

TEXAS AGRICULTURAL EXPERIMENT STATION.

BULLETIN NO. 110. *OK*

SEPT., 1908.

Steer Feeding Experiments

By

JOHN C. BURNS.

Department of Animal Husbandry.



Post Office.

COLLEGE STATION, BRAZOS COUNTY, TEXAS.

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NOTE.—The main station is located on the grounds of the Agricultural and Mechanical College, in Brazos County. The postoffice address is College Station, Texas. Reports and bulletins are sent free upon application to the Director.

- I. KAFFIR CORN, MILO MAIZE AND MOLASSES COMPARED WITH INDIAN CORN FOR FATTENING CATTLE.
- II. COTTON SEED COMPARED WITH COTTON SEED MEAL AS A SUPPLEMENT TO KAFFIR CORN FOR FATTENING CATTLE.

By John C. Burns.

The experiments reported in this bulletin are in line with and in many respects duplicates of those reported in bulletin No. 97 of this Station last year. They were conducted, therefore, chiefly for the purpose of determining further the value of kaffir corn, milo maize, molasses, and cottonseed for fattening cattle. So, while in most respects similar to those of last year, they differ in some important points that should be of special interest both to the feeder and the breeder. Chief among these are the longer feeding periods of the experiments reported herein and the difference in the ages of the cattle used. It is of value to know that while the experiments conducted last year were with matured cattle—three and four year old steers—those of this year were with two year old steers.

The digestion trials with kaffir corn and milo maize conducted last year and reported in bulletin No. 97 were not repeated this year.

IMPORTANCE OF DETERMINING THE TRUE FEEDING VALUES OF KAFFIR CORN, MILO MAIZE, BLACK STRAP MOLASSES, AND COTTON SEED.

In justice to both the producer and the feeder of these products of the farm and mill, their true feeding values should be known. Since cattle feeding operations in Texas began, the by-products of the manufacture of cotton seed oil, viz., cottonseed meal and hulls, have been the chief feedstuffs used. Each year the prices of these by-products have increased until at the present time the margin of profit between the cost of placing a finished steer on the market and the price received for him, is so small as to offer very little encouragement to anyone to enter the feeding business where these products alone are to be depended upon. Again, it is a fact that steers fed on cottonseed meal and hulls have seldom brought the high prices of corn-fed steers. This is due to the unfinished condition in which cattle fed on meal and hulls usually reach the market, and this fact may as well be attributed to the nature of the feedstuffs as to too short periods of feeding. Cottonseed meal and hulls do not make the balanced ration for fattening that even corn alone does, provided, of course, the latter be fed with roughage of some kind. Corn contains a very large percentage of starch—the constituent in a feedingstuff that makes it valuable as a fat producer. Cottonseed meal contains only a very small percentage of starch but a large percentage of protein—the constituent in a feedstuff that makes it valuable principally as a muscle builder. It would seem and is, therefore, better as a feed for growing animals than it is for fattening or finishing purposes, although, as every feeder who has had experience with it, knows, it possesses merits along this line also. Corn-fed cattle, therefore, usually reach the market in a fatter and more highly finished condition than meal and hulls fed cattle.

Why do not Texas feeders put more corn-fed cattle on the market?

It is because corn is seldom produced in such abundance in this State as to place the price within reach of the cattle feeder. Thousands of bushels are shipped each year from Oklahoma and Kansas, where corn is produced in much greater abundance and is, therefore, cheaper to the cattle feeder of the sections where it is raised. The freight rates make this same corn too high for cattle feeding in Texas, and as long as such conditions exist, with no higher prices paid for cattle on the market, the Texas feeder cannot be expected to produce corn-finished cattle.

The salvation for the cattle feeder would seem to be, therefore, the production of a greater abundance of corn in Texas. No man gets so much out of his land and his cattle as he who raises his own feed and fattens his own cattle, for he sells his feedstuffs for a higher price in the highly concentrated form of livestock and at the same time he restores the fertility of his land.

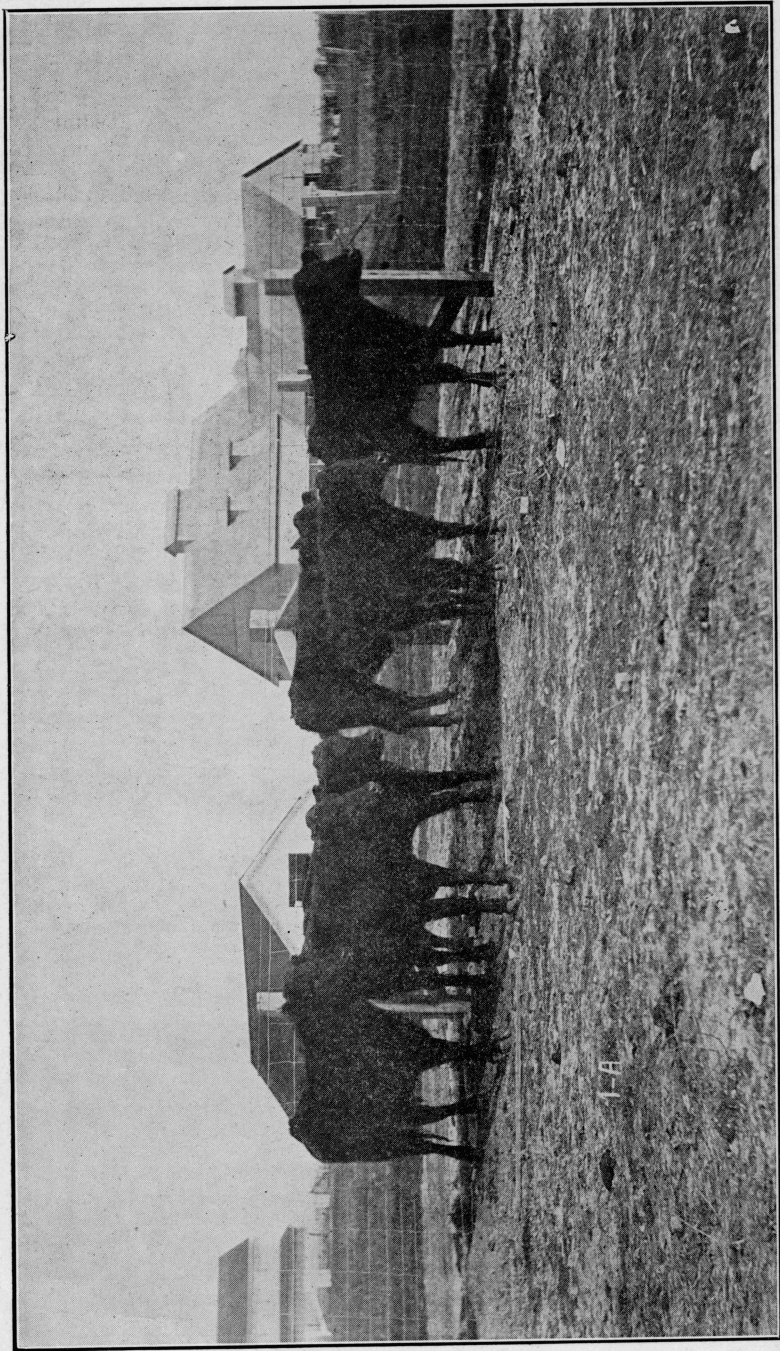
As was stated above, the property of corn that makes it so valuable as a fat producer is its large content of starch. Feed materials, therefore, similar to it in composition and digestibility are more or less fat producers

and serve the same purpose as corn. It is well known that corn cannot be produced satisfactorily and in abundance in all sections of this great State, but there are other feeds of similar character that can be produced in abundance to take its place. Chief among these feeds are kaffir corn, milo maize, and molasses. The feeding value of Indian corn is well known and since these feeds come in competition with it, their true feeding values should be known in justice to both the man who produces them and the man who feeds them. Indian corn was, therefore, used in these experiments as a basis of comparison with kaffir corn, milo maize, and molasses.

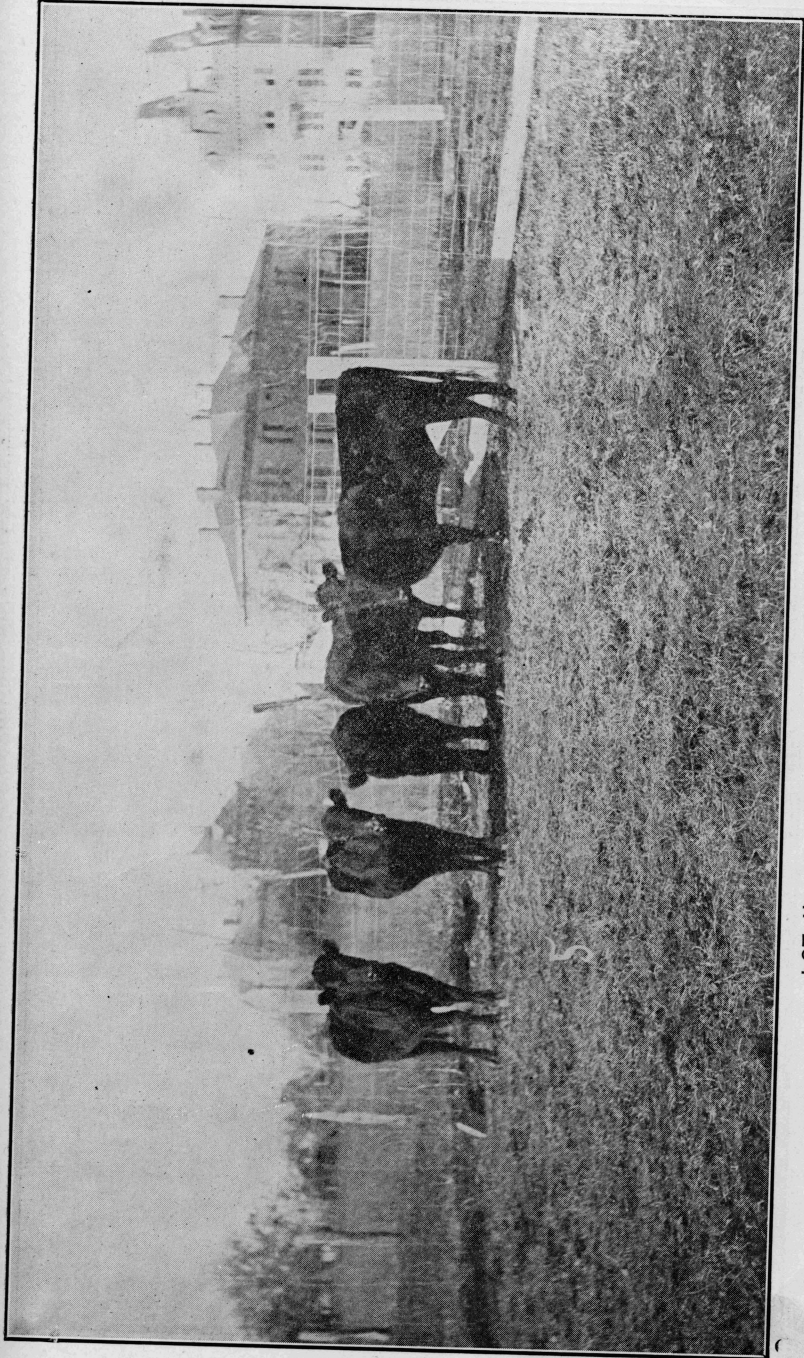
While the feeding value of molasses for cattle had been practically determined in previous experiments made by this station, it was thought that further evidence would be of value.

Cottonseed, though to some extent familiar as a feed to nearly all cotton farmers who keep a few head of cattle, has never been used extensively in fattening cattle for the market. As has been said, the meal which is a product of the seed is more generally used. The seed contain all the constituents that make the meal valuable as a feed, the principal being protein and, in addition, a very large percentage of oil. Some of this oil when taken into the animal body is converted into animal fat; but if the seed be fed in too large quantities, the oil seems to have a purging effect and causes scours. The question arises, however, as to whether or not there are certain years when the relation between the price of seed and that of meal is such that it would be more profitable to the feeder to feed cottonseed than cottonseed meal. Can it be fed in such quantities and combined with other feeds in such a way as to make a more economical ration for fattening cattle than cottonseed meal?

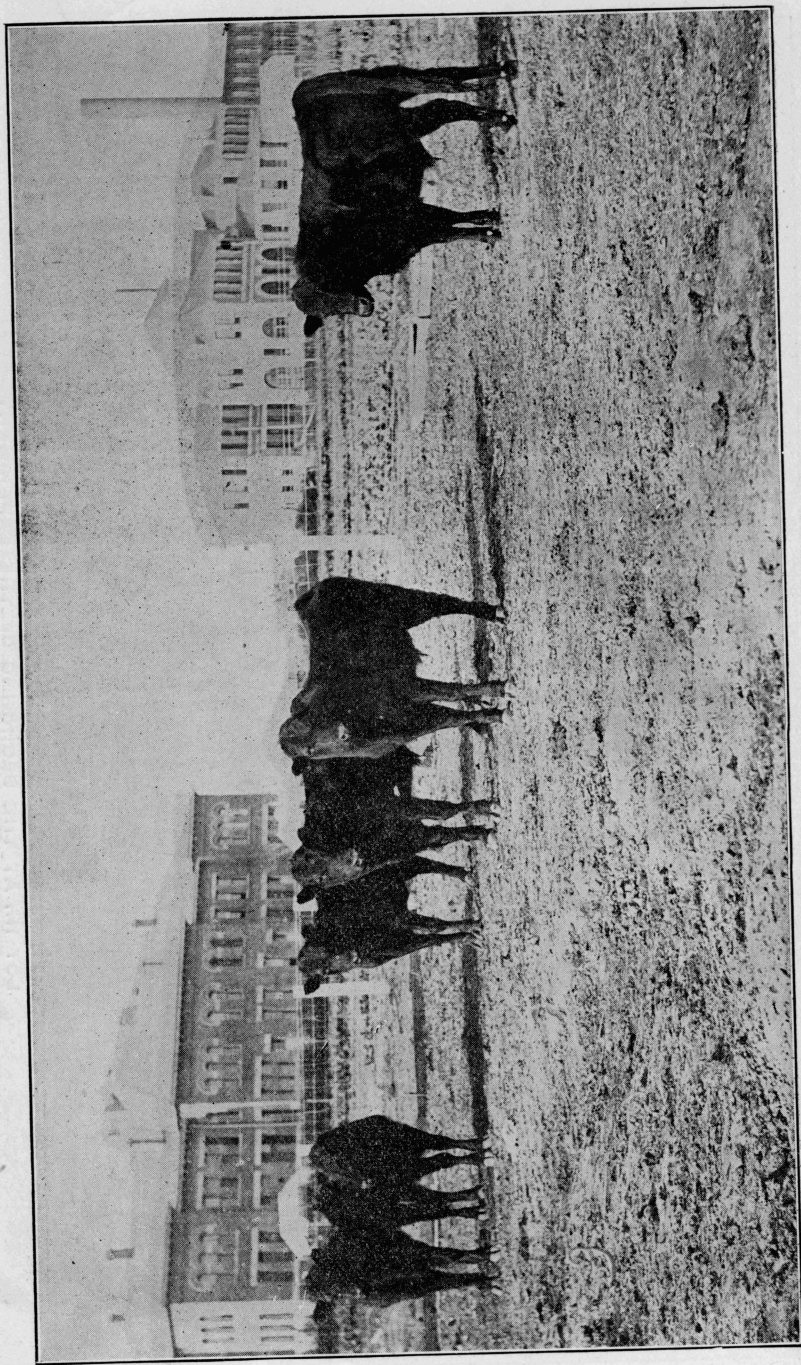
In an experiment conducted by this station at Clarendon, Texas, last year and reported in bulletin No. 97, it was found that cottonseed at twelve dollars a ton was more profitable for supplementing a kaffir corn ration than cottonseed meal at twenty-six dollars a ton. And so the experiment reported in this bulletin was conducted to gain further information on this point.



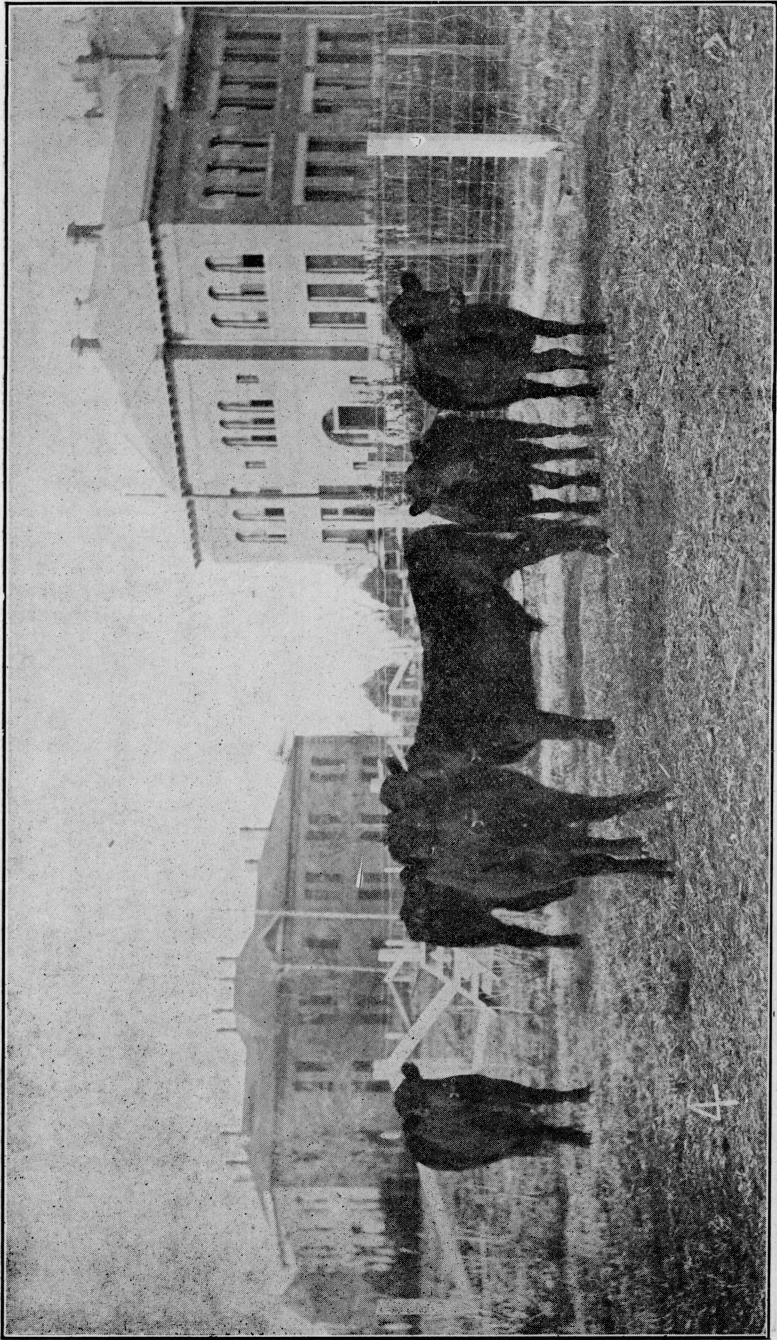
LOT 1., AT THE BEGINNING OF THE EXPERIMENT.



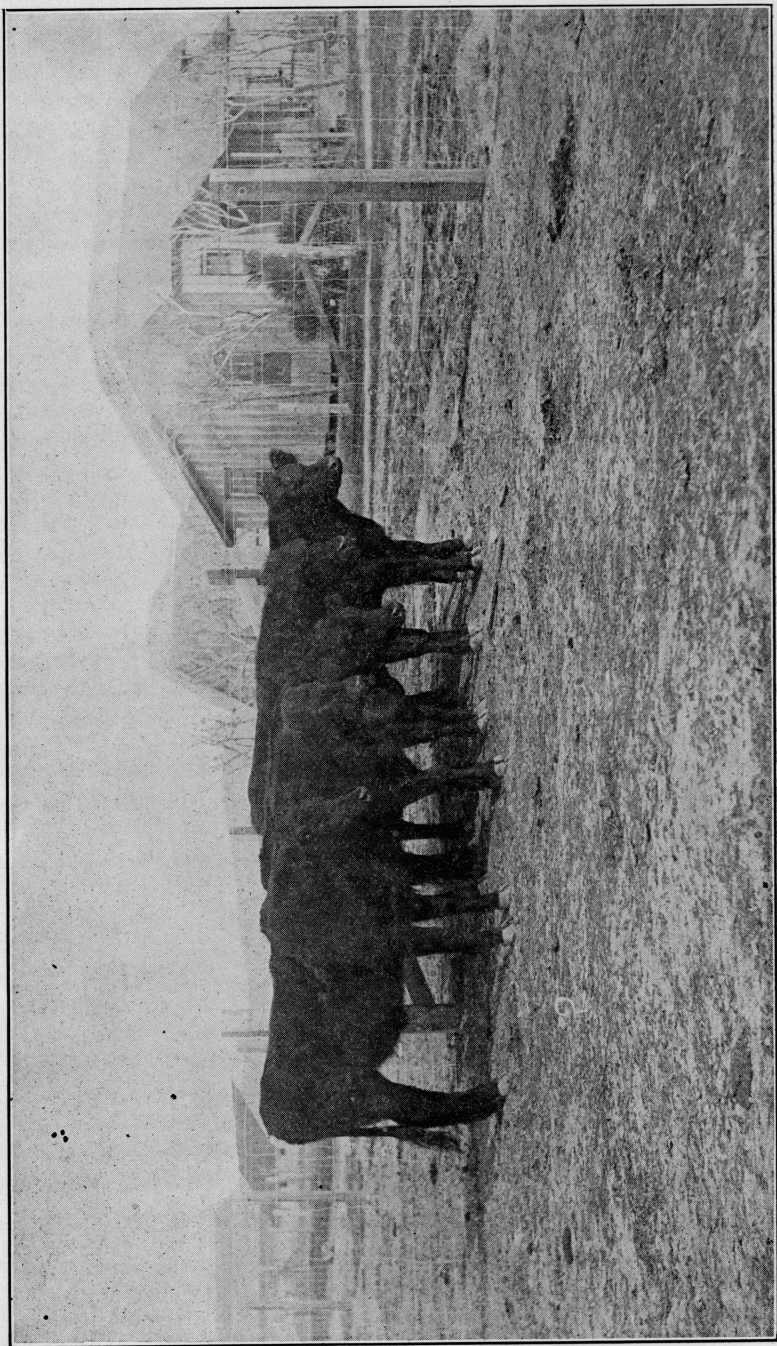
LOT II., AT THE BEGINNING OF THE EXPERIMENT.



LOT III., AT THE BEGINNING OF THE EXPERIMENT.



LOT IV., AT THE BEGINNING OF THE EXPERIMENT.



LOT V., AT THE BEGINNING OF THE EXPERIMENT.

EXPERIMENT.

Cattle.—The cattle used in the experiment were 30 head of range bred, high grade, two year old Aberdeen-Angus steers purchased of Mr. Dick Sellman, Rochelle, McCulloch County, Texas. They were the tops of a bunch of about two hundred head, possessing good quality, and were fairly uniform in appearance throughout, bearing evidence in breeding from at least three to four crosses of pure bred bulls. Shipped directly off the range, they arrived at College Station on October 14, 1907, after being in transit sixty-three hours. Immediately upon arrival and before being watered or fed, they were weighed, and the average weight was found to be 657 pounds. A week later on what could not be considered more than a fill from the time they arrived, the average weight was 742 pounds; this gives an idea of the enormous shrinkage incurred in shipping.

Owing to delay in securing some of the necessary feedstuffs, the experiment proper was not started until some weeks later.

The steers, though no gentler than the average of range steers, soon ate readily the cottonseed meal and hulls placed before them. Their first feed was on the evening of their arrival, and consisted of 15 pounds of cottonseed meal and 30 pounds of cottonseed hulls for the whole bunch. This amount was gradually increased until each steer was eating three pounds of meal and 15 pounds of hulls daily. They were also given access to a good bermuda grass pasture of fourteen or fifteen acres. It was not the desire to push them before the experiment proper began, nor, in fact to do more than get them to eating well; and for these reasons the meal was never raised above three pounds a head daily, although in the 15 pounds of hulls, each steer was receiving about all he would eat of this feed. They were handled in this manner until December 20th, when, everything having been gotten in readiness for the experiment proper, they were divided into five lots, six in each lot. To this date the 30 head had consumed 2196 pounds of meal and 8577 pounds of hulls.

Plan of Experiment.—When the steers were divided, the lots were designated by numbers I, II, III, IV and V, and were thereafter to be fed as follows:

Lot I. Indian corn, cottonseed meal and hulls.

Lot II. Kaffir corn, cottonseed meal and hulls.

Lot III. Milo maize, cottonseed meal and hulls.

Lot IV. Molasses, Indian corn, cottonseed meal and hulls.

Lot V. Kaffir corn, cottonseed and hulls.

It will be noted that cottonseed meal and hulls formed the basal ration for lots I, II, III and IV, in the comparison of Indian corn, kaffir corn, milo maize and molasses; and kaffir corn and cottonseed hulls formed the basal ration for lots II and V, in the comparison of cottonseed meal and cottonseed.

The pens in which the cattle were fed from the time they were divided until the end of the experiment were about 150x270 feet. All were well drained and at no time during the experiment became very muddy. A shed open on the south side in each pen, served as a shelter against rain and

cold north winds. Each pen was supplied with good clear well water; and rock salt was kept in one corner of the feed troughs.

Thus the conditions under which the cattle were fed were as nearly equal for all the lots as it was possible to make them.

Messrs. W. G. North, Cuero, Texas, and R. W. Faust, Comfort, Texas, did the feeding and used the experiment as a subject for their graduating theses. Feed was supplied twice daily—in the morning and in the evening—special attention being given to regularity.

Feeds Used.—The feedstuffs used in the experiment were all pure and of good quality. The kaffir corn and milo maize consisted of the threshed grain ground into chops. Care was taken to have the Indian corn ground into chops to the same degree of fineness as the kaffir corn and milo maize, in order to eliminate any difference in the results of feeding that might occur from having one grain ground coarser or finer than another.

Preliminary.—It being desirable to have all the steers of each lot eating well of their respective rations before the experiment proper began, it was necessary to conduct a preliminary for several days. This began on December 21st, when each lot started off on the following daily ration:

Lot I. 18 pounds Indian corn, 18 pounds cottonseed meal and 90 pounds cottonseed hulls.

Lot II. 18 pounds kaffir corn, 18 pounds cottonseed meal and 90 pounds cottonseed hulls.

Lot III. 18 pounds milo maize, 18 pounds cottonseed meal and 90 pounds cottonseed hulls.

Lot IV. 6 pounds molasses, 18 pounds Indian corn, 18 pounds cottonseed meal, 90 pounds cottonseed hulls.

Lot V. 18 pounds kaffir corn, 12 pounds cottonseed, 12 pounds cottonseed meal, 90 pounds cottonseed hulls.

Some difficulty was experienced in getting some of the lots on full feed as rapidly as the others, and so the preliminary feeding was continued until the morning of January 12th, 1908, longer than it was first intended.

During this period, the total amounts of feed consumed by the lots were as follows:

Lot I. 892 pounds Indian corn.
381 pounds cottonseed meal.
1902 pounds cottonseed hulls.

Lot II. 912 pounds kaffir corn.
387 pounds cottonseed meal.
1932 pounds cottonseed hulls.

Lot III. 892 pounds milo maize.
381 pounds cottonseed meal.
1902 pounds cottonseed hulls.

Lot IV. 495 pounds molasses.
694 pounds Indian corn.
381 pounds cottonseed meal.
1902 pounds cottonseed hulls.

Lot V. 719.5 pounds kaffir corn.
643.5 pounds cottonseed.
146 pounds cottonseed meal.
1742.5 pounds cottonseed hulls.

Experiment Proper.—Beginning at the evening feed of January 12th, the experiment proper lasted until the morning feed of May 11th, covering a period of 120 days. On January 12th the day's ration for each lot was as follows:

Lot I. 60 pounds Indian corn, 18 pounds cottonseed meal, 72 pounds hulls.

Lot II. 60 pounds kaffir corn, 18 pounds cottonseed meal, 72 pounds hulls.

Lot III. 60 pounds milo maize, 18 pounds cottonseed meal, 72 pounds hulls.

Lot IV. 20 pounds molasses, 40 pounds Indian corn, 18 pounds cottonseed meal, 72 pounds hulls.

Lot V. 39 pounds kaffir corn, 23 pounds cottonseed, 10 pounds cottonseed meal, 63 pounds hulls.

As the grain was raised in each lot it was found necessary to cut the hulls down as the steers would not eat the 90 pounds daily that they were receiving at the beginning of the preliminary. They were, however, gotten up again as high as 84 pounds by February 22nd, and cleaned up this amount readily until about March 22nd, when it became necessary to lower it until they were soon eating only 72 pounds again, which amount they continued to receive to the end of the experiment.

The cottonseed meal for lots I, II, III and IV, remained the same as the amounts stated above throughout the experiment. In Lot V it was intended to substitute cottonseed meal for cottonseed in the proportion of two of seed to one of meal, in which case Lot V would have received 36 pounds of seed against Lot II which received 18 pounds of meal. As was expected, however, considerable trouble was encountered in getting the steers to eat very much hulls without the meal, the seed, of course, not sticking to the hulls like the meal, thus making the hulls less palatable. It was February 11th before Lot V was gotten on a ration that would permit a clear comparison between it and Lot II. It was finally possible to substitute only 12 pounds of meal with seed which resulted in Lot V receiving 24 pounds of seed and 6 pounds of meal as against Lot II which received 18 pounds of meal.

The grain in all the lots (grain for Lot IV included both Indian corn and molasses) was raised gradually at the rate of two to four pounds to the lot from time to time until they were receiving about all they would clean up readily. By February 11th, each lot was receiving 84 pounds daily of its respective grain feed, and by March 26th each was receiving 102 pounds, which amount it continued to receive to the end of the experiment. The molasses and Indian corn fed to Lot IV added together were equal in weight to the amount of grain for each of the other lots. It was the intention at first to keep the grain ration for this lot one-half molasses and one-half Indian corn, but when the amount was raised beyond the point at which the molasses was about 36 pounds to the lot daily or two quarts

to the steer, it was found that this proportion could not be maintained and at the same time get Lot IV to eat as much of the molasses and corn together as the other lots would take of grain. The steers did not seem to relish such a large proportion of molasses when the amount went beyond two quarts. The Indian corn was therefore raised at a little faster rate than the molasses, the proportion of molasses to corn being when the total was 102 pounds to the lot daily, 48 pounds molasses to 54 pounds Indian corn.

The average daily ration per steer for each of the lots on full feed and at the end of the experiment was as follows:

Lot I. 17 pounds Indian corn, 3 pounds cottonseed meal, 12 pounds hulls.

Lot II. 17 pounds kaffir corn, 3 pounds cottonseed meal, 12 pounds hulls.

Lot III. 17 pounds milo maize, 3 pounds cottonseed meal, 12 pounds hulls.

Lot IV. 8 pounds molasses, 9 pounds Indian corn, 3 pounds cottonseed meal, 12 pounds hulls.

Lot V. 17 pounds kaffir corn, 4 pounds cottonseed, 1 pound cottonseed meal, 12 pounds hulls.

There were no noticeable differences in the way the steers of the different lots fared at any time during the experiment, unless it may be said of those of Lot IV that they shed off a little earlier as spring came on, and their coats became somewhat smoother and more glossy than the steers of the other lots. This fact was attributed to the molasses they were receiving. Weather conditions were very favorable for open lot feeding nearly all the time, there being very few cold rains or severe northers.

Weighing.—In order to get at the weights of the different lots as accurately as possible, three weighings were made on successive days both at the beginning and at the end of the experiment, and the average of the two weights for each lot that were nearest the same, was taken as the weight of that lot. One weight was also taken every thirty days during the experiment, in order to ascertain principally the progress in gain and any important differences that might exist between the lots. On these weighing days the water troughs were covered before the morning feed, in order to eliminate the possibility of one lot taking a greater fill than another. The weighings were made between 10 and 12 o'clock in the morning each time, which was about three hours after the cattle had cleaned up their morning's feed.

The average gain per head of all the steers, reckoned from the weighing one week after their arrival until January 12th, when the experiment proper began, was 130 pounds.

Cost of Feeds Used.—Prices of all feedstuffs have been unusually high during the past year, and they were so at the time those used in these experiments were purchased. As the freight was a considerable item of expense it can be seen that the cost of feedstuffs here was much higher than it would have been on the farm during the average year. The feedstuffs used cost us at the following rates:

	Per Ton
Indian Corn Chops.....	\$28.20
Ground Kaffir Corn.....	24.40
Ground Milo Maize.....	24.40
Black Strap Molasses at 10 cts. per gal.....	16.66
Cottonseed Meal	26.00
Cottonseed Hulls	6.00
Cottonseed	18 00

The final results of the test between Lots I, II, III and IV are shown in Table 1.

TABLE I.—RESULTS OF ONE HUNDRED AND TWENTY DAY TEST WITH INDIAN CORN, KAFFIR CORN,
MILO MAIZE AND MOLASSES.

No. Lot	Average Weight at Start	No. Steers	Feed Eaten	Total Gain	Average Daily Gain per Steer	Cost of Feed per Pound Gain
I	869 lbs.	6	10,900 lbs. Indian Corn 2,124 lbs. Cottonseed Meal 9,099 lbs. Cottonseed Hulls	1518 lbs.	2.1 lbs.	13.7 cts.
II	906 lbs.	6	10,909 lbs. Kaffir Corn 2,124 lbs. Cottonseed Meal 9,099 lbs. Cottonseed Hulls	1783 lbs.	2.47 lbs.	10.5 cts.
III	857 lbs.	6	10,909 lbs. Milo Maize 2,124 lbs. Cottonseed Meal 9,099 lbs. Cottonseed Hulls	1527 lbs.	2.12 lbs.	12.3 cts.
IV	876 lbs.	6	4,732 lbs. Molasses 6,163 lbs. Indian Corn 2,124 lbs. Cottonseed Meal 9,099 lbs. Cottonseed Hulls	1629 lbs.	2.26 lbs.	11.1 cts.

The table shows that kaffir corn made the largest and cheapest gains of any of the lots, followed in order by molasses and milo maize, Indian corn yielding the least and most costly gains. These results and those of the experiment conducted last year and reported in Bulletin No. 97, show milo maize to be a cheaper feed and equal, pound for pound, if not a little superior in feeding value to Indian corn; they show kaffir corn to be as cheap as milo maize and higher pound for pound in feeding value than either Indian corn or milo maize and therefore, yielding cheaper gains than either. Although, the results of experiments that have been made with feeding kaffir corn at the Oklahoma and Kansas stations show the average daily gain from this feed to be uniformly a little lower than the gain made from Indian corn, the results of our experiments here encourage us to say that it will yield as much, if not a greater gain, than Indian corn, pound for pound, and particularly when both are fed with cottonseed hulls as roughage. According to this experiment in terms of beef at \$6.25 per hundred weight, the price lot II sold for on the market, 10,909 pounds of kaffir corn was worth \$16.56 more than 10,900 pounds of Indian corn, Kaffir corn having yielded 265 pounds more gain than Indian corn. Likewise, 10,909 pounds of milo maize in terms of beef at the same price was worth 56 cents more than 10,900 pounds of Indian corn. These figures are based on the supposition, of course, that the lot receiving Indian corn brought the same price per hundred weight, as the kaffir and milo maize lots.

We would again recommend, therefore, the feeding of the lowest priced of these three feeds.

Comparing lot IV. with lot I the table shows that 6163 pounds of Indian corn and 4732 pounds of molasses together with the basal ration of meal and hulls produced 111 pounds more gain than 10,900 pounds of Indian corn with the same amount of meal and hulls. Had the gains been the same for both lots we could say that molasses was equal in feeding value pound for pound to Indian corn. The results, however, really show it to have a little higher feeding value since the 111 pounds gain of lot IV. over lot I must be attributed to molasses. This value would hold good, however, only to a limited extent as it has been shown that cattle cannot eat as much molasses as they can corn without causing scours or at least a too loose condition of the bowels. The results show that it can very profitably replace nearly if not one-half of the corn ration in combination with cottonseed meal and hulls.

As was previously stated it was February 11th before lot V. was gotten on a ration that would permit a clear comparison between it and lot II. The test between these two lots, therefore, lasted only 90 days. The feed consumed by these two lots from the afternoon feed of January 12th until the morning feed of February 11th, inclusive was as follows:

Lot II.	2284 lbs. Kaffir corn.
	540 lbs. Cottonseed Meal.
	2190 lbs. Cottonseed Hulls.

Lot V.	2094.5 lbs. Kaffir corn.
	733.5 lbs. Cottonseed.
	227 lbs. Cottonseed Meal.
	2181 lbs. Cottonseed Hulls.

The final results of the test between lots II and V. are shown in Table II.

TABLE II.—RESULTS OF NINETY DAY TEST WITH COTTONSEED MEAL AND COTTONSEED AS SUPPLEMENTS TO A KAFFIR CORN RATION.

No. Lot	Average Weight at Start	No. Steers	Feed Eaten	Total Gain	Average Daily Gain per Steer	Cost of Feed per Pound Gain
II	976 Pound	6	8,625 lbs. Kaffir Corn 1,584 lbs. Cotton S. Meal 6,909 lbs. Cotton S. Hulls	1360 lbs.	2.51 lbs.	10.7 cts.
V	950 pounds	6	8,625 lbs. Kaffir Corn 2,160 lbs. Cottonseed 528 lbs. Cotton S. Meal 6,909 lbs. Cotton S. Hulls	1103 lbs.	2.04 lbs.	13.7 cts.

The table shows that 1584 pounds of cottonseed meal together with the basal ration of kaffir corn and cottonseed hulls produced 257 pounds more gain than 2160 pounds of cottonseed and 528 pounds of cottonseed meal with the same amount of kaffir corn and hulls, the daily gain of lot V. being, therefore, less and the cost of gain more. It shows that 2160 pounds of cottonseed had a much less feeding value than 1056 pounds of cottonseed meal, (the difference between the amount of meal consumed by lot V. and that consumed by lot II), the former having produced considerably less gain, and that even though the gains had been the same for both lots, with seed at \$18 per ton and meal at \$26 per ton, there would be a difference of \$5.72 in favor of having fed the meal. The results are the reverse of those of the Clarendon experiment of last year, reported in Bulletin No. 97, in which 21,815 pounds of cottonseed together with 90,565 pounds of kaffir corn fed to lot I of 50 steers were very much superior to 13,930 pounds of cottonseed meal together with 95,135 pounds of kaffir corn fed to lot II of 50 steers. In the Clarendon experiment the average daily gain from the cottonseed was much higher and the cost per pound of gain much less, \$12 per ton having been paid for cottonseed and \$26 per ton for cottonseed meal.

The results of the experiment reported in this bulletin show that even with cottonseed at \$12 instead of \$18 per ton it would have been more profitable to feed the meal at \$26. Fed with a different form of roughage from cottonseed hulls as in the Clarendon experiment, in which kaffir corn stalks and fodder were fed, the results might prove more favorable for cottonseed.

Marketing.—On May 12th, the day on which the last weights were taken ending the experiment, the five lots of steers were shipped to the Fort Worth market and were sold through Cassidy Southwestern Commission Co. to the packing firm of Swift and Company, through whose kindness we were enabled to get a slaughter test and a report as to their estimate of the cattle on the hooks.

Table III shows an account of the weights of the lots on the market and the price received for each.

TABLE III.

No. Lot	No. Steers	Weight	Price per Cwt.	Amount
	6	6220 lbs.	\$6.479	\$403.01
II	6	6540 lbs.	\$6.25	\$408.75
III	6	6140 lbs.	\$6.144	\$377.29
IV	6	6330 lbs.	\$6.464	\$409.19
V	6	6250 lbs.	\$6.28	\$392.54

The table shows that the Indian corn lot sold for the highest price per hundred weight, followed in order by the molasses, cottonseed, kaffir corn and milo maize lots.

From the time the cattle were loaded at College Station, which was the afternoon of May 12th, until run over the scales for sale at Fort Worth, on the morning of May 14th, was about 44 hours.

Table IV. will show a comparison of the weights at Fort Worth with those at the end of the experiment at College Station.

TABLE IV.

No. Lot	I	II	III	IV	V
Weight at College Station	6735 ✓	7220	6670	6885 ✓	6805
Weight at Fort Worth	6220	6540	6140	6330	6250
Shrinkage	515	680	530	555	555

The table shows shrinkage to have been fairly uniform for all the lots except lot II that had received kaffir corn. The shrinkage of the kaffir corn lot was the greatest and that of the Indian corn lot the least.

Table V shows the report of the slaughtering records made by the different lots as furnished us by Swift and Company.

TABLE V.

No. Lot.....	I	II	III	IV	V
No. Head.....	6	6	6	6	6
Live Weight.....	6210	6540	6140	6330	6250
Dressed Weight—Warm.....	3918	4050	3800	3936	3969
Dressed Weight—Cold.....	3821	3958	3718	3347	3873
Per cent Dressed (figured from cold weight)....	61.5	60.5	60.5	60.8	61.9
Weight of Caul Fat.....	88	80	82	80	83
Weight of Ruffle Fat.....	98	86	82	80	91
Weight of Paunches and Contents.....	672	849	680	591	778
Weight of Paunches Empty ..	125	115	134	134	119
Weight of Tripe Fat.....	36	28	31	34	33
Weight of Other Fat.....	106	84	92	98	89.5

Comparing the different lots as to differences in shrinkage from the dressed weight warm to the dressed weight cold, we find them quite uniform, the least shrinkage having been in lot III which was 82 pounds and the greatest in lot I, which was 97 pounds. We also find the dressing per cent of the different lots good and quite uniform, the highest having been that of lot V which was 61.9 per cent and the lowest that of lots II and III which was 60.5 per cent each.

The following communication from Messrs. Swift and Company will show how they estimated the cattle on the hooks.

Swift & Company,
Stock Yards Station,
Fort Worth, Texas.

May 25, 1908.

Prof. J. C. Burns,
A. & M. College,
College Station, Texas.

Dear Sir: We attach herewith statement showing yield etc. on cattle killed by us on May 14th and 15th, which were fed at your college.

These cattle were nice quality dressed, with the exception of one steer in lot III and one steer in lot IV, which were not well finished. Lot I was more even than the balance and consider same to be a little better quality straight through, but there was not a great deal of difference except in the two cattle referred to above. The lean meat of these different lots of cattle all had good bright color, lots I and II having better grain to the meat, that is, small particles of fat distributed among the meat than the balance; there being one or two cattle in lots III, IV and V that did not have much fat distributed among the lean meat.

We have been unavoidably delayed in giving you this information, and trust you have not been inconvenienced by same. If there is any further information you desire, we would be pleased to furnish same.

Yours respectfully,
Swift & Company,
Per M. L.

(Signed)

Beef Department.
ML—OIS.

Financial Outcome.

The thirty head of steers cost us at \$25 per head, \$750 f. o. b. Rochelle, Texas. The freight to College Station was \$41.50. The cost of the feed consumed by them from October 14th, 1907, the date of their arrival, until January 12th, 1908, the date beginning the experiment, was \$167.27. The average cost of the steers at the beginning of the experiment was \$31.96.

Table VI shows the average cost per steer of each lot from the beginning until the end of the experiment, the average expense per steer incurred in marketing together with the average selling price and net profit.

In this table lot V is calculated on a one hundred and twenty day basis similarly to the other lots instead of a ninety day basis as in Table II.

TABLE VI.

No. I ot.....	I	II	III	IV	V
No. Steers.....	6	6	6	6	6
Cost per Steer at Beginning of Experiment	31.96	31.96	31.96	31.96	31.96
Cost of Feed Consumed per Steer during Experiment.....	34.766	31.333	31,333	30.204	32.317
Freight Charge per Steer in Marketing.....	1.801	1.801	1.801	1.801	1.801
Cost of Yardage per Steer on Market .....	.25	.25	.25	.25	.25
Cost of Haying per Steer on Market .....	.065	.065	.065	.065	.065
Cost of Commission per Steer in Selling.....	.50	.50	.50	.50	.50
Cost of Placing Finished Steer on Market	69.34	65.91	65.91	64.78	66.89
Price Received per Steer on Market	67.16	68.12	62.88	68.19	65.42
Net Profit or Loss per Steer...	2.18 loss	2.21 profit	3.03 loss	3.41 profit	1.47 loss

Not taking into account the labor and hauling necessary in conducting the experiment the total loss sustained on the thirty head of steers was only \$6.36. Considering the very high prices paid for feedstuffs, and the double freight charges on the cattle, the financial results were most favorable for an experiment.

SUMMARY.

- I. Kaffir corn was cheaper than Indian corn and yielded better gains.
- II. Milo maize was cheaper than Indian corn and yielded slightly better gains.
- III. Molasses very profitably replaced nearly half the Indian corn in a mixed ration of molasses, Indian corn, cottonseed meal and hulls.
- IV. Cottonseed meal at \$26 per ton was much more profitable than cottonseed at \$12 per ton in supplementing a kaffir corn ration with cottonseed hulls as roughage.

V. The results of feeding two year old steers of at least three or four crosses of pure bred beef bulls, were very favorable from the standpoint of gains, fattening, and selling.

VI. There were no material differences in the slaughtering records of the different lots of steers.