

Cattle Business in Mississippi – January 2007 “Beef Production Strategies” article

Cold Weather Checklist

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December 2005 brought cold temperatures to Mississippi. Some parts of the state saw temperatures down in the teens. Low temperatures coupled with tight forage supplies add to the challenges of wintering cattle this year. Because cattle performance is affected by environmental conditions, it is worthwhile to properly minimize winter stresses on cattle and manage cattle to best cope with these stresses.

Cold Weather Effects on Nutrient Requirements

When outside temperatures decrease below the lower critical temperature of the thermal neutral zone of cattle, heat produced from normal body functions is inadequate to maintain body temperature. As a result, energy requirements for maintenance increase. In other words, cattle must eat more to keep warm and stay healthy. Lower critical temperature depends on how much heat the animal produces and how much heat is lost to the environment. Behavioral adjustments of cattle to conserve heat include finding windbreaks, huddling in groups, or changing posture to minimize heat loss. Physiological adaptations to temperature stress include changes in breathing rate, blood flow to extremities, shivering, and feed and water intake. While these behavioral and physiological adaptations are useful, producers must often intervene and provide protection from the weather and excellent nutritional programs to give cattle the advantages they need to cope with cold stress and maintain desired performance levels.

According to the National Research Council, beef cow and calf maintenance energy requirements each increase by 19% at 30 degrees Fahrenheit. During cold conditions, the effectiveness of hair as insulation is affected by wind, precipitation, mud, and hide thickness. In addition, calves tend to be more sensitive to cold stress than mature cattle. Consider that when cattle have wet and matted hair at 30 degrees Fahrenheit with the wind blowing 10 miles per hour, beef cow maintenance energy requirements increase by 41% for cows and 61% for calves with an average length hair coat and 48% for cows and 69% for calves with a thin hair coat (typical of Brahman-influence cattle).

Feeding programs should account for increased cattle nutrient requirements during periods of cold stress. From a cattle management standpoint, steps to minimize mud and to provide protection from the wind can also help cattle cope with cold stress. Making sure that water troughs and lines do not leak and contribute to muddy conditions should be a priority during the cold months of the year.

Vitamin A Supplementation

Minerals and vitamins are often emphasized as very important components of beef cattle diets. Of all the vitamins required in beef cattle diets, Vitamin A is the vitamin of

most practical importance in beef cattle production. Vitamin A is essential for normal growth and development, tissue maintenance, and bone development.

Vitamin A supplementation is often necessary during the winter because Vitamin A deficiency is most likely to occur when cattle are fed sun bleached pasture or hay grown during drought conditions (much of the Summer 2006 crop hay). Vitamin A deficiency is also more common when cattle are fed high concentrate diets, feeds that have been exposed to sunlight and high temperature, feeds that have been heavily processed, or feeds that have been stored for extended periods of time. Calves deprived of colostrum and cattle undergoing nutritional or environmental stress are more susceptible to Vitamin A deficiency.

Signs of Vitamin A deficiency include reduced feed intake, rough hair coat, joint and brisket swelling, tearing of the eyes, night blindness, slow growth, diarrhea, convulsive seizures, blindness, improper bone growth, low conception rates, abortion, stillbirths, blind calves, semen abnormalities, and various infections. Vitamin A deficiencies can be corrected by providing lots of fresh, leafy, high quality forage or supplemental Vitamin A in feed or through injections. Pregnant beef heifers and cows require 1,270 IU/ lb. dry feed, while lactating cows and breeding bulls require 1,769 IU/ lb. dry feed of Vitamin A. Reasonable rates of Vitamin A supplementation are between 100,000 to 200,000 IU/ lb. mineral supplement per day for a 4-ounce intake mineral or 200,000 to 400,000 IU/ lb. mineral supplement per day for a 2-ounce intake mineral.

Water Supplies

Daily water requirement increases with increasing temperature, body weight, activity level, and dry matter intake. Lactation nearly doubles cattle water requirements as well. While keeping close watch on cattle water supplies is usually associated with hot weather, it can be just as important during the winter months. Water is necessary for body temperature regulation, growth, reproduction, lactation, digestion, nutrient breakdown, mineral balance regulation, excretion, joint lubrication, nervous system cushioning, sound transport, and eyesight. If cattle water intake is not adequate because of water supply restriction, feed intake can be negatively affected. Restricting water intake to less than cattle requirements will ultimately result in reduced performance.

Freezing weather can lead to broken water lines. Winterizing cattle watering tanks and troughs can prevent water line ruptures. Exposed water lines are particularly vulnerable to freezing and rupturing. Many producers use energy-free waterers in this region of the country. Insulating pipes and plumbing water lines up through the bottom of water tanks can be good preventative maintenance for cattle watering tanks. During periods of extremely cold temperatures, it is advisable to monitor water supplies for surface freezing. It may be necessary to break up ice to allow cattle access to water. Water quality is also important in maintaining adequate water intake and should be managed.

Calving in Cold Weather

Calving in Mississippi is common in the winter months. Keep a close eye on calves born during cold weather, particularly if it is wet as well. Calves dropped in muddy areas or standing water can experience severe and sometimes fatal cold stress. Make sure that calves dry off quickly, receive colostrum within the first 12 hours, and have some level of protection from wind and mud. Maintaining good winter nutritional programs for the cow herd is also crucial for obtaining good calf performance in the winter months. Cows and heifers should be supplemented as necessary to calve in good body condition.

For more information on beef cattle production, contact your local Extension office.