

Creep-Feeding

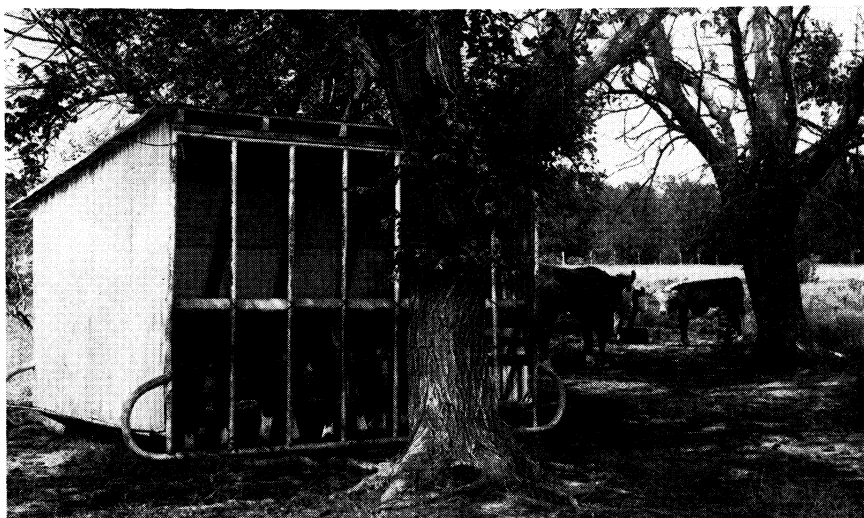
SPRING CALVES

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The Story in Brief . . .

A total of 197 beef calves were used in a study of the value of creep-feeding calves dropped in February and March by high-quality, grade Hereford cows grazing native grass pastures where an abundance of forage was available.

In these tests creep-feeding increased the gain approximately 45 pounds per calf. Increased gains varied from 16 to 108 pounds in different years.

The creep-fed calves were fatter at weaning, but their value per 100 pounds as feeders was little, if any, higher than similar calves not creep-fed. However, the slaughter price per 100 pounds was always higher for the creep-fed calves. The selling price per 100 pounds for slaughter was never higher than the feeder value. In most cases the slaughter value was lower. Creep-feeding did not increase the profit of calves sold as feeders. These data indicate that if creep-fed calves are not high-quality feeders, their highest selling value will be for slaughter; when this occurs, creep-feeding will increase the profit.

The average amount of feed consumed each season by a calf varied from 313 to 740 pounds. The addition of molasses to the creep-feed resulted in increased consumption of the mixture.

It was more profitable to full-feed fattening rations in dry-lot to steers which had not been creep-fed than to those which had been creep-fed, when they were fattened to a grade of approximately U. S. Choice. Steers which had been creep-fed made slower and less economical gains.

Heifers which had been creep-fed and those which had not received supplemental feed during the summer were of equal weight at the end of the wintering period in which they were fed prairie hay and cottonseed cake. The heifers which gained the most during the summer gained the least during the winter.

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Creep-Feeding Spring Calves

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Increased interest in the creep-feeding of beef calves has resulted in many questions concerning desirable management practices under Oklahoma range conditions. Many beef producers are feeding grain to beef calves before weaning to produce an animal with sufficient finish for slaughter at weaning or retained for later sale. Many cattlemen, however, believe that creep-feeding is not a profitable practice.

During recent years consumer demand for choice, well finished, lightweight cattle has increased. Management systems which produce this type of cattle would seem desirable. It is possible that Oklahoma producers may market slaughter cattle by following a system of creep-feeding followed by a short fattening period in drylot, if necessary.

Tests conducted at the Oklahoma Agricultural Experiment Sta-

tion approximately 20 years ago² indicated that creep-feeding of spring calves produced heavier and fatter calves at weaning than similar calves not creep-fed. However, when creep-fed calves were fed fattening rations in dry lot for five or six months after weaning they made slower and more expensive gains than calves which had not been creep-fed. Creep-feeding was not recommended for calves that were to be full-fed grain for five months or more after weaning.

Later tests³ indicated that creep-feeding heifers born in the spring from high grade beef cows resulted in their being classed as slaughter calves at weaning each year. The creep-fed heifers were heavier and returned \$0.25 per hundred weight more than their steer mates which received no supplemental feed. With feed cost deducted, they returned about \$1.00 more per head than the steers at weaning, when

¹ Respectively: Associate Animal Husbandman, Nutrition; Head, Department of Animal Husbandry; Assistant Superintendent, Ft. Reno Experiment Station; Head, Department of Agricultural Chemistry. Others associated with the work included A. E. Darlow, D. F. Stephens, W. D. Campbell, R. H. Hearrell, Wm. Archer and J. C. Meiske.

² Taylor, Bruce R., O. S. Willham, and L. E. Hawkins. 1938. Creep-Feeding and Finishing Beef Calves. Okla. Agr. Exp. Sta. Bul. 235.

³ Taylor, Bruce R., O. S. Willham, L. E. Hawkins. 1942. Experiments in Creep-Feeding Beef Calves. Okla. Agr. Exp. Sta. Bul. B-262.

the heifers were sold for slaughter and the steers as feeder calves.

Additional tests were conducted in 1951-54. The results of these latter tests are summarized in this bulletin⁴. The general objective was to study the creep-feeding of calves born in early spring in an attempt to produce desirable slaughter calves for sale at weaning or after a short fattening period in dry lot.

More specific objectives were to study the value of:

1. Creep-feeding steer and heifer calves born in early spring and sold at weaning.
2. Creep-feeding followed by dry-lot fattening of steer calves.
3. Creep-feeding followed by wintering of heifer calves.
4. Including molasses in the feed mixture for creep-feeding calves.

Experiment I was a three-year study (1951, 1952, 1953) of creep-feeding calves whose mothers were mature cows. Included was a study of creep-feeding steers and heifers to be sold at weaning and creep-feeding followed by dry-lot fattening for the steer calves. During 1951 and 1952 the heifer calves were fed wintering rations after the summer creep-feeding period.

Experiment II was conducted in 1953 and included a comparison of not creep-feeding, creep-feeding a ration without molasses, and creep-feeding a ration containing molasses.

Experiment III was conducted during the unusually dry summer season of 1954 with calves whose mothers were two years old. The calves were slightly younger than those used in previous tests and were creep-fed a mixture containing molasses.

Experiment I—Results of a Three-Year Study of Calves Whose Mothers Were Mature Cows

PROCEDURE

The tests in 1951, 1952, and 1953 were conducted with calves dropped in February and March by mature, high-quality, grade Hereford cows. In late April of each year, at the beginning of the summer grazing season, the cows and calves were divided into lots and allowed to graze native grass pastures (Bluestem and associated grasses) at the Lake Carl Blackwell range area. Adequate forage was

available. The calves were divided on the basis of sex, age, and winter ration of the cow. During the winter, the cows had been allowed to graze the dry native grass. This was supplemented by approximately 2½ pounds of cottonseed meal per head daily, either hand-fed every other day or self-fed as a salt-cottonseed meal mixture.

The total number of calves used in a summer varied from 45 to 51. All cattle in the tests had access to a mineral mixture of 2 parts salt and 1 part steamed bonemeal. The calves in Lot 1 were not given any supplemental feed. Those in Lot

⁴ Reports of results obtained in individual years may be found in the annual Feeders' Day Reports as listed on Page 12.

2 were creep-fed a concentrate mixture consisting of 60 percent cracked yellow corn, 30 percent whole oats, and 10 percent cottonseed meal.

fed in the same lot during the wintering period. Therefore, the average feed consumption of all animals in both lots was used in calculating the feed cost.

EXPERIMENT I

Lot 1

Lot 2

Not Creep-Fed

Creep-Fed

The calves were weaned in October. At weaning an appraised selling price was given to each group of calves by representatives of the Oklahoma City livestock market.

After weaning, most of the steer calves were full-fed a fattening ration in dry-lot. The ration consisted of ground yellow corn, free-choice, 1.5 pounds cottonseed meal, 1 pound alfalfa hay, and a limited amount of sorghum silage or prairie hay per head daily. A mineral mixture consisting of equal parts of salt, ground limestone and steamed bonemeal was available. Each lot of steers was fed until it was estimated that the average carcass grade for the particular lot would be U. S. Choice. Under such a system the steers were marketed after feeding periods of different lengths.

In 1951 and 1952, the weaned heifer calves were fed a wintering ration of prairie hay, free-choice, and approximately one pound of cottonseed cake per head daily. Heifer calves were not used in a wintering test in 1953 because of the results obtained in the two preceding years. A mineral mixture consisting of 2 parts salt and 1 part steamed bonemeal was available. Both groups of heifers were

RESULTS

Creep-Feeding Steers and Heifers

Table I summarizes the production data for the first three years of the experiment. A total of 64 calves were creep-fed an average of 159 days, (early May to mid-October). There were 65 calves which were not creep-fed. The

The tables referred to in this bulletin begin on page 12.

average birth date of both groups was March 5.

The three-year average increase in weight resulting from creep-feeding was 30 pounds. An average of 363 pounds of feed, which cost \$11.56, was consumed per calf. Because there was no difference in selling price per 100 pounds between the two lots in 1951 and 1952 and only \$.50 per 100 pounds in 1953, creep-feeding decreased the profit.

In all of the tests reported in this bulletin feed costs were the only costs considered. The term profit is used in reporting financial results of the creep-feeding phase to denote selling or appraised value minus feed cost. In all studies after weaning, only feed costs and initial cost of the calf were deducted from the selling value.

The cows whose calves were creep-fed gained an average of 19

pounds more during the summer than cows whose calves were not creep-fed (155 vs. 136 pounds). The practical importance of this difference, including its effect on wintering of the cow during the following season, is unknown. However, if the cows were to be sold at the end of the summer, those whose calves had been creep-fed would be worth a few dollars more per head.

Creep-Feeding Followed by Dry-Lot Fattening of Steer Calves

The average results of the creep-feeding and dry-lot fattening of steer calves for three years is given in Table 3. Steers and heifers had been creep-fed in the same group. Thus, average feed consumption was used in calculating feed cost, although the larger steer calves probably consumed greater amounts of creep-feed than the heifers. The creep-fed steers which were fattened in dry lot had gained 26 pounds more during the summer months than similar steers which were not creep-fed.

During the dry-lot fattening phase the steers which had been creep-fed were marketed 19 days earlier (115 vs. 135 days) than steers which had not been creep-fed. The fleshier creep-fed calves gained at a slower rate in the feed lot and at a slightly higher feed cost per 100 pounds of gain than the other calves. If both groups of steers had been sold when the fleshier group (creep-fed) was sold,

the profit would have been considerably in favor of creep-feeding. However, when steers were fed to approximately the same slaughter grade it was more profitable to full-feed fattening rations to those which had not been creep-fed. The carcass grades and dressing percentage were essentially the same in both groups.

The feed cost for both phases of the experiment was slightly more than \$60 per calf in each lot. Because the non-creep-fed calves were sold at slightly heavier weights (although carcass grades were the same), their total selling value was greater, and their profit, therefore, was approximately \$5 per head more in the total period than for the creep-fed steers.

Creep-Feeding and Wintering Heifer Calves

The heifer calves which had been creep-fed gained an average of 37 pounds more during the summer than the calves which were not creep-fed (see Table 2). Those which had been creep-fed gained 33 pounds less during the winter feeding period than the other heifers. The increased gain from creep-feeding resulted in decreased gains during the wintering period. Both groups of heifers were of equal weight at the end of the test. The value per heifer at the end of the test minus the feed cost for creep-feeding and wintering was \$112.41 for those not creep-fed, and \$100.34 for the creep-fed heifers.

Experiment II—Rations for Creep-Feeding

During the 1953 grazing season a third lot of calves was added in order to study the value of including cane molasses in a creep-feed. Forty-five calves were divided into three lots of 15. Those in Lot 1 were not creep-fed. Those in Lot 2 were self-fed in a creep-feeder the mixture used in Experiment I (60% cracked yellow corn, 30% whole oats, 10% cottonseed meal). Those in Lot 3 were offered in a creep-feeder a mixture composed of 10% cane molasses, 50% cracked

feeders at \$16.50 per 100 pounds. Using this appraised value, it was less profitable to add molasses to the mixture because the added gain was not equal in value to the added cost of the creep-feed. There was a difference of \$3 per 100 pounds in the appraised price for slaughter, and had the calves been sold for slaughter, creep-feeding a mixture containing molasses would have increased the net profit \$9.21 per head over that in Lot 2.

Creep-feeding (Lot 1 vs. Lots 2 and 3) was less profitable than not creep-feeding calves sold as feeders at weaning. If the calves had been sold for slaughter, creep-feeding would have increased the profit.

EXPERIMENT II		
Lot 1	Lot 2	Lot 3
Not Creep-Fed	Creep-Fed	Creep-Fed with Molasses

yellow corn, 30% whole oats, and 10% cottonseed meal. A summary of the results of this test is given in Table 4.

RESULTS

Creep-Feeding Steers and Heifers

The addition of molasses to the feed mixture resulted in the consumption of an average of 660 pounds of feed per head during the summer as compared to 313 pounds consumed by those calves fed the mixture without molasses. The cost of this supplemental feed was \$10.50 and \$21.43 for the mixture without and with molasses, respectively. The calves which consumed the greater amount of feed (Lot 3) gained 40 pounds more and were in much higher condition at weaning than those in Lot 2. Both groups of calves were appraised as

Creep-Feeding Followed by

Dry-Lot Fattening of Steer Calves

After weaning, the steer calves were full-fed fattening rations in dry-lot as described in Experiment I. Although there was a considerable difference in weights of the steers at the beginning of the fattening test and in the length of the fattening period required, it was more profitable to full-feed calves which had not been creep-fed than those which had been creep-fed (see Table 5). The calves which had been creep-fed the mixture containing molasses were marketed after 75 days of full-feeding. The other group which had been creep-fed (Lot 2) was marketed after 89 days, but the carcass grades indicated that they should have been fed a slightly longer period. The steers which had not been creep-fed were marketed after a

117-day fattening period. The average daily gain in the feed-lot was inversely related to the condition of the steers at the start and to the length of the fattening period. When steers were fed to the same grades, whether or not they were creep-fed had only little effect on the profit during the fattening period when labor costs were not

considered. However, it should be noted that the difference in length of fattening period required in Lots 1 and 3 was 42 days.

As was true in the three-year-average shown in Table 2, the profit summary for both phases indicates that it was less profitable to creep-feed.

Experiment III—Creep-Feeding, 1954

The 1954 study was conducted in the manner of previous tests except that the dams of the calves were heifers which had calved when they were approximately two years old. The calves were approximately 2 weeks younger than those used in other tests. Also, the amount of summer rainfall was unusually small and the amount of grass available in the pastures was considerably less than in previous years.

There were 27 cows and calves in Lot 1 and 26 in Lot 2. The calves in Lot 2 were creep-fed the mixture containing molasses, corn, oats, and cottonseed meal.

RESULTS

Creep-Feeding Steers and Heifers

The summary in Table 6 shows that the creep-fed calves consumed an average of 740 pounds of supplemental feed per head which cost \$21.38. The increased gain resulting from creep-feeding was 138 pounds for the steers and 88 pounds for the heifers. When the calves were sold as feeders it was more profitable to creep-feed the steers but not the heifers. The advantage for creep-feeding steers was \$11.53 per head.

If the heifers had been sold for slaughter, creep-feeding would have increased the profit \$12.87. When sold as feeders the profit was not

E X P E R I M E N T I I I	
Lot 1	Lot 2
Not Creep-Fed	Creep-Fed with Molasses

in favor of creep-feeding, because there was a difference of only \$.50 per 100 pounds in selling price. Using highest appraised prices (as feeders except in case of creep-fed heifers) the average increased profit from the entire calf crop resulting from creep-feeding was \$5.33 per head.

It should be noted that within the group which was not creep-fed the heifers gained more than the steers. The reason for this is not apparent.

In Experiment I the cows whose calves were creep-fed gained slightly more during the summer season than those whose calves were not creep-fed. However, in the 1954 test with two-year-old heifers and

an unusually dry grazing season the reverse was true, although both groups lost weight during the summer. The mothers of the creep-fed calves lost an average of 44 pounds per head and the other cows lost 25 pounds.

Creep-Feeding Followed by Dry-Lot Fattening of Steer Calves

The steers which were not creep-fed weighed only 316 pounds at the start of the fattening test (Table 7). They were full-fed for

153 days before marketing as compared to 87 days for the creep-fed steers. The feed cost per 100 pounds of gain was practically the same in both groups, but the profit during the fattening test was considerably in favor of the steers which had not been creep-fed. This difference was so great that the overall profit summary (both phases) indicates that it was less profitable to creep-feed than to not creep-feed steers which were full-fed fattening rations in dry-lot until they graded approximately U. S. Choice.

Summary

A total of 197 beef calves were used in a study of the value of creep-feeding calves dropped in February and March by high-quality, grade Hereford cows grazing native grass pastures where an abundance of forage was available. The three-year average increase in gain resulting from creep-feeding was 30 pounds. The value per calf minus summer feed cost was \$1.80 in favor of not creep-feeding. The calves used in these tests were desirable feeder calves and the highest appraised value per 100 pounds at weaning was as feeders rather than for slaughter. Creep-feeding would have increased profits if the calves had been sold for slaughter at weaning.

It was more profitable to full-feed fattening rations in dry-lot to steers which had not been creep-fed than those which had been creep-fed, when they were fattened to a grade of approximately U. S. Choice. Steers which had been creep-fed made slower and less economical gains.

Heifers which had been creep-fed and those which had not received supplemental feed during the summer were of equal weight at the end of the wintering period in which they were fed prairie hay and cottonseed cake. The heifers which gained the most during the summer gained the least during the winter.

Considerably more pounds of a creep-feed containing molasses, yellow corn, oats and cottonseed meal was consumed by calves than a similar mixture not containing molasses.

Creep-feeding calves dropped by two-year-old heifers increased gain 108 pounds and the profit \$5.33 per head during the summer season of 1954, a period of unusually low rainfall.

Summaries of data collected in individual years of the tests reported in this bulletin may be found in Feeders' Day Reports of the Oklahoma Agricultural Experiment Station as follows:

Nelson, A. B., W. Archer, Jr., A. E. Darlow and W. D. Campbell, 1952. "Creep-feeding calves which are to be sold at weaning." *Oklahoma Agr. Exp. Sta. MP-27*. p. 7.

Nelson, A. B., W. Archer, Jr., A. E. Darlow and W. D. Campbell, 1952. "Creep-feeding steer calves which are to be fattened in dry-lot." *Okla. Agr. Exp. Sta. MP-27*. p. 67.

Nelson, A. B., W. Archer, Jr., A. E. Darlow and W. D. Campbell, 1952. "Creep-feeding heifer calves which are to be wintered on prairie hay and cottonseed cake." *Okla. Agr. Exp. Sta. MP-27*. p. 94.

Nelson, A. B., A. E. Darlow and W. D. Campbell, 1953. "Creep-feeding calves

which are to be sold at weaning." *Okla. Agr. Exp. Sta. MP-31*. p. 8.

Nelson, A. B., A. E. Darlow and W. D. Campbell, 1953. "Fattening steer calves in dry-lot after creep-feeding." *Okla. Agr. Exp. Sta. MP-31*. p. 36.

Nelson, A. B., J. C. Meiske, A. E. Darlow, and W. D. Campbell, 1953. "Wintering creep-fed calves on prairie hay and cottonseed cake." *Okla. Agr. Exp. Sta. MP-31*. p. 113.

Nelson, A. B., W. D. Campbell, and Glen Bratcher, 1954. "Creep-feeding beef calves." *Okla. Agr. Exp. MP-34*. p. 24.

Nelson, A. B., W. D. Campbell, Glenn Bratcher and R. D. Humphrey, 1955. "Creep-feeding beef calves." *Okla. Agr. Exp. Sta. MP-43*. p. 72.

Table 1.—Creep-Feeding Beef Calves, Three-Year Average¹ (159 days)

	Lot 1 Not Creep-fed	Lot 2 Creep-fed ²
Total number of calves	65	64
Steers	30	30
Heifers	35	34
Average birth date, March	5	5
Average feed per head (lbs.)		
Corn	---	218
Oats	---	109
Cottonseed meal	---	36
Total	---	363
Average weight per calf (lbs.)		
Initial, May 7	170	174
Final, October 13	442	476
Gain	272	302
Daily gain	1.71	1.89
Financial (dollars)		
Feed cost per head ³	---	11.56
Value per calf ⁴	114.18	123.90
Value per calf minus feed cost ⁵	114.18	112.34

¹ These tests were conducted during the summers of 1951, 1952, and 1953.

² Creep-feed was 60 percent cracked yellow corn, 30 percent whole oats, and 10 percent cottonseed meal.

³ Based on average feed prices of corn, \$1.71 per bu.; oats \$0.97 per bu.; and cottonseed meal \$87.20 per ton.

⁴ Final weights were shrunk 3 percent. During the first two years of the test the calves were appraised at the highest selling price without regard as to whether the highest value was as feeders or for slaughter. In 1951 both groups were appraised at \$37.50 per cwt. In 1952 both groups were appraised at \$27.00 per cwt. In 1953 the calves were appraised as feeders at \$16.00 and \$16.50 per cwt. for Lots 1 and 2, respectively, and for slaughter at \$11.50 and \$13.50 per cwt. for Lots 1 and 2, respectively.

⁵ Highest value per calf (as feeders in each year) minus cost of creep-feed.

Table 2.—Creep-Feeding and Wintering Heifer Calves,
Two-Year Average

	Lot 1 Not Creep-fed	Lot 2 Creep-fed
Total number of heifers	26	26
CREEP-FEEDING PHASE (155 days)		
Average weight per calf (lbs.)		
Initial, May 11	174	170
Final, October 13	438	471
Gain	264	301
Cost of feed per head (dollars)	---	11.88
WINTERING PHASE (169 days)		
Average weight per calf (lbs.)		
Initial, October 13	438	471
Final, March 31	537	537
Gain	99	66
Daily gain	0.59	0.39
Average daily ration (lbs.)		
Prairie hay	8.64	8.64
Cottonseed cake	0.96	0.96
Mineral mixture ¹	0.07	0.07
Financial (dollars)		
Initial cost ²	135.41	145.31
Feed cost ³	22.22	22.22
Value per heifers (3% shrink) ⁴	134.63	134.44
Net return per heifer	—23.00	—33.09
PROFIT SUMMARY, BOTH PHASES (dollars)		
Value per heifer	134.63	134.44
Feed cost	22.22	34.10
Net return (heifer minus feed)	112.41	100.34

¹ Mixture was two parts salt and one part steamed bonemeal.² Based on \$36 per cwt. in 1952 and \$26 in 1953.³ Feed prices used were \$15 and \$20 per ton for prairie hay in 1951 and 1952, respectively, and \$81 and \$108.25 for cottonseed cake.⁴ Based on \$32 per cwt. for both lots in 1952 and \$20 in 1953.

Table 3.—Creep-Feeding Followed by Dry-Lot Fattening of Steer Calves, Three-Year Average.

	Lot 1 Not Creep-fed	Lot 2 Creep-fed
Total number of steers ¹	26	29
CREEP-FEEDING PHASE (159 days)		
Average weight per steer (lbs.)		
Initial, May 7	176	183
Final, October 13 ²	435	468
Gain	259	285
Daily gain	1.63	1.79
Financial (dollars)		
Feed cost per head	----	11.56
Value per steer ³	121.98	131.93
Value per steer minus feed cost	121.98	120.37
DRY-LOT FATTENING PHASE		
Number of days fed ⁴	134	115
Average weight per calf (lbs.)		
Initial ²	435	468
When Lot 2 sold	677	696
When Lot 1 sold	722	---
Gain to Lot 2 selling	242	228
Gain to Lot 1 selling	287	---
Daily gain to Lot 2 selling	2.10	1.98
Daily gain to Lot 1 selling	2.14	---
Average daily ration (lbs.) ⁵		
Ground yellow corn	10.82	10.08
Cottonseed meal	1.50	1.50
Alfalfa hay	1.03	1.03
Prairie hay or sorghum silage ⁶	2.49	2.55
Feed per cwt. gain (lbs.)		
Ground yellow corn	502	513
Cottonseed meal	69	76
Alfalfa hay	48	52
Prairie hay or sorghum silage ⁶	116	129
Financial (dollars)		
Feed cost per cwt. gain	20.59	21.45
Initial cost ³	121.98	131.93
Feed cost per steer ⁷	60.24	49.20
Total value per steer ⁸	191.27	186.64
Return per steer ⁹	9.05	5.51
If steers of Lot 1 had been sold when Lot 2 steers were sold:		
Total value per steer ¹⁰	173.19	
Feed cost	51.33	
Return per steer ⁹	-0.12	
Average carcass grade ¹¹	4.9	5.4
Average dressing percentage	59.5	59.9
PROFIT SUMMARY, BOTH PHASES (dollars)		
Value per steer when sold	191.27	186.64
Feed cost	60.24	60.76
Value of steer minus feed cost	131.03	125.88

Table 4.—Rations for Creep-Feeding Beef Calves, 1953 (166 days)

	Lot 1 Not Creep-fed	Lot 2 Creep-fed ¹	Lot 3 Creep-fed (molasses) ²
Number of calves	15	15	15
Steers	7	7	7
Heifers	8	8	8
Average birth date, March	4	5	5
Average feed per head (lbs.)			
Corn	--	188	330
Oats	--	94	198
Cottonseed meal	--	31	66
Molasses	--	--	66
Total	--	313	660
Average weight per calf (lbs.)			
Initial 4-29-53	163	166	164
Final 10-12-53	454	483	521
Gain	291	317	357
Daily gain	1.75	1.91	2.15
Financial (dollars)			
Feed cost per head ³	---	10.50	21.43
Appraised price per cwt.			
Slaughter	11.50	13.50	16.50
Feeder	16.00	16.50	16.50
Value per calf ⁴			
Slaughter	50.65	63.25	83.39
Feeder	70.46	77.30	83.39
Value per calf minus feed cost			
Slaughter	50.65	52.75	61.96
Feeder	70.46	66.80	61.96

¹ Creep-feed was 60 per cent cracked yellow corn, 30 percent whole oats and 10 percent cottonseed meal.

² Creep-feed was 50 per cent cracked yellow corn, 30 per cent whole oats, 10 percent cottonseed meal and 10 per cent cane molasses.

³ Based on feed prices of corn, \$1.80 per bu.; oats, \$1.03 per bu.; cottonseed meal, \$106 per ton; and molasses, \$2 per cwt.

⁴ Weights were shrunk 3 percent.

Footnotes—Table 3.

¹ Includes only these steers which were fattened in dry-lot after creep-feeding.

² Weights at weaning were shrunk 3 percent in 1951-52. In 1952-53 and 1953-54 weighings were made after an overnight shrink in dry-lot.

³ Based on appraised prices: \$39 per cwt for both lots in Experiment 1; \$28 per cwt for both lots in Experiment 2; \$17.50 per cwt for Lot 1 and \$18 per cwt for Lot 2 in Experiment 3. These appraisals were for the highest value which in all cases was as feeder calves. In Experiment 3 the appraisal per cwt for slaughter was \$11 for Lot 1 and \$13 for Lot 2.

⁴ Fed until the estimated average carcass grade for the lot was U. S. Choice.

⁵ In addition to the feeds listed a mineral mixture composed of equal parts by weight of ground limestone, steamed bone meal, and salt was fed free-choice.

⁶ Sorghum silage was fed during the 1951-52 experiment. Prairie hay was fed in the two other experiments. In the first experiment the pounds of sorghum silage fed was converted to air-dry hay equivalent.

⁷ Based on the following feed prices: Ground yellow corn—\$1.90, \$1.80, and \$1.61 per bushel in Experiments 1, 2, and 3, respectively; Cottonseed meal—\$80, \$106 and \$66 per ton; Alfalfa hay—\$25, \$30, and \$30 per ton; Sorghum silage \$6 per ton in Experiment 1; Prairie hay, \$20 per ton in Experiments 2 and 3.

⁸ Weights were shrunk 3 per cent. Selling prices per cwt. were: Experiment 1, \$34.50 and \$35 for Lots 1 and 2, respectively; Experiment 2, \$23.50 for both lots; and Experiment 3, \$21 for both lots.

⁹ Value per steer when sold minus initial cost and feed cost.

¹⁰ Weights were shrunk 3 per cent. Appraised prices per cwt. of steers in Lot 1 when those of Lot 2 were sold were \$34.96 in Experiment 1, and \$21.50 in Experiment 2. In Experiment 3 the data were based on an appraised price of \$20 per cwt. This appraisal was as feeder steers. The appraisal for slaughter on this date was \$18.50 per cwt.

¹¹ U. S. grades based on values of low prime, 3; high choice, 4; average choice, 5; low choice, 6; high good, 7; average good, 8.

Table 5.—Creep-Feeding Followed by Dry-Lot Fattening of Steer Calves, 1953.

	Lot 1 Not Creep-fed	Lot 2 Creep-fed	Lot 3 Creep-fed (molasses)
Number of steers	7	7	7
CREEP-FEEDING PHASE (167 days)			
Average weight per calf (lbs.)			
Initial 4-29-53	168	166	165
Final 10-13-53 ¹	440	464	531
Gain	272	298	366
Daily gain	1.63	1.78	2.19
Financial (dollars)			
Cost of feed per head	----	10.50	21.43
Appraised price per cwt.			
Slaughter	11.00	13.00	16.00
Feeder	17.50	18.00	18.00
Value per steer minus feed cost ²	77.00	73.02	74.15
DRY-LOT FATTENING PHASE			
Number of days fed ³	117	89	75
Average weight per calf (lbs.)			
Initial, 10-13-53 ¹	440	464	531
Final, 12-27-53 ⁴	585	613	665
Final, 1-10-54 ⁴	611	635	---
Final, 2-7-54 ⁴	687	---	---
Gain to 12-27-53	145	149	134
Gain to 1-10-54	171	171	---
Gain to 2-7-54	247	---	---
Daily gain to selling	2.11	1.92	1.79
Average daily ration (lbs.) ⁵			
Ground yellow corn	10.25	9.09	10.45
Cottonseed meal	1.50	1.50	1.50
Alfalfa hay	0.98	0.99	0.99
Prairie hay	2.50	2.72	2.17
Feed per cwt. gain (lbs.)			
Ground yellow corn	484.5	473.1	584.3
Cottonseed meal	71.1	78.0	84.0
Alfalfa hay	46.6	51.5	55.2
Prairie hay	119.0	114.5	121.6
Financial (dollars)			
Feed cost per cwt gain ⁶	18.19	18.36	21.61
Initial cost ⁷	77.00	83.52	95.58
Feed cost per steer ⁶	44.93	31.41	28.96
Selling price per cwt.	21.00	21.13	22.00
Total value per steer	144.27	134.18	146.30
Return per steer ⁸	22.34	19.25	21.76
If steers of Lot 1 were sold on 12-27-53:			
Total value per steer ⁹	105.30	122.60	
Feed cost	26.87	19.40	
Return per steer ⁸	1.43	19.68	
If steers of Lot 1 were sold on 1-10-54:			
Total value per steer ¹⁰	122.20		
Feed cost	32.71		
Return per steer ⁸	12.49		

Table 5.—Continued.

	Lot 1 Not Creep-fed	Lot 2 Creep-fed	Lot 3 Creep-fed (molasses)
Carcass grade			
Low prime	1		
High choice	3		4
Average choice	3	4	3
Low choice		3	
Average dressing percentage	60.1	58.9	59.0
PROFIT SUMMARY, BOTH PHASES (dollars)			
Value per steer when sold	144.27	134.18	146.30
Feed cost	44.93	41.91	50.39
Return (value of steer minus feed cost)	99.34	92.27	95.91

¹ Weighed after an overnight shrink in dry lot.² The highest value per steer (as feeders) minus feed cost.³ Fed until the estimated average carcass grade for the lot was U. S. Choice.⁴ Weights were shrunk 3 percent.⁵ In addition to the feeds listed a mineral mixture composed of equal parts by weight of ground limestone, steamed bonemeal, and salt was fed free-choice.⁶ Based on the following feed prices: yellow corn, \$1.61 per bu.; cottonseed meal, \$66 per ton; alfalfa hay, \$30 per ton; prairie hay, \$20 per ton.⁷ Based on value as feeder steers.⁸ Weights were shrunk 3 percent. Value per steer when sold minus initial cost and feed cost.⁹ Based on appraised price of \$18.00 per cwt. for Lot 1 and \$20.00 for Lot 2.¹⁰ Based on appraised price of \$20.00 (feeders) per cwt for Lot 1. The appraised price for slaughter on this date was \$18.50 per cwt.

Table 6.—Creep-Feeding Beef Calves from Two-Year-Old Heifers, 1954. (135 days).

	Lot 1 Not Creep-fed		Lot 2 Creep-fed ¹	
Average feed per head (lbs.) ²				
Corn	---		370	
Oats	---		222	
Cottonseed meal	---		74	
Molasses	---		74	
Total	---		740	
	Steers	Heifers	Steers	Heifers
Number of calves	14	13	14	12
Average birth date, March	17	17	14	17
Average weight per calf (lbs.)				
Initial 6-7-54 ³	166	168	163	170
Final 10-20-54	298	315	423	405
Gain	132	147	260	235
Daily gain	0.98	1.09	1.93	1.74
Financial (dollars)				
Feed cost per head ⁴	----	----	21.38	21.38
Appraised price per cwt.				
Slaughter ⁵	10.00	10.00	15.00	16.50
Feeder	17.00	14.50	20.00	15.00
Value per calf ⁶				
Slaughter	28.91	30.56	61.54	64.81
Feeder	49.15	44.31	82.06	58.92
Value per calf minus				
If sold for slaughter	28.91	30.56	40.16	43.43
If sold as feeders	49.15	44.31	60.68	37.54

¹ Creep-feed was 50 percent cracked yellow corn, 30 percent whole oats, 10 percent cottonseed meal and 10 percent molasses.

² Steers and heifers were creep-fed together; thus, average consumption was used for both sexes.

³ The calves were allotted on 4-24-54 but since practically no feed was consumed until after the calves were reweighed on 6-7-54 the latter date was used for the initial weight.

⁴ Based on cost of \$.0289 per lb.

⁵ The calves which were not creep-fed were in such a condition that if purchased for slaughter they would most likely be boned and thus were appraised at only \$10 per cwt.

⁶ Weights were shrunk 3 percent.

Table 7.—Creep-Feeding Followed by Dry-Lot Fattening of Steer Calves, 1954.

	Lot 1 Not Creep-fed	Lot 2 Creep-fed
Number of steers ¹	10	12
CREEP-FEEDING PHASE (135 days)		
Average weight per calf (lbs.)	180	174
Initial 6-7-54	316	431
Final 10-20-54 ²	136	257
Gain	1.01	1.90
Daily gain		
Financial (dollars)		
Cost of feed	----	21.38
Value per steer ³		
Slaughter	31.60	64.65
Feeder	53.72	86.20
Value per steer minus feed cost		
If sold for slaughter	31.60	43.27
If sold as feeders	53.72	64.82
DRY-LOT FATTENING PHASE		
Number of days fed ⁴	153	97
Average weight per calf (lbs.) ²		
Initial 10-20-54	316	431
Final 1-25-55	516	650
Final 4-5-45	674	----
Gain to 1-25-55	200	219
Gain to 4-5-45	358	----
Daily gain to selling	2.14	2.26
Average daily ration (lbs.)		
Ground yellow corn	10.16	10.91
Cottonseed meal	1.50	1.50
Alfalfa hay	1.00	1.00
Prairie hay	3.59	2.58
Mineral	0.05	0.04
Feed per cwt. gain (lbs.)		
Ground yellow corn	473.8	483.2
Cottonseed meal	70.0	66.4
Alfalfa hay	46.6	44.3
Prairie hay	141.6	114.3
Financial (dollars)		
Feed cost per steer ⁵	69.02	41.84
Feed cost per cwt. gain	19.28	19.10
Initial cost ⁶	53.72	86.20
Selling price per cwt. ⁷	22.97	22.42
Total value per steer	154.82	145.73
Return per steer ⁸	32.08	17.69
If steers of Lot 2 were sold on 1-25-55:		
Total value per steer ⁹	99.33	
Feed cost	32.07	
Return per steer ⁸	13.54	

Table 7.—Continued.

	Lot 1 Not Creep-fed	Lot 2 Creep-fed
Carcass grade		
Average choice	4	1
Low choice	2	1
High good	2	7
Average good	2	3
Dressing percentage (%)	60.7	56.8
PROFIT SUMMARY, BOTH PHASES (dollars)		
Value per steer when sold	154.82	145.73
Feed cost	61.52	63.22
Return (value of steer minus feed cost)	85.80	82.51

¹ At weaning all of the 14 steer calves which were creep-fed were placed in the fattening test. One steer died and another was removed due to respiratory infection. Only 10 of the 14 non-creep-fed steers appeared to be desirable calves for full-feeding in dry-lot.

² Shrunken weight.

³ Based on appraised prices listed in Table 6.

⁴ Fed until the estimated average carcass grade for the lot was U. S. Choice.

⁵ Based on the following feed prices: Yellow corn, \$1.70 per bu.; cottonseed meal, \$78 per ton; alfalfa hay, \$30 per ton; prairie hay, \$20 per ton.

⁶ Based on value as feeders steers.

⁷ Calculated selling price based on carcass weight, carcass grade, and carcass value per cwt.

⁸ Value per steer when sold minus initial cost and feed cost.

⁹ Based on appraised price of \$19.25 per cwt. as feeders when steers of Lot 1 were sold.