



UTILIZATION OF MEADOW CROPS BY FATTENING CATTLE

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EARLE W. KLOSTERMAN and L. E. KUNKLE

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OHIO AGRICULTURAL EXPERIMENT STATION
Wooster, Ohio

CONTENTS

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Objectives and Comparisons	4
Procedure	4
Results	9
Discussion	12
Summary	13
References	13
Appendix	14

UTILIZATION OF MEADOW CROPS BY FATTENING CATTLE

EARLE W. KLOSTERMAN and L. E. KUNKLE¹

Meadow crops are widely grown for feed production, crop rotation and soil conservation purposes. They are an economical and nutritionally important feed for many classes of livestock. Hay crops are adapted to a wide range of use, depending upon their quality and the nutrient requirements of the particular class of livestock being fed. They also may be used in a number of ways, as pasture, hay, green chop or as silage. It is, therefore, important to know how they may be utilized most profitably.

In a beef enterprise a herd of breeding cows is best adapted to the use of large amounts of forage. However, some producers do not wish to keep a breeding herd because of a lack of permanent pasture, year long labor requirements, lack of water and shade in crop rotated fields or other reasons.

Previous experiments at this Station have shown that liberal amounts of hay-crop silage may be fed to fattening yearling steers if an adequate amount of corn is included in the ration. To be fed to high good or choice grade, this required about 23 bushels of corn per head over approximately a 200 day feeding period.

When feeder cattle are chosen as the means of utilizing meadow crops, a number of alternatives are available. First, calves or older feeders may be purchased. Calves generally make more economical gains but they also cost more per pound and require a higher proportion of high energy feeds than older cattle. If calves are purchased, they may be fattened in dry lot or they may be grown through the winter, grazed and then fattened on pasture. This gives a choice of grazing or feeding hay or silage in dry lot. If fed in dry lot, what is the relative feeding value of hay to hay-crop silage? What age of feeder cattle and what system of feeding will utilize the largest amount of meadow crop and, considering the purchase and selling price of the cattle, which will return the most money per acre of meadow crop utilized? These are some of the questions investigated in the current experiments.

¹Supervision and technical assistance of H. W. Rogers, Farm Manager of the Madison County Farm, are herewith gratefully acknowledged.

OBJECTIVES AND COMPARISONS

The objectives of these experiments were:

A) To study systems of feeding and ages of feeder cattle which will make the maximum and most profitable use of meadow crops in the production of slaughter grade beef.

B) To compare the pounds of beef produced per acre from corn silage and hay-crop silage when fed to yearling steers.

The following ages of cattle and systems of feeding were compared:

1) Yearling steers full fed corn silage, a small amount of mixed hay and 1.5 pounds soybean oil meal per head daily.

2) Yearling steers fed about 8 pounds of ground ear corn per head daily and a full feed of good quality mixed hay.

3) Steer calves fed about 8 pounds of ground ear corn per head daily, a small amount of mixed hay and a full feed of hay-crop silage.

4) Yearling steers fed about 8 pounds of ground ear corn per head daily, a small amount of mixed hay and a full feed of hay-crop silage.

5) Steer calves wintered on hay, hay-crop silage and a small amount of ground ear corn, grazed for about 60 days and then fed corn on pasture.

PROCEDURE

These experiments were conducted at the Madison County Experiment Farm during the three year period of 1954-1957. Choice grade, Hereford steer calves and yearlings were purchased in October of each year. They were all obtained from the same herd in Texas so that they were of similar breeding and quality each year. The average purchase cost of the cattle is presented in Table 5. Each year the steer calves cost one dollar per hundredweight more than the yearlings.

During the grazing seasons of 1955 and 1956, approximately one-half of the steers were implanted with stilbestrol. The results obtained from this study have been published in Ohio Farm and Home Research, Vol. 42, March-April, 1957. Since none of the cattle fed in dry lot were fed or implanted with stilbestrol, only the results of the pasture fed cattle which did not receive stilbestrol are presented here.

The yields of all crops produced on the farm and fed to the cattle were obtained. This included the acreage of pasture utilized by the cattle fed in the summer. This information was then used to determine the pounds of beef produced per acre and the area of meadow crop utilized per head by the various groups of cattle.

TABLE 1.—Crop Yields per Acre and Feed Prices Used

Year	Pasture A./head	Hay Ton	Hay-crop silage Ton	Corn silage Ton	Ear corn Bu.	Soybeans Bu.	Soybean oil meal Ton
Yields per Acre							
1954		2.5	7.5	12.	75	25	
1955	0.31	3.0	9.0	17.5	105	30	
1956	0.50	2.5	7.5	12.	75	25	
1957	0.34						
Feed Prices							
1954		\$25.00	\$8.00	\$10.00	\$1.50		\$80.00
1955		20.00	8.00	10.00	1.25		70.00
1956		25.00	8.00	10.00	1.40		70.00

In calculating the area of land required to produce the soybean oil meal fed to the steers in Lot 1, soybeans were calculated to produce 82 percent oil meal. The yields of crops obtained and the feed prices used in calculating feed costs per hundredweight of gain are listed in Table 1.

The meadow crop used for pasture, hay and silage in these experiments was a mixture of alfalfa, clover, brome and timothy, with the legumes being predominant. The hay-crop silage was good quality wilted silage made without a preservative.

At the end of the experiments, the steers were sold on competitive bids and were slaughtered at local packing plants, where carcass grades and weights were obtained. The selling prices per hundredweight, as given in Tables 4 and 5 and Appendix Tables 1, 2 and 3, were calculated from the sale weight of the cattle, individual carcass weights and the carcass values for the various grades as listed in Table 2. Table 2 also gives the numerical factor assigned to each grade from which the averages presented in the Tables of Results were calculated.

When calculating the gross return per acre of meadow crop utilized, the selling price of the cattle becomes an important item. For this reason the above calculated price was used rather than the actual sale price. A price based on the actual carcass grades and dressing percentages should be more accurate than one based on an estimation of these factors by the cattle buyer even though, on the average, they may not be too different.

TABLE 2.—Carcass Grade Factors and Values per Hundredweight

Grade	Factor	Value per cwt.
High choice	12	\$37.50
Average choice	11	37.00
Low choice	10	36.75
High good	9	36.25
Average good	8	36.00
Low good	7	35.50
Standard	5	34.00

The actual selling prices received for the steers, Table 3, shows that some variation occurred during the three-year period. However, since this variation was not extreme and since this exact variation is not likely to occur in any three-year period in the future, constant carcass values, Table 2, were used to calculate the sale price of all cattle sold. It is also true that such a constant market is not likely to occur in the future. However, since these future values cannot be accurately predicted, it seems that the most accurate comparison of the various methods of feeding would be made if this source of variation were removed.

In order to calculate the value of meadow crops when other feeds are included in the ration it is necessary to determine what proportion of the feeding value was obtained from each. In these experiments this was done on a total digestible nutrient (TDN) basis. From the weight of feeds eaten and average values of TDN, the total TDN consumed and the percentage supplied by meadow crops were calculated. This percentage was used to determine what proportion of the gross profit received was due to the meadow crops.

TABLE 3.—Actual Sale Prices of Cattle per Hundredweight

Year	SPRING		FALL	
	Date sold	Price	Date sold	Price
1955	June 1	\$20.93	Oct. 6	\$22.00
1956	June 8	20.30	Sept. 22	22.22
1957	May 15	21.40	Oct. 2	21.50

The amount of TDN furnished by pasture was determined as follows. From the average daily gain of the steers and Winchester's data on the energy requirements of beef cattle, the total amount of TDN required to produce the given amount of gain was calculated. The amount of TDN supplied by other feeds fed in addition to pasture was subtracted from this total, leaving the estimated amount of TDN furnished by the pasture.

**TABLE 4.—Utilization of Meadow Crops by Fattening Cattle—
Three-year Average**

Lot number	Corn silage	Corn and cob meal. Hay	Corn and cob meal. Hay-crop silage	Corn and cob meal. Hay-crop silage	Hay. Hay-crop silage. Pasture. Corn and cob meal	
	1	2	3	4	5	
	Yearlings	Yearlings	Calves	Yearlings	Calves	
					Winter	Summer
Number in lot	12	10	10	10	22	15
Average initial weight, lbs.	680	684	546	683	510	682
Average final weight, lbs.	1083	1079	962	1094	686	1015
Number days fed	208	208	208	208	168	150
Average daily gain, lbs.	1.94	1.88	1.99	1.98	1.05	2.23
Average daily ration, lbs.:						
Ground ear corn		8.0	8.0	8.0	2.3	6.7
Soybean oil meal	1.5				0.2	0.2
Corn silage	41.9					
Hay-crop silage			24.2	33.3	15.0	
Hay	3.2	14.9	3.5	3.9	6.0	2.2
Feed per cwt. of gain, lbs.:						
Ground ear corn		426	393	398	229	300
Soybean oil meal	76				16	8
Corn silage	2160					
Hay-crop silage			1210	1678	1413	12
Hay	167	794	179	203	600	97
Cost of feed per cwt. of gain	\$15.50	\$17.71	\$14.64	\$16.87	\$17.61	
Pounds of beef produced per acre	611	454	570	474	478	
Dressing percentage	59.8	59.3	59.1	59.8	57.4	
Carcass grade	10.3	9.8	9.6	10.5	9.0	
Selling price per cwt.	\$22.01	\$21.78	\$21.62	\$22.07	\$20.80	

The total gross profit per head was multiplied by the percentage of TDN supplied by meadow crops. This portion of the gross return was then converted to an acre basis by using the area of meadow crop utilized per head by the various lots.

In this study no attempt was made to determine labor, equipment, fencing or other costs involved in utilizing meadow crops as hay, silage or pasture. These costs on a per head basis would be greatly influenced by the numbers of cattle fed and relatively small numbers of cattle were fed in any one lot in these experiments. Neither was a net profit, based

**TABLE 5.—Gross Return per Acre of Meadow Crop Fed—
Three-year Average**

Lot number	Corn silage	Corn and cob meal. Hay	Corn and cob meal. Hay-crop silage	Corn and cob meal. Hay-crop silage	Hay. Hay-crop silage. Pasture. Corn and cob meal
	1 Yearlings	2 Yearlings	3 Calves	4 Yearlings	5 Calves
Steer cost per cwt.	\$ 21.67	\$ 21.67	\$ 22.67	\$ 21.67	\$ 22.67
Steer cost per head	147.53	148.27	123.81	148.16	115.63
Selling price per cwt.	22.01	21.78	21.62	22.07 (21.69)	20.80
Selling price per head	232.24	229.23	202.84	235.41 (234.28)	209.11
Gross return per head	84.71	80.96	79.03	87.25 (81.12)	93.48
Percent of total TDN supplied by meadow crops	14.6	56.5	52.9	59.3	68.6
Gross return due to TDN supplied by meadow crops	\$12.26	\$45.77	\$41.80	\$51.82 (47.84)	\$64.31
Area of meadow crop utilized per head, acre	0.13	0.59	0.46	0.59	0.80
Gross return per acre of meadow crop utilized	\$97.36	\$78.11	\$92.12	\$87.76 (82.15)	\$80.89

() Figures in parentheses are averages for the first two years only and are presented due to an unusually high carcass grade and yield of the cattle in Lot 4 during the third year. This two year average is believed to be a more representative value of the ration fed this lot than the three year average.

on feed prices, calculated because of the inaccuracies of estimating the value of pasture and silage which do not have a cash market value. The prices of other feeds are also greatly influenced by supply and demand and are likely to be different in the future than during the period in which these experiments were conducted. Therefore, the returns given are strictly gross returns based on the difference between purchase cost and sale value per head. These returns will also be influenced by changes in the feeder and fat cattle markets. However, the relative returns between treatments should remain fairly constant.

RESULTS

The detailed results obtained in each of the three years are presented in Appendix Tables 1, 2 and 3. A study of these three tables shows that although there were some variations, the results of the three years were quite consistent. Average results for the three experiments are given in Tables 4 and 5.

Corn Silage vs. Hay-crop Silage

In these experiments, nearly identical results in rate of gain, dressing percentage, carcass grade and selling price were obtained when yearling steers were fed corn silage and soybean oil meal (Lot 1) or hay-crop silage and 8 pounds of ground ear corn per head daily (Lot 4). Steers fed corn silage produced an average of 137 pounds more beef per acre of cropland than those fed hay-crop silage and ground ear corn. This is in very close agreement with the 143 pounds advantage obtained in previous experiments reported in Ohio Research Bulletin No. 753.

Corn silage has been shown to be the top producer of beef per acre. However, when fed such a ration, cattle can utilize only a very limited amount of meadow crop. In these experiments, they used only 0.13 acre of hay per head. Even though they utilized only a limited area of meadow crop they did return a high value for that which was consumed (Table 5).

Hay vs. Hay-crop Silage

Lots 2 and 4 were included in these experiments to compare the value of hay and hay-crop silage when fed with equal amounts of corn to fattening yearling steers. In two of the three years, the steers fed silage gained faster than those fed hay with an average advantage for the three years of 0.10 pound per head daily.

During the first two years there was little difference between the two lots in dressing percentage or carcass grade. In 1956-1957 the lot fed hay-crop silage yielded nearly two percent more carcass and graded two-thirds of a grade higher than those fed hay. Considering the results obtained during the first two years and also previous experiments with the same rations, this high grade and yield is believed to have been due largely to a chance allotment of the cattle rather than to the ration fed. For this reason, the average results for the first two years as well as the three year averages are presented for this lot in Table 5.

The steers fed hay-crop silage produced 20 pounds more beef per acre of total crops but utilized the same area of meadow crop as those fed hay. Considering the two-year average, the steers fed silage returned about \$4.00 an acre more for the meadow crop utilized.

These results show some advantage in favor of feeding hay-crop silage and a small amount of hay over feeding hay alone with a given amount of corn. The advantage, however, is small and a much greater return is likely to be realized from a silo when it is filled with corn and the silage fed to fattening cattle.

Heavy Calves vs. Yearlings in the Use of Hay-crop Silage

Fattening calves require a higher proportion of grain in their ration than yearlings. In these experiments, the calves in Lot 3 were fed the same amount of corn per head daily as the yearlings in Lot 4. Both lots were fed all of the hay-crop silage they would eat. The calves ate an average of 24.2 pounds of silage and 3.5 pounds of hay while the yearlings ate 33.3 and 3.9 pounds of each, respectively.

With the rations consumed, the calves and yearlings made nearly identical rates of gain. Thus, the calves had a definitely lower silage requirement per unit of gain and produced 96 pounds more beef per acre. An average of the first two years shows that the carcass grades and yields and hence the selling price of the calves and yearlings were very much the same. The high carcass grade and yield of the yearlings in the third year was discussed in the previous section.

Yearling steers utilized a larger area of meadow crop per head, 0.59 acre as compared to 0.46 acre consumed by the calves. However, the calves were smaller and on a thousand pounds of body weight basis these values became 0.66 and 0.61 acre for the yearlings and calves, respectively. Although the calves cost \$1.00 per hundredweight more as feeders, their more efficient gains resulted in a gross return of about \$10.00 more per acre of meadow crop than realized by the yearlings.

Calves Fattened in Dry Lot vs. Calves Wintered, Grazed and Fattened on Pasture

As would be anticipated, calves which were wintered largely on hay and hay-crop silage, grazed for about 60 days and then fed on pasture obtained the largest percentage of their TDN from and utilized the largest area of meadow crops of any of the comparisons made. The three year average shows that these cattle obtained 68.6 percent of their total digestible nutrients from meadow crop and utilized 0.80 acre per head of it. This compares to 52.9 percent and 0.46 acre for the calves fattened in dry lot.

The pounds of beef produced per acre of total crops and the gross return per acre of meadow crops varied more from year to year for the cattle wintered and grazed than they did for the other groups. These variations were due largely to the greater area of pasture required and the relatively lower calculated selling price of the cattle during 1956. The three year averages show that the steers wintered and grazed produced about the same amount of beef per acre and returned about the same dollars per acre of meadow crops as yearling steers fed hay or hay-crop silage in dry lot.

The sale prices of the steers fed on pasture were calculated from the same carcass values, Table 2, as used for the cattle fed in dry lot and sold in the spring. Actually, Table 3, the pasture-fed cattle sold for an average of a little over one dollar per hundredweight more even though their carcass grade and yield averaged lower, Table 4, than those fattened in dry lot. This indicates that, during this three-year period, the general cattle market was higher in the fall than in the spring. If the sale price of the pasture-fed cattle is calculated to be one dollar per hundred higher than for the other four groups, the gross return per acre of meadow crop utilized compares very favorably with the calves fattened in dry lot.

Bloat is a difficulty often encountered in grazing pastures high in alfalfa and clovers. This was true in these experiments. There were numerous cases of mild to severe bloat in two of the three years. Two steers died in 1957. Two other steers were lost in 1955 but they are not included here since they were implanted with stilbestrol and the results published elsewhere. Advancements are being made in the control of bloat; however, it is certainly something to be considered where meadow crops high in alfalfa or clover are to be used for pasture.

DISCUSSION

The results of these experiments indicate that liberal amounts of meadow crops may be satisfactorily used in a number of ways in rations for fattening cattle. The proportion which can be used will be determined by the length of the feeding period and the age of the cattle fed. With the systems of feeding studied here, it was necessary to feed 20 to 25 bushels of corn per head for the steers to reach high good to choice grade. In practice, this amount would vary, depending upon the original weight and condition of the cattle, the length of time they were fed and the final slaughter grade desired. With the present demand for choice grade beef, the cattle in these experiments may have been more profitable if they had been fed to a higher grade. Only about a half feed of corn was fed per head daily. This could be increased to a full feed which, however, would result in a smaller amount of meadow crop being utilized.

Good quality meadow crops high in legumes are a relatively rich source of protein. With the feeds fed in these experiments, other than the corn silage fed to Lot 1, the rations were adequate in this nutrient without the addition of a protein supplement. In this respect meadow crops are much superior to corn grain or silage.

Even though older, heavier cattle have generally been considered best for the utilization of large amounts of roughage, the highest value received for the meadow crop fed was from the calves. This is an example of the more economical gains made by calves as compared to older cattle. It must be remembered, however, that good quality forages were used in these experiments, and that calves are not adapted to the use of large amounts of poor quality roughage.

Returns per acre of meadow crop were only slightly higher when fed as silage than when fed as hay. Corn silage produces considerably more beef per acre than ground ear corn. In this instance relatively good quality feed is made of the stalks and leaves which may otherwise be wasted or utilized inefficiently. When meadow crops are stored as silage, the same plant parts are harvested as when made into hay. Thus, a large increase in returns would not be expected from hay-crop silage as compared to good quality hay. Generally speaking, therefore, when used for fattening cattle, a higher return is likely to be realized from a silo when it is filled with corn than when filled with meadow crops.

The main advantage in hay-crop silage is that a good quality feed can be made when weather conditions may be adverse to making a good quality hay.

SUMMARY

For three years, different ages of feeder steers and various methods of feeding were compared to determine which age and/or method would make the maximum and most profitable use of meadow crops. Yearling steers fed corn silage, supplement and hay produced the most beef per acre of total cropland and the greatest return for the meadow crop utilized but consumed only a limited amount of meadow crop. Yearling steers fed a half feed of ground ear corn, hay-crop silage and hay produced slightly more beef per acre and returned slightly more for the meadow crop utilized than similar steers fed the same ration without hay-crop silage. Steer calves utilized less meadow crop per head but produced more beef per acre and a greater return per acre of meadow crop than yearling steers when fed the half feed of corn, hay-crop silage and hay ration. Of the total TDN consumed, the highest percentage supplied by meadow crops and the largest area of meadow crop utilized per head were obtained with steer calves wintered on hay-crop silage, hay and limited corn, grazed and then fed corn on pasture the following summer. Returns per acre of meadow crop utilized with these cattle compared very favorably with the calves fattened in dry lot on hay, hay-crop silage and corn even though they tended to grade slightly lower. Values of the cattle at the end of the experiments were determined from actual carcass grades and weights.

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APPENDIX TABLE 1

Utilization of Meadow Crops by Fattening Cattle—1954-1955

Lot number	Corn silage	Corn and cob meal. Hay	Corn and cob meal. Hay-crop silage	Corn and cob meal. Hay-crop silage	Hay. Hay-crop silage. Pasture. Corn and cob meal	
	1	2	3	4	5	
	Yearlings	Yearlings	Calves	Yearlings	Calves	
					Winter	Summer
Number in lot	12	10/9*	10	10	20	10
Average initial weight, lbs.	662	659	528	666	430	634
Average final weight, lbs.	1079	1047	955	1085	642	975
Number days fed	213	213	213	213	168	158
Average daily gain, lbs.	1.96	1.77	2.00	1.97	1.26	2.16
Average daily ration, lbs.:						
Ground ear corn		8.0	8.0	8.0	1.50	6.2
Soybean oil meal	1.5					0.4
Corn silage	40.7					
Hay-crop silage			25.5	34.4	20.9	0.8
Hay	2.6	14.6	3.0	3.0	4.7	1.9
Feed per cwt. of gain, lbs.:						
Ground ear corn		457	393	402	119	288
Soybean oil meal	75					19
Corn silage	2076					
Hay-crop silage			1272	1749	1662	37
Hay	134	825	152	155	371	88
Cost of feed per cwt. of gain	\$15.06	\$20.10	\$15.41	\$17.55	\$13.84	
Pounds of beef produced per acre	641	397	526	444	543	
Area of meadow crop utilized per head, acre	0.11	0.62	0.49	0.62	0.79	
Dressing percentage	59.9	59.2	57.1	57.8	57.3	
Carcass grade	10.0	9.6	10.1	9.8	9.1	
Selling price per cwt.	\$21.96	\$21.85	\$20.97	\$21.18	\$20.80	
Percent of total T.D.N. supplied by meadow crops	12.6	55.7	52.7	58.4	70.0	
Gross returns per acre of meadow crop utilized	\$104.82	\$75.48	\$83.33	\$79.39	\$94.71	

*One steer died April 21, 1955.

APPENDIX TABLE 2

Utilization of Meadow Crops by Fattening Cattle—1955-1956

Lot number	Corn silage	Corn and cob meal. Hay	Corn and cob meal. Hay-crop silage	Corn and cob meal. Hay-crop silage	Hay. Hay-crop silage. Pasture. Corn and cob meal	
	1	2	3	4	5	
	Yearlings	Yearlings	Calves	Yearlings	Calves	
					Winter	Summer
Number in lot	12	10	10	10	23	12
Average initial weight, lbs.	712	720	563	725	542	716
Average final weight, lbs.	1114	1130	985	1130	719	1016
Number days fed	218	218	218	218	182	131
Average daily gain, lbs.	1.85	1.88	1.93	1.86	0.98	2.29
Average daily ration, lbs.:						
Ground ear corn		8.0	8.0	8.0	2.0	8.2
Soybean oil meal	1.5				0.5	
Corn silage	40.5					
Hay-crop silage			20.7	28.2	11.9	
Hay	3.7	14.8	4.3	5.4	7.2	2.0
Feed per cwt. of gain, lbs.:						
Ground ear corn		423	403	419	206	358
Soybean oil meal	80				48	
Corn silage	2191					
Hay-crop silage			1072	1517	1218	
Hay	202	786	223	291	743	89
Cost of feed per cwt of gain	\$15.78	\$15.42	\$13.72	\$16.47	\$17.71	
Pounds of beef produced per acre	663	530	660	527	420	
Area of meadow crop utilized per head, acre	0.14	0.54	0.41	0.54	0.88	
Dressing percentage	59.3	59.1	61.2	60.4	56.8	
Carcass grade	10.2	10.4	9.8	10.1	9.2	
Selling price per cwt.	\$21.79	\$21.76	\$22.44	\$22.20	\$20.65	
Percent of total T.D.N. supplied by meadow crops	17.0	56.4	52.0	58.8	66.0	
Gross returns per acre of meadow crop utilized	\$89.64	\$79.67	\$102.59	\$84.91	\$61.67	

APPENDIX TABLE 3

Utilization of Meadow Crops by Fattening Cattle—1956-1957

Lot number	Corn silage	Corn and cob meal. Hay	Corn and cob meal. Hay-crop silage	Corn and cob meal. Hay-crop silage	Hay. Hay-crop silage. Pasture. Corn and cob meal	
	1	2	3	4	5	
	Yearlings	Yearlings	Calves	Yearlings	Calves	
					Winter	Summer
Number in lot	12	10	10	10	24	24/22*
Average initial weight, lbs.	667	672	547	658	558	696
Average final weight, lbs.	1057	1059	945	1066	696	1055
Number days fed	194	194	194	194	154	161
Average daily gain, lbs.	2.01	2.00	2.05	2.10	0.90	2.24
Average daily ration, lbs.:						
Ground ear corn		7.9	7.8	7.8	3.3	5.7
Soybean oil meal	1.5					0.1
Corn silage	44.5					
Hay-crop silage			26.4	37.2	12.2	
Hay	3.3	15.4	3.3	3.4	6.2	2.6
Feed per cwt. of gain, lbs.:						
Ground ear corn		398	382	373	363	254
Soybean oil meal	73					6
Corn silage	2212					
Hay-crop silage			1287	1769	1358	
Hay	164	772	161	164	686	115
Cost of feed per cwt. of gain	\$15.65	\$17.61	\$14.80	\$16.59	\$21.27	
Pounds of beef produced per acre	530	435	524	451	471	
Area of meadow crop utilized per head, acre	0.13	0.60	0.47	0.61	0.74	
Dressing percentage	60.3	59.5	59.0	61.3	58.0	
Carcass grade	10.7	9.4	9.0	11.5	8.7	
Selling price per cwt.	\$22.28	\$21.72	\$21.45	\$22.83	\$20.95	
Percent of total T.D.N. supplied by meadow crops	14.3	57.5	54.0	60.7	69.9	
Gross returns per acre of meadow crop utilized	\$97.62	\$79.17	\$90.45	\$98.98	\$86.28	

*Two steers died of bloat on May 7 and May 10, respectively.