

Preparation of feeder steers to minimise sickness

Lloyd Fell

Formerly NSW Agriculture, Beef Industry Centre, UNE, Armidale NSW 2351
(Lloyd Fell retired in late 1999)

Enquiries: Keith Walker: (02) 4640 6390



Summary of paper presented at the 2001 Feeder Steer School

This is a report of research that was carried out with funding from the Meat Research Corporation and in conjunction with the Beef Quality CRC to show the effect of weaning management on the subsequent performance of cattle going into feedlots.

A new project has commenced to predict future feedlot performance from a blood sample taken during yard weaning using new blood tests developed by Dr Ian Colditz and others at the CSIRO, Armidale.

The Reasons for this Research

The beef breeding industry needs to add value to its products wherever this is cost-effective. Each step in the production chain is important. The point of entry to the feedlot is a critical one because cattle are most likely to suffer from respiratory disease and poor weight gain if they are distressed during the first few weeks in the feedlot. The best feeder steers are those which adapt to the feedlot quickly and easily.

This research was an attempt to produce superior feeder steers by yard weaning, training and pre-feedlot vaccination. The marginal benefit was measured by their health, welfare and weight gain in the feedlot.

To be healthy and profitable, a feeder steer has to:

1. Get onto feed and water quickly in the feedlot
2. Have strong resistance against respiratory disease
3. Adapt easily to the initial social and psychological stress in the feedlot
4. Achieve good feed conversion efficiency and weight gain

What We Did

Each year for three years, 200 steers (mainly Angus x Hereford) were weaned at 7-8 months of age, grown out on pasture for 6-9 months and then put into a large commercial feedlot where they were fed for 90 days. At feedlot entry, they were mixed with cattle from other sources to provide a realistic disease challenge.

Three methods of weaning were compared, with and without pre-feedlot vaccination.

1. The control group was weaned into a paddock (away from their mothers) without any supplementary feeding or handling.

2. The yard-weaned group was kept in secure yards for 10 days with reasonable quality hay or silage without any handling of the cattle during this time
3. The yard-trained group was given the same yard weaning plus a novel handling procedure to train the steers to find grain in a trough.

The Results

- Yard weaning produced better feedlot weight gain and less respiratory disease.

The yard-weaned and yard-trained cattle had a higher weight gain in the first month and over the 90-day feeding period than the paddock-weaned control groups. This difference was small in years 1 and 2, but was a 21% advantage after 90 days on feed in the third year, i.e. 1.45 kg/day for the yard-weaned compared with 1.20 kg/day for the paddock-weaned.

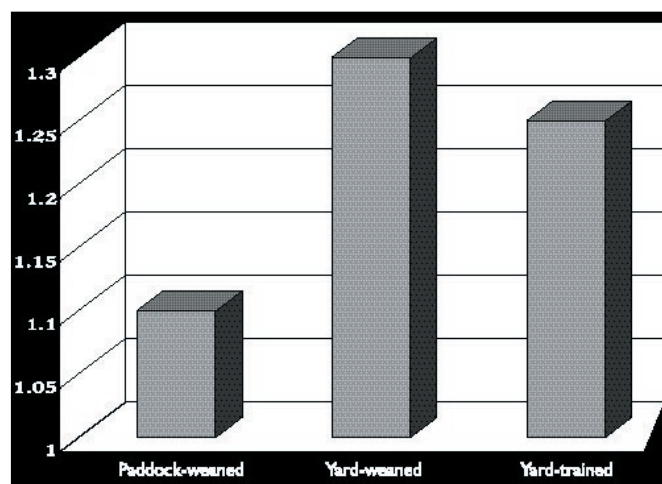


Figure 1. Average weight gain 78 days (kg/day)

There was no difference between the groups in pre-feedlot weight gain. The yard-trained groups were not significantly better than the yard-weaned - so there was no real advantage in giving them additional training to find grain in a trough.

There was a consistently lower incidence of disease in the yard-weaned groups compared to paddock-weaned controls. The proportion of yard-weaned animals pulled because of sickness was 2.0%, 4.1% and 5.9% or less than half that of paddock-weaned animals (5.4%, 10.2% and 22.7%) in each of the three years. The yard-trained groups were intermediate between these two.

- Vaccination produced better feedlot weight gain. The vaccination treatment also significantly improved weight gain in the first month and over 90 days. This difference was consistently about 8% (1.48 cf. 1.38 kg/day).

* As an interim measure, mixing of feeder steers from different sources for one month on pasture achieves useful natural vaccination by deliberate exposure to virus carriers.

Guidelines for the yard weaning:

- Well-built, weaner-proof yards with good quality water.
- Pen stocking density of 4m²/head for 180-260 kg calves
- Round bale feeder with good quality hay or silage each day.
- Kept in yards for 5-10 days.
- Some human presence each day, but not for specific training.
- Reasonably sloped, non-bog surface (e.g shale or coal dust).
- Solid opaque pen sides made from 1.2m rubber belting (optional).

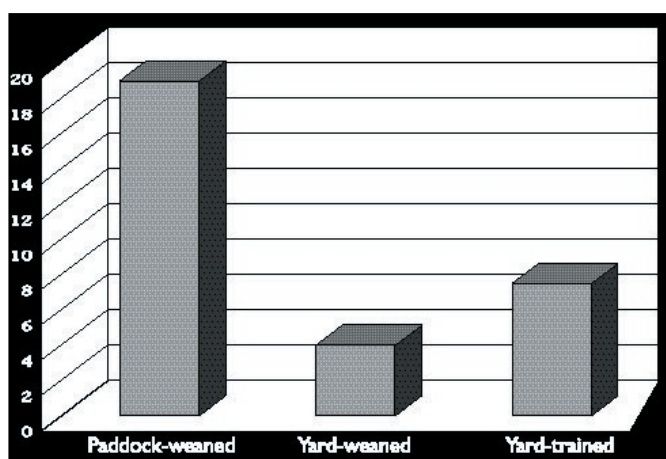


Figure 2. Sickness (% animals removed)

- The best result came from the combination of yard weaning and vaccination. The combination of yard weaning and pre-feedlot vaccination produced the highest weight gains in years 1 and 3. In year 3 the yard-weaned, vaccinated group gained an average of 1.46 kg/day compared to 1.13 kg/day for the paddock-weaned, unvaccinated, control group, with all the other groups in between. In the first month on feed, the yard-weaned, vaccinated group grew 60% faster than the paddock-weaned, unvaccinated, control group (1.62 cf. 0.99 kg/day).
- Yard weaned or trained steers got onto feed quicker in the feedlot.

Both the yard-trained and yard-weaned groups started eating the feed bunk starter ration much sooner than the control group or the other commercial cattle – most on the first day.

Recommendations From This Research

The research showed that you are more likely to produce good feeder steers if you:

1. Wean them in small yards (guidelines below)
2. Vaccinate them against respiratory disease 1 month before they enter the feedlot (commercial vaccines for this purpose are becoming increasingly available.) *

Table 1. Results of economic analysis for final phase of research

After 90 Days on Feed	Improved in Gross Margin (\$/head)	Additional Costs (\$/head)	Estimate of Added Value (\$/head)
Yard weaning with hay or silage for 10 days	30.50	5.50	25.00
Yard weaning plus pre-feedlot vaccination	33.00	15.00 (estimate only)	18.00

Is it Cost-Effective?

Results of the economic analysis for the final phase of the research are summarised below in Table 1.

Further Details

Results are available in the MRC Final Report DAN.069 Reducing Feedlot Costs by Pre-Boosting: A Tool to Improve the Health and Adaptability of Feedlot Cattle.

For further information, contact:

Dr Keith Walker (02) 4640 6390 or

Dr Ian Colditz (02) 6776 1460
(regarding the new project)

Notes