

# VETERINARY CALL

by Bob Larson, Kansas State University

## Health and Production Management for the Long-term

*A plan to optimize beef production over a long time frame focuses on appropriate selection of bulls and replacement females to optimize production traits, good reproductive efficiency, high animal health status, proper supplementation and good forage management.*

Aiming for optimum biologic efficiency may require slightly different management compared to targeting optimum economic efficiency. Fortunately, management strategies that optimize the use of natural resources such as land, water and fossil fuels tend to improve economic efficiency as well.

To evaluate efficiency, the value of the product being produced must be compared to the resources used to create the product. In cow-calf production, the most important resources to consider are likely to be land, cattle, fuel and equipment, and labor and management. Therefore, efficiency measures will typically include the value of product sold divided by grazing unit as an indication of land resources, or by cows that enter the breeding season as an indication of cattle resources, or by number of hours of labor as an indication of human resources.

Beef production in the United States has become more efficient over the past 50 years, and this achievement is due in large part to the genetic selection efforts of seedstock suppliers. Some of the areas within beef production that I think have not reached their potential

efficiency include: number or pounds (lb.) of calves per acre of land, number of calves born per exposed female, percentage of calves that survive to market, growth efficiency (lb. of weight gain per calorie consumed) and water use efficiency.

One important caution when designing a management system to improve efficiency using one measure is the risk of decreasing efficiency as determined by other measures. For example, a single-minded effort to increase pounds per calf weaned may decrease calves weaned per acre and calves weaned per cow exposed — thereby decreasing efficiency measures such as pounds sold per acre or pounds sold per exposed cow. Sometimes efforts to improve cost efficiency when measured as dollars of expense per cow exposed will backfire if the number of calves weaned per cow exposed or weight of calves weaned decreases, resulting in higher expenses per dollar of income.

A model developed at Washington State University recently confirmed that decisions made in the cow-calf sector can alter the sustainability of the beef industry by affecting land usage, water usage and greenhouse gas (GHG) emissions. In general, the

researchers found that improving reproductive efficiency, decreasing death loss, weaning calves early and placing them on a diet that allowed greater average daily weight gain, and selecting bulls based on expected progeny differences (EPDs) that improved reproductive and growth efficiency resulted in both reduced use of natural resources and enhanced pounds produced per grazing acre or per cow exposed.

Many producers will quickly recognize that increased efficiency does not always result in increased profits. This is due to the fact that the value of both inputs and outputs is largely driven by the supply and demand of competing products independent of beef production costs. But even though increased production efficiency does not automatically lead to increased profits, it is difficult to imagine a successful long-term business plan based on production of less beef per valuable resource such as acre of land or cow exposed for breeding. **AJ**

*Editor's note: Robert L. Larson is a professor of production medicine and executive director of Veterinary Medicine Continuing Education at Kansas State University in Manhattan, Kan.*