Vet Call

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Appropriate postweaning gain

As we move toward weaning of spring-born calves, I receive questions from producers about the most appropriate gain for calves past weaning. Some producers are planning to retain ownership until slaughter, whereas others plan to background or to graze the calves anywhere from 30 days to six months before selling them. As with most questions that involve cattle, the best answer depends on many factors, including the marketing method and timing, cyclical market fluctuations, fixed costs (overhead), variable costs (primarily feed), and the producer's goals.

Cost of gain

An important concept when determining the most appropriate postweaning gain is the cost of the gain, expressed as dollars of cost divided by pounds of gain ($/lb.).

The lowest cost of gain generally occurs with the greatest gain. That's because about 70% of the daily feed intake is used to maintain the current body weight, so the majority of the feed cost and all of the fixed cost are borne each day whether or not the animal is growing. Greater gain allows the same maintenance and fixed costs to be divided over more pounds, resulting in lower costs for those inputs per pound sold.

How efficiently cattle gain weight is largely dependent on their sex, their relative maturity, the amount of compensatory gain available and management factors — such as diet type, implant and ionophore usage, and health. The greater the efficiency, the lower the feed cost of gain.

Although feed cost of gain is a substantial proportion of total cost of gain, minimizing feed cost of gain will not necessarily minimize total cost of gain. If the lowest feed cost of gain is achieved with a lower average daily gain (ADG), additional fixed costs per pound sold (because the cattle are owned longer or sold at a lighter weight) must be considered in calculating total cost of gain.

Cattle that are physiologically younger gain more efficiently than cattle that are closer to maturity. Another way of writing this is that feed efficiency decreases as an animal matures. As an animal matures, an increasingly higher proportion of its body mass is fat rather than bone or muscle.

Steers gain more efficiently than heifers because, at the same weight, heifers are closer to being mature than are steers. Similarly, Continental breeds of cattle tend to be relatively less mature (and therefore more efficient) at the same weight compared to British breeds of cattle.

Those generalities cause producers to manage cattle according to their relative rates of maturation, with early-maturing cattle (heifers, British breeds) managed to minimize fat deposition for a period of time after weaning to allow for additional growth of skeletal frame before increasing fat deposition. Later-maturing cattle (some British steers, Continental breeds) generally are managed to shorten the time to finish by placing them on high-energy rations soon after weaning.

Compensatory gain is the term used to describe better-than-expected feed efficiency that occurs when a period of nutritional restriction is followed by a period when all nutritional needs are being supplied by the diet. The value of postweaning compensatory gain can be significant, but it is variable and difficult to predict. Thin cattle are assumed to have some level of compensatory gain after weaning, whereas fleshier calves are assumed to have no compensatory gain for either a feedlot or stocker operation.

Health consideration

Health is an important consideration in relation to postweaning gain. A bout of respiratory disease at any time after weaning is likely to decrease gain, increase cost of gain and possibly lower the final value of the carcass.

In a study done in Canada, calves treated for respiratory disease had 0.13 pound (lb.) lower ADG than those not treated. Similarly, work in Nebraska found that slaughter animals with lung lesions due to pneumonia had 0.17 lb. lower ADG compared to calves with normal lungs. Another recent study done in Oklahoma showed that feedlot steers treated for respiratory disease had lower final live weights, ADGs and hot carcass weights and less external and internal fat.

The greatest risk for respiratory disease occurs when calves are commingled with calves from other herds and trucked to a new facility. Risk of respiratory disease is relatively low while the calves are on their home farm.

Value of product sold

An often-overlooked concept when determining the most appropriate postweaning gain is the value of each animal at the time it will be sold (weight × price). To maximize gross income from selling cattle, the animals should be marketed at a weight and time of year that historically returns the greatest price per head.

Age and ADG determine the weight of calves at any predetermined date. By considering body weight and historic market trends, you can predict the ADG that has the greatest potential to return the highest gross income.

Trends for feeder-, stocker- or fed-cattle prices respond to supply and demand. During periods when supplies are high or demand is low, prices paid per pound will decrease. Conversely, if calves can be sold when supplies are low or demand is high, prices will be higher. Historically, lower prices are paid during periods of time when many producers are weaning calves, when a large number of stocker calves are available for placement into feedlots or when many fed cattle are finished.

By considering historic trends, you can predict periods when calves will be sold for a higher price. In general, highs for calf prices are in April, however some recent years have had February highs. Lows usually occur in October through November. Fed-cattle prices generally are highest in the early spring (April through May) and lowest in the late summer and early fall.

Value of gain

The real question, however, is not what is the least expensive cost of gain or the greatest value of gain. Instead, consider a combination of the two values to determine the net value of each unit of gain calculated as the gross costs subtracted from the gross income divided by the pounds of gain. The optimum ADG will result in the highest value of gain.

Value of gain = (Gross value of animal sold – Gross cost of gain) ÷ Pounds of gain

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