# Vet Call

► by **Bob Larson,** *Kansas State University*

## Cattle health impacts carcass traits

***It is important for everyone involved in beef cattle production, including seedstock producers, cow-calf producers, backgrounders and stocker operators, feedlot managers, packers, retailers, feed suppliers and veterinarians, to remember that all the money distributed among the many participants is generated by the sale of beef to consumers. The Certified Angus Beef® (CAB®) brand plays an important role in translating consumer preferences to all the beef production participants, including veterinarians who focus on cattle health and productivity.***

### Health in the big picture

While it is true that carcass traits and beef product attributes are largely influenced by the genetic decisions of seedstock and commercial cow-calf producers and the feeding decisions of feedlot managers and nutritionists, the animal health decisions made by producers and veterinarians throughout the production chain also play a role. A number of studies have indicated that muscling, marbling and tenderness all can be negatively affected by cattle health problems.

Studies of consumer preferences have indicated that attributes such as flavor, tenderness, marbling and texture are important when evaluating the eating experience when consuming beef cuts. These preferences are important when considering the importance of animal health, because pneumonia and other common cattle diseases have the potential to affect not only carcass weight, but also the amount; location; and ratio of muscle, fat and water.

Bovine respiratory disease (BRD, pneumonia) is the most important cause of illness and death in feedlot cattle, with digestive diseases such as acidosis and bloat also being important. Several studies have shown that cattle that experienced respiratory disease had lighter hot carcass weights, lower dressing percents, less internal fat and lower marbling scores, as well as less external fat and smaller ribeye area than cattle without respiratory disease. Scientists don't have a clear picture of how disease impacts carcass traits, but probably a combination of changes in hormones such as insulin, growth hormone and other signals that direct the growth of muscle and the deposition of fat are involved. In addition, just the fact that cattle are off-feed while they are sick may affect the pattern of muscle growth and fat deposition.

The negative effects of disease on carcass traits may not be confined to the time cattle are in a feedyard. As we learn more about muscle growth and fat deposition, it appears that stress, disease or poor nutrition even early in life can have consequences on feedlot and carcass performance. This understanding makes a lifelong health and nutrition plan to minimize disease risk and ensure optimum growth from birth to slaughter important for efficient production of a desirable beef product.

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Beef producers should work with veterinarians to optimize sanitation, nutrition, immunization and biosecurity to reduce the risk of disease. In addition, because the negative effects on growth and carcass traits appear to be more severe in animals with prolonged or multiple episodes of sickness compared to animals that become sick for a short period of time and then recover, knowledge and ability to accurately identify sick animals and to treat them in a timely manner also becomes increasingly important.

Lifelong cattle health starts with the cow being in good body condition and receiving all necessary nutrients throughout pregnancy and then giving birth without calving difficulty in a clean environment. If the calf is born healthy and able to quickly stand and suckle, and that calf is not exposed to mud and manure, it is likely to avoid the risk of scours and pneumonia during the time period from birth to weaning. Adequate forage availability for both the cow and calf until weaning is essential to maintain optimum health and to ensure that the calf has optimum postweaning growth and health.

Effective vaccines are available for a number of important disease-causing germs, including the bacteria that cause blackleg and related diseases, and the viruses and bacteria that contribute to BRD. Both internal parasites (worms) and external parasites (flies, ticks and lice) can cause significant disease in calves; and proper use and timing of deworming and external parasite treatments greatly aids in cattle health and well-being. The time period around weaning is a period of high risk for respiratory disease and other diseases. Implementation of well-designed preconditioning programs that utilize low-stress weaning, vaccinations, parasite control, acclimation to postweaning diets, and acclimation to feeding and watering equipment is an excellent disease-control strategy.

Carcass premiums such as CAB, and pricing on carcass-merit grids has caused the veterinary profession to re-evaluate the cost of cattle diseases. Historically, veterinarians and beef producers have considered the cost of disease to be confined to death loss, treatment cost, decreased feed efficiency and reduced live weight. However, because many cattle are now sold on a carcass-merit basis, disease has the potential to affect profitability not only through treatment costs, death loss and reduced weight, but also the amount; location; and ratio of muscle, fat and water; and the ultimate desirability of the final beef product.

Ensuring that consumers have a satisfying experience every time they eat beef requires that all participants in the beef production chain do their part to improve and protect the attributes of flavor, tenderness, marbling and texture. In addition to the significant impacts that genetics and nutrition play on carcass and product traits, cattle health also has an important role. A plan to optimize health from birth to slaughter is an important component of providing a high-quality beef product.

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