

LIBRARY OF THE
UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

630.7

IL6b

no. 324-337

cop. 2



NON CIRCULATING

CHECK FOR UNBOUND
CIRCULATING COPY.

UNIVERSITY OF ILLINOIS
Agricultural Experiment Station

BULLETIN No. 328

SUMMER RATIONS FOR FATTENING
STEERS

By ROSCOE R. SNAPP AND JOHN H. KNOX



URBANA, ILLINOIS, JUNE, 1929

CONTENTS

	PAGE
PLAN OF THE EXPERIMENT.....	243
RESULTS OF THE EXPERIMENT.....	245
Amounts of Various Feeds Consumed.....	245
Gains Made by Various Lots.....	247
Feed Consumed per Hundred Pounds Gain.....	249
Feed Replacement Value of Pasture.....	250
Gains Made by the Hogs.....	252
FIGURING PROFIT OR LOSS.....	252
SUMMARY.....	255

SUMMER RATIONS FOR FATTENING STEERS

By ROSCOE R. SNAPP and JOHN H. KNOX¹

Different methods for summer fattening of mature steers was the subject of an investigation carried out by the authors at the Illinois Station. While it is realized that feeding trials involving the use of pasture should extend over a series of years in order to average both good and bad weather conditions, data obtained in the summer of 1923 are herewith presented for the information of cattle feeders who feed during the summer for the fall market.

The object of the experiment was fourfold: *first*, to compare the pasture and dry-lot method of fattening steers during the summer; *second*, to compare blue-grass and second-year sweet-clover pasture for cattle receiving a full feed of grain; *third*, to compare alfalfa hay and corn silage as roughages for steers fattened during the summer in dry lots; and *fourth*, to determine the feed-replacement value of an acre of pasture used by cattle on a full feed of grain.

PLAN OF THE EXPERIMENT

Number of Steers Fed. Forty steers weighing 1,000 pounds each were divided into four uniform lots and fed as follows:

- Lot 1. Shelled corn on blue-grass pasture
- Lot 2. Shelled corn on second-year sweet-clover pasture
- Lot 3. Shelled corn and alfalfa hay in dry lot
- Lot 4. Shelled corn, cottonseed meal, and corn silage in dry lot

Method of Feeding. All feeds were placed in bunks in the open twice daily, at approximately 8 o'clock in the morning and 5 in the evening. A preliminary feeding period of seven days preceded the beginning of the experiment. During this time the cattle were accustomed to corn by being fed daily 6 pounds of shelled corn mixed with 15 pounds of cut alfalfa hay per head.

Starting the experiment with 8 pounds of corn per head, the grain rations of all lots were steadily increased until the steers were eating approximately 18 pounds of corn daily at the end of the third week. Further increases of corn were made in the different lots from time to time as the appetites of the steers seemed to warrant. Cottonseed meal was fed to Lot 4 at the rate of 1 pound of meal to each 8 pounds of shelled corn. Alfalfa hay and corn silage were fed to Lots 3 and 4 respectively according to their appetites for these feeds after they had consumed the desired amount of grain. Starting with

¹Roscoe R. Snapp, Associate Chief in Beef Cattle Husbandry, and John H. Knox, formerly First Assistant in Beef Cattle Husbandry.

20 pounds of alfalfa hay and 40 pounds of corn silage, the roughages were rapidly reduced to approximately half these amounts by the time the cattle were eating a full feed of corn.

Lots 1 and 2 which were on blue-grass and sweet-clover pasture respectively, received only shelled corn in addition. Chemical analyses of Kentucky blue-grass before heading and of green sweet clover indicate that these forages contain sufficient protein to meet the needs of mature cattle getting a full feed of corn. Hence no protein supplement was fed to either of these lots.

Block salt was kept in the feed bunk of each lot at all times. No record was kept of the amount of salt eaten.

Description of Cattle. The cattle were purchased on the Omaha market on April 30. They were of Montana origin and were selected from the lighter end of a 12-car drove that had been wintered on hay in the Big Hole basin of that state. They were of mixed Shorthorn-Hereford breeding with the blood of the former predominating. While their ages were unknown, a majority of the steers appeared to be approximately three years old at the time they were started on feed.

Forty-five animals were purchased to permit some sorting at the end of the preliminary feeding. Feeding cattle were very scarce and much in demand in the spring of 1923, and while the price paid for the steers (\$8.45 per hundredweight) represented the approximate top of the market, the cattle on the whole would hardly be graded as "choice" feeders. However, they were somewhat better than "good." The 40 steers used in the experiment varied somewhat in size and weight, but in other respects were quite uniform.

One steer in Lot 2 that was fed on sweet-clover pasture was sick at irregular intervals during the first month of the experiment. When weighed at the end of 28 days it was found to have lost 105 pounds. It was removed and another steer put in its place. The daily and total gains of this lot are therefore reported in Tables 2 and 5 both for the 10 steers and for the 9 steers that were in the lot thruout the experiment.

Hogs Used in the Experiment. During the first two weeks of the test no hogs were available for following the cattle. On May 26 six hogs averaging 135 pounds each were put with each lot of cattle. These hogs were removed on August 4 and replaced by 9 head of spring pigs weighing approximately 95 pounds each. The hogs kept in the dry lots had access only to the corn found in the droppings of the cattle, while those in the pasture lots had in addition all the green forage they cared to eat.

Pastures, Dry Lots, and Equipment. The pastures used contained 5 acres each, or one-half acre per steer. The blue-grass tract had been in pasture for eight years and contained a little red and some

white clover. The stand of grass was good and the pasture was considerably above the average corn-belt pasture land in productive-ness. The sweet clover used by Lot 2 had been seeded in oats the previous spring and grazed by beef cows and calves in the fall. The stand of clover was fair to good but no better than the average obtained where inoculated seed is sown on land that has been limed.

The dry lots used for feeding Lots 3 and 4 were each one-half acre in size and were well drained. Fields of corn on the east



FIG. 1.—STEERS OF LOT 4 IN DRY LOT

An overhanging hedge along the west side of the pens occupied by these steers gave ample protection from the sun after ten o'clock in the morning.

and west sides shut off a free circulation of air to some extent. However, these cattle appeared to suffer less from the heat than did those on pasture.

No equipment other than feed bunks and water tanks was used in the feeding of Lots 1, 3, and 4. A row of maple trees along the south side of the blue-grass pasture furnished excellent shade for Lot 1 during the middle of the day; while a large, overhanging hedge along the west sides of the two dry lots gave ample protection from the sun after ten o'clock in the morning (Fig. 1). Since natural shade was not available for the steers fed on sweet clover (Lot 2), a board sunshade 14 by 28 feet was erected. It was placed in the same corner of the field as the feed bunk and water tank, with the high side towards the north (Fig. 2).

RESULTS OF THE EXPERIMENT

Amounts of Various Feeds Consumed

Little difference was observed in the amounts of corn eaten by the blue-grass, sweet-clover, and alfalfa-hay lots (Table 1). Lot 4, however, which was fed silage in dry lot, consumed approximately 10 percent more shelled corn than the other lots; or if the consumption

of both shelled corn and cotton-seed meal is considered, the average daily consumption of concentrates by this lot was 20 percent more than that of the other lots.

No difficulty was experienced in getting the steers in Lot 2 to eat sweet clover. In fact, they apparently ate more forage than did the cattle on blue-grass, as is indicated by their smaller consumption of corn during the second month of the experiment. After July 1 there was but little difference in the amount of grain eaten by these two lots. This was about the date that the sweet clover came

TABLE 1.—AVERAGE AMOUNTS OF VARIOUS FEEDS CONSUMED DAILY PER HEAD BY FOUR LOTS OF STEERS DURING 140-DAY FEEDING TEST

Feeds consumed	Fed on pasture		Fed in dry lot	
	Lot 1	Lot 2	Lot 3	Lot 4
	Blue-grass pasture	Sweet-clover pasture	Alfalfa hay	Corn silage
First period, May 12-June 9	<i>lbs.</i>	<i>lbs.</i>	<i>lbs.</i>	<i>lbs.</i>
Shelled corn.....	15.1	15.6	15.8	15.8
Cottonseed meal.....	....	....	....	2.0
Corn silage.....	....	....	....	34.6
Alfalfa hay.....	....	....	13.2	....
Second period, June 9-July 7				
Shelled corn.....	17.5	15.3	18.8	21.3
Cottonseed meal.....	....	....	....	2.7
Corn silage.....	....	....	....	19.8
Alfalfa hay.....	....	....	9.9	....
Third period, July 7-Aug. 4				
Shelled corn.....	20.4	20.1	19.1	23.1
Cottonseed meal.....	....	....	....	2.9
Corn silage.....	....	....	....	20.0
Alfalfa hay.....	....	....	8.3	....
Fourth period, Aug. 4-Sept. 1				
Shelled corn.....	23.1	22.8	21.9	23.4
Cottonseed meal.....	....	....	....	2.9
Corn silage.....	....	....	....	17.8
Alfalfa hay.....	....	....	6.5	....
Fifth period, Sept. 1-Sept. 29				
Shelled corn.....	23.1	23.6	22.7	21.9
Cottonseed meal.....	....	....	....	2.7
Corn silage.....	....	....	....	14.6
Alfalfa hay.....	....	....	5.7	....
Average for entire period, May 12-Sept. 29				
Shelled corn.....	19.9	19.5	19.7	21.1
Cottonseed meal.....	....	....	....	2.6
Corn silage.....	....	....	....	21.3
Alfalfa hay.....	....	....	8.7	....

into full bloom. Apparently it was somewhat less palatable at this stage than when it was more succulent.

An abundance of blue-grass was available for Lot 1 until the middle of July. A rather prolonged period of dry, hot weather about this time caused the pasture to become parched and brown. This situation was much relieved by a heavy rain on July 28. Further rains during the month of August resulted in a good second growth of blue-grass during late August and September.

The sweet clover used by Lot 2 began to ripen about August 1 and was practically worthless for pasture after August 15. However,

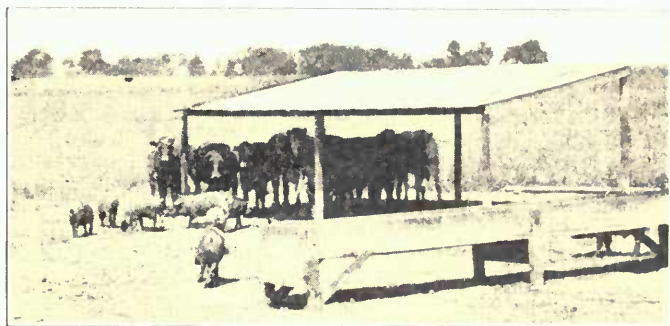


FIG. 2.—STEERS OF LOT 2 ON SWEET CLOVER

This sunshade was placed near the feed bunk and water tank with the high side towards the north so as to secure the largest possible shade area during midday.

the frequent rains resulted in a heavy growth of fox-tail and crab grass all over the field. Both of these weeds were eaten by the cattle with apparent relish.

Gains Made by Various Lots

Larger gains were made by the cattle fed in dry lot than by those fed on pasture (Table 2). Especially did the lot fed shelled corn, cottonseed meal, and corn silage exceed the other lots in rate of gains.

The gains made by the lot pastured on sweet clover were noticeably lower than those made by the lot on blue-grass prior to June 23. Thereafter the sweet-clover steers gained more rapidly than the blue-grass cattle until September 1, on which date both lots weighed approximately the same. The relatively low gains made by the sweet-clover cattle may be at least partly accounted for by the pronounced laxative action of the sweet clover during the early summer. Until the middle of June the cattle in this lot scoured badly and a large

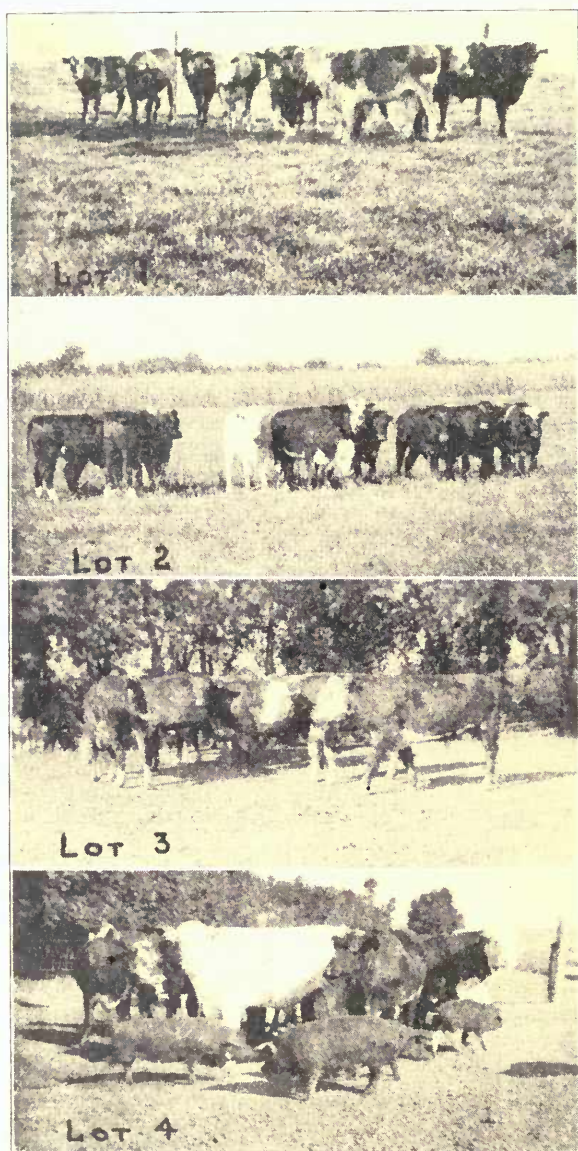


FIG. 3.—THE VARIOUS LOTS AS THEY APPEARED THE DAY THEY WERE SHIPPED TO MARKET

Lot 1 was fed shelled corn on blue-grass pasture; Lot 2, shelled corn on second-year sweet-clover pasture; Lot 3, shelled corn and alfalfa hay in dry lot; Lot 4, shelled corn, cottonseed meal, and corn silage in dry lot.

percentage of the shelled corn eaten was voided in the manure. As the clover became more mature its laxative action was much less noticeable, and, concurrently, the gains of the cattle improved. During the last month of the experiment, the gains of the steers on the sweet clover were very disappointing, due probably, to the inferior

TABLE 2. AVERAGE DAILY GAINS PER HEAD MADE BY FOUR LOTS OF STEERS DURING 140-DAY FEEDING TEST

Feeding periods of 28 days.....	Fed on pasture		Fed in dry lot	
	Lot 1	Lot 2 ¹	Lot 3	Lot 4
	Blue-grass pasture	Sweet-clover pasture	Alfalfa hay	Corn silage
	<i>lbs.</i>	<i>lbs.</i>	<i>lbs.</i>	<i>lbs.</i>
First period, May 12-June 9.....	3.46	{ 2.43(a) 3.11(b)	4.14	4.41
Second period, June 9-July 7.....	1.96	1.63	.77	2.91
Third period, July 7-Aug. 4.....	1.07	1.36	1.55	2.32
Fourth period, Aug. 4-Sept. 1.....	2.35	3.21	2.41	2.25
Fifth period, Sept. 1-Sept. 29.....	1.14	.50	1.73	.91
Total average gain per steer.....	280	{ 255(a) 269(b)	297	358.5
Average daily gain for entire period, May 12-Sept. 29.....	2.00	{ 1.83(a) 1.92(b)	2.12	2.56

¹One steer in Lot 2 proved to be sick and lost 105 pounds during the first 28 days. It was removed and another steer put in its place at the end of this first period. Figures for this period and for the entire test are therefore shown both on the basis of all 10 head (a) and on the basis of the 9 animals that were in the lot thruout the entire 140 days (b).

character of the available pasture. As stated above, the forage in this field during late August and September consisted very largely of weeds.

Feed Consumed per Hundred Pounds Gain

A close relation existed between the rate at which the steers gained and the amount of feed consumed per unit of gain, less feed being required where the gain was more rapid.

The higher consumption of corn for 100 pounds of gain by the cattle on pasture may have been due to the fact that they took more exercise. It is obvious that energy expended in moving about would reduce the amount available for the production of gain.

Attention is called to the fact that the feed consumption of all lots was high compared with the increases in live weight made. Such results are to be expected with mature cattle, the gains of which represent the storage of fat rather than the production of growth.

TABLE 3.—AVERAGE AMOUNTS OF VARIOUS FEEDS CONSUMED PER 100 POUNDS OF GAIN BY FOUR LOTS OF STEERS DURING 140-DAY FEEDING TEST

	Fed on pasture		Fed in dry lot	
	Lot 1	Lot 2	Lot 3	Lot 4
	Blue-grass pasture	Sweet-clover pasture	Alfalfa hay	Corn silage
Roughage ration.....				
Feed per 100 pounds gain	<i>lbs.</i>	<i>lbs.</i>	<i>lbs.</i>	<i>lbs.</i>
Shelled corn.....	992.4	1066.3	927.1	824.1
Cottonseed meal.....	....	....	....	103.0
Corn silage.....	....	....	....	833.2
Alfalfa hay.....	....	....	410.8	....
Pasture, acres.....	(.18)	(.20)	....	....

Younger cattle under similar conditions would be expected to make a much more favorable showing.

Feed Replacement Value of Pasture

Little data are available as to the actual value of pastures in live-stock production. Pastures vary so widely in yield depending on the kind of forage plants present, the percentage stand secured, the weather conditions that prevail, and the texture and fertility of the soil that data obtained from a particular pasture during a single year should not be regarded with too much significance. Pasture used by steers receiving a full feed of grain is regarded in the main as a substitute for the roughage that would be required were the cattle fed in a dry lot. That it should not be counted on to replace any corn, is demonstrated by this experiment, in which approximately 10 per-

TABLE 4.—FEED REPLACEMENT VALUE OF PASTURE IN MAKING BEEF

Kinds of roughage compared	Feeds replaced per acre of pasture, based on feed required per 100 pounds gain			
	Alfalfa hay	Cotton-seed meal	Corn silage	Shelled ¹ corn
	<i>tons</i>	<i>tons</i>	<i>tons</i>	<i>bu.</i>
Blue-grass vs. alfalfa hay.....	1.14	....	....	-6.5
Blue-grass vs. corn silage.....	....	.29	2.32	-16.7
Sweet clover vs. alfalfa hay.....	1.03	....	....	-12.4
Sweet clover vs. corn silage.....	....	.26	2.08	-21.6

¹More shelled corn was required per hundredweight gain on pasture than in dry lot. Hence the amounts of corn shown were not "saved" by the use of pasture but were the amounts used over and above that required in the dry-lot method of feeding.

TABLE 5.—SUMMARY OF RESULTS FOR ENTIRE TEST PERIOD OF 140 DAYS:
MAY 12 TO SEPTEMBER 29, 1923
(Figures are averages per steer)

	Fed on pasture		Fed in dry lot	
	Lot 1	Lot 2 ¹	Lot 3	Lot 4
	Blue-grass pasture	Sweet-clover pasture	Alfalfa hay	Corn silage
Roughage used.....				
Initial weight, pounds.....	1 006	1 006	1 006	999
Final weight, pounds.....	1 286	1 268	1 303	1 357
Total gain, pounds.....	280	269(b)	297	359
Average daily gain, pounds.....	2.00	$\begin{cases} 1.83(a) \\ 1.92(b) \end{cases}$	2.12	2.56
Average daily ration, pounds				
Shelled corn.....	19.85	19.46	19.67	21.1
Cottonseed meal.....	.....	.....	.....	2.6
Corn silage.....	.....	.....	.....	21.3
Alfalfa hay.....	.....	.....	8.7	.....
Total feed consumed				
Shelled corn, pounds.....	2 778.6	2 722.4	2 753.6	2 951.4
bushels.....	(49.6)	(48.7)	(49.2)	(52.8)
Cottonseed meal, pounds.....	.....	.....	.....	369.3
tons.....	.....	.....	.....	(18)
Corn silage, pounds.....	.....	.....	.....	2 987.0
tons.....	.....	.....	.....	(149)
Alfalfa hay, pounds.....	.....	.....	1 220.0	.....
tons.....	.....	.....	(61)	.....
Feed per 100 pounds gain				
Shelled corn.....	992.4	1 066.3	927.1	824.1
Cottonseed meal.....	.....	.....	.....	103.0
Corn silage.....	.....	.....	.....	833.2
Alfalfa hay.....	.....	.....	410.8	.....
Pasture, acres.....	.18	.20	.....	.....
Cost of gain per hundredweight ² ...	\$15.96	\$17.19	\$16.33	\$16.37
Pork per steer, pounds.....	78.5	62.5	46.0	66.5
Pork per bushel of corn fed to cattle, pounds.....	1.58	1.26	.94	1.26
Shrinkage between feedlots and Chicago				
Pounds per head.....	30.0	16.0	35.5	38.0
Percentage of home weight.....	2.33	1.26	2.72	2.80
Dressing percentage.....	58.39	59.52	59.14	60.67

¹Figures with (a) are for 10 head; those with (b) are for 9 head. See footnote to Table 2. ²Cost of feeds are figured as follows: shelled corn, 80 cents a bushel; cottonseed meal, \$50 a ton; corn silage, \$5 a ton; alfalfa hay, \$15 a ton; pasture, \$10 an acre.

cent more grain was required per 100 pounds of gain by the cattle on pasture than by those in dry lot. It may then be said that each acre of pasture used permitted the saving of approximately one ton of alfalfa hay but required an additional 10 bushels of corn, or that it permitted the saving of 500 pounds of nitrogenous concentrate and 2 $\frac{1}{4}$ tons of silage but required approximately 18 bushels more of corn (Table 4).

Gains Made by the Hogs

Except for one unthrifty hog in Lot 2 during the first half of the experiment, the hogs in the pasture lots noticeably excelled those in the dry lots both in their appearance of general thrift and in their rate of gain. The hogs following the steers on sweet-clover pasture did particularly well, but the presence of the unthrifty pig in this lot caused their total gains to fall below the gains made by the hogs that ran with the cattle on blue-grass. From the general appearance of the pigs it was evident that those running on pasture had better balanced rations than those in the dry lots. The value of forage crops as sources of protein and vitamins for growing and fattening hogs is widely recognized.

A summary of the experimental data calculated on the basis of a single steer is given in Table 5.

FIGURING PROFIT OR LOSS

Theoretically the financial outcome of a single feeding trial carried out by an experiment station should be of minor concern to the practical cattleman. The amount of profit made on one particular drove of cattle is the result of such a combination of circumstances and prices that it is a rather poor index of the value of any given method of feeding.

On the other hand, the amount of feed required per hundred pounds gain and the rapidity of gain are directly dependent upon inherent qualities of the ration and the character of the cattle fed and they are in no way affected by changes in price levels. Hence it is these items rather than the profits that constitute the most valuable data derived from feeding experiments.

The best time to figure out a cattle-feeding venture is before the cattle go on feed. Knowing the approximate quantities of grain, roughage, and pasture required to produce 100 pounds of gain and the current prices of the various feeds, it is a simple matter to calculate what ration will be the cheapest under the prevailing conditions. While cost of gain is not, as a rule, as important a factor as is margin in determining profits, it is unquestionably much more directly under the feeder's control. Hence it deserves careful study on the part of the man who is considering what ration to use in fattening his cattle.

The accompanying financial statement (Table 6) of the four lots of cattle fed in this experiment is therefore given more for the purpose of enabling farmers to prepare such a statement of their own feeding operations than for the purpose of showing any financial ad-

TABLE 6.—FINANCIAL STATEMENT OF FEEDING OPERATIONS
WITH FOUR LOTS OF STEERS

	Fed on pasture		Fed in dry lot	
	Lot 1	Lot 2	Lot 3	Lot 4
	Blue- grass pasture	Sweet- clover pasture	Alfalfa hay	Corn silage
Roughage used				
Debits				
Cost of cattle per cwt. in Omaha, April 30, 1923.....	\$8.45	\$8.45	\$8.45	\$8.45
Cost of cattle per cwt. in feedlot, May 12, 1923.....	9.03	9.03	9.03	9.03
Initial value per head	\$90.84	\$89.95	\$90.80	\$90.16
Cost per head of feed consumed while on experiment, <i>total</i>	44.70	44.62	48.49	58.66
Shelled corn at 80c a bushel....	39.70	39.62	39.34	42.21
Cottonseed meal at \$50 a ton....	.....	.....	.....	9.00
Corn silage at \$5 a ton.....	.....	.....	.....	7.45
Alfalfa hay at \$15 a ton.....	.....	.....	19.15	.....
Pasture at \$10 an acre.....	5.00	15.00	.....	.....
Post experiment feed consumed, Sept. 29-Oct. 3.....	1.20	1.08	1.29	1.26
Freight (Urbana to Chicago) and market charges.....	4.44	4.43	4.47	4.60
Total cost of cattle per head in Chicago.....	\$141.18	\$140.08	\$145.05	\$154.68
Necessary selling price per cwt. in Chicago				
Excluding pork.....	\$11.23	\$11.18	\$11.44	\$11.72
Including pork.....	10.78	10.81	11.18	11.35
Credits				
Selling price per cwt.....	\$10.50	\$10.25	\$10.40	\$10.40
Value per head at market	131.88	128.33	131.77	137.18
Profit or Loss				
Loss per head excluding pork....	\$9.30	\$11.75	\$13.28	\$17.50
Value of pork produced at 7½ cents per pound.....	5.69	4.53	3.34	4.82
Loss per head including pork credit.....	\$3.61	\$7.22	\$9.94	\$12.68

vantage of one ration over another. With feeds or fat cattle at different prices the ranking of the lots in order of profits may be quite different.

Losses were sustained in the case of all lots (Table 6). The losses were somewhat smaller on the pasture-fed cattle than on those fed in dry lot due to the lower feed costs of the pasture. The cost of gains of all lots was high in comparison with the selling price per hundred pounds so that the margin secured on the initial weight of the cattle was not sufficient to cover the losses sustained on the weight that was added during the feeding period.

The steers fed on blue-grass pasture outsold those fed in dry lot notwithstanding the fact that their daily gains and dressing percentages indicate that they were not so well finished. This may be partly accounted for by the fact that the pasture-fed cattle had sleeker, more glossy coats and were much cleaner in appearance.

Knowledge of the ways the various lots had been fed was given to the market men who bid on the cattle. This was unfortunate since they assumed that the silage-fed steers would show a poor dressing percentage. Of five buyers who attempted to buy the cattle, all except one offered more for the lot fed on blue-grass than for the lot fed on silage, stating that they believed that this lot would prove to be the best killers. That they were very much mistaken is shown by the resulting dressing percentages. Had the cattle of Lot 4 sold at a figure that would have made the beef from this lot as costly as that from Lot 1, they would have brought \$10.90 a hundredweight instead of \$10.40. Such an increase in selling price would have reduced the loss on them from \$17.50 a head to \$10.91.

The pork and manure credits resulting from cattle-feeding ventures are usually sufficient to cover all expenses other than feed and marketing costs. Hence in Table 6 no charges are made for interest on money invested in the cattle, for interest and depreciation on equipment, or for horse and man labor in caring for the cattle. The value of the pork and manure would be quite sufficient to cover these items of expense in the case of the two pasture lots inasmuch as the hogs in these lots made very satisfactory gains and all of the manure was returned to the land. In the dry lots, however, practically no manure was saved. The absence of a shed and the size of the lots (approximately $\frac{1}{2}$ acre) resulted in such a scattering of the manure that it was impractical to attempt to load it into wagons and haul it to cultivated fields. Except around the troughs where the cattle spent considerable time, the droppings dried quickly and were thoroly mixed with the surface soil of the lot with the coming of the fall rains. Hence in the case of the dry-lot cattle the combined pork and manure credits would not cover such costs as are mentioned above.

SUMMARY

This bulletin reports the results of one summer's feeding test with four lots of mature steers, two lots fattened on different pasture rations and two in dry lot.

Pasture vs. Dry Lot. The fattening of cattle in dry lot during the summer months presented no serious difficulties and, on the whole, gave results that compared favorably with those obtained from feeding on pasture. The cattle fed in dry lot gained somewhat more rapidly than those fed on pasture. Pasture did not replace any of the grain ration. It served merely as a roughage material. Approximately 10 percent more concentrates per 100 pounds of gain were required on pasture than in the dry lot. Pork and manure credits were much in favor of the pasture-fed cattle.

Glue-Grass vs. Sweet-Clover Pasture. The cattle fed on blue-grass pasture gained somewhat more rapidly than those on sweet clover. No difficulty was experienced in getting cattle on a full feed of grain to eat sweet-clover pasture. Sweet-clover proved noticeably inferior to blue-grass in the spring at which time it had a pronounced laxative effect on the cattle and in the late summer and fall at which time it was so ripe and woody as to be very unpalatable. Sweet clover proved to be an excellent forage for grain fed steers during the latter part of June and thruout the month of July.

Alfalfa Hay vs. Corn Silage. Corn silage when properly supplemented with cottonseed meal proved noticeably superior to alfalfa hay as a roughage for steers fed during the summer in dry lot. The cattle fed corn silage made much larger gains than those fed alfalfa hay. The cattle fed corn silage possessed more finish, as indicated by a higher dressing percentage. Larger gains were made by the hogs following the silage-fed cattle. No important differences were observed between the two lots in the economy of gain when stated in terms of either feed or money units.

Feed Replacement Value of Pasture. Each acre of pasture used in the experiment permitted the saving of approximately one ton of alfalfa hay but required an additional 10 bushels of corn; or it permitted the saving of 500 pounds of nitrogenous concentrate and 2½ tons of corn silage but required approximately 18 bushels more of corn.

THE LIBRARY

FEB 2 - 1930

UNIVERSITY OF ILLINOIS



UNIVERSITY OF ILLINOIS-URBANA

Q 630 .71L6B
BULLETIN, URBANA
324-337 1929

C002



3 0112 019529178