

The result of successful creep-feeding. These calves were dropped in November, December and January, and were taught to eat during the winter. This picture, taken July 1, shows they have been eating regularly and well.

## Experiments in CREEP-FEEDING BEEF CALVES

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# Essential Points in Creep-feeding

## Selecting the Calves.

The calves must have quality and early maturity.

The calves should be early. The November, December, January, or February calf will prove the most satisfactory for creep feeding on Oklahoma farms.

## Management.

The calves should be taught to eat grain before they go to grass.

Close attention to details is absolutely necessary in creep-feeding. High quality feed must be available in the feeder at all times. Feed spoiled by rain must be removed promptly or the calves will scour and go off feed.

The early, well bred calf, that has been creep-fed, should go to market weighing approximately 700 pounds at about 10 months of age and will have consumed 20 to 25 bushels of corn.

## Location of Creep.

The creep should be located at the right place in a suitable pasture. The most suitable pasture will be one in which the cows have some common loafing place where the creep may be placed.

A good many pastures are not suitable for creep-feeding because they do not have a single watering or loafing place, hence many disappointments are to be had by those who try to creep-feed under poor conditions. Where possible, the keeping of calves in the barn or lots and turning the cows in at night and morning to allow the calves to nurse will prove to be a splendid method.

The creep and feeders need not be elaborate. The designs for a satisfactory unit are given in Oklahoma Extension Circular No. 345, "Creep Feeding Beef Calves," which may be obtained free from county agents or the Oklahoma A. and M. College upon request.

**Feeds.**

Shelled corn is the most satisfactory grain for creep-feeding. It feeds down well in the feeder, keeps well and is highly palatable. When the grass begins to dry up and the cows fall off in milk flow, one part of protein supplement like cottonseed meal should be added to each 8 to 10 parts of corn.

Whole oats can be used very successfully for calves intended for the breeding herd, but are not fattening enough to be used alone for calves intended to be sold at weaning time. A mixture of one-half ground corn and one-half whole oats is quite good and will feed down well in the feeder.

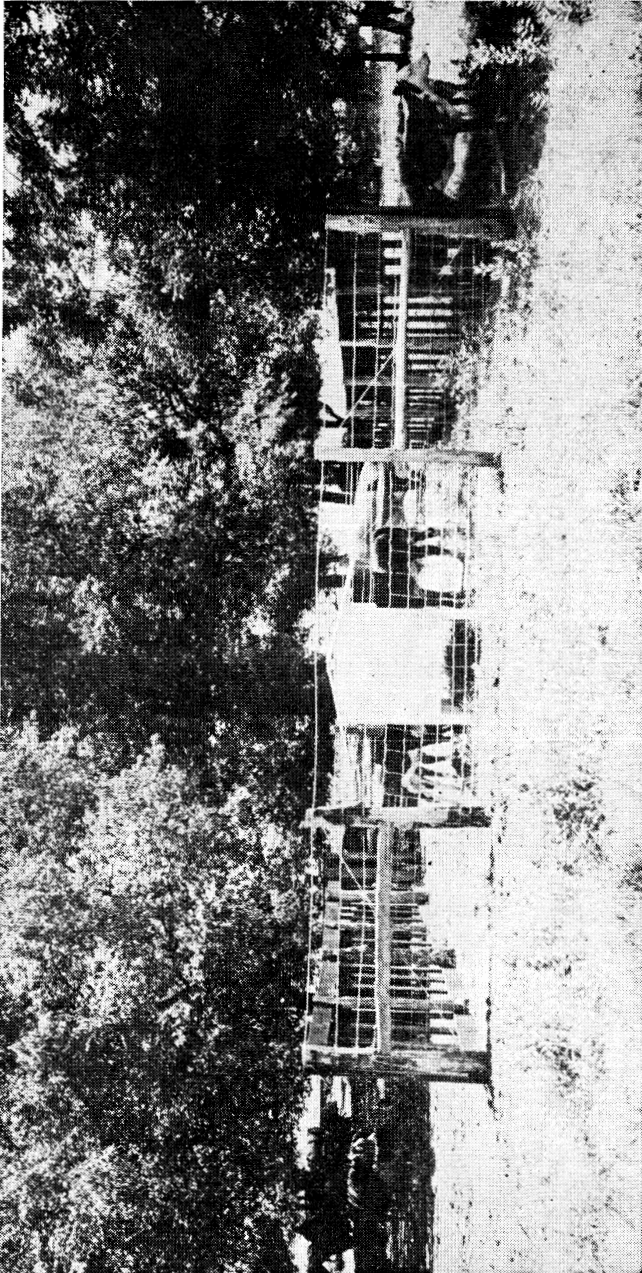
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On many Oklahoma farms the combination of early calves from a herd of good type beefy cows mated with a thick, early maturing bull, the use of winter pastures and creep feeding will prove to be a very profitable and satisfactory enterprise.

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**An ideal location for the creep, at the place where the cows gather to loaf.**

# EXPERIMENTS IN CREEP-FEEDING

## BEEF CALVES

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Feeding grain to well bred beef calves before weaning, so as to have the calves fat enough to sell for beef at weaning time or within 30 days thereafter, has been an attractive method to which many producers have turned.

Oklahoma's favorable climate of fers almost year-long pasture. Availability of sorghums for silage makes the winter feed problem of minimum concern and the opportunity to have the calves dropped early (December, January, and February) very attractive.

The market trend, in normal times, toward choice, well finished, light weight cattle, and the more efficient utilization of feed by young cattle, have led many Oklahoma producers to maintain breeding herds and fatten the calves on the farm where they were produced. This has proved especially workable for farms or ranches producing at least some

grain and considerable pasture and rough feed.

To secure information on methods of creep-feeding, and suitable feeds, several trials have been conducted by the Oklahoma Agricultural Experiment Station. Specific problems investigated included:

1. The practicability of creep-feeding March, April, and May calves.
2. The possibility of making more profit from heifer calves by creep-feeding them.
3. The practicability and worth of the free-choice method of dry-lot fattening of creep-fed steer calves.

Results of the first group of tests are summarized below. Results of "2" and "3" are presented in detail on pages 7 ff. and 9 ff., respectively.

### FINDINGS OF PREVIOUS INVESTIGATIONS

Earlier trials with creep-feeding at the Oklahoma Agricultural Experiment Station,\* showed that:

- "1. Although March, April, and May calves will be 35 to 50 pounds heavier and somewhat fatter than non-creep-fed calves by weaning time, they are still quite light to sell as slaughter calves.
- "2. Creep-feeding is not to be recommended for March, April, and May calves that are to be full fed on grain for five months or more after weaning. The extra finish acquired will result in the calves making slower and more expensive

gains during the finishing period.

- "3. The creep-feeding of well bred spring calves will produce heavier and fatter calves at weaning time which will shrink less in weaning and go on feed quicker. These advantages are attractive to some producers of feeder calves whereas other producers find their customers reluctant to take the heavier fatter calves at the same price per pound.
- "4. The creep-fed calves could have been sold from 30 to 40 days earlier than the noncreep-fed calves."

\* Taylor, Bruce R., O. S. Willham and L. E. Hawkins, *Creep Feeding and Finishing Beef Calves*. Okla. Agri. Exp. Sta. Bulletin 235. (May, 1938.)

*Table I.—Summary of Four Experiments;  
Creep-fed vs. Noncreep-fed Calves.*

(Creep-feeding phase—1933, 1934, 1935, and 1936.)

Year	Grain consumed in creep feeder	Additional weight credited to creep	Increase in selling price necessary to cover cost of feed
1933	96 lbs. corn 224 lbs. oats	39 lbs.	\$0.40 per cwt.
1934	68 lbs. corn 243 lbs. oats	30 lbs.	\$0.83 per cwt.
1935	154 lbs. oats	35 lbs.	None
1936	212 lbs. corn 210 lbs. oats	48 lbs.	\$1.00 per cwt.

The financial phase of these Oklahoma experiments is summarized in Table I.

Experiments carried on at the Sni-A-Bar Farms,\* Grain Valley, Missouri, under the supervision of the University of Missouri and the United States Department of Agriculture have shown that early, well bred calves fed grain while suckling their dams were heavier, sold higher and returned more profit than similar calves not creep-fed. The creep-fed calves were approximately 100 pounds heavier and sold for \$2.00 per hundredweight more at weaning time. However, when both lots of calves were carried on and fed for 196 days following weaning, the noncreep-fed calves made faster and more economical gains and more profit. This work emphasizes that the calves should be dropped early in order that they may get fat enough and heavy enough to sell at or near weaning time if the full advantage of creep-feeding is to be realized.

McComas and Wilson\*\* conducted a three-year experiment at the West Virginia Agricultural Experiment Station in which they compared creep-fed and noncreep-fed calves

of February, March, and April calving. The creep-fed calves were fat enough to be classed as slaughter cattle when weaned and were marketed at an average age of 230 days, weighing 549 pounds. The noncreep-fed calves out of similar cows and from similar pastures were classed as feeders when weaned at 226 days of age, weighing 514 pounds. Returns per head were in favor of the noncreep-fed group at weaning time; but after finishing the noncreep-fed group in dry-lot, their average return was \$0.88 per head less than the return made by the creep-fed group which was sold at weaning time.

The conclusions from older experiments with creep-feeding are summarized by Snapp,† who says: "If calves are to be sold at weaning time or after a comparatively short feed in dry-lot, grain feeding during the suckling period is highly essential in producing a satisfactory market finish. However, if the calves are to be marketed in late spring or summer, creep-feeding is not to be recommended as the extra flesh so acquired will result in slower and costlier gains during the long feeding period."

\* Black, W. H., and E. A. Trowbridge, *Beef From Calves Fed Grain Before and After Weaning*. U. S. D. A. Tech. Bul. 208. (1930.)

\*\* McComas, E. W., and C. V. Wilson, *Relative Merits of Producing Creep-fed Feeder and Lot-fattened Calves in the Appalachian Region*. U. S. D. A. Tech. Bul. 664. (1938.)

† Snapp, R. R., *Beef Cattle*, p. 401. (New York; John Wiley & Sons; 1930.)

## RECENT OKLAHOMA CREEP-FEEDING TESTS

## CREEP-FEEDING HEIFER CALVES

That heifer calves usually sell from one to two dollars per hundred-weight lower than steer calves of the same weight, quality, and breeding is a well-known and accepted fact in the marketing of feeder calves. Furthermore, some buyers of feeder calves who make a practice of contracting calves early in the season will not bid on the heifer end of the crop. This condition prompted a two-year study of the possibility of securing more profit from heifer calves by creep-feeding them. The calves used were February, March, and April calves comparable in age, quality, and breeding to many of the feeder calves produced in Oklahoma.

Each year the cows and calves of

the experimental grade herd of approximately twenty high-grade Hereford cows were divided into two groups on the basis of the sex of the calf. The two groups were then grazed in adjoining pastures having similar water, shade, and grass. The heifer calves had access to grain in a self-feeder placed in a creep, whereas the steer calves received no grain while nursing. The second season, the heifers were full-fed in a dry lot for 48 days after weaning.

Results of the creep-feeding phase of the test are shown in Table II, and of the dry-lot phase in Table III. From these data it may be noted that:



Type, thickness, and early maturity are highly essential in the sire of creep-fed calves.

**Table II.—Comparison of Creep-fed Heifer Calves vs. Non-creep-fed Steers at Weaning After 141 Days on Pasture.**

(Average of 2 years, 1938-1940.)

	Noncreep-fed steer calves	Creep-fed heifer calves
Number of calves per lot	9	10
Average birth date of calves	March 8	March 10
Average initial weight (lbs.)	213	204
Average weaning-day weight (lbs.)	435	474
Average gain per calf (lbs.)	222	270
Total feed consumed per heifer	None	5.23 bu. corn 13 lbs. bran
Feed cost per calf	None	\$ 3.67
Cow cost per calf	\$18.00	\$18.00
Cow cost plus feed cost to produce calf	\$18.00	\$21.67
Appraisal price per cwt.*	\$ 8.90	\$ 9.15
Value per head at weaning time	\$38.72	\$43.37
Return per calf over cow cost plus feed cost if both steer and heifer calves had been sold at weaning time	\$20.72	\$21.70

\* Oklahoma City basis, less 35 cents per hundredweight to cover shrink, trucking, and selling.

1. The creep-fed heifers were 9 pounds lighter in June and 39 pounds heavier in October than the noncreep-fed steer calves.

2. The creep-fed heifer calves were appraised at weaning time at \$0.25 per hundredweight, or approximately \$4.50 per head, more than

noncreep-fed steer mates. Average feed cost was \$3.67, giving the heifers an advantage of about \$1.00 per head in net return at weaning time.

3. Creep-feeding the heifer end of a March, April, and May calf crop from a high grade herd resulted in the heifers being classed as slaugh-

**Table III.—Results of Full Feeding Creep-fed Heifers in a Dry Lot Following Weaning.**

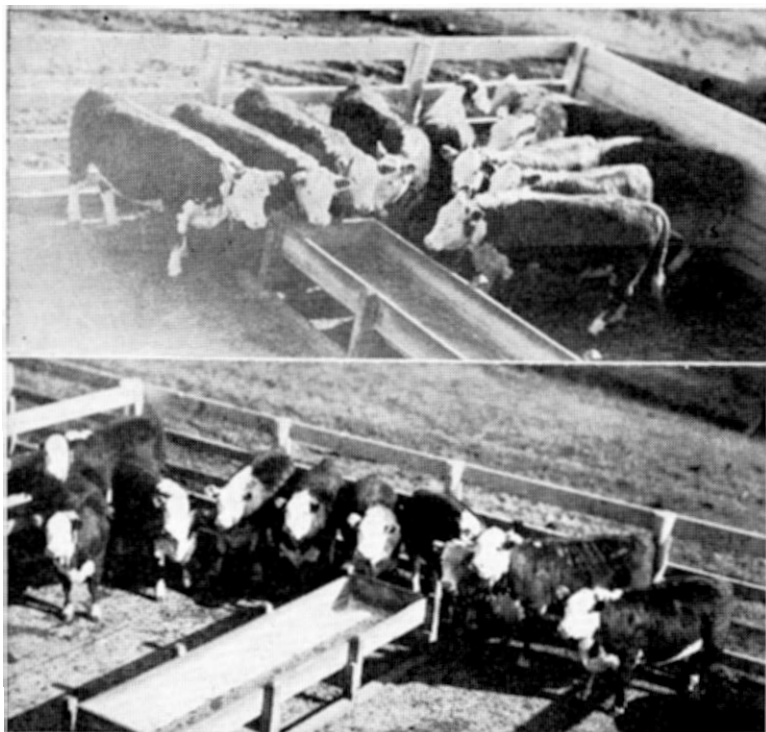
(October 29 to December 17, 1940—48 days.)

Average gain	103 lbs.
Average daily gain	2.15 lbs.
Final weight	603 lbs.
Total feed consumed per heifer	
Ground shelled corn	9.30 bu.
Soybean pellets	93 lbs.
Silage	305 lbs.
Ground limestone	4.7 lbs.
Feed cost per heifer	\$ 7.35
Total feed cost per heifer*	\$12.83
Total cost of producing heifer calf	\$30.83
Appraised price per cwt.**	\$10.00
Final value per head	\$60.30
Return per head over cow cost plus total feed cost	\$29.47

\* Creep-feeding cost plus dry-lot feeding cost.

\*\* Oklahoma City basis, less 35 cents per hundredweight to cover shrink, trucking, and selling.





**Creep-feeding has possibilities for profitable handling of the heifer end of the calf crop. The upper picture shows creep-fed heifer calves after 48 days in dry lot and weighing an average of 603 pounds. The steer calves in the lower picture were not creep fed. After 166 days in dry lot they weighed an average of 780 pounds.**

ter calves at weaning time each year. However, a 48-day dry-lot feeding period following weaning added 103 pounds of weight and proved profitable under the condi-

tions of this experiment.

4. The creep-fed heifer calves weighed 603 pounds at 282 days of age after consuming 15 bushels of corn.

#### THE FREE-CHOICE METHOD OF FEEDING BEEF CALVES

The object of this study was to answer these questions:

1. Does the free-choice method of fattening beef calves in dry lot have any advantages in the economical production of weight gains?

2. Will beef calves balance their ration satisfactorily in the free-choice system?
3. What effect do such factors as previous treatment and stage of feeding period have on the calves' selection of the different feeds?

## 4. Which of the feeds used are the most palatable to the calves?

The calves used for this experiment were those used in the experiments in finishing creep-fed and noncreep-fed calves during the years 1934-36 and 1939. Mixed

steers and heifers were used in the different lots in all years except 1938-39, when only steer calves were used.

Shelled corn, whole oats, and 43 percent cottonseed cake were provided free-choice to:

Table IV.—Rations Selected by Beef Calves Fed Free-choice in Dry Lot.

	Lot I	Lot II	Lot III	Lot IV	Lot V	Lot VI	Lot VII	Av. of all lots
Year	1934	1934	1935	1935	1936	1936	1939	1934-39
No. calves per lot	7	9	8	8	11	11	9	9
No. days fed	149	149	182	182	173	173	163	167
Previous treatment:								
Creep-fed during summer	no	yes	no	yes	no	yes	no	-----
Hand-feeding period	56 days	56 days	none	none	4 days	none	57 days	-----
Av. initial weight (lbs.)	438	477	334	364	398	418	354	398
Av. daily gain (lbs.)	2.7	1.95	2.25	2.27	2.10	1.99	2.18	2.11
Av. daily ration (lbs.):								
Shelled corn	1.69	2.36	7.15	6.22	7.30	8.02	5.19	5.42
Oats (whole)	7.22	7.23	4.27	5.32	4.94	4.69	2.81	4.35
43% cottonseed cake	1.46	.94	1.08	1.57	1.22	.58	2.05	1.27
Prairie hay	1.18	1.41	.75	.84	1.28	1.15	.90	1.07
Alfalfa hay	.95	.92	1.36	1.37	.83	.79	2.00	1.17
Silage	3.21	3.15	---	---	---	---	---	---
Nutritive ratio*	1:5.24	1:5.93	1:6.38	1:5.74	1:6.44	1:7.51	1:4.79	1:6.00
Nutritive ratio recommended**	6.6-7.1	6.6-7.1	6.6-7.1	6.6-7.1	6.6-7.1	6.6-7.1	6.6-7.1	6.6-7.1
Feed required per 100 lbs. gain (lbs.):								
Concentrates	501	540	555	578	641	668	461	523
Hay	103	119	94	97	100	97	133	106
Silage	155	162	---	---	---	---	---	---

\*Calculated from Morrison, *Feeds and Feeding*, Table I. (20th edition.)

\*\* From Morrison, *Feeds and Feeding*, Table III. (20th edition.)

- (1) Calves that had never tasted grain.
- (2) Calves that had been creep-fed.
- (3) Calves that had been brought to a full feed by hand feeding for 56 days.

The concentrates were placed in different compartments of the same self-feeder. Prairie hay was kept before the cattle at all times. Alfalfa hay was fed once a day in all experiments except the 1933-34 trial, when the prairie hay was supplemented with silage the first 90 days and alfalfa hay the last 60 days.

### Results

The rations selected by the different lots of calves are shown in Table IV, from which the following observations are made:

1. The average daily gain per calf of the different lots was satisfactory. It is extremely close to the 2.01-pound average daily gain made by all other calves fed experimentally at this station during the past ten years.

2. The feed required to produce 100 pounds of gain was fairly satisfactory but was slightly higher than the 488-pound average concentrate requirement in other experimental feeding.

3. Shelled corn proved to be more palatable than either whole oats or 43 percent cottonseed cake in three out of the four years covered by the trial. In 1934 however, whole oats was decidedly more palatable than shelled corn.

4. The average ration for the different lots indicates a tendency of the calves to consume slightly more 43 percent cottonseed cake than was necessary to balance their respective rations according to Morrison's feeding standard (Table II, 20th edition).

5. A comparison of Lots I, III, and V, with Lots II, IV, and VI, respectively, indicates that calves that had never tasted grain had almost the same appetite for corn and oats as calves that had been creep-fed on oats or mixtures of corn and oats.

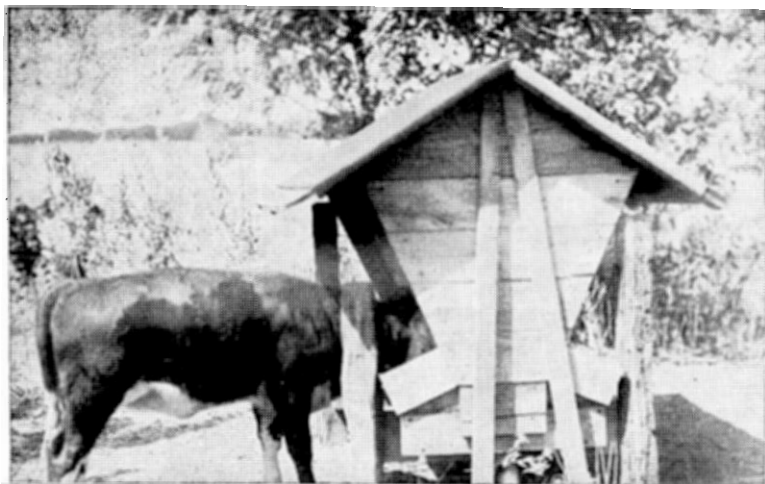
Table V shows rations selected by hand-fed calves after being changed to the self-feeder. It indicates that such calves change quickly to a ration including a large proportion of the more palatable grain when they are allowed both grains free-choice.

Comparison of rations by 28-day periods (Table VI) showed that the calves were most erratic in the consumption of cottonseed cake. A short period of heavy consumption

Table V.—Rations Selected by Calves Allowed Free Choice of Feeds After Being Hand-fed for Eight Weeks.

Year	LOT I-A* 1934		LOT II-A* 1934		LOT VII-A* 1939	
	7		9		9	
No. of calves per lot	7		9		9	
Method of feeding	Hand-fed	Free-choice	Hand-fed	Free-choice	Hand-fed	Free-choice
No. days fed	56	93	56	93	57	106
Average daily ration (lbs.):						
Shelled corn	2.60	1.14	2.83	2.08	2.23	6.78
Oats (whole)	2.60	10.00	2.81	9.89	2.23	3.12
43% cottonseed cake	1.28	1.58	1.36	.69	1.78	2.20

\* Lots I-A, II-A, and VII-A correspond to Lots I, II, and VII, respectively, of Table IV.



The creep-feeder need not be elaborate. This one, however, should have wider eaves and wider ends, to protect the feed from rain. The feeder shown in the cover picture is satisfactory in every way.

would usually be followed by extremely light consumption for several days to a week or more. (In 1936, Lot VI went for a period of 46 days with practically no consumption of cottonseed cake.)

The corn used in 1939 was No. 1 yellow, weighing 55 pounds per bushel. The oats graded No. 4 with

a test weight of 25.5 pounds per bushel. Considering these facts, the calves showed a surprisingly large and steady appetite for the oats in selecting .54 pound of oats to each pound of corn.

Individual calves within lots scoured occasionally. A condition of "looseness" was rather common for the entire lot.

Table VI.—Variation in Average Daily Rations Selected by Steers Fed Free Choice.\*

	First 28 days	Second 28 days	Third 28 days	Fourth 28 days	Fifth 28 days	Sixth 22 days	Average of 163 days
	Hand- fed	Hand- fed	Free- choice	Free- choice	Free- choice	Free- choice	
Av. daily ration (lbs.):							
Shelled corn	1.25	3.24	5.39	7.77	6.46	7.74	5.19
Oats (whole)	1.25	3.24	2.56	2.95	3.24	3.90	2.81
43% cottonseed cake (pebble)	1.57	2.00	3.34	1.46	2.19	1.69	2.05
Prairie hay	2.31	1.64	1.21	---	---	---	.90
Alfalfa hay	1.86	2.00	2.00	2.00	2.00	2.18	2.00

\* Lot VII, Table IV.

### *Conclusions*

1. The seven lots of calves fed by the free-choice system demonstrated considerable ability to select rations that produced fairly economical weight gains at a satisfactory rate. Yet the study reveals no advantage for the system except a small saving in labor.
2. Beef calves will apparently select shelled corn, whole oats, and 43% cottonseed cake in such proportions that the average ration for the entire feeding period closely approaches the standard recommended (Table IV). However, there will probably be wide variations from a balanced ration for short periods of time.
3. The relative consumption of shelled corn and whole oats is determined to a greater extent by the quality of the actual grains offered the calves than by differences in the previous treatment of the calves, the stage of the feeding period, or the differences between average samples of the two grains.
4. Shelled corn proved more palatable than whole oats in three out of four years, although in 1934 oats was decidedly more palatable to both the lots.
5. The consumption of both shelled corn and whole oats was greater than that of 43% cottonseed cake. However, for certain 28-day periods the consumption of cottonseed cake exceeded that of oats, and for a 93-day period in 1934 it exceeded that of shelled corn.
6. This experiment demonstrates that calves which have never tasted grain may be weaned, placed in a dry lot, and given access to prairie hay, shelled corn, whole oats, and 43% cottonseed cake without disastrous results. The calves scoured for a short time, but this was apparently not serious as two lots handled this way made satisfactory gains for long periods of time. (Lots III and V of Table IV). The Experiment Station still recommends, however, that best results will usually be secured when approximately 56 days are taken to advance the calves to a full feed of grain. This recommendation is especially true when heavier type grains like corn, wheat, barley, or grain sorghums make up the major part of the grain ration.

### **SUMMARY OF OKLAHOMA CREEP-FEEDING TESTS**

1. The creep-feeding of high quality beef calves of March, April, and May calving has produced 35 to 50 pounds extra weight, but the calves have been rather light and sometimes lacking in finish to sell as slaughter calves.
2. Creep-feeding has not proved beneficial for March, April, and May calves that are to be full-fed on grain for five months or more after weaning. The extra finish acquired has resulted in the creep-fed calves making slower and more expensive gains during the finishing period.
3. Creep-feeding the heifer end of a March, April, and May calf crop from high grade beef cows resulted in the heifers being classed as slaughter calves at weaning time each year.
4. The creep-fed heifers returned \$0.25 per hundredweight more than noncreep-fed steer mates, and were heavier. With feed cost deducted, they returned about \$1.00 more per head than the steers at weaning time, when the heifers were sold for slaughter and the steers as feeder calves.

5. A 48-day dry-lot feeding period following weaning has added 103 pounds of weight and has proved profitable in the marketing of creep-fed heifers.
6. In the free-choice method of feeding, beef calves will apparently select shelled corn, whole oats, and 43% cottonseed cake in

such proportions that the average ration for the entire feeding period closely approaches the standard recommended (Table IV.) However, there will probably be wide variations from a balanced ration from day to day and a study of the system reveals too few advantages to justify its recommendation.



