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“Stocker Cents” article

Understanding Weight Shrink in Cattle

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Weight loss in cattle during stressful events is referred to as shrink. A reasonable amount of shrink can be expected when cattle are gathered and worked or transported. Marketing-associated shrink has the most direct effect on profits. Reducing it as much as possible can add a significant amount of value to the calf crop. Shrink also has a major effect on performance after the stressful event is over. So, reducing shrink during non-marketing related events is also important.

There are two types of shrink, gut fill and tissue depletion. A majority of the first 6% shrink will be fill weight in the form of rumen content, manure and urine. This can be easily added back to the cattle when feed and water intake return to normal. After the fill is gone, continued weight decline comes from loss of extra- and intra-cellular fluids from muscle and fat tissue. Unlike gut fill, tissue shrink is more difficult to replace after the cattle are acclimated to their new environment. Replacing tissue shrink can take anywhere from 10 days to more than 30 days depending on how long the cattle were off feed, how severely they shrank and composition of the new diet.

A simple dollars and cents example of how shrink can affect revenue demonstrates how important managing it really is. For an average Mississippi herd of 30 cows with a weaning rate of 83%, about 25 calves will be sold each year. If the average selling price for these calves is \$1.00/pound (\$1.03 for steers and \$0.97 for heifers) at 550 pounds (575 pounds for steers and 525 pounds for heifers), the calves average a value of \$550 each (disregarding commission, yardage and other marketing costs). If these calves experience 8% shrink from the time they leave the ranch until the pay weight is taken, they will be worth \$506; representing a loss from shrink of \$1,100 for that group of calves.

Reducing shrink to zero is not practical but, in the example above, reducing it to only 2% would recoup \$825 (\$33/head) of that lost revenue. Some would argue that, as the price per pound increases for lighter weight calves, the revenue loss from shrink is corrected. However, that correction is not realized in normal marketing situations; especially when the actual weight of individual calves is not known during bidding.

In addition to the immediate impact on the value of calves, shrink can have negative impacts on performance. For example, after 24 hours without feed and water, microorganisms in the rumen begin to die. This decreases the ability of that animal to use the nutrients in feed until the rumen environment is returned to normal after the shrink event. Most buyers and feeders agree that there is a direct correlation between excessive shrink and health problems. This likely comes from the combined negative

effects of tissue fluid loss and nutritional imbalance on the immune system. Carrying this concept a step further, increased health treatments lead to reduced marbling and a less valuable end product.

Research and practical experience have resulted in several practices that reduce shrink, especially shrink associated with marketing. Proper handling is one of the simplest ways to lessen the effect of penning and sorting on weight loss. Move calves without excessive pressure from prods, dogs, horses, ATVs or trucks. Yelling and loud noises should also be avoided. Selecting cattle for temperament and having well-maintained working facilities will enable calm handling and drastically reduce shrink. Also remember that even one flighty calf can increase the stress level for the entire group.

Time of day when cattle are penned and loaded influences shrink. Factors to consider when deciding what time of day to pen and sort calves include: when they graze or eat, temperature and when the pay-weight will be taken. According to research from Kansas State University, letting stockers graze until midmorning before penning can increase the pay weight and reduce percentage shrink for calves sold at 3 p.m. If extreme heat is expected, early morning penning might be more appropriate for reducing heat stress and associated shrink.

The length of haul calves endure also influences shrink. Calves generally shrink 1% per hour for the first three hours and an additional 0.25% per hour for the next 8 to 10 hours. So, reducing haul time should be considered when deciding where to send calves for marketing or feeding. The closest viable option will result in less negative influence from stress-related weight loss.

It can be difficult to determine the best time to deliver calves to a sales facility. Cattle that arrive early might have a longer time to shrink prior to being sold. But, if they are penned with feed and water, they could have time to settle into their environment and regain some gut fill. Research from Oklahoma has demonstrated that calves weaned and delivered the day before the sale experience more shrink than calves weaned and delivered the day of the sale. Preconditioned calves shrank less in that study; yet another factor that should be considered when deciding whether or not preconditioning pays.

An often overlooked method for reducing the impact shrink has on the bottom line is to include it as a negotiating point when selling farm-fresh calves. Many board sales and private treaty contracts are based on a 2% to 4% pencil shrink. In this case, weighing conditions and times should be specified in the transaction. For instance, if the calves will transported to scales, that initial shrink will not be factored and could result in a reduced pay weight for the seller. For more information and educational resources, contact a representative of the Mississippi State University Extension Service.