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**PERFORMANCE OF FLANK SPAYED RUMEN
AUTOGRAFTED HEIFERS**

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Summary

Flank spaying of intact yearling heifers has been a routine procedure for ranchers for several years. Most recently a new technique called rumen autografting has created a lot of interest with ranchers. The technique involves implanting or grafting a small piece of ovarian tissue into the outside lining of the rumen wall. A trial was initiated on May 14, 1986, to compare summer grazing performance of intact, flank spayed and rumen autografted heifers with and without a growth implant. The 231 crossbred heifers were randomly allotted to the trial and grazed together for 99 days as one herd. The results indicate the greatest increase in growth rate (19 lb additional) was due to the implant effect. Autografted heifers tended to gain slightly more than their counterparts, but the difference was not significant. This work supports other research which indicates that the benefits of rumen autografting are not substantiated.

(Key Words: Rumen Autograft, Flank Spay, Yearling Heifer.)

Introduction

One of the more popular topics of conversation in the stocker and feeder industries has been that of spaying heifers. Several different techniques for spaying have been developed recently. These have sparked the interest of veterinarians and cattlemen alike. The most recent called the rumen autograft technique was developed in North Dakota. It 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 heifers in the conventional manner and then implanting or grafting a small piece of ovarian tissue into 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 by other workers.

Considerable research has been conducted with spayed heifers over the years. Some of the early work dates back to the late 1800's and early 1900's. However, limited research has been reported on the newer techniques being developed and promoted at this time. Work was recently completed in South Dakota comparing the performance of spayed and rumen-autografted heifers grazing native rangeland.

Table 1 is a summary of trials adopted from Rupp et al. (1983) comparing spayed and intact heifers with and without growth implants. It becomes very evident from these trials that the removal of the source of naturally occurring hormones, the ovary, has a detrimental effect on performance, even more than the proposed reduction in performance as a result of heifers coming into heat.

However, the negative response to spaying is now reversed when the heifers are implanted. The data suggest a slight improvement in performance, a 3.4% increase in daily gain in grazing spayed heifers and a 2.3% increase in finishing spayed heifers. Although all trials presented in table 1 were not conducted to compare all possible combinations of implants and spaying, it can be concluded that spayed heifers must be implanted with a growth promotant if performance is to be acceptable.

Procedure

The 231 crossbred heifers used in this trial were randomly allotted to one of the following treatments on May 14, 1986. Forty-six of the heifers were left intact and received a Ralgro implant. Forty-eight were flank spayed by a practicing veterinarian and immediately rumen grafted with a small piece of ovarian tissue and implanted with Ralgro. Forty-six were flank spayed and implanted with Ralgro. Forty-six were flank spayed and immediately rumen grafted and forty-five were flank spayed only. All of the heifers received the same vaccinations and were handled as one group. They grazed native rangeland consisting predominantly of western wheatgrass approximately 30 miles north of Quinn, South Dakota. The heifers were weighed at the beginning and at the end of the 99-day trial.

Results and Discussion

The performance of the heifers in this study is summarized in table 2. The significant treatment effect was the added benefit from the implant, 20.9 and 18.7 lb additional for the rumen-grafted and flank spayed heifers, respectively. Although the implanted spay only and rumen-grafted heifers' performance was on the average 3.8% greater than for the intact implanted heifer treatment, this was not a significant difference. The heifers in the rumen-grafted treatment gained slightly more than the spayed only treatment for both the implanted and nonimplanted groups.

The results of this study are in agreement with work by Laudert in Kansas in which performance of rumen grafted and spayed only heifers grazing native range in Kansas were identical. A 1985 study at Purdue University evaluated the rumen graft technique in the feedlot. In this study the intact heifers gained slightly more than either flank spayed or flank spayed-rumen autografted heifers on the 91-day trial. None of the heifers received either a growth promotant or MGA.

The stocker operator most likely will have to receive a premium for his spayed heifers from the feedlot operator to realize a monetary gain from his time and effort spent to have the heifers spayed. Figures compiled by Dr. Bill Bennet, Monfort Cattle Feeding Division, Greeley, Colorado, indicate that feeding losses on heifers averaging 16.5% pregnancy when entering the feedyard range from \$1.25 to \$2.35 per hundred pounds of purchase weight, depending on how the heifers are handled in the feedyard. Pregnancy testing and aborting resulted in the lower figure, doing nothing but assisting those heifers

calving resulted in the higher figure. It seems logical that a stocker operator offering spayed heifers for sale could ask to receive a premium for those heifers. Premiums paid by feedyards will likely range from \$1 to \$3 per hundredweight, depending on the management program developed in the feedyard to handle pregnant heifers. The stocker operator should present the feedyard with a certificate signed by the veterinarian performing the spaying operation stating the technique used, number of heifers spayed and date spayed.

TABLE 1. EFFECT OF IMPLANTING ON SPAYED AND INTACT HEIFERS^a

Diet type	No. of trials	Avg daily gain, lb		Percent difference
		Spayed	Intact	
Grazing				
Nonimplanted	5	1.60	1.68	-4.8
Implanted	8	1.81	1.75	+3.4
Finishing				
Nonimplanted	19	1.97	2.09	-5.7
Implanted	10	3.05	2.98	+2.3

^a Adapted from Rupp et al. (1983), The Range Beef Cow Symposium.

TABLE 2. EFFECT OF SPAYING, RUMEN-GRAFT AND IMPLANTING ON PERFORMANCE OF YEARLING HEIFERS GRAZING NATIVE RANGE

Item	Intact	Implanted		Nonimplanted	
		Rumen-graft	Flank spay	Rumen-graft	Flank spay
No. of heifers	46	48	46	46	45
Init. wt., lb	528.1	540.3	532.9	536.8	519.7
Final wt., lb	737.5 ^{ac}	760.0 ^{bc}	747.9 ^{bc}	735.6 ^{ac}	716.1 ^a
Gain, lb	209.4 ^{abc}	219.7 ^b	215.0 ^b	198.8 ^{ac}	196.3 ^a
Avg daily gain, lb	2.11 ^{abc}	2.22 ^b	2.17 ^b	2.01 ^{ac}	1.98 ^a

^{a,b,c} Means in the same row bearing different superscripts differ ($P < .01$).