 | 149.25 | 145.00 | 144.00 | 151.70 | 152.33 | 3.37       |
| 5—Gain per steer also daily gain by periods: |                         |        |        |        |        |        |        |            |
| April 26 to June 11                          | 3.08                    | 3.40   | 3.31   | 3.22   | 3.20   | 3.37   | 3.37   | 68.66      |
| Gain per steer .....                         | 73.00                   | 61.00  | 61.70  | 61.50  | 64.70  | 63.20  | 68.66  | 2.02       |
| Daily gain per steer .....                   | 2.15                    | 1.79   | 1.81   | 1.80   | 1.89   | 1.85   | 2.02   | 56.00      |
| June 11 to July 15                           | 68.00                   | 79.70  | 79.00  | 56.50  | 104.70 | 81.20  | 56.00  | 1.69       |
| Gain per steer .....                         | 2.06                    | 2.41   | 2.39   | 1.71   | 3.17   | 2.46   | 1.69   | 54.66      |
| Daily gain per steer .....                   | 53.00                   | 54.50  | 30.50  | 61.70  | 18.50  | 23.50  | 54.66  | 1.95       |
| July 15 to August 16                         | 1.89                    | 1.94   | 1.08   | 2.20   | .66    | .84    | 1.95   | 12.66      |
| Gain per steer .....                         | 3.50                    | 3.25   | 22.50  | 31.75  | 21.85  | 25.75  | 12.66  | .45        |
| Daily gain per steer .....                   | .12                     | .11    | .80    | 1.10   | .78    | .92    | .45    | 344        |
| 6—Total gain per steer .....                 | 337.                    | 352.   | 343.   | 356.   | 354.   | 345.   | 344    | 923        |
| 7—Final weight per steer .....               | 863.                    | 878.   | 868.   | 880.   | 878.   | 868.   | 923    | 2.00       |
| 8—Daily gain per steer .....                 | 1.96                    | 2.05   | 1.95   | 2.07   | 2.06   | 2.01   | 2.00   |            |

It is planned to keep a record of the protein content of bluestem grass at two-week intervals throughout the grazing season over a period of several years. Such a record should be valuable in determining at what time during the grazing season the feeding of a protein supplement might be expected to be profitable.

**Project 78: A Study of Factors Influencing Rate of Grain, Quantity of Feed Consumed and Carcass Grade.**

1947-1948

F. W. Bell, D. L. Mackintosh, A. G. Pickett

**INTRODUCTION**

This is a study of the characteristics of feeder calves which are associated with differences in:

1. Rate of gain.
2. Kind and amount of feeds required to make gain.
3. Value of the carcass.

**EXPERIMENTAL PROCEDURE**

The two lots of calves were selected from 100 range-bred heifer calves purchased in November 1947 for feeding tests at this station. These calves graded good to choice feeders and were quite uniform.

Sorting for the two lots in this trial was made on probable differences in performance during the fattening period as indicated by body capacity, chest room, natural fleshing or muscling, form, and general appearance. The ten calves in lot 1 were those which were somewhat deficient in one or more of the above characteristics as compared to those in lot 2. All calves were graded individually by using a standard feeder chart.

The calves in both lots received the same kinds of feed and were given as much corn and silage as they would consume. The same amount of cottonseed meal and alfalfa hay was fed in each lot.

Differences in rate of gain and in the kind and amount of feed required as well as carcass grades are given in the table which follows. These differences indicate the relation of the body features of feeder calves to the efficiency of the calves in producing beef.

November 11, 1947 to June 22, 1948—224 Days

|                            |      |       |
|----------------------------|------|-------|
| 1—Lot Number               | 1    | 2     |
| 2—Number of heifers in lot | 10   | 10    |
| 3—Average daily ration     |      |       |
| Ground shelled corn        | 8.74 | 9.43  |
| Atlas sorgo silage         | 7.47 | 13.52 |
| Cottonseed meal            | 1.23 | 1.23  |
| Alfalfa hay                | 1.86 | 1.92  |
| Prairie hay                | .77  | 1.20  |
| Ground limestone           | .09  | .09   |
| 4—Average initial weight   | 373. | 455.  |
| 5—Average final weight     | 757. | 888.  |
| 6—Average total gain       | 384. | 433.  |
| 7—Average daily gain       | 1.71 | 1.93  |

|                                     |                    |                    |
|-------------------------------------|--------------------|--------------------|
| 8—Feed required for 100 pounds gain |                    |                    |
| Ground shelled corn                 | 510.               | 488.               |
| Atlas sorgho silage                 | 436.               | 700.               |
| Cottonseed meal                     | 72.                | 63.                |
| Alfalfa hay                         | 108.               | 99.                |
| Prairie hay                         | 45.                | 62.                |
| Ground limestone                    | 5.                 | 5.                 |
| 9—carcass grades                    | 1 choice<br>9 good | 4 choice<br>6 good |

#### OBSERVATIONS

- Both lots of calves ate practically the same amount of corn.
- Lot 2 consumed considerably more silage than lot 1.
- The calves in lot 2 made an average gain of 49 pounds more per head than the calves in lot 1.
- The carcasses were graded by a government grader. In lot 2, four carcasses graded choice and six graded good. In lot 1, one carcass graded choice and nine graded good.
- This test indicates that feeder cattle can be selected which in addition to making faster gains in the feedlot, will also utilize a greater proportion of roughages to concentrates during the fattening period. It also indicates that these advantages in economy of gains can be combined with a higher market value of the beef produced.

### Project 78—Factors Influencing Rate of Gain, Quantity of Feed Consumed and Carcass Grade.

F. W. Bell - D. L. Mackintosh - A. G. Pickett

Preliminary Report - 1948-49

#### INTRODUCTION

This report is on two lots of heifer calves now on test in the study of the characteristics of feeder calves which are associated with differences in:

- Rate of gain
- Kind and amount of feeds required to produce gains.
- Value of the carcass.

#### EXPERIMENTAL PROCEDURE

The two lots were selected from 100 heifer calves purchased in November 1948 for feeding tests. These calves graded good to choice as feeders. There was more difference in the condition of the calves when received than there was in those used in the similar trial of 1947-48. This fact may account in part for the differences in results to date as compared with last year's results.

The two lots in this trial were sorted by the same method used last year, on the basis of differences in body capacity, chest room, fleshing, form and general appearance. The ten calves in lot 1 are those which were somewhat deficient in one or more of the above characteristics as compared to those in lot 2. All calves were graded individually by using a standard feeder cattle chart.

Differences in the initial weight of the calves was not considered in sorting the two lots, since the object of this experiment is to determine the relation of the various body features to rate of gain, kind and amount of feeds consumed, and the value of the carcass produced.

The calves in both lots are receiving the same kinds of feed, consist-

ing of all the ground corn and silage they will eat plus two pounds of prairie hay, one and three fourths pounds of soybean meal and .07 of a pound of ground limestone per head daily.

#### PRELIMINARY REPORT

November 15, 1948 to April 18, 1949—154 Days

|                                |      |       |
|--------------------------------|------|-------|
| 1—Lot Number                   | 1    | 2     |
| 2—Number of heifers in lot.... | 10   | 10    |
| 3—Average daily ration:        |      |       |
| Ground shelled Corn.....       | 8.81 | 9.48  |
| Atlas Sorgho Silage.....       | 9.41 | 10.50 |
| Soybean Meal.....              | 1.79 | 1.78  |
| Prairie hay.....               | 2.04 | 2.04  |
| Ground Limestone .. ..         | .07  | .07   |
| 4—Average Initial Weight.....  | 403  | 492   |
| 5—Average Final Weight.....    | 738  | 814   |
| 6—Average Total Gain....       | 335  | 322   |
| 7—Average Daily Gain .....     | 2.17 | 2.09  |

#### OBSERVATIONS

- Heifers in lot 1 have gained 13 pounds more per head than the heifers in lot 2.
- Consumption both of corn and silage, has been nearly the same in the two lots considering the difference in initial weight of the calves.
- The heifers in lot 2 appear to be more nearly finished and, if this difference continues, the heifers in lot 1 will require a longer fattening period to reach the same degree of finish.

### Project 222-2—Fundamental Nutrition Studies of Sorghum Roughages and Grains. II—A Study of the Digestibility of Sorghum Silage.

#### EFFECT OF GRINDING ON THE NUTRITIVE VALUE OF GRAIN SORGHUMS FOR FATTENING STEER CALVES

Ed F. Smith - D. B. Parrish - A. G. Pickett

##### I. Digestibility study of Milo Grain.

A digestion trial was conducted with twelve steers which were allotted into three lots of four steers each. A ration of Atlas sorgho silage, cottonseed meal and milo grain was fed in all lots. Whole grain was fed in lot 1, coarsely ground grain to lot 2, and finely ground grain to lot 3.

Table I shows that the coefficients of digestibility of the dry matter, crude protein, ether extract, and nitrogen-free extract were highest for the steers in lot 3, and lowest for those in lot 1. Crude fiber was digested most efficiently by the steers in lot 1. These results confirm those of previous work done at this station.

It may be concluded from the results of this test that so far as digestibility is concerned milo grain is best utilized when finely ground. However the question of how fine milo grain should be ground for fattening cattle cannot be fully answered until feed lot trials are conducted and such factors as palatability, rate of gain and efficiency of gain are investigated.