Fattening Steers, Open Heifers and Spayed Heifers on High Roughage Rations

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This station has reported (Bimonthly Bulletin Vol. XVI, No. 6, and Vol. XVII, No. 6) results of feeding trials with steers which have been placed on high-roughage rations as long yearlings in the fall and finished with a five-months feeding period.

For the feeder cattle producer, some of the benefits to be derived from feeding out yearling steers are better distribution of marketings, the year-around utilization of labor and equipment, and the providing of a ready market for much of the surplus roughage and grain that may be produced on the ranch or farm. The feeder cattle producer sometimes does not have sufficient pasture to allow turning his yearling steers out in the spring, but prefers to finish them in dry lot as yearlings. A second question the producer of feeder cattle faces is how to best market the excess of heifer calves which are not required for replacements. Spaying has been suggested for those heifers which are to be finished for slaughter.

This preliminary report covers one trial with both steer and heifer calves which were wintered well, then fattened in dry lot in three groups—steers, open heifers and spayed heifers.

Twenty Hereford calves, eight steers and 12 heifers, were weaned November 1st and lotted together at initial weights of 350 pounds for the steers and 302 pounds for the heifers. They were full-fed corn silage plus limited amounts of alfalfa hay, soybean oilmeal, oats and minerals for 166 days. At the close of the winter feeding period half of the heifers were spayed, after which all animals were re-lotted into three lots—steers, open heifers and spayed heifers. The two largest steers were removed at that time in order to lower the average weight of all steers and to equalize the number in all lots.

During the 162 day summer fattening period, corn silage was full fed to all lots. The steers consumed an average of 44 pounds of corn silage per head daily, while each lot of heifers consumed about 40 pounds of corn silage per head daily. All lots were fed baled alfalfa hay at the rate of 2½ pounds per animal per day, soybean oilmeal at the rate of about 1.3 pound per animal per day and bonemeal and trace mineralized salt at .2 pound and .07 pound per animal per day respectively. All animals were fed three pounds of ground oats per head per day until the last 60 days of the feeding period when five pounds of a mixture of two parts ground barley to one part ground oats was fed per animal daily. All feeding was done once daily in the mornings. Individual weights were taken at 30 day intervals. Feeding data for both the wintering phase and the summer finishing phase of the experiment are presented in Table I.

TABLE I.—**Winter feeding of Hereford calves preliminary to summer fattening.**

	All	Steers	Heifers
No. of animals	20	8	12
Avg. initial wt.	321 lbs.	350 lbs.	302 lbs.
Avg. 166 day wt.	579 lbs.	626 lbs.	548 lbs.
Avg. daily gain	1.55 lbs.	1.66 lbs.	1.48 lbs.
Feed Per 100 Lb. Gain			
Corn silage	1780 lb. @ ½¢		
Oats	143 lb. @ 2¢		
Alfalfa hay	94 lb. @ 1¢		
Soybean oilmeal	78.4 lb. @ 5¢		
Steamed bonemeal	7.8 lb. @ 5½¢		
Trace mineral salt	2.7 lb. @ 2¾¢		
Feed cost per 100 lb. gain	$17.12		

Summer finishing of steers, open heifers and spayed heifers.

	Steers	Open Heifers	Spayed Heifers
No. of animals	6	6	6
Avg. initial wt.	596	548	547
Avg. final wt.	884	817	784
Avg. daily gain (162 day finish period)	1.78	1.66	1.46
Feed Per 100 Lb. Gain			
Corn silage	2450	2404	2751
Barley and oats	206	222	251
Alfalfa hay	140	150	170
Soybean oilmeal	73.8	79.3	89.9
Steamed bonemeal	7.4	7.9	9.0
Trace mineral salt	2.6	2.8	3.1
Feed cost per 100 lb. gain	$21.94	$22.44	$25.57
Selling price per 100 lb. wt.	$19.30	$17.90	$18.70

Feed prices used: corn silage $10.00 ton, barley and oats $40.00 ton, alfalfa hay $20.00 ton, soybean oilmeal $100.00 ton, steamed bonemeal $110.00, and trace mineralized salt $55.00 ton.

Steers gained slightly faster than heifers during both winter and summer feeding periods. Average daily gains for steers and heifers during the winter were 1.66 pounds and 1.48 pounds respectively, or a difference of .18 pound per day in favor of steers. During the summer feeding period, average daily gains were 1.78 pounds for steers and 1.66 pounds for heifers, a difference of .12 pound per day. One factor influencing the rate of gain was the fact that the steers were initially 48 pounds per head heavier than the heifers in both feeding periods. The spayed heifers did not keep pace with the open heifers in daily gains, 1.66 pounds vs. 1.46 pounds, although both consumed approximately the same amounts of feed per day.

The spayed heifers lagged behind the open heifers in daily gains each month except the last month of the summer, when they outgained the open heifers by .25 pound per day. The spaying operation

did not cause a noticeable reduction in feed consumption, but the spayed heifers gained only 20 pounds per head during the first 15 days after the operation. The heifers not spayed gained 30 pounds during these same 15 days.

Gains of both heifers and steers were more efficient during the wintering phase than during the summer finishing phase of the feeding period. Since steers and heifers were all fed together during the winter period, their relative efficiency was not determined. Both sexes together gained at a feed cost of $17.12 per hundredweight during the winter. During the finishing period which followed, the steers gained at a feed cost of $21.94 per hundredweight, and the open heifers' gains cost $22.44, just 50 cents per hundredweight more. The spayed heifers were much less efficient at converting feed to beef; their gains cost $25.57 per 100 pounds.

At market time, the spayed heifers did not have the bloom shown by the open heifers, yet they sold for 80 cents per hundredweight more than the open heifers. Steers, spayed heifers and open heifers sold for $19.30, $18.70 and $17.90 in that order. The steers were not noticeably better finished than the open heifers, but were 67 pounds heavier at market time.

Steers Gained Faster and More Economically

One group of light weight Hereford steers and heifers was fed together from weaning, November 1, to April 13, when one half of the heifers were spayed. The three classes, steers, open heifers, and spayed heifers were then finished separately on the same ration of corn silage and supplements for 162 more days. Steers outgained heifers by .18 pounds per day on the wintering ration, and outgained open heifers by .12 pounds per day on the fattening ration. Spayed heifers lagged behind open heifers in daily gains by .20 pounds per day. Feed cost per 100 pounds gain was $17.12 for both steers and heifers on the wintering ration. During the finishing period, each 100 pounds of beef produced cost $21.94, $22.44 and $25.57 for steers, open heifers, and spayed heifers respectively. The spayed heifers sold for 80 cents per hundredweight more than the open heifers, partially offsetting the higher feed cost charged to the spayed heifers.

The number of farms in North Dakota is the smallest in nearly half a century. For 1953 it is estimated that there were only 63,000 farms in the state. The trend has been steadily downward for nearly 20 years. The U. S. Census of Agriculture listed only 45,332 farms in 1900. In 1910 the Census listed 74,360 farms or 18 per cent more than in 1953. Both the number of farms and the land in farms increased very rapidly up to 1910. After that the number of farms increased more slowly, reaching a peak of 86,000 in 1933. There was a slow but steady decline in number of farms for the next few years and a fairly rapid decline since 1936.