



Vet Call

► by **Bob Larson, DVM**, University of Missouri-Columbia

Recurring BRD affects carcass quality

There is growing evidence that previous or active cases of bovine respiratory disease (BRD) influence carcass traits such as weight, marbling and backfat.

Research results

A study done at Oklahoma State University (OSU) found that 33% of steers studied had lung lesions indicative of BRD. Steers with lung lesions had lighter hot carcass weights, lower dressing percentages, less internal fat and lower marbling scores than steers without lesions. They also tended to have less external fat and smaller ribeye areas than steers without lung lesions.

Some investigators have indicated that cattle treated more than one time for BRD have more pronounced negative growth and carcass effects than cattle treated only once. The OSU experiment reported that steers

treated for BRD only once gained faster and had more external and internal fat, higher dressing percentages, heavier carcasses and higher numerical yield grades than steers treated more than one time for BRD.

A study reported by Colorado State University (CSU) researchers found no difference in carcass traits between cattle that had never been treated for BRD and those that had received one treatment. However, they found that steers receiving two or more treatments for BRD had lower hot carcass weights, marbling scores, dressing percentages and yield grades compared with cattle not diagnosed with BRD.

These studies show the importance of BRD prevention, as well as timely and appropriate treatment, in decreasing negative effects of disease on carcass traits.

Carcass trait damage

The effect of BRD on carcass traits may be due to changes in the levels of certain hormones involved in growth and body composition, or to the body's response to those hormones. Hormones such as insulin, insulin-like growth factor I (IGF-I), growth hormone (GH), thyroid hormone and leptin contribute to the partitioning of nutrients for tissue growth. There is also evidence that chemicals released by body cells during disease can play a role in growth and nutrient partitioning.

Another potential effect of BRD on carcass traits is due to reduced feed intake that accompanies illness. The effect of reduced feed intake may be through changes in growth-controlling hormones, or the disruption in feed intake experienced by sick cattle may be sufficient in some individuals to cause them to have fewer effective days on feed than their penmates. Sickness may have an indirect effect on carcass composition because rate and extent of fat deposition changes with days on feed.

There is very little information about

whether cattle diseases other than BRD affect carcass characteristics. One trial using lambs as a model found that a single bout of acidosis changed digestive function for several months, indicating that it is theoretically possible that growth performance and fat deposition could be affected through the finishing phase of feedlot cattle affected by acidosis. The effect of other diseases — such as foot rot, bloat or temporary injury — on carcass traits has not been reported.

Prevention, prevention, prevention

Regardless of the mechanism or disease, improving health and preventing disease appear to affect profitability by protecting against reduced carcass value, in addition to decreasing death loss and treatment costs while maintaining gain. Health strategies from birth to harvest should focus on:

- ▶ being born in a sanitary environment without calving difficulty;
- ▶ growing in a sanitary environment with a diet that supplies adequate energy, protein and other nutrients for optimum growth;
- ▶ minimizing and spreading out stressful situations such as weaning, castration and trucking; and

- ▶ using products such as dewormers and vaccines to improve immune status and decrease parasite load.

Besides their value in diagnosing and treating cases of ill cattle, veterinarians can have great value in preventing disease and ensuring optimum production in beef cattle herds. Complete health plans should be established between veterinarians and producers to achieve at least the following goals.

1. Establish a biosecurity plan to minimize the introduction of disease-causing germs onto your farm by developing a vaccination protocol, an isolation plan for new or returning cattle, and a traffic flow and visitor restriction plan to reduce the likelihood of infectious disease.

2. Establish a sanitation plan to minimize the potential for spread of disease-causing germs in manure between animals by means of feed-handling equipment (front-end loaders, feed wagons, etc.), feeding areas and living areas.

3. Establish a parasite control program to effectively and efficiently use dewormers and pasture management for internal parasite control. Also, establish the use of fly and lice control products and sanitation to minimize economic loss due to external parasites.

4. Establish a program to minimize calving difficulty in first-calf heifers by proper replacement heifer selection, nutrition and sire selection.

5. Establish a method to evaluate the herd's performance (records) for pregnancy rates, death percentages, growth rates (weaning or other weights) and nutritional needs (body condition scores).

6. Establish the proper antibiotics and other drugs to use in the herd, as well as proper injection sites, injection routes [subcutaneous (sub-Q), intramuscular (IM), intravenous (IV), etc.], dosages and any withdrawal times to be observed.

The actual program implemented on each individual farm will be similar, but with differences based on particular circumstances. By developing a complete herd-health program, the costs of disease and production loss can be minimized, and the positive effects are likely to extend all the way to improved carcass quality.



E-MAIL: larsnr@missouri.edu