

Fattening Yearling Steers on Corn Silage and Supplements

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This feeding experiment with yearling Hereford steers had three objectives:

1. To learn to what extent alfalfa hay will replace soybean oilmeal as a protein supplement.
2. To observe the effect of adding stilbestrol to the ration.
3. To compare a grain mixture of two parts barley and one part oats with an all barley grain feed.

Forty steers were taken off a rather closely grazed pasture Sept. 20. After one week in dry lot on a full feed of hay they were weighed into four lots for winter feeding. Feeding was begun early in the fall because it has been observed year after year that cattle make little gain on pasture during October in this area.

It is more desirable to get a good feed lot gain during "October's Bright Blue Weather" than to get a mediocre, though less expensive, pasture gain. All lots were fed all the corn silage they would clean up twice daily. Alfalfa hay was fed at 2½ pounds per head per day in three lots, and was fed at five pounds per head per day in one lot.



FIGURE 1.—Lot 2 steers at market time, March 22, 1956. This lot had the lowest feed cost and netted \$10 per head more for the feeding period.

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Soybean oilmeal was fed at one pound per head per day in the high alfalfa lot, while two pounds were fed in the other three lots. Steamed bonemeal and trace mineralized salt were added to the supplements at the rate of .2 pound and .07 pound, respectively, per head each day. Ground grain was introduced into the rations after 63 days at five pounds per head per day. The two pound allowance of soybean oilmeal was reduced to 1½ pounds when grain feeding started. Three lots received a grain mixture of two parts barley to one part oats, while the fourth lot received ground barley only. Stilbestrol was fed in one lot at 10 milligrams per head per day mixed with the soybean oilmeal. The principal points of comparison among the four lots are shown in table I.

TABLE I.—High Roughage Rations for Fattening Yearling Steers—1955-56.

	Lot 1	Lot 2	Lot 3	Lot 4
Number of steers	10	10	10	10
Average initial weight (pounds)	760	760	760	760
Average final weight	1048	1103	1065	1073
Gain per steer	288	343	305	313
Daily gain per steer	1.65	1.96	1.74	1.79
Days on feed	175	175	175	175
Daily feed consumption per steer—				
Corn silage	49.3	49.7	50.3	50.4
Soybean oilmeal	1.0	1.69**	1.69**	1.69**
Alfalfa hay	5.0	2.5	2.5	2.5
Grain (barley and oats 2:1)	5.0*	5.0*	5.0*	
Grain (barley only)				5.0*
Steamed bonemeal	.2	.2	.2	.2
Trace mineralized salt	.07	.07	.07	.07
Stilbestrol		10 mg.		
Feed consumed per 100 pounds gain—				
Corn silage	2993	2536	2887	2816
Soybean oilmeal	61.1	86.3	97.0	94.4
Alfalfa hay	305.6	128.3	144.2	140.6
Grain (barley and oats 2:1)	194.4	163.3	183.6	
Grain (barley only)				178.9
Steamed bonemeal	12.2	10.3	11.5	11.2
Trace mineralized salt	4.3	3.6	4.0	3.9
Feed cost per 100 pounds gain	\$19.61	\$16.80	\$19.01	\$18.53
Initial cost per hundredweight	18.25	18.25	18.25	18.25
Initial value per steer	138.70	138.70	138.70	138.70
Feed cost per steer	56.48	57.61	57.98	58.00
Total cost per steer	195.18	196.31	196.68	196.70
Selling price per hundredweight	15.80	16.20	15.85	16.00
Value per head (average)	165.58	178.69	168.80	171.68

Feed prices—silage, \$7.20 per ton; alfalfa hay, \$18.00 ton; barley, 72¢ bu.; oats, 48¢ bu.; soybean oilmeal, \$80.00 ton; bonemeal, \$100.00 ton; trace mineralized salt, \$54.00 ton.

*Grain was fed the last 112 days only.

**Soybean oilmeal was fed at two pounds per head per day for 63 days, then fed at 1½ pounds per head per day for the last 112 days.

The finished steers were graded and the lot average dressing percentage was determined by a committee of packer buyers at the time they were sold. All steers were sold to a west coast packing company where it was expected that some of them would be fed

an additional 30 days before slaughter. Table II shows the grades and dressing percentages as estimated at selling time.

TABLE II.—On the Hoof Grades and Estimated Dressing Percents of Fat Steers.

Grade:	Lot 1	Lot 2	Lot 3	Lot 4
Choice (number of animals)	4	7	4	5
Good (number of animals)	4	2	5	5
Commercial (number of animals)	2	1	1	0
Dressing percent	56	58	57	57½

Discussion

Forty yearling steers in four lots were fed corn silage, alfalfa hay, soybean oilmeal and minerals for 175 days, beginning Sept. 28. Ground grain was added to each ration in the amount of five pounds per head per day during the last 112 days of the feeding period.

Increasing the ration of alfalfa hay from 2½ pounds to five pounds at the same time that soybean oilmeal was reduced from 1.69 pounds to one pound resulted in slightly lower gains and lower grade and estimated dressing percent at the market.

The addition of 10 milligrams stilbestrol to the ration produced .22 pound more gain per day, a higher degree of finish, and netted about \$10 per head above the control lot.

An all-barley grain feed appeared to produce better finished and higher dressing steers than a grain mixture of two parts barley and one part oats.

The overall lower average daily gains of these steers is discussed. Possible causes, such as slow initial gains and the unusually cold winter are mentioned.

The overall average rate of gain for the 40 steers in this experiment was one-fourth pound per head per day lower (1.78 pounds) than the rate obtained in either of two previous winter feeding trials (2.03 and 2.04). This lower overall rate of gain was due, in part, to low gain during the first 30 days on feed. The average daily gain of all steers in the trial reported here was 1.84 pounds for the first 30 days on feed, while the first 30 day average in the two previous years was 2.35 pounds and 3.13 pounds.

Another factor in the low gains of the recent trial was the persistent cold weather of the winter. It has been observed for several winters that the weights of all cattle regardless of plan of nutrition reflect the severity of the weather during the several days immediately preceding the taking of weights. Apparently, cattle do not eat or drink as well in severely cold or stormy weather. The low daily silage consumption during the past winter may possibly be a consequence of the colder than normal winter weather.

Summary of Results

The results of the winter feeding experiment reported here bring out the following points:

First, increasing the alfalfa hay to five pounds per day in lot 1, while withholding soybean oilmeal of about equal protein content, did not pay. Lots 1 and 3 were fed alike except for the alfalfa hay and soybean oilmeal; lot 1 received a double allowance of alfalfa hay but received about .7 pound less soybean oilmeal than lot 3. For lot 1, \$4.83 worth of soybean oilmeal was replaced by \$3.94 worth of alfalfa hay, which is a good trade from the standpoint of out-of-pocket cost, but the net return was \$1.72 per head less for lot 1 steers than for lot 3.

Second, the addition of 10 milligrams per day of stilbestrol in the ration of lot 2 steers yielded about one-fifth pound more gain per steer per day than the control lot. This additional gain and consequent higher condition of lot 2 steers netted \$10 per head more for the feeding period.

Third, there was a slight advantage in gain and grade for the barley fed steers (lot 4), over the barley and oats fed control lot 3. The difference in gain was only eight pounds per head but this weight plus the 15 cents per hundredweight higher selling price of the barley fed steers netted \$2.86 per head more than the control lot.

None of the lots returned a profit over feed costs for the winter, yet the feed costs per 100 pounds gain were not excessive. Lowest cost lot was the stilbestrol supplemented lot at \$16.80 per hundredweight. Highest cost lot was the higher alfalfa hay lot at \$19.61 per hundredweight. The negative margin of about \$2.25 per hundredweight between buying and selling price was the biggest factor causing loss.

HAY HARVESTING METHODS UNDERGO IMPORTANT CHANGES

The trend in hay harvesting during the past 15 years has been toward time, labor and space saving methods, reports USDA. Baling of hay has had its ups and downs as a harvesting practice. At the end of World War I, nearly one-fourth of the hay crop was baled, but by 1939 the percentage had declined to one-seventh. The figure had risen to about one-half in 1948, and by 1954 almost three-fourths of the hay crop was baled. Handling and storing hay in long, loose form has declined rapidly in recent years—from 86 percent of the crop in 1939 to only 20 percent in 1954. The practice of chopping hay rose from 2 percent in 1944 to 7 percent in 1954.

Popularity of the baling method is largely the result of development of the automatic baler and the use of twine for tying. It is estimated that in 1942 some 25,000 pickup balers were in use, but by 1955 the number had climbed to 448,000, with Iowa alone accounting for 38,000, or an average of 1 for every 5 farms in the state. The Corn Belt, the Lake states and the Northeast, together, had almost two-thirds of the nation's pickup balers at latest count. In 1944 most pickup balers used wire ties and bales were hand tied. By 1951 about 38 percent of all hay was twine tied, and by 1954 more than 50 percent was tied with twine. The practice of putting up hay in long, loose form is still important in West Virginia, North and South Dakota, Montana and Wyoming, where 40 percent or more was harvested by this method in 1954.