

TAILORING RECEIVING HEALTH PROGRAMS TO FEEDER CATTLE ORIGIN

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INTRODUCTION

The goal of feeding cattle is to make a profit while bringing a quality product to the market. In the feeder/stocker business, on average, profit is greatest when cattle gain weight efficiently and reach the desired slaughter weights in the shortest time possible. Factors such as feed costs, purchase price and sale price often have even greater impact on profit than feed efficiency and average daily gain but are to some extent difficult to control for the feedlot operator. To ensure that the cattle come on feed well and continue to stay on feed throughout the feeding period, both disease and stress must be minimized and, with this, the feedlot operator has some control.

Assessing Incoming Cattle

In an ideal world all incoming cattle would be immune to major pathogens, and know how to eat from a feed bunk and drink from a water trough. They would not need to be castrated or dehorned. The heifers would not be pregnant and the cattle would be free of parasites. The cattle would also arrive and start on feed without undergoing any stress that would diminish the immune response. In evaluating incoming cattle, the level of immunity, the exposure to pathogens during the marketing and transport process, the degree of stress during marketing and transport as well as the level of stress after arrival in the feedlot all need to be considered.

Calves under 600 pounds will have little acquired or naturally occurring immunity when compared to yearling cattle. This lack of acquired immunity can be overcome if the calves have been pre-immunized or pre-conditioned in advance of sale and transportation. In addition, calves will be more susceptible to stress especially if they are not weaned, castrated, or dehorned and spend too long in market channels and on transport trucks.

As a rule, cattle from a known source can usually be assumed to behave in a predictable manner but it is still important to evaluate the cattle on arrival and consider unusual stresses such as severe weather or prolonged transit. Incoming cattle should be evaluated on arrival for signs of disease such as temperature, nasal or ocular discharge or shrink (percent weight loss due to shipment). Cattle that have shrunk more than 7% can be assumed to be highly stressed and at high risk for health problems.

Incoming cattle can be categorized based on source, age, and processing history (Pollreis, 1995). For example:

Category 1 (healthy)	Yearling cattle, minimal stress held 4 to 6 weeks prior to shipping
Category 2 (intermediates)	Yearling cattle stressed by shipping and/or previous management or preconditioned calves (< 600 lb) not stressed by transportation and marketing
Category 3 (high-risk)	Calves (< 600 lb) that have been purchased through sale barns which are not preconditioned
Category 4 (high-risk, naive)	Freshly weaned calves (<600 lb) coming directly from farm or ranch

These broad categories can be used to determine the appropriate receiving protocol for the incoming cattle.

Receiving Protocols (General)

General recommendations for handling incoming cattle can be made that would be appropriate for any category of animal. The 3 R's of a receiving program (i.e., rest, rehydration and rumen restoration) need to be addressed (Pollreis, 1995). Cattle will be physically and psychologically stressed by the marketing and transportation processes. It is useful for these cattle to be rested for 12 to 24 hours prior to processing to allow the immune system to overcome the effects of stress. Prolonged holding prior to processing is associated with increased illness and holding times over 48 hours should be avoided. Holding pens should be clean and dry or have dry bedding (if pens are wet from excessive precipitation) as this will allow all cattle to lay down and rest. Shelter from wind, sun, rain and dust should also be present in the receiving pen.

Holding pens should have 150 to 200 ft² of pen space per animal and 12 to 16 in of bunk space per animal and be located close to the processing facility. Excess mixing of cattle in the receiving pens should also be avoided.

It is important that incoming cattle have access to clean fresh water. Raised spigots have been suggested as a way to teach incoming cattle to drink out of automatic watering devices as cattle will be attracted to the sound of splashing water. Incoming cattle should also be offered good quality long grass hay on arrival. This is the most similar to what cattle are used to on range. Hay is the best feedstuff for restoring or refilling the rumen. Hay can be put in the feed bunks as well as feeders in the pen as a way of teaching cattle to eat out of bunks. Hay feeders may also be put along the pen perimeter to decrease walking the fence line and encourage eating. The starter ration is an important source of energy and should be highly palatable. The proportion of the starter ration dry matter which is forage, is not usually less than 50% as this will prevent problems of acidosis. Starter rations often contain a coccidiostat as coccidiosis can occur in calves after commingling.

Receiving Protocols (Specific)

Processing protocols may be tailored depending on the category of the incoming cattle. Processing options include a number of pharmaceutical options. Vaccination (respiratory and non-respiratory) vitamin injections, implanting, deworming for internal parasites and acaricides for external parasites (may be same product for both), long acting antibiotic therapy, drugs for aborting pregnant heifers, and probiotic administration. Management procedures for processing would include ear tagging, branding, tail trimming, castration, tip dehorning, and temperature sorting. Some management procedures such as castration and dehorning could be left for a later time such as at reimplanting at 70 to 90 days on feed (if cattle are expected on feed for more than 150 days). "Temping" on arrival can be very useful as even cattle that look bright can have very high temperatures and thus, can be identified as "sick" by this procedure.

Although most of the pharmaceutical compounds suggested are accepted as standard procedure, some remain controversial. Injectable vitamins have not been documented to be of value and concerns over injection sites probably make their usage unnecessary. Similarly, oral probiotics (rumen starters) have little documented efficacy and the labor required for oral administration make these of questionable value. Injectable long acting antibiotics can also be used as part of processing incoming cattle. The tables below document the positive effects of two long acting antibiotics when used on arrival in feedlot cattle (Mork et al., 1993). The effects on health parameters is shown in Table 1. The effects on production parameters is shown in Table 2 (Mork et al., 1993).

All injectable compounds should be given in the neck for intramuscular or subcutaneous injections. Care must be taken in handling all live vaccines so that time, temperature, disinfectants, and sunlight do not inactivate these vaccines. In addition, it must be remembered that reduced doses or half doses of vaccines and dewormers do not save money as the cattle will not be properly immunized or fully dewormed.

Table 1. Examination of morbidity in feedlot calves (number of treated calves).

	Group		
	No antibiotic	Oxytetracycline	Tilmicosin
Morbidity			
Pneumonia			
No. of treatments*			
1	273 ^a (45)†	189 ^b (31)	137 ^c (23)
2	115 ^a (42)	66 ^{ab} (34)	43 ^b (31)
3	23 ^a (20)	14 ^a (21)	8 ^a (19)
All causes			
No. of treatments*			
1	373 ^a (62)	298 ^b (49)	249 ^c (41)
2	149 ^a (40)	91 ^b (30)	66 ^b (27)
3	23 ^a (15)	26 ^a (29)	18 ^a (27)
Initial pneumonia treatment			
Mean no. of days ‡	10.5 ^a	12.9 ^b	14.5 ^b
Total§	254 ^a (42)	157 ^b (26)	117 ^c (19)

* Refers to the number of treatment regimens received.

† Numbers in parentheses are percentages of possible cases.

‡ Numbers refer to mean days to initial treatment for bovine respiratory tract disease (BRD) (i.e., after prophylaxis).

§ Numbers refer to the total number of initial treatments for BRD within the first 30 days.

^{a,b,c} Numbers within the same row without a common letter superscript are significantly different ($P < 0.05$).

Table 2. Mean total weight gain (kg) of treated and untreated feedlot calves in the 3 experimental groups.

No. of treatments	Group			Means*
	No antibiotic	Oxytetracycline	Tilmicosin	
0	136 ± 2 (316)†	139 ± 2 (408)	143 ± 2 (455)	140 ± 1 ^a
1	122 ± 3 (149)	123 ± 4 (115)	127 ± 4 (91)	124 ± 2 ^b
≥2	113 ± 3 (108)	105 ± 4 (63)	114 ± 6 (43)	110 ± 3 ^c
Mean	124 ± 2 ^{de}	122 ± 2 ^d	128 ± 2 ^e	

* These values refer to least square means adjusted for the number of animals in each group and for the number of days on test.

† Numbers in parentheses refer to the number of animals in each group.

^{a,b,c} Means without a common superscript in this column are significantly different ($P < .05$).

^{d,e} Means without a common superscript in this row are significantly different ($P < .05$).

Processing Protocol for High Risk Calves (Category 3 & 4)

1. Modified live IBR, BVD, BRSV, and PI3 vaccine.
2. 8-way clostridial bacterin.

3. Ivomec/Dectomax type "pour-on".
4. Pasteurella and Haemophilus vaccine.
5. Implant.
6. Ear tag identification.
7. Bulls castrated with bander.
8. Tip dehorning.
9. "Temp" all incoming cattle and sort by temp (i.e., >105° F - treat with Micotil).
- all others - long acting oxytetracycline.

Processing Protocol for Preconditioned Calves (Category 2)

1. Modified live IBR, BRSV, BVD, and PI3 vaccine.
2. Pasteurella and Haemophilus vaccine.
3. Ear tag identification.
4. Implant.
5. "Temp" all incoming cattle and sort by temp (i.e., >105° F - treat with Micotil).
- all others - long acting oxytetracycline

Processing Protocol for Stressed Yearlings (Category 2)

1. Modified live IBR, BVD, BRSV, and PI3 vaccine.
2. 8-way clostridial bacterin.
3. Ear tag identification.
4. Implant.
5. Ivomec/Dectomax or Spotton "pour-ons" if days on feed will allow for withholding times needed.
6. "Temp" all incoming cattle and sort by temp - treat with Micotil or long acting oxytetracycline if temp >105° F.

Processing Protocol for Healthy Yearlings (Category 1)

1. Modified live IBR, BVD, BRSV, and PI3 vaccines.
2. 8-way clostridial vaccine.
3. Ear tag identification.
4. Implant.
5. Ivomec/Dectomax or Spotton "pour-ons" if days on feed will allow for withholding times needed.

Monitoring for Disease in Incoming Cattle

Receiving pens must be closely monitored by pen checkers to ensure sick cattle can be detected as early as possible. Pen checking twice a day is often recommended for cattle in the first few weeks after arrival to ensure that cattle will have early detection of disease and successful treatment outcomes.

REFERENCES

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