

Heifers vs. Steers in the Feedlot

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At times, heifers can be more profitable to feed than steers. You can usually buy heifers at 8 to 14 cents a pound less than steers for feedlot replacements. On the basis of their merit as feeder or stocker cattle, heifers are often underpriced in comparison to steers. This is especially true when you manage heifers to reduce some of their pregnancy and estrus problems. Heifers finish more quickly than steers; for you, this means a faster cash flow. In addition, feeding both heifers and steers can prolong marketing time.

However, as feeders heifers are not worth as much as steers because:

- They usually sell for \$1.50 to \$2 a hundredweight less than steers at slaughter.
- Heifers finish with fewer total pounds of gain in the feedlot to offset negative margins; there's a higher cost per pound of feeder vs. slaughter animal.
- Heifers gain about 10 to 13 percent more slowly than steers and require from 3 to 10 percent more feed for a unit of gain.
- Pregnancy causes poor performance and decreases the selling price of slaughter heifers.

Slaughter discounts

Slaughter heifers usually sell from \$1.50 to \$2 a hundredweight less than steers. It is debatable, though, whether slaughter heifers merit this much discount. Heifers have lighter carcasses, and that increases the packing cost per hundredweight of carcass. A heifer weighing 150 to 200 pounds less than a steer may have 45 to 50 cents per hundredweight more packing cost. A slaughter heifer that is five to six months pregnant has 2.5 to 3.5 points less dressing percentage because of the lost weight of the fetus and fetal fluids and membrane. If 20 percent of the heifers were pregnant and carcasses were worth \$100 per hundredweight, the lower dressing percent of the pregnant heifer would make the group worth 60 cents per hundredweight less on a live basis. More fat trim on overfed heifer carcasses can be part of the reason for heifer discounts.

Feedlot performance

Heifers gain more slowly than steers in the feedlot. But whether heifers have lower feed conversions than steers is not quite so clear cut. In a California study, heifer calves gained 8.6 percent more slowly than steers but had no significant difference in feed conversion, carcass quality, or cutability grade. This study indicated that a 460-pound heifer would reach low choice grade about 60 days sooner and 200 pounds lighter than a 500-pound steer calf of a similar body type. The lower feed conversions of heifers may be caused by pregnancy and by heifers being fed up to a greater carcass-fat composition.

The performance of steers and heifers in five comparisons is summarized in Table 1. From the data in Table 1, it appears that heifers gain 10 to 13 percent more slowly in the feedlot. A 4 to 5 percent reduction in feed conversions for heifers in comparison to steers is characteristic. However, this may stretch to 10 percent when heifers yield fatter carcasses in feeding programs similar in length to those of steers.

Table 1. Heifers vs. steers in feedlot.

Trial state	Age	Days fed difference	Daily gain (%)	Feed/gain (%)
Michigan	Calf	-5	-14	-11.3
Minnesota	Yearling	0	-19	-11.0
Texas	Yearling	-10	-13.8	-3.3
California	Calf	-60	-8.6	-0.0
Missouri	Calf	0	-12	-10
Average			-13.5	-7.1

Heifers gain 13.5 percent more slowly and require 7.1 percent more feed to gain in feeding periods ranging from 0 to 60 days shorter than steers.

A partial reason for the heifer's inferior performance is that selecting 30 to 40 percent of them for herd replacements lowers the genetic value of those left for feeders.

Value of feeder heifers

It's easy to see that heifers are worth less than steers as feeders. Let's estimate how much. The biggest source of discount for a feeder heifer is her \$2 per hundredweight lower slaughter price. This amounts to a \$4.22 discount per hundredweight for a 450-pound heifer sold at 950 pounds.

A 5 percent reduction in feed conversions can add an extra \$10 per head to your feed bill for a 500-pound gain on a 450-pound heifer ($5 \times \$40 \times 0.05$). This reduces the worth of the 450-pound heifer by \$2.22 per hundredweight. If you get her too fat and have a 10 percent lower feed efficiency, the reduction would be \$4.44 per hundredweight.

Pregnancy should not be a big problem with 450-pound or lighter heifers. If 20 percent of the 600-pound heifers were pregnant and it cost 20 percent more to feed them, this would add another \$1.33 per hundredweight to the discount on the heifers.

Slower gains would mean more interest and other non-feed costs on the cost of gain. This and extra death losses could add another \$1 per hundredweight to the discount on heifers. This totals \$7 to \$7.50 per hundredweight discount for the feeder heifer (see Table 2). So heifers could be more profitable to feed than steers when the purchase price discounts on feeder heifers are greater than this.

Table 2. Discount (\$/cwt) for feeder heifers vs. steers.

Heifer weight, lbs.	450	600
Selling weight, lbs.	950	1,000
Gain, lbs.	500	400
\$2/cwt. slaughter discount		
($\$19 \div 4.5$)	\$4.22	
($\$20 \div 6.0$)		\$3.33
5% greater feed cost		
($5 \times \$40 \times 0.05 = \$10 \div 4.5$)	\$2.22	
($4 \times \$45 \times 0.05 = \$9 \div 6$)		\$1.50
20% pregnant, 20% more cost gains	?	
($4 \times \$50 \times 0.20 \times 0.20 = \$8 \div 6$)		\$1.33
Slower gains, more death losses, etc.	\$1.00	\$1.00
Total discount/cwt.	\$7.44	\$7.16

Pregnancy

Pregnancy is a major problem in feeding heifers. It is not unusual for 20 to 30 percent of yearling heifers to arrive at the feedlot pregnant. Seasonally, there's a high pregnancy rate in late fall and winter after heifers have been exposed to bulls on summer pastures. Calving problems in the feedlot, packer discrimination and poor performance are reasons pregnant heifers are costly. For pregnant heifers, feed efficiency is poor because feed is used to produce the fetus instead of red meat. Also, heifers that calve are slow to regain good performance. Pregnant heifers often cost 15 to 20 percent more to feed than open heifers in the feeding period.

Two products for aborting heifers are Lutalyse and Estrumate. Both products induce regression of the corpus luteum. The corpus luteum produces progesterone, a hormone that aids in maintaining pregnancy. However, these products are less effective after 120 days of pregnancy because progesterone is being produced by the uterus at this stage.

Studies indicate that a deep intramuscular injection of 25 milligrams of Lutalyse to feedlot heifers at 100 days of gestation or less aborts about 80 percent of the time within 14 days and about 90 percent of the time within 35 days. These abortifacients are about 70 percent effective for heifers 100 to 150 days pregnant and not very effective for those over 150 days of gestation.

It will cost about \$1.50 a head for a pregnancy check and \$5 a head for the abortifacient.

Feeding MGA, a feed additive, at the time of injection may interfere with the activity of the abortion material. Do not use MGA in the feed of heifers until seven days after injection of the abortifacient.

Spayed heifers

Spaying (removing the ovaries) of heifers prevents pregnancy and makes heifers adaptable to more management systems as feeder cattle. However, spayed heifers do not gain as fast and as efficiently as intact heifers. This is to be expected because ovaries produce sex hormones which stimulate growth and better feed conversion. But spayed heifers give great enough response to implants of Synovex-H or Ralgro that they have equal performance to heifers that were not spayed and were implanted with these growth promotants. Spayed heifers do not respond to MGA.

Because of the cost, risk of infection and the consideration mentioned, spaying feedlot heifers is not a common practice.

Implants and feed additives

Feed additives and growth-promoting implants increase the rate of gain and feed efficiency of heifers on growing and finishing programs. Feed efficiency can be increased from 7 to 10 percent and the rate of gain by 8 to 15 percent with proper use of these substances.

MGA is a feed additive that improves the rate of gain and feed efficiency of intact, open heifers and suppresses estrus. In a summary of 40 feedlot trials, it increased rate of gain by 10.3 percent and improved feed conversion by 6.5 percent.

Rumensin, another feed additive, improves the feed efficiency of heifers on a high-energy ration and improves both the rate of gain and feed efficiency of heifers on pasture or other high roughage growing rations.

Synovex-H and Ralgro are implants that improve both daily gain and the feed use of heifers on growing and finishing programs.

Proper use of one or more of these performance promotants are essential for efficient feeding of heifers.

Feeding management

There are many ways to grow and finish heifers for slaughter. A 350- to 400-pound heifer can be wintered on roughage and a minimum of concentrates so she gains about 1 pound daily. Then she can be put on pasture without grain in the spring. In late summer, she will weigh 600 to 700 pounds and be ready for about 100 to 130 days of high-grain feeding in dry lot.

About 1 percent of a heifer's body weight of grain can be fed on pasture to produce around 2 pounds daily gain. It may take 45 to 70 days of a full-feed of grain at the end of the pasture season to make the heifers grade low choice.

Include MGA or Rumensin in the concentrate feed on pasture to increase the rate and efficiency of gain.

Grain feeding can be delayed until July when pastures start to deteriorate in quality. The cattle could be brought to a full-feed or grain on pasture at this time. Whole shelled corn in self feeders can be used. No protein supplement is needed if there is some legume in the pasture.

Dry lot program

Heifers can be started in the feedlot at 450 pounds and kept on a high roughage ration with about 1 percent of their body weight in grain. Heifers can be kept on this ration until they weigh 550 to 650 pounds. They should gain from 1.75 to 2 pounds daily on this ration.

When the heifers weigh around 600 pounds, they can be started on a full-feeding program to gain around 2.4 to 2.7 pounds per day. When fed at this level, they should finish in about 130 days.

Rations for growing and finishing heifers are given in Tables 3 and 4. The soybean meal and minerals can be replaced with a commercial protein supplement that supplies an equivalent amount of protein. Figure soybean meal to have 44 percent crude protein. Urea supplements will give equivalent performance to soybean meal after the cattle are on a full-feed of the rations listed in Table 4.

Table 3. Rations for growing heifers, 400 to 600 pounds.

Feedstuff	Ration 1 ¹	Ration 2 ¹	Ration 3 ¹
	(pounds/day)		
Shelled corn		3.0	2.0
Corn silage	35		
Alfalfa hay		7.0	
Grass hay		5.0	12.0
Soybean meal	1.2		1.0
Dicalcium phosphate	0.06	0.06	0.05
Limestone	0.06		0.04
Salt	0.06	0.06	0.06
C. Protein % (DM)	11.0	14.8	11.0
TDN % (DM)	70.0	65.4	63.3
Est. daily gain	1.6	1.5	1.25
¹ Add 15 to 20,000 I.U. of vitamin A per head daily. C.P. is crude protein. D.M. is dry matter. T.D.N. is total digestible nutrients.			

Table 4. Rations for growing and finishing heifers, 600 to 1,000 pounds.

Feedstuff	Rations ¹					
	1	2	3	4	5	6
	(pounds/day)					
Shelled corn	17.0	18.0	17.0	10.0	15.0	15.0
Corn silage	10.0			25.0		
Alfalfa hay		3.5	4.0			6.0
Grass hay					5.0	
Soybean meal	0.8	0.2		1.0	0.8	
Dicalcium phosphate	0.06	0.07	0.04	0.05	0.04	0.05
Limestone	0.23	0.15	0.15	0.2	0.2	0.06
Salt	0.07	0.07	0.07	0.07	0.07	0.07
C. Protein, % (DM)	11.1	11.5	11.1	10.5	11.1	11.8
TDN, % (DM)	85.8	85.0	83.7	80.0	82.0	79.0
Estimated daily gain	2.5	2.5	2.4	2.25	2.3	2.2
*Add 25 to 30,000 I.U. of Vitamin A per head daily.						

If it's inconvenient to incorporate them into the concentrate portion of the ration, mineral ingredients can be combined in their respective ratios and offered free-choice.

Summary

Heifers must be managed differently from steers in feedlot programs. Heifers have pregnancy and estrus problems, finish in fewer days at lighter weights, gain more slowly and less efficiently than steers. Because of these differences and because they sell for \$1.50 to \$2 per hundredweight less as slaughter animals, you will have to purchase them at a lower price per hundredweight as feeder animals to make a profit comparable to steers in the feedlot.

According to the information in this MU publication, you will have to buy a 450-pound heifer for about \$7.50 less per hundredweight, and a 600-pound heifer for about \$7 less per hundredweight than comparable weights of steers for heifers to be as profitable as steers in the feedlot. Frequently, the purchase price for feeder heifers is more than \$7 to \$7.50 per hundredweight below that of similar weight steers. This could make feeding heifers more profitable than feeding steers.

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