

## COMMERCIAL WEANING RATIONS AND HOME GROWN FEEDS COMPARED FOR PRE-CONDITIONING CALVES

J.L. Nelson and D.G. Landblom

North Dakota cattlemen have asked this station to evaluate the performance of calves fed commercial weaning rations. Their interest has been in regard to expected daily feed consumption, resistance to stress related health problems, and overall economics of using the commercial program.

Past experience from numerous trials conducted at this station has shown that self-fed rations composed of home grown mixed hay and oats will promote good, steady, economical gains in calves following weaning.

This trial is designed to compare the "home grown" ration and the commercial ration with respect to animal response and cost.

On November 2, 1977 Hereford and Hereford X Longhorn crossbred calves from the station herd were weighed, weaned and sorted within breed and sex into six equal feeding groups. Three groups were assigned to be fed the commercial ration, and three groups served as controls and were fed the "home grown" ration. Based on recommendations of the commercial feed distributor, the trial was designed to run for not less than 21 days, and preferably for 28 days. The trial as actually completed in 1977 was for the 28 day period.

In 1978 the trial was repeated using Hereford and Angus – Hereford heifer calves from the station herd as well as two lots of Angus calves purchased at the local livestock auction market. The purchased calves were selected to better evaluate the pre-conditioning program insofar as stress and disease exposure were concerned. All calves on trial were scheduled for a 21 day feeding period. However, in order to fit local sale dates, the heifers were on trial for 27 days while the steers were fed a period of 25 days.

In 1979 the trial was repeated, using Angus steer calves purchased at the local livestock auction market. The calves were fed for a period of 20 days, at which time one lot on the home grown ration and one lot on the commercial ration were sold, to evaluate marketability and buyer appeal. Three remaining lots were continued on feed in the backgrounding phase of this study.

The home grown ration consisted of 20% oats and 80% mixed hay at the beginning of the trial. It was changed by gradually increasing the percentage of oats so that by the end of the feeding period the calves were eating a ration of 40% oats and 60% hay by weight. In 1979 the ration did not exceed 30% oats, because the shorter 20 day feeding period didn't safely allow time for the additional 10% increase in oats used in previous years. The commercial feed used was selected at random from feeds available in Dickinson, and was fed according to the manufacturer's recommendations. Both rations were self-fed in straight sided self-feeders designed for feeding high roughage rations. All feed was weighed in during the trial and feed left at the end of the trial was weighed back to give an accurate record of the amount of feed used. Feed waste was monitored throughout the trial, and was very minimal for both rations.

All calves in the trial were vaccinated. Station calves used in 1977 and 1978 were vaccinated approximately two weeks before weaning with a seven way vaccine and received a booster for enterotoxemia at weaning time. The purchased Angus calves were given the same vaccination, and branded upon arrival at the station. No booster for enterotoxemia was administered to the purchased calves that were sold. Careful daily observations for any health problems were made throughout the trial with treatment made where necessary. All calves were observed daily and those showing signs of lung congestion, heavy nasal discharge or slowness were checked for temperature. Those running a high fever were treated with a combination of penicillin (combiotic) sulfamethazine (Spanbolet) bolus according to label directions.

**Table 1. Three Year Combined Results of Pre-conditioning Trial**

	<b>Home Grown Fed</b>	<b>Commercial Fed</b>
Total number head	61	73
Average body weight gain, lbs.	49.5	56.9
Average Daily Gain, lbs/day	1.98	2.23
Average pounds of feed/head	302	336
Average pounds of feed/head/day	11.8	13.3
Average cost of feed/calf	\$ 9.82	\$ 21.12
Average feed cost/Cwt gain	\$ 21.04	\$ 36.58
Average pounds of feed/lb gain	6.1	5.9

**Table 2. Three Year Combined Results of Calves Pre-conditioned and Sold**

	<b>Home Grown Fed</b>	<b>Commercial Fed</b>
Total number of head	23	23
Average initial weight	417	411
Average final weight	465	469
Average weight gain	48	58
Average daily gain	1.95	2.33
Average pounds of feed/pound gain	5.8	6.6
Average pounds of feed/head/day	11.2	15.1
Cost of feed/head	\$ 9.32	\$ 23.90
Feed cost/Cwt gain	\$ 19.30	\$ 41.28
Average calf selling value	\$ 276.72	\$ 286.27
Average return over feed	\$ 267.40	\$ 262.37
Average selling price/Cwt	\$ 59.03	\$ 61.00

**Pre-conditioning Discussion:**

Based on three year's feeding of sixty-one calves fed home grown feeds and seventy-three calves fed a commercial pelleted pre-conditioning feed, we observed that:

1. Commercial fed calves gained 7.4 pounds (56.9 vs. 49.5) more weight during the 20-28 day feeding period.
2. Average daily gain favored the commercial fed calves by 0.25 pounds/head/day (2.23 vs. 1.98).
3. Calves fed commercial feed consumed thirty-four more pounds of feed per calf or 1.5 pounds more per day than control calves.
4. Due to the greater consumption and higher feed cost per pound, the feed cost per calf was \$11.30 more when commercial feed was fed.
5. The cost per hundred pounds of gain was \$15.54 higher with the commercial ration even though the commercial fed calves were slightly more efficient (5.9 vs. 6.1 pounds of feed per pound of gain).

At the end of the trial, calves from both feeding programs were marketed at the local livestock auction market.

Three year selling results with forty-six calves sold indicate the following results:

1. Commercial fed calves had gained ten pounds more weight (58 vs. 48 lbs.) or 0.38 pounds more gain per day.
2. Commercial fed calves grossed \$9.55 more (\$286.27 vs. \$276.72) than the control calves, although these calves incurred a \$14.58 higher feed cost.
3. Commercial fed calves sold for \$61.00 per Cwt vs. \$59.03 per Cwt for the controls.
4. Because of lower feed costs, the control (home grown fed) calves returned \$5.03 more per calf fed and sold.

While disease problems were not serious during the first two years of the trial, in 1979 calves in both treatment groups required individual medication for lung congestion and other "shipping fever" symptoms. We could not see any apparent advantage for the medicated feed as fed in these trials. Close observation and early specific treatment may have tended to mask some of the medicated feed benefits.

**Summary:**

Complete mixed rations composed of chopped mixed hay and ground oats self-fed will compare favorably with a complete pelleted commercial for getting weaned calves started on feed and in a gaining condition.

The commercial feeds were nutritionally sound and offered convenience and ease of feeding, although at a higher total cost. In these trials, calves fed the commercial feed consumed more feed, gained faster and sold for more gross dollars than the control calves. However, because of the lower cost of the home grown ration, calves fed this ration returned \$5.00 more per head than those fed the commercial ration.

This trial did not show any particular advantage for the use of medications in the pre-conditioning ration. We prefer to rely on close observation and early treatment on an individual basis when needed.

In order for producers to utilize the complete mixed rations, they must have access to either a portable grinder-mixer or other similar feed processing equipment. Producers with limited numbers of calves to feed may not be able to justify this equipment expense. Also, when roughage quality is poor and grain supplies are tight, producers may want to consider commercial feed during the pre-conditioning phase.