

# Spayed Heifers vs. Steers And Open Heifers for Feeding

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To spay or not to spay heifers is a question asked by some feeders. Interest in the practice of spaying heifers is indicated regularly.

Some of the earliest experimental work on spaying appears to be that of Wilson and Curtis of the Iowa Experiment Station (1894, 1896). The authors stated, "We can go the length of saying that we have found no advantage to the spayed lot from the operation of this experiment."

Gramlich (1925, 1926) and Gramlich and Thalman (1930) conducted a series of experiments on comparisons of steers, spayed and open heifers, and found no appreciable advantage from spaying as measured by rate of gain and feed efficiency in the feed lot.

Similar results were reported by Hart, Guilbert and Cole (1940). Dinusson, Andrews and Beeson (1950) made studies of open, spayed and open heifers plus stilbestrol. The heifers receiving the stil-

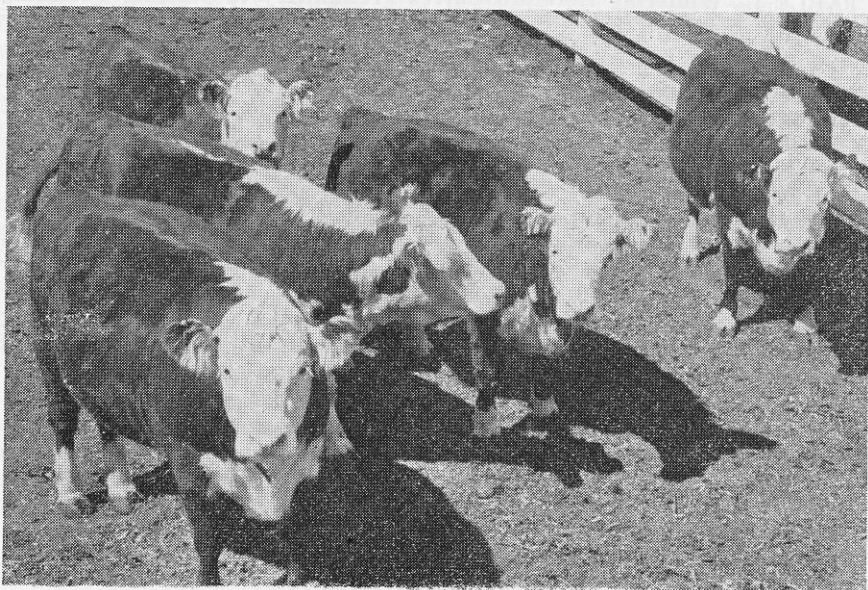


FIGURE 1.—Lot 4 heifers spayed at 3 months old. Five graded choice and one good. Picture taken Aug. 23, 1956, as sold. Only five of the six are in picture.

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bestrol outgained the open heifers and both outgained the spayed heifers. The authors stated in the summary, "Spaying of heifers for the feed lot resulted in decreased rate of gain and decreased feed efficiency."

In a previous report from this station (Langford, et al., 1955) results of comparisons of steers, open heifers and spayed heifers on high roughage rations showed lower rate of gain and poorer feed efficiency for the spayed heifers. Additional trials were made to determine if age of the heifers at spaying had any effect.

On Oct. 31, 1955, 6 steers, 12 heifers, and 6 heifers that had been spayed at 3 months of age, were weaned and separated into three lots for winter feeding preparatory to summer fattening. All lots were fed alike on corn silage, alfalfa hay, whole oats, soybean oilmeal, bonemeal and trace mineral salt to Apr. 30, 1956.

Average weaning weight of the 6 steers was 342 pounds; the 12 heifers weighed an average of 332 pounds, and the 6 heifers that had been spayed about 3 months before weaning weighed 335 pounds.

All calves were fed once daily. Corn silage was fed at about the level the animals would clean up, while all other feeds were fed at a predetermined level. The wintering phase of the feeding period is summarized in table I.

TABLE I.—Wintering Hereford Calves Preliminary to Summer Fattening.

	Steers	Heifers spayed at 3 months	Open heifers
Number of animals	6	6	12
Average initial weight	342	335	332
Average final weight	655	607	603
Days on winter feed	182	182	182
Average daily gain	1.72	1.49	1.49
Daily feed consumption per animal—			
Corn silage	26.4	27.7	24.7
Alfalfa hay	1.5	1.5	1.5
Whole oats*	2.33	2.33	2.33
Soybean oilmeal	1.32	1.32	1.32
Steamed bonemeal	.132	.132	.132
Trace mineral salt	.046	.046	.046
Feed consumed per 100 pounds gain—			
Corn silage	1533	1854	1662
Alfalfa hay	87	100	101
Whole oats	136	156	157
Soybean oilmeal	77	88	89
Steamed bonemeal	7.6	8.8	8.9
Trace mineral salt	2.6	3.1	3.1
Feed cost per 100 pounds gain	\$11.87	\$13.96	\$13.34

\*2 pounds until last 60 days, then 3 pounds.

Both lots of heifers, spayed and open, gained 1.49 pounds per head per day over winter. The steers gained at the rate of 1.72 pounds per head per day. The spayed heifers consumed 3 pounds more silage per day than did the open heifers, therefore, their

gains cost more per hundredweight. The steers made more efficient use of their feed than did either lot of females. The feed cost (rates at foot of table II) of each 100 pounds gain on the steers was \$11.87, on the open heifers was \$13.34 and on the spayed heifers was \$13.96.

A similar winter feeding trial conducted one year earlier (Langford, et al., 1955) gave almost identical cost of gains data. The average cost of 100 pounds gain on mixed calves in the earlier trial was reported as \$17.12. When we apply the feed prices of the earlier trial to the average total feed consumed per 100 pounds gain in this trial, we arrive at a feed cost of \$17.15 per 100 pounds gain on all calves in this trial.

About two weeks before the close of the winter feeding period, 6 of the 12 open heifers were spayed. On May 1, 1956, the wintering phase was closed and the yearlings were reallocated by class: Steers, open heifers, early spayed heifers, and later spayed heifers.

The ration for the final 114 day period was similar to the wintering ration. Silage was increased as the animals grew, alfalfa hay was increased from 1½ to 2½ pounds. Soybean oilmeal was increased from 1.32 to 1.50 pounds, and the grain ration was changed from oats to ground barley and oats mixed 2:1 and fed at 5 pounds per day.

All animals were graded and dressing percentages were estimated by a committee of packer buyers at the time the animals were sold. Subsequently, actual carcass grades and dressing percentages have been furnished by a packer who bought 12 of the 24 head. A summary of the final feeding period and carcass information is presented in table II.

The steers went into the summer feed lot weighing about 50 pounds more than the average of all heifers. Average daily summer gains were 2.01 pounds for steers, 1.92 pounds for open heifers, 1.91 pounds for heifers spayed at 1 year, and 1.82 pounds for heifers spayed at 3 months. Although daily silage consumption between lots varied within a narrow range from 34.3 pounds for open heifers to 36.6 pounds for heifers spayed at 1 year, the silage required to produce 100 pounds gain was higher in both lots of spayed heifers than in the open heifer or steer lots. Total feed costs per 100 pounds gain during the summer for steers, open heifers, late spayed heifers, and early spayed heifers respectively were \$14.57, \$15.19, \$15.67, and \$16.41. The selling price per hundredweight for lots in the same order was \$20, \$20.10, \$20.60 and \$20.40.

Selling prices reflected differences in both finish and class of animals. The top price of \$20.60 was paid for spayed heifers that all graded choice. Second highest price was paid for the other lot of spayed heifers which graded slightly lower, 5 choice and 1 good. The open heifers were all choice, but brought the lower price, presumably because they were not spayed. The steers, which ordinarily would be expected to command top price, sold lower

than the heifers because of lack of finish. Three steers graded choice and three graded good.

TABLE II.—Summer Fattening of Steers, Open Heifers and Spayed Heifers.

	Steers	Open heifers	Heifers spayed at 1 year	Heifers spayed at 3 months
Lot number .....	1	2	3	4
Number of animals .....	6	6	6	6
Average initial weight .....	655	609	597	607
Average final weight .....	884	828	814	814
Days on finishing ration .....	114	114	114	114
Average daily gain .....	2.01	1.92	1.91	1.82
Daily feed consumption per animal—				
Corn silage .....	34.8	34.3	36.6	36.4
Alfalfa hay .....	2.5	2.5	2.5	2.5
Ground barley and oats 2:1 .....	5.0	5.0	5.0	5.0
Soybean oilmeal .....	1.5	1.5	1.5	1.5
Steamed bonemeal .....	.133	.133	.133	.133
Trace mineral salt .....	.067	.067	.067	.067
Feed consumed per 100 pounds gain—				
Corn silage .....	1734	1791	1916	2002
Alfalfa hay .....	126	132	132	139
Ground barley and oats 2:1 .....	251	263	264	277
Soybean oilmeal .....	75	79	79	83
Steamed bonemeal .....	6.7	7.0	7.0	7.4
Trace mineral salt .....	3.4	3.5	3.5	3.7
Feed cost per 100 pounds gain .....	\$14.57	\$15.19	\$15.67	\$16.41
Selling price per hundredweight .....	20.00	20.10	20.60	20.40
Carcass grades .....	3 choice 3 good	6 choice	6 choice	5 choice 1 good
Dressing percentage .....	57.00	57.96*	56.71*	56.50

\*Actual percentage and grade reported by the packer. Other lots were estimated by committee.

Feed Prices Used Throughout Season of 1955-1956—Corn silage, \$7.20 a ton; alfalfa hay, \$18 a ton; barley, 72 cents a bushel; oats, 48 cents a bushel; soybean oilmeal, \$80 a ton; steamed bonemeal, \$100 a ton, and trace mineral salt, \$54 a ton.

In this and the earlier experiment from this station the results were quite similar. In each case the steers gained faster than the open or spayed heifers. Further, less feed was required per pound of gain by the steers. This is in agreement with the studies of Gramlick and Thalman (1930). The heifers spayed at 1 year of age gained slightly faster during fattening than those spayed at 3 months of age. This seems reasonable because the early spayed heifers did not have the stimulation to growth which usually accompanies puberty as a result of increased production of female hormones. Increasing the female hormone content, even with the hormone-like substance stilbestrol, usually increases growth rate and feed efficiency of heifers (Dinusson, et al., 1950; Clegg and Cole, 1954), particularly on full feed.

No advantage has been observed for spaying on rate of gain, efficiency of gain, or degree of finish. Apparently any advantage

of spaying must be as a result of management practices or a preference shown by packer buyers who may be assured that pregnancy will not decrease dressing percentage.

### Summary:

No advantage for spayed heifers over open heifers was observed in feed lot trials.

Steers made faster and cheaper gains than either open or spayed heifers.

### References:

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## 5 SUGGESTIONS FOR FARM SANITATION

Much in the way of disease prevention can be accomplished by good sanitation. Disinfection of barns, pens and yards is a very definite part of good sanitation. Some means of disinfection and the diseases it will help to prevent are presented below:

1. Ringworm of cattle—Spray the barn walls, pens, floors and yard fences with a whitewash of slaked lime with 4 ounces of cresylol per gallon of solution. Remove all manure and bedding from surfaces before spraying.
2. Footrot—Add 5 pounds of copper sulfate (blue vitriol) to 100 pounds of barn lime. Place this mixture in the alley of the barn so cattle entering and leaving must walk through it. This mixture may also be spread about the watering tank or feed box if the soil is contaminated with the footrot organism.
3. The newborn (navel cord) and castration—Apply a tincture of iodine liberally to the navel immediately following birth or to the area in which the incision for castration is to be made.
4. Disinfection of stock tanks and feed troughs—Clean and scrub with a quaternary ammonium compound (Roccal) at 200 parts per million (1-5000) or sodium hypochlorite (Hilex) at 50 parts per million. Any good dairy utensil cleaning preparation will work as a means of disinfecting stock tanks or feed troughs.
5. Farrowing—Scrub the farrowing pens with a 2 percent lye solution (1 pound of lye to 5½ gallons water). Lye is caustic, thus workers should be protected with rubber boots and gloves while applying it, and pens and pen floors should be thoroughly dry before bringing in the hogs.—By Dr. I. A. Schipper, Assistant Veterinarian.