

Beef Cattle Handbook



BCH-7390

Product of Extension Beef Cattle Resource Committee

Spaying Heifers

Roger Brownson, Extension Been Specialist, Montana State University

Spaying (ovariectomizing) female cattle is the surgical removal of the ovaries, or female castration. This removes the primary source of estrogen, the hormone that causes estrus. It also removes the source of ova, which combine with sperm cells after mating to initiate pregnancy.

Advantages

Heifer spaying may have several advantages in a beef cattle enterprise.

1. The heifer will not become pregnant. This will assure a cattle feeder that the heifer is "open" when she reaches slaughter weight.
2. The heifer will not come in heat, which should have some advantages in calming her and in reducing physical activity among heifers being fed or grazed together. It will also reduce the number of bulls required if these yearling heifers are run with the breeding herd.
3. Spayed heifers may marble somewhat sooner, so beef quality grade may be higher at a younger age. This could lessen the need for grain finishing of cattle, which could be advantageous if feed grain prices are high or feed grain is scarce.
4. It may help control overproduction by preventing future reproduction.

Disadvantages

Cattle spaying also has some adverse effects on cattle production and management.

1. Spayed heifers gain more slowly and less efficiently than intact heifers. A review of literature on heifer

spaying reveals that in almost all cases spayed heifers do not perform as well in the feedlot as intact, open heifers do. Both average daily gain and feed efficiency are substantially reduced. A study in Wyoming indicated the average daily gain of spayed heifers on range was 14.8 percent less than that of open, intact heifers.

2. The choice of keeping a heifer as a potential replacement for the breeding herd is removed.
3. There is some risk of death loss and extra labor associated with surgical removal of the ovaries. Recently, Colorado State University veterinarians developed a method of spaying heifers that does not require a flank incision. This method involves inserting a stainless tube into the heifer's abdomen through the anterior vaginal wall. The ovaries are inserted into the instrument, incised and removed. This instrument is available commercially to veterinarians and reduces surgical risk.
4. In some cases there may be some tax disadvantages in spaying heifers.

Spaying Techniques

Flank Spaying

An incision is made in the flank of the heifer and the two ovaries are surgically removed through the incision. Kimberling-Rupp (K-R) Technique A stainless steel cylindrical instrument is inserted through the vaginal wall and into the peritoneal cavity to remove the ovaries. Research comparing the K-R method with the conventional flank spaying method suggests that heifers undergo less stress

and that performance is slightly improved with the K-R technique. The K-R technique is fast, it lessens the likelihood of infection and eliminates hide damage.

Rumen-Autograft Technique

The rumen-autograft technique developed in North Dakota received extensive media coverage when it was reported that heifers spayed with this technique performed superior to steers. The rumen-autograft technique involves flank spaying the heifer conventionally and then implanting or grafting a small piece of ovary tissue to the outside lining of the rumen wall. The theory behind this technique is that the ovarian tissue attached to the rumen wall will be nourished by the extensive blood supply to this area, will grow and produce naturally occurring female hormones. That initial report of increased performance has not been substantiated, however.

Combined Procedures

Other spaying methods have combined the procedures of the K-R and rumen-autograft techniques. These involve spaying heifers using the K-R instrument or a similar device and allowing the ovaries to drop into the peritoneal cavity. The theory behind these methods is that the ovarian tissue will graft onto the abdominal wall and produce female hormones as in an intact heifer. However, this theory has not yet been proven.

Research Results

Considerable research has been conducted on the effect of spaying on heifer performance. Only limited information is available on performance with the newer tech-

niques. The following tables deal with the effect of spaying technique, implant treatment and feeding regime on heifer performance.

Table 1. Summary of Trials Comparing Unimplanted Spayed and Unimplanted Intact Heifers

Ration Type	Number Trials	Average Daily Gain		Percent Difference
		Spayed	Intact	
Grazing	5	1.60	1.68	-4.8
Finishing	19	1.97	2.09	-5.7

The Range Beef Cow Symposium

Table 2. Summary of Trials Comparing Implanted Spayed and Implanted Intact Heifers

Ration Type	Number Trials	Average Daily Gain		Percent Difference
		Spayed	Intact	
Grazing	8	1.81	1.75	+3.4
Finishing	10	3.05	2.98	+2.3

The Range Beef Cow Symposium

This study also involved testing the effects of both Synovex-H and Ralgro on spayed heifers grazed on summer pasture. The results showed that losses in weight gain of spayed heifers were completely restored to equal those of the open, intact heifers with the use of either a 36 milligram Ralgro implant or a 36 milligram Synovex-H implant. These results indicate that if a spaying program is used, an implanting program should also be incorporated.

Table 3. Effect of Spaying and Implanting on Heifer Performance

Item	No. Heifers	HERD 1				HERD 2					
		No. Heifers	Initial Wt. lbs.	ADG1 lbs.	Final Wt. lbs.	Gain lbs.	No. Heifers	Initial Wt. lbs.	ADG2 lbs.	Final Wt. lbs.	Gain lbs.
Intact						Intact					
No implant	26	395	2.08	724	329	No implant	4	371	2.00	675	304
Ralgro	23	392	2.10	724	332	Ralgro	5	439	1.95	735	296
Synovex-H	25	403	2.16	744	341	Synovex-H	5	408	1.98	709	301
Spayed						Spayed					
No implant	75	396	1.95	703	307	No implant	19	396	1.84	677	281
Ralgro	75	401	2.13	737	336	Ralgro	18	426	1.94	721	295
Synovex-H	74	399	2.17	742	343	Synovex-H	18	417	1.98	718	301

Herd 1 159 days on native range

Herd 2 153 days on native range

Montana State University

Table 4. Grazing Performance Of Spayed Heifers

Item	Intact	Surgical Treatment	
		Kimberling-Rupp Technique	Flank spayed Rumen Graft
No. Heifers	65	133	283
Begin Wt., lbs.	446	436	426
Final Wt., lbs	683	667	671
Daily Gain, lbs.	1.41	1.36	1.43

Kansas State University

Table 5. Feedlot Performance of Spayed Heifers

Item	Flank Intact	Flank Spayed	Spayed Rumen Graft
	Number	10	10
In Wt., lbs.	744	708	717
Out Wt., lbs.	956	916	909
ADG, lbs.	2.34	2.28	2.11
Feed/Gain	5.8	6.0	6.2

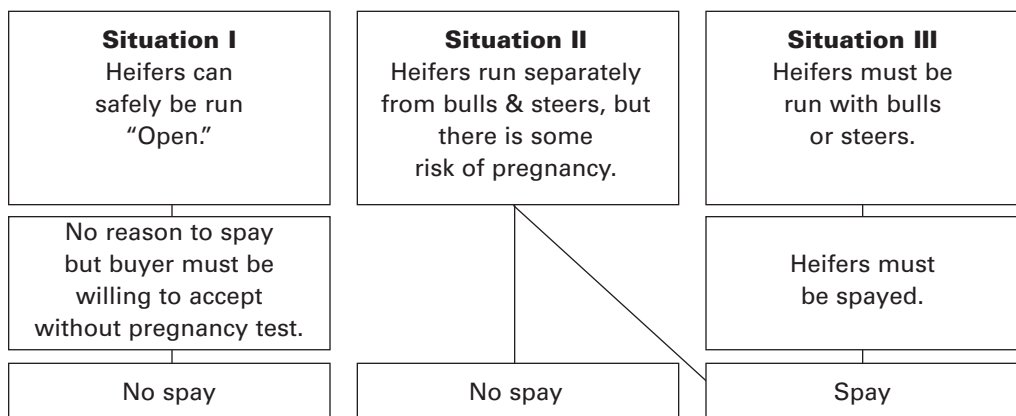
Purdue University

Table 6. Performance and Carcass Characteristics of Steers and Intact Heifers vs Spayed and Ovarian Autograft Heifers

Item	Intact Synovex-H	Treatments		Steers Compudose
		Spay/ Autograft No Implant	Spay/ Autograft Compudose	
Number of Animals	15	15	15	8
Initial wt., lbs.	606	592	614	746
Final Wt., lbs.	935	842	899	1092
ADG, lbs.	2.81	2.14	2.47	2.96
Yield Grade	2.32	2.34	2.19	2.50
Quality Grade ¹	11.93	11.86	11.57	11.88

¹ Quality Grade 12 = C-
Oklahoma State University

The following diagram might be useful in determining whether to spay or not to spay heifers destined for growing and finishing programs.



Costs		Your Figure	Your Figure	Your Figure	Your Figure
Surgery	n/a	n/a	n/a	n/a	\$3.00
Preg. Test	n/a	n/a	\$1.00	- -	_____
Labor	n/a	n/a	.50	_____	.50
Implant	?	?	?	n/a	1.00
Death Loss	n/a	n/a	n/a	n/a	.10
Interest on Additional Costs	n/a	n/a	—	_____	.15
Total			\$1.50		\$4.75
Costs on 700-pound yearling			\$.150	= \$.25/cwt	\$.475 = .68/cwt
			700		700

The cost may vary with different localities, but the increased cost for Situations II and III must be borne by an increase in sale price or labor savings.

Author:
Roger Brownson, Extension Beef Specialist, Montana State University

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