AGRONOMY NOTES

UNIVERSITY OF FLORIDA
IFAS EXTENSION

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DATES TO REMEMBER		
May 1	-	Twilight field day – N. FL REC, Live Oak, FL
May 2-4	-	Florida beef cattle short course, Gainesville, FL
May 25	-	75th 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 9		Perennial Peanut Field Day – Moultrie, GA
June 25-27	-	Southern conservation tillage conference – N. FL REC, Quincy, FL

IN THIS ISSUE

Micronutrient Deficiencies in Corn

As corn acreage expands more nutrient problems will be observed. Most of the corn grown in Florida over the past several years has been around dairy farms. Many of the fields may get much of the dairy manure applied back on the fields. These fields may increase in pH as more manure is applied resulting in more micronutrient deficiencies. Likewise, peanut acreage has expanded outside the traditional peanut area over the past few years. Where peanuts are grown, high levels of Ca, as lime, are often applied resulting in higher pH levels. Manganese deficiencies are observed most often on well drained, sandy soils with a high pH. The entire corn plant may have a yellow cast to it. This often occurs if the soil pH is above 6.5. If soils are known to be deficient in Mn, Mn should be applied in the starter fertilizer near the row. The starter may often be slightly acidic which allows Mn to be available for a longer period of time without being tied up; a way of correcting the Mn deficiency in the most effective mode. Manganese sulfate is the most common carrier of Mn and is effective if a deficiency is noted early and foliar applications can be made. However, Manganese sulfate does not mix well with many starter fertilizers so chelates are often used at low rates. These are not usually as effective as sulfate forms. It has been shown that 5 lbs of Mn material applied in a band is as effective as 10 times that amount applied broadcast due to Mn being tied up rapidly as it is exposed to the soil. Several people have found the effectiveness of $MnSO_4$ > MnO. Zinc is also a micronutrient that can be deficient in corn on sandy, high pH soils. However, if corn is rotated with peanuts, use as low rates as possible to prevent toxicities in peanuts. Again sulfate forms of Zn are probably the most effective followed by the oxide form. Chelates vary in their effectiveness and some may be as effective as the sulfate form while others will be less effective. The total amount of micronutrients delivered in chelates is low (usually around 5%) compared to sulfate or oxide forms which vary from 26-78% depending on the source for Zn and Mn. Applying micronutrients as a corrective measure during the growing season should be done as soon as the deficiency is identified. Our research indicates that if the application is made too late no yield advantage will be found compared to applying early in the season. Zinc and Mn are the two micronutrients most often deficient in corn. Boron is another micronutrient that we routinely recommend for corn since it is mobile and can be leached out easily. We have not had yield responses on corn to Cu and Fe in any of our trials; however, there may be soils that are deficient in these nutrients too.

David Wright

Nitrogen Fertilization of Corn

Nitrogen is the nutrient that requires the highest level of management on corn. It is more mobile than the other macro elements and has a higher total uptake than all nutrients except potassium which is similar in total uptake. There are several ways to utilize N more efficiently and in most cases rates as low as 180-200 lbs/A would produce the highest yields under irrigated conditions. These practices include:

- Split applications, with N going out just prior to plant needs. This practice guarantees that N will not be leached or volatilized and will be available when the plant needs it.

- Application of N near the row at plant and doing it on the first sidedress application or as late as equipment can be used for applications.

- Use of conservation tillage planting methods since moisture conditions

on the crops are often better due to higher OM and soil cover which results in better nutrient use efficiency.

- Application of N to corn all at beginning of the silk-tassel period since nitrogen is especially important during the vegetative stage of corn production. Grain protein content is increased mainly with later applications with little or no increase in yield.

Most of the weight gain of a corn crop is due to grain after silk/tassel with little vegetative growth.

David Wright

Planting Decisions

Most growers have figured out what they will plant by this time of year but there have been reports of growers killing out small grain to plant corn due to the high price. Corn prices were not this high when many people decided to plant small grain in the fall. And corn prices are double compared to the average price for the last 10 years and may go as high as $5/bu according to some reports. The decision to kill out a small grain crop that has already had quite a bit of management in it should be made with care since many of the best corn hybrids were in short supply early in the season and even poorer choices for growers are out there now. The wise decision at this point is to go with what has been planned and look at crop prices in the fall to determine the best choices for your farm. This spring has not been good for dryland corn even though it has not been hurt too badly due to the low water requirements up to now. However, corn will continue to need more water as the corn nears the ear fill period and then will reach peak water use during this ear fill period. Most of the crop prices have been pulled up by corn prices which will probably continue to influence those markets. For those who decided to plant corn, it is a good rotation crop with cotton and peanuts as well as soybeans and will have an impact on the yield of those other crops.

David Wright

Cotton Planting Investment

The Deep South has been particularly dry during the spring of 2007 raising a lot of concern about getting stands of cotton. Growers should try to plant cotton if possible in the April 10- May 15 time period. This time bracket allows growers to take advantage of any early rains and also allows time for replanting if necessary. During cool, dry years thrips can be especially damaging to young cotton seedlings since growth is slow. In-furrow insecticides usually do a good job of controlling thrips for 2-3 weeks unless there is not enough moisture for the plants to take up the in-furrow insecticide. In some years, thrips numbers may overwhelm the in-furrow material. When thrips numbers are so high, it may take additional few feeding punctures for the thrips to ingest enough material to be killed. These high thrips numbers result in high number of feeding punctures in the plant which show the typical plant symptoms of crinkled leaves and stunted growth. If thrips numbers are still high after 2-3 weeks, consider foliar applications of insecticides to aid early growth so that post directed applications of herbicides to cotton can be made earlier. Early post-directed applications are becoming more important as we get more weed resistance to herbicides from hard to control weeds like pigweed and tropical spiderwort. Likewise, most of our cotton acreage is now planted under conservation tillage practices and in-furrow insecticides will also help reduce problems from other soil insects. Cover crops are often killed too close to planting time and soil insects are still feeding on the roots of the cover crop

when cotton is planted. As soon as the young cotton seed germinates, soil insects see a new food source and will begin feeding on roots and the stem of the developing plant. Hence, we recommend that cover crops be killed 4-5 weeks prior to planting to allow time for the plants to completely dry out leaving no food for the soil insects to survive on. Early destruction of cover crops will reduce the soil insect population and help reduce problems for the new seedlings. More and more technology is being placed on and in the seed of cotton and cost for seed is more expensive; therefore, we need to make sure that this part of the investment is protected with as good of practices as we know how to use.

David Wright

Seed Treatment Chemicals for Nematode Management in Cotton

The development and marketing of nematicidal seed treatments is a relatively new development, and the products were targeted initially for use on cotton seed. Avicta Complete Pak, a product of Syngenta Coporation, was registered on cotton in 2006 and widely used on the crop that year. The seed treatment Aeris, from Bayer Corporation, is registered for use in cotton in 2007. Both products are mixtures of chemicals that are formulated to provide early season suppression of nematodes, thrips, and fungal seed pathogens. Avicta Complete Pak contains the nematicide abamectin plus thiamethoxam for thrips and azoxystrobin plus other fungicides for fungi. Aeris is a combination of thiodicard for nematodes and imidacloprid for thrips control with a fungal seed treatment option available as well. A number of field trials have been conducted on cotton with these products over the past three years in the U.S. Results for nematode management have been mixed but generally positive for deploying these seed treatments as 'supplements' to nematode management programs in cotton. Field trial results and subsequent university recommendations for use of these products vary by cotton production state due to differences in nematode species and population densities, crop rotations, edaphic factors and economic considerations. Recommendations for integration of these new products into existing cotton nematode management programs in Florida are evolving as more information is obtained through field trials and grower experience. Grower acceptance of these products has been high due to the ease of handling (no chemicals to apply) and greater grower use is expected in the future. It must be clearly noted, however, that these seed treatments act as only 'early season nematode suppressants' and must be used in combination with other nematicides or good rotations in fields where moderate to high nematode population levels are present.

Jimmy Rich and David Wright

Aeschynomene and Alyceclover – two good summer legume options.

Aeschynomene and Alyceclover are two well adapted warm-season legumes that are grown all throughout Florida. They can be grown on a prepared seedbed or overseeded into your warm-season pastures. However, their adaptation to soil drainage is very different. Let's look first at Aeschynomene americana or american jointvetch or deervetch, as is commonly known. Aeschynomene is very palatable to cattle and deer, and adapts wells to flatwood soils that are poorly drained. It is mainly recommended for grazing (not recommended for hay) and the season of growth goes from April to November. Soil moisture is critical for this legume, and seeding rates are 5-7 lbs per acre when using hulled seed or 10-15 lbs per acre when seeding with intact seed where the hulls are still present. Planting of hulled seeds should be done early; this year planting can be done

as soon as May depending on weather conditions. If using dehulled seeds, planting can be done in June. If planting is delayed past the middle of June, the amount of grazing time is reduced due to the delayed development of the Aeschynomene. Seedlings that emerge after initial rains in May, may not survive if drought condition comes back and is longer than 7-10 days after seedlings emerge. Alyceclover, on the other hand, is adapted to moist soils that are well drained. It can be used for grazing and hay. If used for grazing, do so only if rotationally grazing because is not as grazing tolerant as Aeschynomene. When used as hay, it makes high quality hay; Alyceclover may be a good option for dairymen in need of additional forage in late summer and early fall. The season of growth for Alyceclover goes from May through September and seeding rate is 15 lbs per acre. One issue about Alyceclover, is that it is susceptible to root nematodes (the peanut root-knot nematode, and the southern root-knot nematode). You should expect some stunting due to nematode damage to the root if the field that you are planning to plant has a history of vegetable crops (particularly those in the cucurbit family like cucumber, melon, squash, etc) as these crops attract or build up the nematodes in the soil.

Yoana Newman

Economics of Peanut Rotation with Bahiagrass

A five year study comparing peanuts grown following 2 years of cotton vs. 2 years of bahiagrass followed by a year of peanuts then cotton resulted in peanut yields averaging almost 1250 lbs/A more in the bahiagrass system. In each of the five years, peanuts in the bahiagrass rotation without irrigation out yielded peanuts with irrigation in the 2 year cotton rotation. When economics of the system were looked at, dryland peanuts following bahiagrass were $175/A more profitable than irrigated peanuts in the system commonly used by growers. The best conservation tillage practices were followed in both systems reducing costs of both systems. The best rotations are often not followed due to lack of experience with the crop, lack of equipment, markets or other factors; however, with the cattle and livestock that exist in Florida and the SE, bahiagrass is a very viable option and should be considered by growers. Having cattle can be beneficial for grazing the row crop land in the winter after harvest resulting in maximization of farm resources.

David Wright

The Importance of Sprayer Cleanout after Valor

Due to the recent increase in Cadre resistant weeds, more peanut growers than ever are interested in using Valor preemergence. Considering that Valor has a different mode-of-action than Cadre, and that it controls many broadleaf weeds, it is a natural fit for fields with a long history of Cadre use. However, it is important to be aware of the problems with tank cleanout associated with Valor.

Valor has been shown time and time again to stick in sprayer hoses, fittings, and screens. Over time, Valor residue will slowly dislodge and cause crop injury, particularly when spraying glyphosate. Since cotton is very sensitive to Valor, it is important to clean the sprayer very diligently after each Valor application.

It is critical to clean the sprayer immediately after Valor is used. Valor should not sit in the sprayer over night or large amounts of herbicide will begin to settle in the system. After Valor has set in the system for an extended period of time, cleanout is almost impossible without replacing fittings and sections of hose. Therefore, after each Valor application the sprayer should:

1. Be rinsed with clean water and flushed.
2. Filled with an adequate amount of clean water and ammonia (1 gallon of ammonia per 100 gallons of water) to be circulated and sprayed through the system.
3. Rinsed again with clean water.

If these steps are followed, the risk of having cotton injured with Valor residue will be greatly reduced or eliminated.

Jason Ferrell

Questions about Pesticides?

Do you, your colleagues, or your clients have questions about pesticides? Perhaps, you might be interested in a reputable pesticide information resource offered by The National Pesticide Information Center (NPIC). This center provides a toll-free telephone service offering objective, science-based chemical, health, and environmental information about pesticides. If you receive questions such as:

- Are my pet birds sensitive to pesticides applied inside my house?
- How long should I keep children and pets off the lawn following a pesticide application?
- What are my management options for my backyard vegetable garden that had pesticides drifted onto it?
- How long does it take for pesticides to breakdown in the environment?
- Where can I find general information on pesticides?

The NPIC provides real answers and everyday questions are answered from the general public, health care providers, veterinarians, government agencies, and others across the U.S. The goal of NPIC is to provide unbiased information about a variety of pesticide-related topics, in order for individuals to make a more informed decision when using pesticides.

Free brochures are available from NPIC to provide clients with contact information regarding pesticides. You may request quantities (up to 100) of free contact brochures by calling 1-800-858-7378, or writing to the National Pesticide Information Center, Oregon State University, Environmental and Molecular Toxicology, 333 Weniger Hall, Corvallis, OR 97333-9967.

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