

# AGRONOMY

UNIVERSITY OF  
FLORIDA  
IFAS EXTENSION

# NOTES

Vol. 31:3

March 2007

## DATES TO REMEMBER

April 12	-	Winter annual forage/wildlife food plot field day– N. FL REC, Live Oak, FL
May 1	-	Twilight field day – N. FL REC, Live Oak, FL
May 2-4	-	Florida beef cattle short course, Gainesville, FL
May 25	-	75 <sup>th</sup> Anniversary and field day, Brooksville REC, Brooksville, FL
May 30-June 1	-	Southern pasture & forage crop improvement conference, Tallahassee, FL
June 5	-	Beef forage field day – N. FL REC, Marianna, FL
June 25-27	-	Southern conservation tillage conference – N. FL REC, Quincy, FL

## IN THIS ISSUE

### FORAGE

Fertilization of Bahiagrass Pastures.....	2
Agrotain - Fertilizer Additive – Potential for Pasture Fertilization .....	2

### WEED CONTROL

Frost and Tropical Soda Apple .....	2
Journey Herbicide for Bermudagrass Hay Fields .....	3

### MISCELLANEOUS

29 <sup>th</sup> Annual Southern Conservation Tillage Conference .....	3
Get Seed for Crops Early .....	3
Kill Cover Crops Early in Conservation Tillage Plantings.....	4
Lime and Calcium Materials.....	4
Soil Compaction and Root Restriction .....	4
Use Good Rotations .....	5

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Employment Opportunity \_ Affirmative Action Employer authorized to provide research, educational information and other services only to individuals and institutions that function without regard to race, color, sex, age, handicap or national origin. For information on obtaining other extension publications, contact your county Cooperative Extension Office. Florida Cooperative Extension Service / Institute of Food and Agricultural Sciences / University of Florida / Larry Arrington, Dean.

## **Fertilization of Bahiagrass Pastures**

Usually in March we get consistent night time temperatures that are above 60 °F--meaning it is time to fertilize because active growth will start on your perennial warm-season forages.

Fertilize with a complete fertilizer in March if results from your soil test call for the use of a complete fertilizer. A complete fertilizer has all three nutrients: nitrogen, phosphorus and potassium, also known as N – P – K. If trying to deliver, for example, 60 lbs N, 15 lbs P<sub>2</sub>O<sub>5</sub>, and 30 lbs of K<sub>2</sub>O, do not use a 10-10-10 fertilizer blend, but use blends like 20-5-10 at 300 lbs per acre. How many bags of fertilizer do you need? - That would be six (6), 50-lb bags per acre if using the 20-5-10 blend, or seven (7), 50-lb bags per acre if using a blend with lower N such as the 16-4-8 formulation.

If the soil tests says phosphorus and potassium are NOT needed then DON'T add them. If using ammonium nitrate - apply four (4) 50-lb bags per acre; this rate will provide you with approximately 65 pounds of N per acre. Could you apply more? – Yes, but this is likely the most efficient rate. Wait and apply another 50 to 60 pounds of N in mid June – July if you desire to keep the protein level of the grass, hay, etc.

Remember, monitor the weather and apply your fertilizer whenever you have consistent night time temperatures above 60 °F, and do so prior to a rainfall event; it will be incorporated into the soil and uptake by the plant will be more efficient. Volatilization losses increase when applying fertilizer after the rain.

Yoana Newman

### **Agrotain - Fertilizer Additive – Potential for Pasture Fertilization**

Agrotain is a new product being launched in Florida and preliminary contacts have been initiated at University of Florida to examine the product. This product is intended to treat urea not the soil—to retard the volatilization or loss of nitrogen through breakdown of urea in pasture or hay field situations where fertilizer will be broadcast.

Due to the increasing problems with the handling of ammonium nitrate (storage and transport), use of this fertilizer has become problematic. Alternatives like urea in pasture fertilization would become more popular in Florida if volatilization is reduced.

The product is a fertilizer additive to be blended with urea fertilizers and urea containing solutions, like UAN (solution of urea and ammonium nitrate in water). It is an inhibitor of urease, the enzyme that breaks down urea, but it is not a nitrification inhibitor. Therefore, the amount of time for full hydrolysis (break down) of urea could be extended to 14 days. The target of this additive is to minimize the problem of nitrogen volatilization—associated with the use of urea, particularly in soils conditions of high moisture and high temperatures. While the product is new to the area and no data has been obtained in Florida, this additive has been used for several years in the mid south where soils with high pH offer a high potential for volatilization of urea.

There are several uncertainties for our conditions: Most Florida soils are mainly acidic with some exceptions where pH is 8-8.5. Therefore, the proved benefits observed in other locations (higher crude protein of the forage, and higher forage yields) may not be the same in Florida, and there are always the added costs that need to be penciled in.

Yoana Newman

### **Frost and Tropical Soda Apple**

Many people have been asking, “Does Frost Kill Tropical Soda Apple?” While it may kill tropical soda apple (TSA) seedlings, the majority of the plants have well-established root systems. Therefore, even if the frost is “heavy” it is unlikely that the root system will be killed. This means that the plant will come back from the root system. However, for the time being, it is going to appear that the plants have been “controlled.” If you remember back to the old days when Remedy was the only option for TSA control, it was recommended that TSA plants be mowed 8 weeks before Remedy application. In North Florida, frost could substitute as a

mowing operation. In any case, you will need to apply a herbicide when plants are actively growing.

Why wait until plants are actively growing? First, we need to understand what happens to plant cells when they are frozen. Plant cells contain not only water, but also many other substances like proteins, amino acids, sugars, and other solutes that actually lower the freezing temperature and protect the cells against ice formation (similar to antifreeze in car radiators). Although pure water freezes at 32 °F, a plant cell may need temperatures down to 26 °F or lower before the cells will freeze and damage occurs. Different parts of the plant, different stages of development of the plant, and different types of plants can have varying levels of these “antifreeze” compounds that result in a range of susceptibility to frost. Environmental conditions such as drought, cold temperatures, heat, etc., can also influence the levels of these compounds, and thus affect the tolerance to freezing temperatures. Typically, when a plant is exposed to a stress factor, including frost, the plant becomes more hardened, which not only increases the tolerance to future frost events, but also increases the tolerance of the plant to herbicide.

How does frost influence the plant cell? Frost is basically a water crystal. We all know that water expands when frozen. The same holds true inside the plant cell. When the water inside a plant cell freezes, it expands and upon thawing the cell is destroyed. Destruction of plant cells interferes with many things in the plant, but especially cell to cell transport of nutrients, water, etc. Essentially, the internal vascular system is disrupted. This is why an herbicide application soon after a frost event does not work as well as applications onto actively growing, stress-free plants.

The best thing to do if you have TSA and they have been damaged by frost is to wait until plants are actively growing. If you need assistance with the most up to date control options for TSA, please contact your county agent.

Brent A. Sellers

## **Journey Herbicide for Bermudagrass Hay Fields**

Control of crabgrass, sandspur, and nutsedge is a common need in bermudagrass hay fields. Controlling a grass weed in a grass crop can be very difficult and few herbicides have been developed for this purpose. However, Journey herbicide is one option that may prove beneficial in the future.

Journey is a mixture of imazapic (the active ingredient in Plateau) and a small amount of glyphosate. This herbicide combination has proved to be highly effective on crabgrass, crowfootgrass, johnsongrass, vaseygrass, sandspur, fall panicum, and nutsedge. Although Journey has been marketed for the last 3 years, the label restricted applications to ‘Coastal’ bermudagrass only. However, a supplemental label was recently released that allows applications to all bermudagrass cultivars. It must be noted that Journey, applied over-the-top of bermudagrass, will result in temporary yellowing and stunting. This injury will be made worse if the application is made during spring transition or during prolonged periods of dry weather. Therefore, it is important to only use Journey on bermudagrass that is actively growing. When applied during active growth, expect 2 to 4 weeks of stunting followed by rapid recovery.

Jason Ferrell

## **29th Annual Southern Conservation Tillage Conference**

The SCTC will be held at the NFREC in Quincy, FL on June 25-27, 2007. The posters and presentations will be made on the 26th at NFREC in Quincy and the field tour will be on the morning of the 27th of June at NFREC in Marianna. The theme of the program this year will be “Sod based rotations- the next step after conservation tillage”.

David Wright

## **Get Seed for Crops Early**

The varieties of peanut and corn that you want to plant may be in short supply this year. Cotton and soybean varieties should be adequate. With

the increase in corn acreage that is expected, the best hybrids will be in short supply. Peanut varieties will also be in short supply for several new ones that have performed well in variety trials. It will take 2-3 years before these peanut varieties will be in large enough supply to plant large acreages. Check variety reports for next best options and change in management needed to grow most economic yields.

David Wright

### **Kill Cover Crops Early in Conservation Tillage Plantings**

Cover crops need to be killed 4 to 5 weeks before planting cotton or peanut. This reduces the chance of drying out the soil; also, most of the soil insects die before the new crop is planted reducing the chance of stand loss due to insects. Dry and brittle cover crops make it easier to plant into since they seldom drag on the strip till rig as a wilted cover crop might. It is very difficult to have a large cover when planting corn early but cover crops can be very large by early April when most of them need to be killed for both cotton and peanut. Soybeans are often planted after wheat or other small grain which desiccate during the dry down process of the grain so that soil insects are not usually a problem for a crop planted after small grain harvest.

David Wright

### **Lime and Calcium Materials**

Limestone (calcium carbonate) and Gypsum (CaSO<sub>4</sub>) are both excellent sources of calcium for crop production. The difference between these materials is that limestone also neutralizes acidity while gypsum does not change soil pH. Florida soils are naturally acidic and thus require periodic liming to adjust soil pH for optimum crop production. A ton of calcium carbonate limestone applied to correct soil pH, means that 800 lb/A of Ca is being applied. Even a dolomitic limestone will contain over 400 lb Ca/ton. Crop removal of calcium ranges from 5 lb Ca/A for corn grain to 30 lb Ca/A for a high yielding silage crop. Legume crops may require a higher pH for optimum rhizobium activity. Thus regular liming to maintain soil pH in the optimum range will easily maintain calcium

levels against crop removal. Peanuts are one of the higher users of Ca and if crops are grown in rotation with peanuts, lime and gypsum applied on peanuts every 3-4 years is probably adequate for the other crops grown in rotation. Gypsum is sometimes used as a Ca fertilizer for crops where Ca is needed but a low pH is desired for optimum growth of the crop making lime a poor choice for meeting this need. Gypsum is often discussed as being related to improving soil physical properties. Adequate Ca and Mg are important for promoting and maintaining good soil aggregation. However, if soils have adequate K and Mg and are limed to an optimum pH there will be plenty of these cations to maintain good soil structure and no further adjustments are necessary. Soil testing and regular liming are the keys to healthy crop growth and good soil structure.

David Wright

### **Soil Compaction and Root Restriction**

The first step in minimizing soil compaction is to avoid field operations when soil moisture is at or near field capacity. Always let the field dry before doing field work. There are several management decisions that can be made to reduce soil compaction including: 1) A quick field test conducted by molding soil between your index finger and thumb and observing the stability of the resulting soil ribbon, or molding soil into a ball in your hand and observing whether the soil breaks apart when you touch the ball. If the soil smears much like grease, it is too wet and soil should be allowed to dry some before traffic is allowed over the fields. 2) The use of controlled traffic lanes where possible. Farm equipment is getting larger and heavier and results in more soil compaction. 3) Check wheel and tire size and pressure. Larger wheels and tires allow better flotation, whereas lower tire pressures reduce the load on the soil. Increase the tire's "footprint" with larger wheel diameters. 4) Consider applying lime and other operations in the fall on drier soils. 5) Consider conservation tillage. Conservation tillage is the best long-term solution. It avoids tillage and passes through the field and does not disrupt the soil structure as much. There are often roots that hold the soil together and allow heavier equipment without causing severe soil compaction. In most cases growers use in-row

rippers to break the natural compaction layer observed in most Coastal Plain soils. This will eliminate soil compaction for that crop and often leads to increased yields due to deeper rooting depth.

David Wright

### **Use Good Rotations**

This year is a good year to rotate to other crops if good rotation has been lacking. Good prices for corn, soybeans and wheat may allow growers options that have not been available for an economic return during the past few years. Consider crops with the lowest amount of risks

and highest potential return. Corn makes an excellent rotation for peanut, cotton, and soybean and price is almost double over the past several years. Corn responds to irrigation more than almost any crop so adequate water should be available to grow the crop profitably. Soybeans may fit with other growers who have grown cotton for a number of years. Well rotated land can lead to soybeans yield of 50-60 bu/A with low inputs. Cotton and peanut prices have been stagnant for a few years but can still be profitable if high yields are obtained and the best way to have low input costs and high yield is through good rotation.

David Wright

The use of trade names does not constitute a guarantee or warrant of products named and does not signify approval to the exclusion of similar products.  
Prepared by: J.M. Bennett, Chairman; J.A. Ferrell, Extension Agronomist ([jafferrell@ifas.ufl.edu](mailto:jafferrell@ifas.ufl.edu)); Y.C. Newman, Extension Forage Specialist ([ycnew@ufl.edu](mailto:ycnew@ufl.edu)); B.A. Sellers, Extension Agronomist ([sellersb@ifas.ufl.edu](mailto:sellersb@ifas.ufl.edu)); D.L. Wright, Extension Agronomist ([dlw@ifas.ufl.edu](mailto:dlw@ifas.ufl.edu)).