



AGRICULTURAL EXPERIMENT STATION of The Alabama Polytechnic Institute, Auburn, Ala.

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Fattening Rations for Finishing Steers After Summer Grazing¹

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MANY BEEF CALVES and cattle sold on Alabama markets are light in weight and are lacking in finish. Mainly as a result of this, average prices received for animals, per 100 pounds and per head, in Alabama compare unfavorably with average prices received in the best beef-producing states.

Some of these calves are too lacking in quality to justify further pasture or feed. Many of them, however, show sufficient beef breeding to indicate the possibility of profitable utilization of additional pasture and feed. Experiments are in progress at the Wiregrass Substation on utilization of pasture and feed to carry such calves to heavier weights and higher finish. Bahiagrass, Coastal Bermudagrass and common Bermudagrass are being compared as grazing crops for this purpose. On such pastures these young cattle have gained in weight but have not had sufficient finish to grade higher than Utility to Commercial by end of the first summer grazing season. In order to increase the grade to High Good or Choice, they have been placed in feed lots for feeding periods of 113 or 132 days.

Several different rations have been compared for this purpose. Although the grazing data are not sufficiently complete for publication and the feeding trials are being continued, 2 years' feeding trials have been completed. A summary of the results is presented here as a progress report on this phase of the experiment. The data point the way to the finishing of steers as a profitable practice to supplement present slaughter calf and steer grazing programs.

EXPERIMENTAL PROCEDURE

Stocker calves were purchased in the late fall, and were wintered on oat grazing supplemented as needed with hay and concentrates. From April until September the cattle grazed pasture grasses consisting of

Pensacola Bahiagrass and Coastal and common Bermudagrass. For the first test, most of the cattle were purchased in the fall of 1952, and all were sold for slaughter on March 8, 1954. This group consisted of 120 animals, of which 80 were selected from an exceptionally good commercial herd in Alabama, 10 were grown on the Substation, and 30 were shipped from Texas in June, 1953. The second group of cattle was purchased at Alabama auction markets in the fall of 1953, and were sold direct to packer buyers March 1, 1955. The first group was well-bred and consisted of good to choice feeders. The second group was purchased as medium stockers and lacked the superior breeding of the first group. No culling was done on the first group of cattle before they were allotted to feed lots for finishing. Of the 95 animals in the second group, 81 were selected for the fattening test.

The animals were bunk fed on small Bermuda sod paddocks. The amount of forage obtained by grazing was inconsequential. After becoming accustomed to feed, each group was full fed one of the experimental rations described later.⁴ The animals were fed once a day by groups and accurate feed records were kept. They were weighed at 28-day intervals.

Before the steers were placed on feed, they were graded by a committee; the market value set was based on the opinion of a packer buyer (slaughter and feeder value). At the end of the feeding period, the animals were again graded by a committee; packer buyers were invited to the Substation to bid for purchase of the steers, which were sold to the highest bidder.

Changes in slaughter grade in the feed lot, rates of gain, efficiency of gain, feed costs of gain, selling price of animals, carcass grades, and dressing percentages are the chief criteria for evaluating the several test rations.

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⁴The blackstrap cane molasses used in the feeding tests was supplied by J. H. Leftwich & Co., Inc., Mobile, Ala.

RESULTS AND DISCUSSION

First Experiment, November 1953 - March 1954

Five experimental rations were tested in the first trial. The more important facts are summarized in Table 1. It should be noted that diet ingredients fed in Lots 1 and 2 were not mixed, whereas, in each of the rations for Lots 3, 4, and 5, all ingredients were ground and mixed.

Increases in Slaughter Grade Due to Feeding. At the start of the feeding trial, the animals graded Utility and Commercial, with about equal numbers in each group (Table 1). As a result of full feeding these animals in dry lots for a period of 113 days, the slaughter grade was improved an average of two grades for each animal.

The animals in Lots 3 and 5 appeared to finish more uniformly as groups than did the animals in other experimental lots. Twenty-two of the 24 animals in Lot 3 graded Choice at the end of the test. The remaining two graded High Good. In Lot 5, 20 of 24 animals graded Choice or better.

Carcass Grades and Dressing Percentages. Carcass grades and dressing percentages are given in Table 1. The carcass grades agreed quite well with the live grades designated by the grading committee. The uniformity of finish obtained with ration of Lot 3 is attested by the fact that 21 animals in this lot yielded choice carcasses. Carcass grades for Lots 2, 3, 4, and 5 were quite satisfactory. Unfortunately, carcass grades could not be obtained from the purchaser of Lot 1.

The dressing percentages of cattle in Lots 3 and 5 averaged over 61 per cent. The yield in dressed carcass weights of Lot 2 (high molasses) and Lot 4 (ground oats) averaged approximately 3 per cent below those of Lots 3 and 5.

Rate and Efficiency of Gain. Gain and feed consumption data are summarized in Table 1. Cattle in Lot 3 made the highest average daily gain, followed in order by Lots 5, 2, 4, and 1. The average gains in all lots were quite good, ranging from 2.54 to 1.96 pounds per day after shrink.

The feed required per hundred weight of gain was lowest for cattle in Lot 5 (cottonseed ration). Palatability of all rations was quite satisfactory.

A few cases of founder occurred in Lot 1. In all probability this unfavorably biased the results from that lot, but to what extent is not known. No trouble was experienced in bringing cattle to full feed and keeping them on feed with the mixed rations (Lots 3, 4, and 5).

Where oat grain was used to replace all the ground snapped corn in a balanced ration (Lot 4 vs. Lot 3), the average daily gain of the group of cattle was reduced 0.53 pound and the cattle were not as well finished.

Financial Aspects of the First Experiment. The data on returns for feeding are summarized at the end of Table 1. The returns (increase in value of cattle less feed cost) for feeding were considerably greater from Lots 2, 3, and 5 than from Lots 1 and 4. Lot 4 (oat ration) made the smallest return for feeding. A com-

parison of the oat ration (Lot 4) with the corn ration (Lot 3) shows that the oat ration produced smaller gains and less finish than the corn ration. Oats would have had to be valued at \$36.06 per ton or 58 cents per bushel, to be on a par with corn at \$32.04 per ton; even though the oat-fed cattle sold for a slight premium over the corn-fed group, which was not justified by the dressing percentage and the carcass grades.

These data illustrate that, under the conditions existing during the test, it was sound practice to finish good quality, beef-type steers in the feed lot at the end of the summer grazing period and prior to marketing for slaughter. The carcass grade was greatly improved through feeding. As a result more edible meat of better quality was produced. The market value of the cattle after deducting feed costs was increased an average of \$49.64 per steer on the best ration or \$42.00 per steer for the average of all rations.

Second Experiment, October 1954 - March 1955

In the second experiment five lots were used. However, certain changes were made in the composition of some of the rations. The composition for lots 3 and 5 remained the same. In the second experiment ration for Lot 1 differed from that fed Lot 1 in the first trial in that all of the ingredients were ground and mixed. Therefore, in the second trial, performance data of cattle in Lot 1 may be compared directly with performance data of cattle in Lot 3. The only difference in treatment between these two groups is the 10 per cent addition of molasses in the Lot 3 ration; no molasses was fed in Lot 1. Grain sorghum (milo) grain was included in the second test (Lot 2). The amount of oat grain fed in Lot 4 was decreased by one-half and ground snapped corn was added in like amount (Lot 4).

Results for the second trial are summarized in Table 2.

Increases in Slaughter Grade Due to Feeding. At the start of the feeding trial, the animals graded Utility and Commercial, with about equal numbers in each grade (Table 2). As a result of full feeding in dry lots for 132 days, the slaughter grade was improved an average of almost two grades. It should be noted, however, that cattle in the second trial were fed 19 days longer than those in the first trial but had less finish at the end of the period. This difference may reflect superiority in the breeding of the cattle used in the first trial.

Carcass Grades and Dressing Percentages. Carcass grades and dressing percentages are given in Table 2. The carcasses were graded by U.S.D.A. official graders. However, it is pointed out that different graders were used, since the cattle were killed in three plants. Lots 1 and 4 were graded by the same grader. Because all carcasses were not graded by the same grader, it is not possible to draw any conclusions in respect to differences in carcass grades.

In dressing percentages from highest (61.11 per cent chilled carcass) to lowest (59.50 per cent chilled carcass) the lots ranked 5, 3, 2, 4, 1.

Rate and Efficiency of Gain. Gain and feed consumption data are summarized in Table 2. The average daily gain was quite close for all lots, Lot 3 showing a slight advantage over the others and Lot 4 falling slightly behind.

Considerably less feed was required for gain in Lot 1 of second test than of the first. In the first test, the feed ingredients were hand fed, whereas in the second trial the ration fed Lot 1 consisted of the same constituents ground and mixed. Mixing increased the proportion of hay consumed and lowered the cost of gain (i.e. when feed prices are held constant for the two trials). There was not the trouble from founder in Lot 1 of the second trial as was experienced in Lot 1 of the first experiment. It should be recognized that the founder in Lot 1 of the first trial probably biased the results from this lot unfavorably. It emphasizes that more caution is required in feeding cattle where the corn is fed separately, as in Lot 1, first trial, than where the corn is mixed with roughage, as in Lot 1, second trial. The mixing of these roughage-containing rations, however, requires expensive equipment for mechanical mixing. The most practicable solution for the small feeder is to get the grinding and mixing of his home-grown feeds done by a local feed mill on a custom basis, provided such service is available at reasonable cost.

It is of interest to compare Lots 1 and 3 in the second experiment with respect to the value of adding 10 per cent molasses to a mixture of ground snapped corn, cottonseed meal, and peanut hay. The molasses-fed cattle (Lot 3) ate more feed daily, made slightly greater daily gain, weighed an average of 24 pounds per head more at the end, and sold for \$4.77 more per head than cattle in Lot 1. Nevertheless, cattle in Lot 1 (no molasses) required less feed per hundred pounds of gain and returned for feeding \$2.33 more per head. The use of molasses was not profitable in this trial.

In this trial where oat grain was used to replace one-half of the ground snapped corn in a balanced ration, the daily gain was lowered by 0.25 of a pound and more feed was required to produce a hundred pounds of gain (Lot 4 vs. Lot 3, Table 2).

Grain sorghum grain was substantially less valuable than ground snapped corn (Lot 2 vs. Lot 3). Lot 2 cattle (grain sorghum) required considerably more feed per hundred pounds of gain, made 25 pounds less total gain per head, and the animals showed less finish than the corn-fed cattle (Lot 3). It should be noted, however, that many studies have shown grain sorghum grain to be more nearly equal to corn for fattening cattle than was indicated in this trial. This comparison must be repeated before definite conclusions can be drawn regarding the relative values of grain sorghum and ear corn.

How Final Slaughter Weight was Attained: The cattle used in the 1954-55 study were purchased in the fall of 1953 as light stocker calves weighing around 350 to 425 pounds. They were wintered on oat grazing and limited amounts of other feeds and attained an average weight of 530 pounds at the beginning of summer grazing. They were on permanent pasture from March 15 until they were placed in feed lots.

They gained an average of 231 pounds per head on summer grass and 281 pounds in the feed lot. The cattle attained approximately 51 per cent of their final slaughter weight prior to summer grazing, 22 per cent on summer grass, and the final 27 per cent in the feed lot.

Normally, feed-lot gains cost more per pound than what the finished cattle sell for at the market, a fact clearly evident in the data in Tables 1 and 2. Financial gain in feeding cattle usually comes from increased value on the original weight of the feeder cattle. In this connection, it is pertinent to point out that winter and summer gains of stocker cattle can be made largely on roughages that can be economically produced in abundance on most Alabama farms. It appears, therefore, that most operators who grow out and finish stocker cattle can profit by developing management practices that will ensure adequate supplies of high quality forage and pastures for winter and summer feeding of stocker cattle. Furthermore, these data show the importance of proper utilization of roughage in fattening rations.

Financial Aspects of Second Experiment. The returns for feeding are summarized at the end of Table 2. The steers were valued as feeders at \$15 per hundred weight when placed in the feed lot. This is the same value as was placed on the feeder cattle in the first trial. Feed costs were a little higher in the second trial.

For the second consecutive year, steers fattened on a ration consisting of 44.6 per cent ground snapped corn, 14.4 per cent ground whole cottonseed (gin run), 10 per cent cane molasses, 30 per cent ground peanut hay, and 1 per cent common salt showed slightly more increase in value after paying for the feed than comparable steers fed a similar ration containing cottonseed meal. The average feed replacement value per hundred pounds of cottonseed in terms of gain produced for the 2 years of this study is 68 pounds of ground snapped corn, 60 pounds of 41 per cent cottonseed meal, 5 pounds of cane molasses and 14 pounds of ground peanut hay. These data indicate that, for the farmer who has cottonseed and intends to feed cattle, the decision whether to sell seed at the time of ginning cotton should be made with reference to the value of the seed as feed.

As in the first trial, oat grain was not an economical feed at the price charged. Also grain sorghum grain did not prove to be as valuable as ground snapped corn. The grain sorghum fed group (Lot 2) required more feed per hundred weight of gain than any other group and the cattle carried the least finish of all experimental groups. The returns for feeding were relatively unsatisfactory for the oat and grain sorghum fed cattle on the basis of the feed prices prevailing on farms of the Wiregrass Area in the fall of 1954.

SUMMARY

1. At the end of the grazing seasons of 1953 and 1954, yearling steers grazing on Coastal Bermudagrass, Bahiagrass or common Bermudagrass at the Wiregrass Substation graded Utility or Commercial. They were placed in feed lots for finishing; after 113

TABLE I. SUMMARY OF DATA FROM FIRST FEEDING EXPERIMENT, NOVEMBER 11, 1953-MARCH 5, 1954,
WIREGRASS SUBSTATION, HEADLAND, ALABAMA

Item	Lot numbers									
	Lot 1		Lot 2		Lot 3		Lot 4		Lot 5	
Steers, number.....	24		24		24		24		24	
Length of feeding period, days.....	113		113		113		113		113	
<u>Composition of ration:</u>										
Ground snap corn, %.....	full fed		½ full fed		51		--		44.6	
Ground oats, %.....	--		--		--		51		--	
Cottonseed meal (41%), %.....	1½ lb. per head daily				8		8		--	
Ground cottonseed, %.....	--		--		--		--		14.4	
Blackstrap molasses (cane), %.....	--		½ full fed		10		10		10.0	
Peanut hay, ¹ %.....	free choice		free choice		30		30		30.0	
Salt, %.....	free choice		free choice		1		1		1.0	
<u>Average weight per steer:</u>										
Initial weight, lb.	781		769		778		777		775	
Final feed lot weight less 5%, lb.	1,002		1,019		1,065		1,004		1,035	
Total gain, lb.	221		250		287		227		260	
Av. daily gain, lb.	1.96		2.21		2.54		2.01		2.30	
<u>Changes in live grade feed lot:</u>										
	<u>Start</u>	<u>End</u>	<u>Start</u>	<u>End</u>	<u>Start</u>	<u>End</u>	<u>Start</u>	<u>End</u>	<u>Start</u>	<u>End</u>
Prime		1								1
Choice		14		14		22		12		19
Good	1	8		9		2		12		4
Commercial	12	1	11	1	13		11		11	
Utility	11		13		11		13		13	
<u>Carcass grades:</u>										
Choice	--		19		21		16		17	
Good	--		5		3		8		7	
Dressing percentages	--		58.8		61.6		58.3		61.4	
<u>Total feed consumed per animal:</u>										
All feed including extra hay ² , lb.	3,458		3,978		3,969		3,215		3,564	
Ground snap corn, lb.	2,241		1,404		1,786		--		1,381	
Ground oats, lb.	--		--		--		1,402		--	
Cottonseed meal (41%), lb.	152		152		280		220		--	
Ground whole cottonseed, lb.	--		--		--		--		446	
Cane molasses, lb.	--		1,238		350		275		310	
Peanut hay ¹ , lb.	598		717		1,051		824		929	
Salt, lb.	free choice		free choice		35		27		31	
Extra hay fed at start of trial ² , lb.	467		467		467		467		467	

TABLE I (Continued)

Item	Lot numbers				
	Lot 1	Lot 2	Lot 3	Lot 4	Lot 5
<u>Feed per cwt. gain:</u>					
All feed, lb.	1,565	1,591	1,383	1,416	1,371
Ground snap corn, lb.	1,014	562	622	--	531
Ground oats, lb.	--	--	--	618	--
Cottonseed meal (41%), lb.	69	61	98	97	--
Ground cottonseed, lb.	--	--	--	--	172
Blackstrap molasses, lb.	--	495	122	121	119
Peanut hay ¹ , lb.	270	286	366	363	357
Salt, lb.	free choice	free choice	12	12	12
Extra hay, ² lb.	212	187	163	205	180
Feed cost per steer ³	\$ 56.95	\$ 60.17	\$ 66.97	\$ 74.98	\$ 60.78
Feed cost per cwt. gain ³	25.77	26.40	23.33	33.03	23.50
Initial value per cwt. for feeders..	15.00	15.00	15.00	15.00	15.00
Initial value per steer.....	117.15	115.35	116.70	116.55	116.25
Feed cost per steer ³	56.95	60.17	66.97	74.98	60.78
Initial value plus feed cost per steer.....	174.10	175.52	183.67	191.53	177.03
Selling price per 100 lb.	21.05	21.79	21.74	22.00	21.90
Price received per steer.....	210.95	221.80	231.55	220.87	226.67
Increased value per steer over cost of feed.....	36.85	46.28	47.88	29.34	49.64

¹ It should be noted that lots 1 and 2 were fed loose peanut hay (free choice) while lots 3, 4 and 5 were fed ground peanut hay.

² "Extra hay" refers to loose hay hand fed to steers while bringing them to full feed.

³ Feed costs per steer and per 100 pounds gain, include cost of grinding and mixing but does not include labor for feeding. The total grinding and mixing charges for each animal for lots 1, 2, 3, 4 and 5, were \$5.60, \$3.51, \$8.76, \$6.87 and \$7.74, respectively. The prices of feed ingredients and expense of grinding and mixing were as follows: snapped corn, \$32.04 per ton; oats, \$1.00 per bushel; cottonseed meal (41%), \$63.20 per ton; molasses, \$29.17 per ton; peanut hay, \$20.00 per ton; whole cottonseed, \$54.00 per ton; salt, \$1.30 per cwt.; grinding and/or mixing \$0.25 per cwt. These prices represent local purchase prices existing at the beginning of the feeding trial.

TABLE 2. SUMMARY OF DATA FROM SECOND EXPERIMENT OCTOBER 20, 1954-FEBRUARY 28, 1955,
WIREGRASS SUBSTATION, HEADLAND, ALABAMA

Item	Lot numbers									
	Lot 1	Lot 2	Lot 3	Lot 4	Lot 5					
Number of steers.....	17	16	16	16	16					
Length of feeding period, days.....	132	132	132	132	132					
Composition of ration:										
Ground snap corn, %.....	61	--	51	25.5	44.6					
Ground grain sorghum (grain), %...	--	51	--	--	--					
Ground oats, %.....	--	--	--	25.5	--					
Cottonseed meal (41%), %.....	8	8	8	8	--					
Ground cottonseed, %.....	--	--	--	--	14.4					
Blackstrap molasses (cane), %.....	--	10	10	10	10					
Ground peanut hay, %.....	30	30	30	30	30					
Salt, %.....	1	1	1	1	1					
Average weight per steer:										
Initial weight ¹ , lb.	707	706	706	707	707					
Final feed lot weight, lb.	984	983	1,008	976	997					
Total grain, lb.	277	277	302	269	290					
Av. daily gain, lb.	2.09	2.10	2.29	2.04	2.20					
Changes in live grade feed lot:										
	<u>Start</u>	<u>End</u>	<u>Start</u>	<u>End</u>	<u>Start</u>	<u>End</u>	<u>Start</u>	<u>End</u>	<u>Start</u>	<u>End</u>
Choice.....		8		3		7		3		7
Good.....		8		12	1	9		12		8
Commercial.....	8	1	9	1	6		9	1	8	1
Utility.....	9		7		9		7		8	
Carcass grades:										
Choice.....		11		3		6		11		6
Good.....		5		12		10		4		10
Commercial.....		1		1		--		1		--
Dressing percentages:³										
Basis hot carcass.....		61.34		61.92		62.42		61.42		62.99
Basis chilled carcass.....		59.50		60.07		60.56		59.58		61.11
Total feed consumed per animal:										
All feed, lb.	3,597	3,916	4,053	3,747	3,509					
Ground Snap corn, lb.	2,194	--	2,067	955	1,565					
Ground grain sorghum (grain), lb...	--	1,997	--	--	--					
Ground oats, lb,	--	--	--	955	--					
Cottonseed meal (41%), lb.	288	313	324	300	--					
Ground cottonseed, lb.	--	--	--	--	505					
Cane molasses, lb.	--	392	405	375	351					
Ground peanut hay, lb.	1,079	1,175	1,216	1,124	1,053					
Salt, lb.	36	39	41	37	35					

TABLE 2 (Continued)

Item	Lot Numbers				
	Lot 1	Lot 2	Lot 3	Lot 4	Lot 5
Feed per cwt. gain:					
All feed, lb.	1,299	1,414	1,342	1,393	1,210
Ground snap corn, lb.	792	--	684	355	540
Ground grain sorghum, lb.	--	721	--	--	--
Ground oats, lb.	--	--	--	355	--
Cottonseed meal (41%), lb.	104	113	107	111	--
Ground cottonseed, lb.	--	--	--	--	174
Blackstrap molasses, lb.	--	141	134	139	121
Ground peanut hay, lb.	390	424	403	418	363
Salt, lb.	13	14	13	14	12
Feed cost per cwt. gain ⁴	\$ 26.50	\$ 29.98	\$ 26.71	\$ 34.55	\$ 24.40
Initial value per cwt. for feeders..	15.00	15.00	15.00	15.00	15.00
Initial value per steer.....	106.05	105.90	105.90	106.05	106.05
Feed cost per steer ⁴	73.41	83.04	80.66	92.94	70.18
Initial value plus feed cost per steer.....	179.46	188.94	186.56	198.99	176.23
Selling price per 100 lbs.	21.63	20.70	21.59	21.42	21.89
Price received per steer.....	212.84	203.48	217.61	209.06	218.24
Increase in value per steer over cost of feed.....	33.38	14.54	31.05	10.07	42.01

¹Actual shrunken weight - off feed and water overnight.

²Adjusted weight - final feed lot weight less 5%.

³Carcass weights expressed as a percentage of adjusted feed lot weight (final feedlot weight less 5%).

⁴The prices of feed ingredients were as follows: snapped corn, \$40.00 per ton; grain sorghum, \$45.00 per ton; oats, \$1.25 per bushel; cottonseed meal (41%), \$65.00 per ton; blackstrap molasses, \$29.20 per ton; peanut hay, \$20.00 per ton; whole cottonseed, \$55.00 per ton; salt, \$1.45 per cwt.; grinding and mixing, \$5.00 per ton. Feed costs per steer and per cwt. gain include cost of grinding and mixing feeds but not the labor for feeding. The total grinding and mixing charges per steer for lots 1, 2, 3, 4 and 5 were \$8.99, \$9.79, \$10.13, \$9.37 and \$8.77, respectively. Prices are local purchase prices existing at the beginning of the feeding trial.

or 132 days' feeding, they graded as follows: 55.2 per cent Choice, 41.8 per cent Good and 3 per cent Commercial. During the 2 years, 10 lots of these steers consisting of a total of 201 head were employed to test eight different fattening rations.

2. The highest average rate of gain was produced by a ration (Lot 3) consisting of ground snapped corn 51 parts, cottonseed meal (41 per cent protein) 8, blackstrap cane molasses 10, ground peanut hay 30, and salt 1. Only slightly below this in rate of gain was a similar ration (Lot 5) in which the ground snapped corn was reduced to 44.6 parts and the cottonseed meal was replaced by ground cottonseed to furnish an equivalent amount of protein (14.4 per cent of cottonseed in the ration). Steers fed the cottonseed ration required slightly less feed per 100 pounds of gain; at the feed prices prevailing in the Wiregrass Area in the falls of 1953 and 1954, they showed more increase in value after deducting the cost of feed than did steers fed the cottonseed meal ration.

3. During the 2 years, a ton of ground cottonseed was worth more than a ton of 41 per cent cottonseed meal in a balanced ration for fattening steers.

4. For one lot (Lot 1) in the first experiment unground peanut hay was self-fed in racks and the concentrates (ground snapped corn and cottonseed meal) were fed in troughs. The same method of feeding was followed for Lot 2, except that one-half of the ground snapped corn was replaced with blackstrap molasses. Lot 2 showed higher rate of gain and a larger net increase in the value of steers after paying for feed. Some of the steers in Lot 1 showed symptoms of founder, however, and this comparison is of questionable significance. More skill is required in the feeding of a ration like that fed Lot 1 than of rations where the roughage and concentrates are ground and mixed together as in rations for lots 3, 4, or 5.

5. In the second experiment, the addition of 10 per cent of blackstrap molasses to replace an equal weight of ground snapped corn in a mixed ration increased daily gains 0.2 of a pound and the cattle were 25

pounds per head heavier at the end of the trial. However, molasses-fed cattle ate more feed for 100 pounds of gain, resulting in greater feed cost and less net return per steer.

6. Results from the two experiments indicate that a ton of oat grain is worth less than a ton of snapped corn for feeding steers, when used to replace all the snapped corn or one-half of the snapped corn in the ration.

7. In one trial, ground grain sorghum grain was less valuable pound for pound than ground snapped corn. This is a surprising result in view of the more favorable results obtained from feeding grain sorghum at other experiment stations. The test on the grain sorghum grain ration must be repeated before definite conclusions can be drawn.

CONCLUSIONS

Under market prices for cattle and farm prices of feeds existing during the fall and winter periods of 1953-54 and 1954-55, it was substantially more profitable to finish yearling steers to Choice and Good grades in the feed lot than to market them as Commercial and Utility grades direct from grass. The average margin (market price of finished steers over market price of feeder steers) for the best lot of steers (Lot 5) for the 2 years was \$6.90 per 100 pounds. The average increase in value from feeding in this lot was \$45.82 per steer after paying for the cost of feed.

Rations mixed from home-grown feeds (snapped corn, peanut hay and ground cottonseed or cottonseed meal) produced satisfactory gains and market finish in 113 to 132 days on yearling feeder steers weighing around 700 pounds.

The production of 1,000-pound choice steers from feeders, raised on Alabama farms to yearling age primarily on good quality pastures and roughages and finished on homegrown feeds, offers excellent opportunities for increasing the income of Alabama cattlemen.