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## **Anhydrous Ammonia Field Trial**

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Over the years a lot of attention has been given to re-evaluating the fertilizer requirements for bahiagrass and other forage grasses grown for cattle production in Florida. One of the major costs to ranchers is fertilizing pasture grasses and nitrogen is the most essential of all the nutrients required for maximum production of high quality forage. The most noticeable sign of nitrogen deficiency is the yellowing of the grass. However, this may also be a sign of sulfur or iron deficiency. Normally the whole pasture will have a light yellow color if it is deficient in nitrogen or sulfur, while small patches of yellow are a sign of either iron deficiency or a disease problem. Research studies conducted at Ona have shown iron deficiencies to go away by themselves and have had no effect on yield or quality of pasture grasses. Sulfur deficiencies are corrected with various sulfur fertilizers.

IFAS researchers have devoted the last 12 or so years to trying to find ways of reducing the costs of fertilizers and determining more economical methods or sources of fertilizers for ranchers to use. Recently, we have received a number of questions regarding the potential of using anhydrous ammonia as a source of nitrogen for pasture grasses grown in Florida because it is generally substantially cheaper than other sources of nitrogen. Anhydrous ammonia is generally not recommended on sandy soils because a large percentage of the anhydrous gas volatilizes to the atmosphere and is not available to the plant. Anhydrous ammonia is used extensively in the west where heavier textured soils trap anhydrous ammonia and retain it for plant growth.

Two years ago, we initiated a research study to compare anhydrous ammonia to other sources of nitrogen fertilizer on pasture grasses. Treatments included three rates of nitrogen (0, 50, 100 and 150 lbs. nitrogen/acre) and two sources of nitrogen (anhydrous

ammonia vs. ammonium nitrate). The anhydrous ammonia was applied to the soil in the summer when there was adequate moisture. It was applied under moist conditions to try and retain the anhydrous ammonia in the soil and reduce volatilization to the atmosphere. Results indicated that under moist conditions 85-90 percent of the anhydrous ammonia (assuming 100% availability from the ammonium nitrate treatment) was available to the plant. However, under dry conditions one will have a higher loss of nitrogen due to increased ammonia volatilization to the atmosphere. One needs to remember these are preliminary results from one field study and that results may vary depending on changes in environmental conditions and soil types. With this article we are not recommending this nitrogen fertilizer source but rather presenting preliminary results from a field study.

Special equipment is required for application of anhydrous ammonia. Franklin and Bill Copeland are major suppliers and applicators of anhydrous ammonia (phone: (904) 462-1586). They will deliver and apply the material to your field. The major point to remember is that you want to apply the cheapest source of nitrogen. Thus, one needs to get a delivered and applied cost for anhydrous ammonia when making price comparisons.