

Observations on Certain Aspects of Preconditioning Calves

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Story in Brief

Three trials to compare various weaning management practices and rations for weaned calves were conducted. Total lb. gain per calf for the 28-day experimental period by treatment in each trial were as follows: Trial I: Unweaned on pasture, 26; weaned on pasture, 14; weaned in a pen, 25. Trial II: High concentrate ration, 7; high concentrate plus roughage, 41; all roughage, 40. Trial III: Unweaned on pasture with creep, 34; weaned in trap, 32; weaned in drylot, 34.

In this experiment, (1) a high roughage ration was much superior to a high concentrate ration for newly weaned calves, (2) calves weaned in a pen performed better than calves weaned on pasture, but there was little difference between pen weaned and trap weaned calves, and (3) unweaned calves in the pasture, with or without creep, returned more above feed cost than weaned calves.

Introduction

Because of poor performance, excessive sickness, and high death loss of many newly arrived cattle in the feedlot, there has been much interest in preconditioning cattle previous to their transfer to the feedlot.

Preconditioning is not a clearly defined term. Some of the practices implied by preconditioning include, (1) weaning calves previous to shipment, (2) teaching calves to eat a grain ration, (3) conditioning calves to a confined environment with water and feed facilities similar to a feedlot, (4) treating for grubs, (5) treating for internal parasites, (6) immunizing against various diseases such as blackleg, IBR, BVD, parainfluenza and pasteurilla, (7) castrating, and (8) dehorning.

Some of these jobs, such as castrating and dehorning, are done routinely by good operators. Certain of the jobs, such as treating for grubs, treating for internal parasites, and immunizing against certain diseases, can undoubtedly be done most economically and efficiently by the feedlot operator, who is well equipped to perform many of the operations, and buys supplies in large quantities at a lower price than most ranchers.

The most important preconditioning jobs which can be performed on the ranch are weaning calves and teaching them to eat. This involves labor, feed, capital and risk. These added costs must either result in a

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premium selling price for the calves, or in a profitable weight gain of the calves, or both, of sufficient magnitude to justify the practices. Otherwise, the rancher will have little interest in preconditioning.

Whether a bonus will be commonly paid for preconditioned calves remains to be seen. The possibility is good in the case of large groups of calves accompanied by good assurance that certain preconditioning practices have occurred. The possibility is poor for small groups of calves, particularly if their identity is lost in marketing channels.

The rancher considering the practices of weaning calves and teaching them to eat must consider weight changes which will occur with certain management and feeding regimes. Three trials to obtain such information were conducted.

Trial I

This trial was conducted at the Ft. Reno Experiment Station, El Reno, Oklahoma.

Procedure

One-hundred-twenty steers and heifer calves, most of which were grade Hereford, were divided into three groups at a normal weaning age of 7 months in early October. Three practices were compared, as follows:

(1) In Group 1, calves were not weaned. They were allowed to remain on their dams in the pasture, without creep feed.

(2) In Group 2, calves were weaned and placed in a 40-acre native grass (bluestem) pasture which had not been grazed during the summer. A supplement (equal parts milo and cottonseed meal) was fed at the rate of 2 lb. per head daily. A small amount of alfalfa hay was fed initially to encourage the calves to start eating out of feed bunks in the pasture.

(3) In Group 3, calves were weaned and placed in a bermuda grass pen approximately one acre in size without shelter. Prairie hay was offered free-choice, and supplement (equal parts milo and cottonseed meal) was fed at the rate of 2 lb. per head daily.

The trial was conducted for 28 days. Initial, 14-day, and 28-day unshunk weights were obtained. Following the 28-day weighing, the calves were shrunk for 20 hr. without feed and water and weighed again.

Results

Results are summarized in Table 1. Calves on all treatments gained more during the first 14 days than during the second 14 days, possibly because of cool weather at the time of the 28-day weighing which probably reduced the water fill at that time. No sickness occurred in any of the groups.

Table 1. Results of Trial I.

	Weaning Treatment		
	Unweaned-Pasture	Weaned-Pasture	Weaned-Pen
1st 14-day gain, lb.	27	13	22
2nd 14-day gain, lb.	-1	1	3
28-day gain, lb.	26	14	25
Shrink, %	4.5	4.9	5.3
Daily feed, lb.			
Supplement	--	2.0	2.0
Prairie hay	--	--	9.3
Total feed, lb.			
Supplement	--	56	56
Prairie hay	--	--	260
Cost and returns, per head			
Value of gain, \$ ¹	7.28	3.92	7.00
Feed costs, \$ ²			
Supplemental feed	0	1.85	4.45
pasture	1.50	1.50	0
Total	1.50	3.35	4.45
Difference, gain less cost, \$	5.78	.57	2.55

¹ At 28¢/lb.

² At 3.3¢/lb. for supplement, 1.0¢/lb. for prairie hay, and \$1.50/head for pasture.

There was little difference in performance between the unweaned calves and those weaned in a pen. Both groups outgained the calves weaned in the pasture. Differences in shrinkage were not large.

Value of the 28-day gain, feed costs, and returns above feed costs are shown in Table 1. On the basis of assumed prices, the calves weaned in a pen were more profitable than those weaned on pasture. However, those calves which remained unweaned in the pasture were considerably more profitable than either weaned group. This advantage would be a valid one if the calves were weighed for delivery on the ranch. If the calves were delivered to a market, the weaned calves would probably regain some of their disadvantage because they would probably eat and drink more at the market.

The results of this trial indicate that, considering the advantage for unweaned calves of less feed cost, less labor cost, and less risk from potential sickness following weaning, a premium would be required to justify the preweaning of calves before selling.

Trial II

The trial was conducted at the Lake Carl Blackwell Range near Stillwater, Oklahoma.

Procedure

One-hundred-twenty calves, mostly Angus and Hereford, both steers and heifers, were weaned in early October at an average age of 6 months.

They were divided into three similar groups and each group was placed in a trap approximately 1 acre in size, with no shelter. Water was available in automatic tank type waterers. Three types of rations were fed:

(1) High concentrate. The ration was 90 percent concentrate (high in rolled milo), 10 percent roughage, and was offered free-choice. Prairie hay was offered free-choice the first day, and was gradually withdrawn within 3 days.

(2) Concentrates plus roughage. Prairie and alfalfa hays were offered free-choice, and the 90 percent concentrate mix was fed at a level of approximately 1 lb./100 lb. weight of the calves.

(3) All roughage. Prairie and alfalfa hays were offered free-choice.

The trial was conducted for 28 days, and weights were taken in the same manner as in Trial I.

Results

Results are summarized in Table 1. The gain performance of the calves fed the high concentrate ration was obviously poor. These calves went on feed rapidly and appeared to be doing well. However, a cold rain occurred during the night near the end of the first week, and within the second week many calves became sick. The disease was diagnosed as "shipping fever complex." A total of 7 calves quit eating completely, and an additional 10 calves were treated. Two calves died. Acidosis caused by the high concentrate ration was probably a factor contributing to the difficulty. A small amount of prairie hay was fed until the calves were again consuming the high concentrate ration.

In contrast, groups of calves receiving roughage free-choice performed well. Of the calves fed concentrates plus roughage, none went "off-feed" and only two were treated for shipping fever. Of the calves fed roughage only, none went off feed and none required treatment.

Gains of calves fed roughage only and those fed concentrates in addition to roughage were almost identical. As in Trial I, gain was better the first 14 days than the second 14 days, probably for the same reason. Shrinkage increased as the level of roughage in the ration increased, probably because of greater fill in the digestive tract.

With the prices which were assumed in Table 2, the calves fed roughage only showed the greatest return above feed cost for added gain during the post-weaning period, followed by the calves which were fed concentrates in addition to roughage. Calves fed the high concentrate ration showed a considerable loss, especially considering the death loss which occurred. This substantiates the commonly recommended practice of feeding considerable roughage when starting weaned calves on feed.

The return above feed cost by the calves fed roughage is sufficient to pay labor and interest costs and still show some profit, and might en-

Table 2. Results of Trial II.

	Ration		
	High Concentrate	Concentrate + Roughage	All Roughage
1st 14-day gain, lb.	5	30	33
2nd 14-day gain, lb.	2	11	7
28-day gain, lb.	7	41	40
Shrink, %	3.2	5.0	6.4
Daily feed, lb.			
Concentrates	6.0	3.2	0
Prairie hay	1.4	2.5	3.5
Alfalfa hay		9.5	10.9
Total feed, lb.			
Concentrates	168	107	0
Prairie hay	39	70	98
Alfalfa hay	0	266	305
Costs and returns, per head			
Value of gain, \$ ¹	1.96	11.48	11.20
Feed costs, \$ ²			
Concentrates	4.20	2.67	0
Prairie hay	.39	.70	.98
Alfalfa hay	0	3.99	4.57
Total	4.59	7.36	5.55
Difference, gain less cost, \$	-2.63	4.12	5.65
Death loss	-6.50		
Total	-9.13		

¹ At 28¢/lb.

² At 2.5¢/lb. for concentrates, 1.0¢/lb. for prairie hay and 1.5¢/lb. for alfalfa hay.

courage consideration of such a practice by the rancher. The weaned calves might even do better, relatively, if shipped to market because of better eating and drinking, and consequently higher selling weight, than unweaned calves. On the other hand, there is always the risk of sickness and death loss of weaned calves, especially due to cool nights and cold rain often encountered in the fall.

Trial III

This trial was conducted at the Lake Carl Blackwell Range near Stillwater, Oklahoma.

Procedure

Fifty-four Angus and Hereford calves, both steers and heifers, were divided into three groups in early October at a normal weaning age of 7 months. Three practices were compared.

(1) Calves in Group 1 were not weaned. They were allowed to remain with their dams on pasture, with access to a mixed ration in a creep feeder.

(2) Calves in Group 2 were weaned, placed in a small drylot pen for 3 days, then turned into a 5-acre trap which contained a pond and some

trees for shelter. They were allowed free access to prairie hay when weaned; the prairie hay was gradually withdrawn during the first week following weaning as the calves increased consumption of the mixed ration. The mixed ration was offered free choice after 24 hr. following weaning.

(3) Calves in Group 3 were weaned and placed in a small drylot pen without shelter with access to an automatic tank type water. These calves were shifted from prairie hay to the mixed ration in the same manner as the calves in Group 2.

Calves in all three groups received the same mixed ration which contained 38 percent roughage (28 percent cottonseed hulls, 10 percent dehydrated alfalfa pellets) and 62 percent concentrates (mostly rolled milo and cottonseed meal). Unshrunk weights were obtained initially, at 14 days, and at 28 days when the trial was terminated.

Results

Results are summarized in Table 3. During the first 14-day period the unweaned calves with access to creep feed gained considerably more than the weaned calves. During the 2nd 14-day period the weaned calves outgained the unweaned calves, in spite of the fact that about 80 percent of the creep consumed by the unweaned calves was consumed during this period. For the total 28-day period, there was little difference in gain among the three treatments.

Table 3. Results of Trial III.

	Treatment		
	Weaned in Pasture, Creep	Weaned in Trap	Weaned in Drylot
1st 14-day gain, lb.	21	6	1
2nd 14-day gain, lb.	13	26	33
28-day gain, lb.	34	32	34
Daily feed, lb.			
Concentrate mix	4.4	5.9	7.1
Prairie hay	0	1.5	1.4
Total feed, lb.			
Concentrate mix	123	165	199
Prairie hay	0	42	40
Costs and returns, per head			
Feed costs, \$ ²			
Value of gain, \$ ¹	9.52	8.96	9.52
Concentrate mix	2.83	3.74	4.58
Prairie hay	0	.42	.40
Pasture	1.50	0	0
Total	4.33	4.16	4.98
Difference, gain less cost, \$	5.19	4.80	4.54

¹ At 28¢/lb.

² At 2.3¢/lb. for concentrate mix, 1.0¢/lb. for prairie hay and \$1.50/head for pasture.

Calculation of value of the gain and return above feed cost showed a similar potential profit for the three groups of calves, with the unweaned calves the highest.

There was no sickness among the unweaned calves during the trial, while several calves in the weaned groups suffered from mild respiratory infections; 3 calves in the drylot group and 1 calf in the trap group required treatment with antibiotics.

If the calves in this experiment had been sold on the basis of ranch weights, there would have been no advantage in preweaning. The weaned calves actually returned less above feed costs than the unweaned calves, and presented more risk from sickness. Had the calves been hauled to market, the weaned calves should have had some advantage in regaining hauling shrink due to better eating and drinking at the market.

There was no advantage in these trials for preweaning calves in terms of increasing returns above feed costs. Had the calves been marketed at a central or auction market, the results might have been somewhat different. Furthermore, if calves were being sold direct, the possible superior performance of weaned calves might result in repeat sales, or possibly a premium, in subsequent years.

Methods of Harvesting and Processing the Sorghum and Corn Plants for Finishing Cattle

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Story in Brief

Yearling steers were used to compare four rations: (1) dry-harvested milo plus corn silage, (2) dry-harvested milo plus sorghum stover (silage or dry), (3) high-moisture-harvested milo plus corn silage, and (4) high-moisture-harvested corn plus corn silage. A supplement was added to all rations. The replacement of corn silage with sorghum stover resulted in little change in daily gain (0.1 lb. less), but a 9.3 percent improvement in feed efficiency. Steers on high-moisture-harvested milo or corn gained 10 percent faster and 19.0 and 23.9 percent more efficiently, respectively, than steers on dry milo. Net energy values followed the same trends as feed efficiency. Carcass traits were not significantly affected by rations.

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