Ground limestone	4.18	4.74	5.14
Salt	.99	.47	1.56
10. Cost of feed/100 lbs. gain[2]	$24.68	$26.09	$26.79
11. Selling price/cwt.	$28.50	$25.00	$25.00
12. Dressing percent	60.5	59.9	59.9
13. Carcass grades, U.S.:			
Prime	1		1
Choice	9	8	8

1. One sick calf was omitted from Lot 2 in computing the results of this test.
2. Feed prices: Milo grain, $2.80/cwt.; cottonseed oilmeal, $100/ton; prairie hay, $15/ton; salt and ground limestone, $12/ton.

Project 222: Ratio of Roughage to Grain for Fattening Steer Calves, 1951-52

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The physical balance or ratio of roughage to concentrates is an important factor to consider in the ration of fattening cattle. Beef cattle serve as one of the principal means of marketing roughage. Since a large amount of roughage is produced in Kansas and throughout the Midwest, it is desirable to have information concerning the maximum amount of roughage that can be used in fattening rations, consistent with maximum and economical production. This experiment was planned to secure information on the effects of different levels of roughage on average daily gain, feed requirement per unit of gain, quality of finish, carcass quality, and selling price.

Experimental Procedure

Thirty Hereford steer calves were divided into three lots of 10 each as equally as possible on the basis of weight, size, and conformation. They were self-fed a mixture of chopped alfalfa hay and coarsely ground milo grain. The feed for each group was gradually changed until on the ratio of roughage to concentrates as follows:

Lot 1—1 pound chopped alfalfa hay: 1 pound milo grain
Lot 2—1 pound chopped alfalfa hay: 3 pounds milo grain
Lot 3—1 pound chopped alfalfa hay: 5 pounds milo grain

The feeding period was from December 22, 1951, to July 12, 1952, or a total of 203 days. Salt and water were available to the animals at all times.

Table 31 gives a summary of the results.

Table 31.—Ratio of Roughage to Grain for Fattening Steer Calves.
(December 22, 1951, to July 12, 1952—203 days)

1. Lot number	1	2	3
2. Number steers per lot	10	10	9[1]
3. Average initial weight, lbs.	502	503	505
4. Average final weight, lbs.	934	949	933
5. Average gain per steer, lbs.	432	446	428
6. Average daily gain per steer, lbs.	2.13	2.20	2.10
7. Days from start until on ratio	34	45	65
8. Days on respective ratio	169	158	138
9. Total days on feed	203	203	203
10. Feed, lbs.:			
Total milo grain until start of ratio	1735	3335	5459
Total milo grain while on ratio	20662	25443	20655
Total milo grain consumed	22397	28778	26114
Total alfalfa hay until start of ratio	4133	5035	5153
Total alfalfa hay while on ratio	20662	8472	4131
Total alfalfa hay consumed[2]	24795	13507	9284
11. Average grain per head per day on ratio	11.54	16.10	16.60
12. Average hay per head per day on ratio	11.54	5.36	3.30
13. Feed per 100 lbs. gain:			
Milo grain	519	644	678
Alfalfa hay	514	302	241
Salt	1.35	.98	1.46
14. Feed cost per 100 lbs. gain	$21.72	$21.81	$22.00
15. Percent shrink to market	2.4	1.9	3.0
16. Dressing percent (includes cooler shrink)	58.6	60.0	60.3
17. Carcass grades:			
Prime		1	
Top choice		6	2
Average choice	2		5
Low choice	6	1	2
Top good	1	2	
Average good	1		
18. Selling price per 100 lbs.	$32.50	$33.50	$34.00

1. One steer died.
2. 300 lbs. dehydrated alfalfa pellets fed.

Observations

1. All lots made satisfactory gains; however, Lot 2 receiving a ratio of 1 pound roughage to 3 of grain made the best average gain for the entire period.

2. The rate of gain for Lot 1 remained fairly constant throughout the entire feeding period. The gains were largely from the standpoint of growth as evidenced by greater size at the end of the feeding period; however, they were lacking in finish.

3. The rate of gain began to decline toward the end of the feeding period in Lots 2 and 3. This was probably the result of using poor quality alfalfa hay. Also, the amount consumed was small. One steer in Lot 3 went blind and others began to show evidence of poor eyesight. The feeding of dehydrated alfalfa pellets proved beneficial when fed to these animals.

4. As the level of grain in the ration was increased, the amount of grain per 100 pounds of gain increased. At the same time, the amount of hay was decreased.

5. Animals in Lot 3 receiving only 1 pound of hay to 5 pounds of grain consumed approximately the same amount of grain per day as those in Lot 2 receiving 1 pound of hay to 3 pounds of grain. The rate of grain consumption and rate of gain failed to increase with the increased concentration of the ration in Lot 3.

6. There was very little difference in feed cost per 100 pounds gain when existing feed costs at the time were used. This would vary with changes in hay and grain prices.

7. The average carcass grade was about the same for Lots 2 and 3. The carcass grades of Lot 1 were lower because of lack of finish.