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Nitrogen: How Much is Enough?

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Nitrogen is by far the most essential of all the nutrients required for maximum production of high quality forage in Florida. However, do not make the mistake of thinking this is the only nutrient required by forages. If any nutrient is limiting you will not achieve maximum forage production.

The most noticeable sign of nitrogen deficiency is the yellowing of the grass. This yellowing is also a clear indicator that the grass will be low in crude protein. Normally the whole pasture will have a light yellow color if it is deficient in nitrogen. Do not confuse small patches of yellow with nitrogen deficiency. These patches are normally a sign of either iron deficiency or a disease problem. The best way to identify the condition, take a forage sample to your county agricultural extension office and let the extension agent diagnose the problem. Dig up a clump of the grass as opposed to bringing in grass blades. This will make identification of the problem easier.

With the increased concern over water quality and increasing costs of fertilizers, research emphasis has now been placed on reevaluating how much fertilizer is really needed for bahiagrass production. Recent research findings have resulted in IFAS reducing the phosphorus and potassium recommendations for bahiagrass.

One of the best pasture fertilization field studies was conducted by the South Florida Beef-Forage Extension Agents. Their study was conducted in cattlemen's pastures where large plot areas were used and nutrient recycling was taken into account. Their data showed that bahiagrass did not respond to a second application of 60 lb/A of nitrogen applied in the fall in addition to 60 lb/A applied in the spring. In a continuation of this field study 60 and 120 lb/A of nitrogen were applied as a single application in the spring. Results showed that bahiagrass dry matter yields were similar for both the 60 and 120 lb/A of nitrogen treatments.

To follow up on the above field study, a research experiment was initiated at Ona AREC which compared 0,75 and 150lb/A of nitrogen applied to established bahiagrass pasture as a single application in March. Very large plots were used and different areas of the large pasture plots were harvested each harvest period such that nitrogen was not depleted from the soil as would happen with small plot studies in which the same area is harvested all year. The application of 75 lb/A of nitrogen resulted in a very good response over 0 lb/A; 7.0# vs. 5.1 tons dry matter/A. However, the application of 1 50 lb/A of nitrogen resulted in a dry matter yield of 7.1 tons/A, a very insignificant response over the yield obtained with 75 lb/A of nitrogen.

Research studies are continuing in this area to evaluate various amounts and forms of nitrogen as well as time of nitrogen application. The results of this research will save ranchers money as well as help to preserve our environment, a concern to all of us.