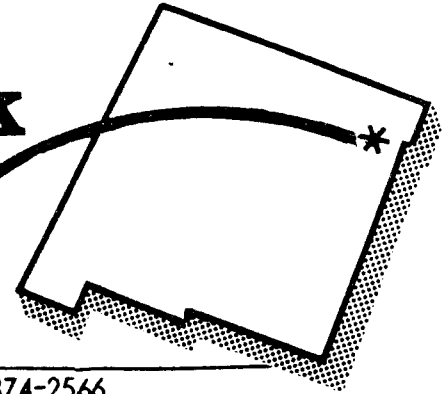




# Clayton Livestock Research Center

## PROGRESS REPORT



Route 1 Box 109

Clayton, New Mexico 88415

Tel. (505) 374-2566

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### EFFECTS OF A PRECONDITIONING PROGRAM ON HEALTH AND PERFORMANCE OF NEWLY WEANED CALVES RECEIVED IN THE FEEDLOT

Glen P. Lofgreen, Danny R. Garcia and Mark E. Branine<sup>1</sup>

Preconditioning of calves on the ranch prior to shipment has been practiced to some degree for several years. However, it has not met with universal success. Of course, there are many types of preconditioning and some may be more successful than others. Because of renewed interest in preconditioning in New Mexico the study described herein was undertaken.

On October 16, 1985 eighty cows and their calves at the Jornada Experimental Range Station in southern New Mexico were gathered, the calves weighed and forty calves weaned for preconditioning. The remaining calves and their dams were returned to native range. Preconditioning consisted of vaccination for IBR-PI<sub>3</sub> and 7-way blackleg, injection of ivermectin and vitamins A and D, feeding 4.8 lb. of alfalfa hay daily for 8 days and .9 lb. of cottonseed meal pellets for the same 8 days and an additional 14 days. The calves also had access to native range. On the 22nd day the control calves with their dams were gathered and the calves weighed and weaned. The following day control and preconditioned calves were shipped by truck approximately 450 miles to the Clayton Livestock Research Center arriving 14 hours following loading at the ranch. Upon arrival, the calves were sorted into control and preconditioned with four pens of 10 head in each group.

At the time of sorting, control calves were given IBR-PI<sub>3</sub> and 7-way blackleg vaccines, ivermectin and vitamins A and D which preconditioned calves had received at the ranch. Control calves also received long acting oxytetracycline at 9 mg per pound body weight and 37.5 g of sustained release sulfadimethoxine. All calves were branded and implanted with a growth promotant. Following sorting and processing, the calves were placed in their respective pens and given free access to a 75% concentrate milled feed for 27 days plus native grass hay for the first 7 days. Daily observations were made for signs of morbidity and calves diagnosed as morbid were brought in for treatment. Twenty-nine days following weighing at the ranch (27 days following processing at the feedlot) all calves were placed on an 85% concentrate finishing ration and fed for 157 days then sent to the packer.

Figure 1 is a plot of the weight gain of the control and preconditioned calves during the 22-day preconditioning period. It is apparent the preconditioning procedure used in this study depressed gains compared to control calves left with their dams. Table 1 presents the gains and other data for the preconditioning period. At weaning control calves were 20 lb. heavier than preconditioned calves and

<sup>1</sup> The authors express appreciation to Drs. Carlton Herbel, Ron Parker and Arnold Nelson for assistance during the preconditioning phase of the trial.

FIGURE 1. PRECONDITIONING PERIOD (22 DAYS)

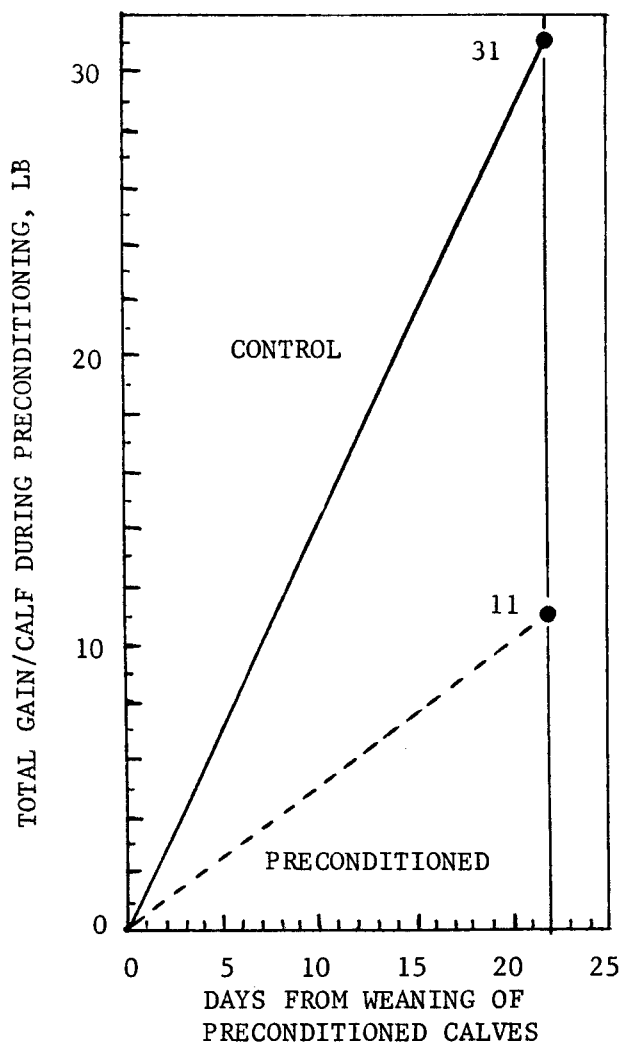


FIGURE 2. SHIPPING AND RECEIVING PERIOD (29 DAYS)

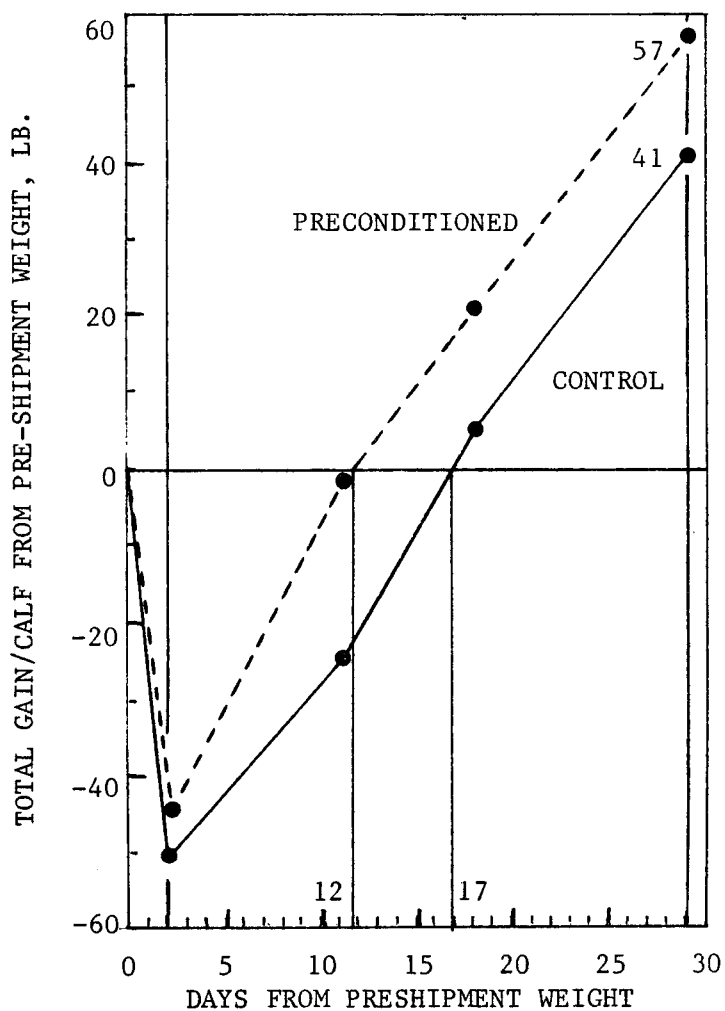


Table 1. Results of the three-week preconditioning period

Item	Treatment	
	Control	Preconditioned
Weight at beginning of preconditioning period, lb.	471	467
Weight after three weeks of preconditioning, lb.	502	478
Gain during preconditioning, lb.	31	11
Loss in gain due to preconditioning, lb.	-	20
Preconditioning feed, lb. per head		
Alfalfa hay	-	38
Cottonseed meal cubes	-	20
Total		58
Sale price of control calves at weaning, \$ per cwt.	70.00	
Value of calves @ \$70 per cwt. \$	351.40	334.60
Preconditioning costs		
Value of 20 pounds of lost gain, \$	-	14.00
Feeds, vaccines, etc.	-	5.78
Total cost of calves after preconditioning, \$	351.40	354.38
Breakeven price, \$ per cwt.	70.00	74.14
Necessary premium to pay for preconditioning, \$ per cwt.	-	4.14

Table 2. Performance during 29-day shipping and receiving period

Item	Treatment	
	Control	Precon- ditioned
Weight at end of preconditioning (purchase weight), lb.	502	478
Arrival weight at feedlot, lb.	452	433
Shipping shrink, lb.	50	45
Percent Shrink	10.0	9.4
Number of calves requiring treatment	12	6
Percent requiring treatment	30	15
Total number of treatment days	42	20
Treatment days per calf treated	3.5	3.3
Treatment days per calf purchased	1.1	.5
Deads	2	2
Weight after 29-day shipping-receiving period, lb.	543	534
Total gain from purchase weight, lb.	41	56
Daily gain from purchase, lb.	1.41	1.93
Daily receiving feed intake, lb.	11.85	13.44
Feed required per pound gain, lb.	8.40	6.96

sold for \$70 per cwt. To pay preconditioning costs and pay for the loss of 20 lb. of gain preconditioned calves would have to bring \$74.14 per cwt. or a premium of \$4.14 per cwt.

Weight gains of the calves in the 29-day shipping-receiving period are shown in figure 2. The more rapid gains of preconditioned calves during the first 10 days following arrival at the feedlot is noted in this figure. Thereafter, gains of the two groups were parallel. Table 2 shows the gains, feed consumption and health data for the receiving period. Preconditioned calves had a slightly lower transit shrink, had lower morbidity, ate more receiving feed, gained weight more rapidly and gained more efficiently than non-preconditioned calves. The differences in feed intake and weight gains were

especially noticeable during the first 10 days following arrival. During this time non-preconditioned calves consumed 7.89 lb. of feed daily and gained 2.93 lb. daily from arrival weight while preconditioned calves ate 10.24 lb. of feed and gained 4.77 lb. daily from arrival weight. The plot of weight gains in figure 2 shows that preconditioned calves required 12 days to regain their transit shrink while non-preconditioned calves required 17 days to regain their transit shrink.

The lower morbidity of preconditioned calves was achieved despite the preventive medication administered to control calves during processing at the feedlot.

During the 157-day finishing period (table 3) control cattle ate more feed, gained more rapidly and gained more efficiently

Table 3. Performance during the 157-day finishing period

Item	Treatment	
	Control	Precon- ditioned
Weight at end of receiving period, lb.	543	534
Weight after 157 days on finishing feed, lb.	1018	991
Gain during finishing period, lb.	475	457
Daily gain, lb.	3.03	2.91
Daily feed intake during finishing, lb.	20.95	20.81
Feed required per pound gain, lb.	6.91	7.15
Hot carcass weight, lb.	639	613
Dressing percent	62.8	61.9
Quality grade score <sup>1</sup>	11.4	11.6
Yield grade <sup>2</sup>	2.4	2.3

<sup>1</sup> Quality grade key: 10 = good, 11 = high good, 12 = low choice.

<sup>2</sup> Yield grade is scored from 1 through 5 with 1 being the highest yield of retail cuts.

Table 4. Costs during receiving and finishing

Item	Treatment	
	Control	Precon- ditioned
	\$	\$
Purchase price per cwt.	70.00	71.77
Total purchase price	351.40	343.06
Freight	5.40	5.14
Processing at the feedlot (incl. mass med. of controls)	8.57	1.25
Treatment of sick calves	2.10	.93
Receiving feed	18.10	20.73
Finishing feed	222.01	220.52
Interest	29.25	28.32
Total	636.83	619.95
Cost per cwt. of finished steer	62.56	62.56
Affordable premium for preconditioning, \$ per cwt.	-	1.77

than preconditioned cattle. Total weight gains during receiving and finishing (from pre-shipment weights) were 516 lb. for control cattle and 513 lb. for preconditioned cattle --only 3 lb. difference in total gain in 186 days from time of shipment from the ranch. There were no differences in carcass characteristics of the two groups of cattle at the end of the total operation. Thus, preconditioned calves performed better during the receiving phase at the feedlot, having less sickness, coming on feed more rapidly and gaining weight more rapidly than control calves. However, during the remainder of the feeding period control calves made up the difference.

Table 4 presents cost comparisons of con-

trol and preconditioned calves purchased from the rancher following the preconditioning period at time of weaning the non-preconditioned calves. If the non-preconditioned calves were purchased for \$70 per cwt. (as they were in this study) the buyer could afford to pay a premium of \$1.77 per cwt. for preconditioned calves and have the same cost per cwt. in the finished cattle of both groups.

Despite the superior performance of preconditioned calves upon arrival at the feedlot the type of preconditioning procedure used in this study does not appear to be cost effective for the rancher because the premium he needs to pay for preconditioning is larger than the buyer can afford.

Bobby J. Rankin, Head, Department of Animal and Range Sciences

Agricultural Experiment Station  
NEW MEXICO STATE UNIVERSITY  
Las Cruces, New Mexico 88003-0058  
David W. Smith, Director  
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