

Proper Identification of Sick Feedlot Cattle Affects Profitability

Introduction

Bovine respiratory disease (BRD) is a major contributor to feedlot morbidity and mortality, representing 75% of all sick calves^{1,2} and 45 to 55% of all deaths.^{1,3,4}

Increased understanding of disease processes, improvements in vaccine efficacy, and management changes by producers have enhanced the health of cattle on arrival at the feedlot. In spite of these enhancements, respiratory disease greatly affects the economic viability of the feedlot, representing approximately 8% of all production costs, not including performance losses.⁵

When dealing with cattle at high risk for BRD, the prevailing attitude has been to remove not only those cattle obviously sick, but also those cattle exhibiting questionable signs of illness. "Pull deep and pull hard" and "when in doubt, pull them out" is a theme many pen riders employ.

Sick Cattle Identification

As a member of the "hunted" class of animals, evolution has given animals the ability to mask signs of illness to prevent detection by the "hunter" as sick, weak, and less capable of escape. Thus, when exposed to the pen rider (the hunter), some calves express outward signs of "faked wellness." In hypersensitive cattle, this ability may be expressed throughout the feeding period. In others, it disappears as the cattle become more adapted to their surroundings. This attitude, coupled with environmental factors (extreme heat or cold) that cause cattle to assume abnormal postures, makes detection of sick cattle difficult.

Determination of those cattle sick and requiring removal from the home pen for BRD treatment is based on subjective criteria executed by the pen rider. Pen rider attributes affecting the successful identification of sick cattle include:

1. natural ability;
2. years of experience;
3. time allotted to sick cattle identification.

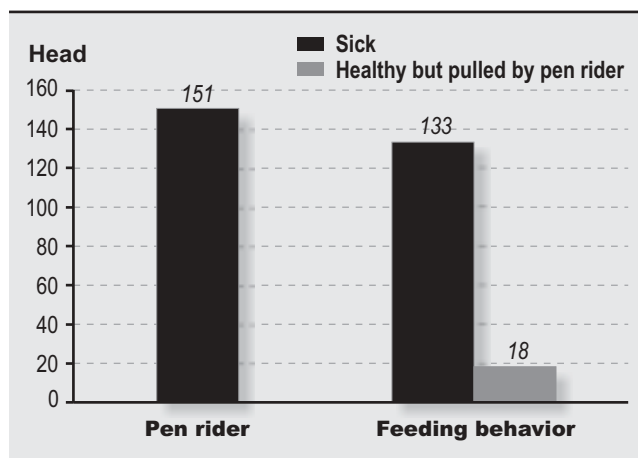
Based on human error and the difficulty in identifying some sick cattle, one might expect some healthy cattle to be misidentified as sick. There is little evidence to suggest exactly how many "healthy" cattle are pulled from the home pen and treated. Based on frequency and duration of visits to the feedbunk, Alpharma's Feeding Behavior System retrospectively suggests that 12% of cattle identified as sick by the pen rider and subsequently treated, were healthy (Figure 1). Conversely, 16% of those deemed healthy by the rider and left in the home pen were classified as sick, based on feeding patterns (Figure 2).⁶ What is not known is whether those identified as "healthy" by feeding behavior would have remained healthy had they not received treatment.

Whether or not antibiotics are administered to those cattle pulled from the home pen depends on a combination of factors, including:

1. clinical signs evident to justify being pulled from the home pen;
2. lack of clinical signs attributable to any other system than the respiratory system;
3. minimum rectal temperature set forth by the veterinarian in the treatment protocol (approximately 104°F).

Miles⁷ suggests that all cattle identified as sick and pulled from the home pen do not require antibiotics. Administering a dose of modified-live IBR (infectious bovine rhinotracheitis) vaccine and vitamin C only to those cattle identified as sick by evidence of clinical signs, but exhibit-

FIGURE 1: Breakdown of “sick” calves by method of identification.



ing lower rectal temperature than required by treatment protocol, has achieved case fatality rates of 2 to 3%. The author suggests that to ensure removing all cattle that need attention, approximately 20% of pulled cattle should fit into this “respiratory observe” category.

Measurement of Sick Cattle Identification and Treatment Success

While subjective, some feedlots consider the pen rider's determination of sick cattle as “gospel” and employ few, if any, methods of measuring success. Factors most usable to determine whether pulls are too deep (removing healthy cattle for BRD treatment) include:

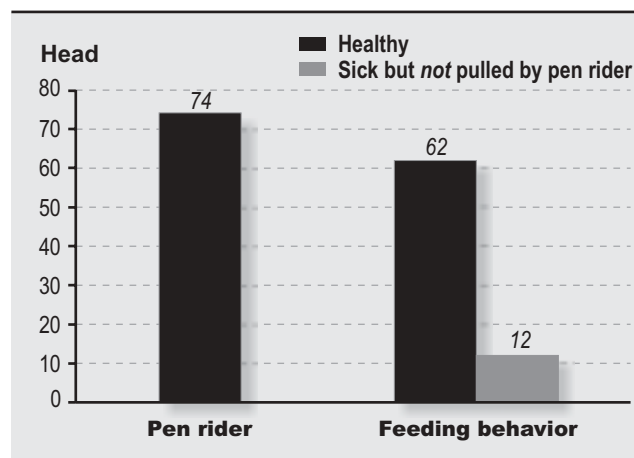
1. response to first treatment (%):

$$100 - \frac{\text{number of cattle requiring 2nd BRD treatment} + \text{number of BRD deaths after 1st BRD treatment} + \text{those designated as chronic after 1 BRD treatment}}{\text{number of head treated initially for BRD}} \times 100$$
2. case fatality rate (%):

$$\frac{\text{number of cattle dying of BRD}}{\text{number of cattle treated initially for BRD}} \times 100$$

In the mind of some, there is a “save at any cost” attitude. Response to first treatment rate of 100%, and zero mortality rates may be an admirable and desirable goal with some cattle types (i.e., preconditioned yearlings). With cattle of other types and sources (non-vaccinated, sale-barn sourced, mingled calves) it may be an unreasonable, or even impractical, goal.

FIGURE 2: Breakdown of “healthy” calves by method of identification.



In most cases, minimal response to first treatment should be 75 to 80%, and case fatality rates should generally be 5 to 10%.⁸ Any exaggerated positive or negative deviation from these percentages should cause health personnel to assess sick cattle identification methods, cattle type, and BRD treatment regimes.

Factors that lower (worsen) first-treatment response and raise (worsen) case fatality rate include:

1. cattle age and type (younger and high-risk cattle);
2. cattle pulled for BRD within 5 days of arrival;⁹
3. untimely identification of sickness and treatment;
4. antibiotic selection (bacterial pathogen may not be sensitive);
5. duration of antibiotic therapy (may not be long enough to allow the calf to overcome the infection).

Factors that raise (improve) response to first treatment and lower (improve) case fatality rates include:

1. cattle age and type (older and low risk cattle);
2. removal and treatment of healthy cattle which would have required no treatment;
3. exceptional ability of the pen rider to determine truly sick from truly healthy cattle.

The Cost of Not Pulling Deep Enough

When sick cattle are left in the home pen, they may spontaneously recover, die in the pen, or be pulled on the next pen ride. While apparent recovery without the benefit of

treatment is possible, the consequence of a lung lesion that develops can ultimately be expressed as reduced performance and carcass quality.¹⁰ Late pull is one of the major causes of treatment failure.¹¹ By not pulling cattle showing debatable signs of illness, one runs the risk of death or treatment failure when the calf is eventually pulled. Thus, when sick cattle are not pulled, one might expect an increase in:

1. BRD retreats;
2. medicine costs;
3. BRD chronics;
4. deaths due to BRD (post-treatment);
5. non-pull BRD deaths (no previous BRD treatment).

The Cost of Pulling Too Deep

There is a cost involved in pulling a healthy calf from the home pen for unnecessary BRD treatment. Those costs include:

1. unnecessary medicine cost;
2. potential loss in performance;
 - a. weight loss from running through the chute;
 - b. changes in social aspects which may affect feeding behavior for a period of time (potential loss in gain and feed efficiency);
3. labor cost of pulling and treating;
4. quality assurance risk from administering an unnecessary antibiotic;
6. risk of injury to personnel and calf;
7. risk of precipitating disease in an otherwise healthy calf.

Therapeutic Options

Mass-medication with injectable or feed-grade antibiotics at times of increased morbidity, or in anticipation of increased morbidity (metaphylaxis), ensures that medication reaches cattle that are clinically and subclinically ill. Administering Aureomycin at 10 mg/lb body weight is an economical method of providing antibiotic therapy to not only those cattle showing visible signs of illness, but also those cattle missed by the pen rider.

Conclusions

Failure to promptly identify and treat cattle suffering from BRD can negatively affect feedlot profitability. Similarly, the removal of healthy cattle from the home pen for subsequent treatment for suspected BRD can have a negative economic impact.

Constant attention to treatment response and case fatality rates can assist in evaluating methods of sick cattle identification and treatment regimes.

Aureomycin, administered at 10 mg/lb body weight for 5 days, can be an effective, economical method of administering antibiotic to those cattle not exhibiting signs of BRD sufficient to be detected by the pen rider as sick.

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