

ONA REPORTS

published in

THE FLORIDA CATTLEMAN AND LIVESTOCK JOURNAL

June 2005

Phosphorus Supplementation Critical With Changed Fertilizer Recommendations

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With the revised fertilizer recommendations for bahiagrass pastures by the University of Florida/IFAS, many cattlemen are applying less, and in many cases no phosphorus. The South Florida Beef/Forage Extension Group collected field data on ranches from nine counties that showed the phosphorus level in bahiagrass was reduced 20% from an average of .32% to 0.26% when phosphorus was removed from the fertilizer. Although 0.26% phosphorus is more than adequate for all grazing beef cattle, average phosphorus content of bahiagrass on one ranch was 0.17% when phosphorus was not applied in the fertilizer. There is also a seasonal trend in phosphorus content of bahiagrass, with highest levels in the spring and summer and the lowest levels in the fall and winter.

The National Research Council recommends that diets of 1000 pound brood 'lactating' cows contain 0.21% phosphorus at peak milk production (2 months after calving). The recommended concentration progressively decreases to 0.12% at 8 months after calving. Diets of 1000 pound pregnant heifers are recommended to contain 0.17% phosphorus, increasing to 0.23% for the three months before calving. At times the phosphorus content of unfertilized bahiagrass pasture can be deficient for lactating cows and pregnant heifers, particularly during the fall and winter period when phosphorus levels in the forage are the lowest. On many ranches in central and south Florida the fall/winter period coincides with the calving and breeding season when the phosphorus need of cows is the greatest. I recently worked with a ranch that was having bone problems where winter bahiagrass contained less than 0.10% phosphorus.

Even when the phosphorus content of bahiagrass may be below that needed for proper

nutrition, it poses no problems to cow/calf production if a good mineral formula is provided free-choice year-round. It is more economical to provide phosphorus directly to the cow as a mineral supplement than through pasture fertilization that is not contributing to higher forage yield and quality.

Cattle do not crave other minerals like they do salt, but they tend to eat more mineral mix during the fall and winter, the period when forages are the lowest in phosphorus and other essential minerals. Under-consumption and over-consumption of a mineral mix offered free-choice may present problems at times. A chronic under-consumption problem will require adjustments in the mineral formula by reducing the level of salt and increasing the level of palatable ingredients such as cottonseed meal, citrus pulp and/or molasses. Over-consumption of the mineral mix is usually not a problem, but can be costly. When over-consumption is a short term problem it is acceptable to feed mineral mix on a set schedule. It will not cause problems if cattle eat all the mineral mix provided before the next feeding because excess minerals are stored in bones, liver and other tissues for use when minerals are not provided by the diet for short periods.

Mineral mixtures and their recommended intakes are formulated for the average ranch situation. It would be prudent for ranchers to occasionally have pasture forages analyzed for phosphorus and other minerals to determine how much of these essential nutrients are provided by the forage. Then make sure cattle are consuming a proper mineral mix in adequate quantities to meet the needs of phosphorus and other essential nutrients required by the cow.