UF UNIVERSITY of FLORIDA
IFAS Extension

Agronomy Notes

June 2010 Volume 34:6

Features:

"Agronomy Notes" is prepared by: Maria Gallo, Interim Chair and Y. Newman, Extension Forage Specialist (ycnew@ufl.edu); A. Blount, Forage Breeding Specialist (paspalum@ufl.edu); F. Fishel, Pesticide Information Officer (weeddr@ufl.edu); D. Wright, Extension Agronomist (wright@ufl.edu). Designed by Cynthia Hight (chight@ufl.edu.)

Cotton

Dr. David Wright, Extension Agronomist

North Florida REC, Quincy wright@ufl.edu

Regulating Cotton Height

Growers in Florida have been growing DPL 555 cotton on almost 100% of the acreage for the past 7 years or more. This is an aggressive-growing cotton variety and had to be managed to keep the height down to be able to do various management practices as well as to aid in defoliation and harvest. Cotton begins rapid growth in June in most years when moisture is not limited. This is the period when height needs to be regulated and square retention is important. There are many management factors that can influence vegetative growth, and they include N fertility, soil moisture, weed control, plant population and insect control. Good fruit and boll retention will slow vegetative growth. However, we do not know very much about many of the new cotton varieties that are replacing DPL 555. In most cases their growth will not be as aggressive and lower rates of growth regulators may be applied.

In general, growth can be managed with the use of mepiquat materials sold under trade names of Pix, Mepex, Topit, Mepichlor, Pentia, and others. These materials will generally shorten the internode length and reduce the leaf area where stem and leaf expansion are occurring. Some research has shown a slight increase in early fruit retention and earlier maturity. Yields are not necessarily increased but plants will definitely be shorter and may be easier to manage. Knowing the fields that normally have rapid and excessive growth and the varieties along with early fruit set will help ensure growth control.

Calendar

Inquisitive goat at the Small Farms Academy Field Day, North Florida REC on April 29, 2010 in Live Oak. Refer to the calendar on the right for related and upcoming conferences: Florida Small Farms (July 31) and Goats (Sept. 12.)

Photo: Tyler L. Jones IFAS Communications

To follow the link, press "Ctrl" and put cursor over link, and "click."

June 2-3	SAF/SFRC Spring Symposium - Sustaining Forests, Fisheries and Aquatic Resources in a Changing World Paramount Plaza Hotel, Gainesville
June 6-8	**Soil and Crop Science** (SCSSF) meets jointly with the Florida State Horticultural Society (FSHS) Plantation Golf Resort
July 11-17	Caribbean Food Crops Society meeting Boca Chica, Dominican Republic
July 12-16	Greater Everglades Ecosystem Restoration Meeting, Naples
July 13-15	American Peanut Research and Education Society Meeting Clearwater, 979-845-8278
July 15	Bioenergy Crop Field Day, Plant Science REC, Citra
July 22-24	Southern Peanut Growers Conference, Edgewater Beach Resort, Panama City Beach
July 31 - Aug. 1	Florida Small Farms & Alternative Enterprises Conference Osceola Heritage Park, Kissimmee
Aug. 1-5	Ecosytem Restoration Conference (NCER), Baltimore, MD
Sept. 12-15	National Goat Conference, Leon Civic Center, Tallahassee
Oct. 11-14	**UF-CTA** Potential Invasive Pests Workshop Coconut Grove (Miami), Mayfair Hotel

Corn

Dr. David Wright, Extension Agronomist

North Florida REC, Quincy wright@ufl.edu

Nitrogen and sulfur deficient corn after heavy rains resulted in a loss of plant N.

Photo: D. Wright

Corn Response To Nitrogen

Every year is a new year for farming. New challenges arise from pests or weather events (too wet or dry). This year has been no different with heavy rains on corn during the vegetative stage of growth. Corn may often be lacking in sufficient N fertilization in the early part of the season if too little N is applied at planting and weather delays a sidedress application. Root systems are limited during the first 4-6 weeks so little N can be scavenged from row middles.

The picture shows N deficiency along with S deficiency symptoms on corn that had 10 inches of rain during the early vegetative period. During the first 4 weeks of growth at normal planting dates corn will take up about 1 lb of N/A/day. During the next 3 weeks corn will take up about 1.4 lbs N/A/day, followed by the period of 2-3 weeks prior to tassel when vegetative growth is rapid and uptake peaks around 3.5/lbs/A/day or about 25 lbs/N/week. The early N applications are important for high yield even though corn will continue to take up N at the rate of 2.5 lbs/A/day from tassel until maturity. Nitrogen applications made after the tassel stage does little for yield but can increase grain protein.

Forage

Dr. Ann Blount, Forage Breeding Specialist

North Florida REC, Marianna paspalum@ufl.edu

Dr. Yoana Newman, Extension Forage Specialist

ycnew@ufl.edu

New Bahiagrass: UF-Riata Update

UF-Riata will be available this year. UF-Riata is a novel diploid bahiagrass developed for fall and early spring forage production for the southeastern U.S. This bahiagrass exhibits lower photoperiod sensitivity, improved leaf tissue cold tolerance, and increased forage production during the cool season compared to the standard bahiagrass cultivars Argentine and Pensacola. Multi-location variety trials show UF-Riata is similar in total season yield to Tifton 9, with an improvement in seedling vigor and leaf tissue cold tolerance that promotes late fall-season growth and early spring-season growth. UF-Riata seasonal forage yields have been greater than 25% compared with Argentine and Pensacola, and 5-10% compared with Tifton 9 in north Florida. UF-Riata is well adapted throughout the southern Coastal Plains and Peninsular Florida.

Management of UF-Riata is similar to that of Tifton 9. While Argentine and Pensacola bahiagrass are tolerant to overgrazing, UF-Riata is not, and spot grazing will result in stand loss and subsequent weed encroachment. Rotational grazing is a good approach since it allows UF-Riata pastures to recover from livestock grazing, and producers should rest the pasture and allow for regrowth to a 6 inch stubble height between grazing events.

Hay harvests of UF-Riata should be made several times throughout the growing season. Forage should not be allowed to grow rank. Digestibility decreases with plant age and fungal leaf diseases may harm the health of the stand. Should weather conditions prevent timely hay harvests, then options for grazing, mowing or ensiling the forage should be considered.

It is important to purchase seed of UF-Riata from a licensed seed source. This insures the purity of the cultivar, high percent germination and freedom from weed seed. UF-Riata will be sold by variety name and marketed by Ragan-Massey Seed (800-264-5281). The seed is in stock and ready to ship via UPS.

Dr. Yoana Newman, Extension Forage Specialist
ycnew@ufl.edu

Targeting High Quality Grass Hay and Minimum Losses

Forage quality is associated with nutrients, high energy, protein, and digestibility, and low fiber. Weather conditions and forage maturity are the primary factors affecting quality of a stand.
Maturity, or stage of growth, is the principal factor responsible for declining forage nutritive value. As the plant advances in growth beyond the first couple of weeks (where protein and digestibility are highest), stem growth continues, as well as deposition of fibrous components at the plant cell level.

During the summer, if the weather forecast calls for a few days without rain, it is advisable to harvest early than anticipated, even if the regrowth is not at the targeted 4 or 5 week schedule. Harvesting early at 21 or 24 days, will provide even highest nutritive value and will avoid the rain-associated losses. Take advantage of dry weather forecast and harvest early, you will get back in track (4 to 5 week harvest) later in the season.

Typical hay production practices in Florida to minimize losses include 'tedding and raking'. Usually, tedding shortens the curing time by about ½ day. Tedding scatters the forage over the entire field in order to capture all the solar radiation; tedding uses more efficiently the energy of the sun. Tedding also makes a thinner layer, which produces a more uniform drying. Raking should be done at 35-40% moisture to keep dry matter losses under 4%. If raking is done too late (when crop is at bailing moisture) losses can exceed 20%. Also, to minimize losses, hay should be raked in the same direction that it was mowed.

Pearl Millet: Summer Annual

This quality forage with abundant leaves is similar in adaptation to sorghum sudans. There are several differences, though. The soil temperature requirement is higher (65 to 70degrees F) for pearl millet than those for sorghum (60 to 65 degrees F). Pearl millet is safe to feed to horses, and does not produce prussic acid (which makes it a safe forage when there is the possibility of frost later in the season).

Pearl millet is used as a high quality summer crop for growing or lactating animals, and often as an emergency feed for all type of livestock.

Grazing should occur at 18 to 24 inches, and harvested at boot or pre-boot stage.

Some quick facts

Origin:	Africa
Growth Habit:	4-8 feet tall, erect. Abundant tiller after establishment.
Production Season:	June-September
Soil:	Sandy-loam, moist but well drained; tolerates drought and very short term flooding.
pH:	5.5-7.0

Management

Planting Date:	Mid March to June. In North Florida, earliest planting is April 1st.
Planting Depth:	1/4 to 1/2 inch (seed is very small)
Seeding Rate:	12 to 15 lb/acre in rows, or 30 to 40 lbs/acre if broadcast
Seed Cost:	Hybrid ($0.60/lb; $7 to 9/acre)
Production:	5000 to 10000 lb/acre

Notes

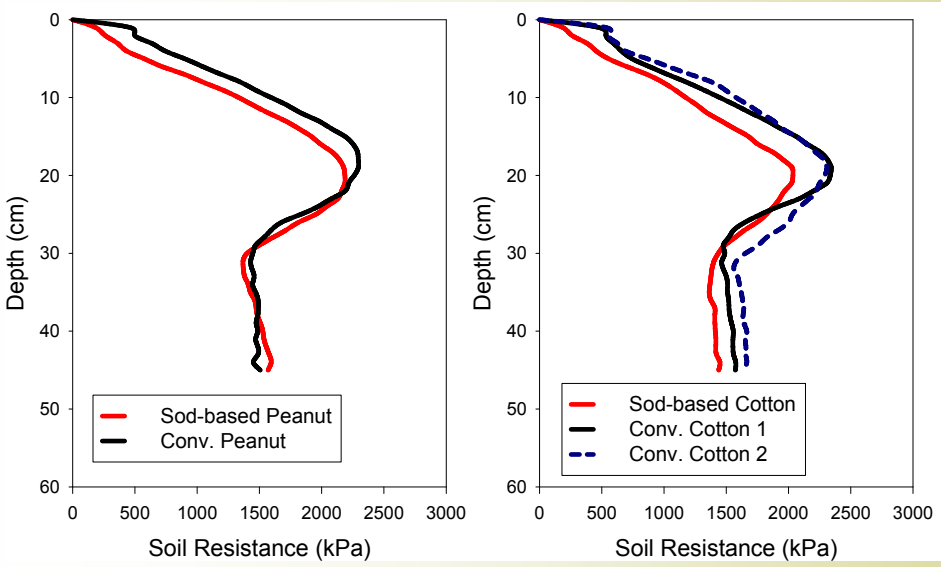
- Possibility of nitrate poisoning.
- Different from Sorghum, does not cause prussic acid poisoning.
- Safe to feed horses.
- Hay is difficult to cure because of thick stems.
- Affected by fall armyworm and leaf rust.

For additional information, visit Forages of Florida webpage
http://agronomy.ifas.ufl.edu/foragesofflorida/detail.php?sp=Pearl millet&type=G

Dr. David Wright, Extension Agronomist
North Florida REC, Quincy wright@ufl.edu

Natural Soil Compaction Layer

Coastal Plain soils have a natural compaction layer that has the highest rate of compaction about 6 inches deep as shown below, and compaction falls off dramatically after 12-15 inches deep as shown in the photo. Therefore, deep tillage is necessary to prevent restricted root growth and reduced yields.



Soil Mechanical Resistance (n = 150)

Graphic and Photo: D. Wright

Our research has shown that ripping underneath corn rows can add 20-60 bu/A of corn and 8-10 bu/A of soybean. This practice has a similar effect on other summer crops as well as winter grain crops.

The picture below shows a dark line above the B horizon (red soil) with roots running laterally. This is an indication of a compacted layer; some of the roots were not able to penetrate the compacted layers and started growing laterally. All Coastal Plain soils exhibit this trait and can be found in pine woods where no equipment traffic has influenced it. Roots of crops like bahiagrass can penetrate this compacted layer and following crops can use these root channels for root growth and water

Roots run laterally above this dark line. Bahiagrass can penetrate the compacted (red) layer thus creating root channels for subsequent crops.

Dr. Fred Fishel, Pesticide Information Director

weeddr@ufl.edu

EPA's Endocrine Disruptor Screening Program (EDSP)

The endocrine system is responsible for regulating important biological processes, including metabolism, blood sugar levels, growth and function of the reproductive system, and the development of the brain and nervous system. All birds, fish, and mammals possess an endocrine system. It's a complex system consisting of three basic components:

- ⇒ Glands;
- ⇒ More than 50 hormones produced by the glands which function as chemical messengers; and
- ⇒ Receptors in various organs and tissues that recognize and respond to the hormones.

The EPA Targets Pesticides

All pesticide active ingredients are required to undergo extensive toxicological testing prior to being granted U.S. Environmental Protection Agency (EPA) registration. Some industrial chemicals have undergone extensive toxicological testing; however, it is unclear whether this testing has been adequate to detect the potential for both groups of these chemicals to be endocrine disrupters. It's also uncertain or what additional testing is needed for the EPA to assess and characterize both human health and ecological risk. Recent legislation including the reauthorization of the Safe Drinking Water Act (SDWA) and passage of the Food Quality Protection Act (FQPA) has mandated that such a screening and testing program be developed by EPA. The overall objective is to reduce or mitigate risk to human health and the environment.

The EDSP Process

EPA's EDSP has been involved in a validation process for several tiers of assays with their accompanying protocols and the policies and procedures for use in the EDSP testing process. In late 2009, EPA issued the first test orders for pesticide chemicals to be screened for their potential effects on the endocrine system. At this same time, EPA made available the battery of scientific assays and test guidelines for conducting the assays, as well as a schedule for issuing test orders to manufacturers for 67 chemicals that will serve as the first group to enter the initial phase. Of the 67 chemicals, there are 58 pesticide active ingredients and 9 high production volume chemicals used as inert ingredients. Because this list of chemicals was selected on the basis of exposure potential only, it should not be construed or characterized as a list of known or likely endocrine disruptors.

List of 58 Chemicals used as Pesticide Active Ingredients:

2,4-D

2-(2-ethylhexyl)-3a,4,7,7a-tetrahydro-4,7-methano-1H-isoindole-1,3 (2H)-dione

Abamectin
Acephate
Atrazine
Benfluralin aka benefin
Bifenthrin
Captan
Carbaryl
Carbofuran
Chlorothalonil
Chlorpyrifos
Cyfluthrin
Cypermethrin
DCPA
Diazinon
Dichlobenil
Dicofol
Dimethoate
Disulfoton
EPTC
Endosulfan
Esfenvalerate
Ethoprop
Fenbutatin oxide
Flutolanil
Folpet
Gardona (cis isomer) aka tetrachlorvinphos
Glyphosate
Imidacloprid
Iprodione
Linuron
Malathion
Metalaaxyl
Methamidophos
Methidathion
Methomyl
Methyl parathion
Metolachlor
Metribuzin
Myclobutanil
Norfluazon
o-Phenylphenol
Oxamyl
Permethrin
Phosmet
Piperonyl butoxide
Propachlor
Propargite
Propiconazole
Propyzamide aka pronamide
Pyriproxyfen
Quintozene aka PCNB
Resmethrin
Simazine
Tebuconazole
Triadimefon
Trifluralin

List of 9 Chemicals used as Inert Ingredients:

Acetone
Butyl benzyl phthalate
Dibutyl phthalate
Dimethyl phthalate
Dimethyl phthalate
Di-sec-octyl phthalate
Isophorone
Methyl ethyl ketone
Toluene

UF IFAS Plant Science Research and Education Unit invites you to:

Bioenergy Crop Field Day

July 15, 2010
8:30 a.m. - 1:00 p.m.
Citra, FL

Event is Free; Register by July 8

Link to: Registration

Link to: Directions

Focus on Grasses:

- Elephantgrass
- Energycane
- Miscanthus
- Sugarcane
- Sweet Sorghum

Field Tours of Ongoing Bioenergy Grass Crop Research

Most Recent Data From Statewide Experiments

Updates on Bioenergy Crop Breeding Efforts

IFAS Scientists on-hand for Small Group and One-on-one Interaction

Complimentary Lunch Provided

Weed Control

Dr. David Wright, Extension Agronomist

North Florida REC, Quincy wright@ufl.edu

Strip Tilling Crops

Peanut strip tilled into bahiagrass with no erosion and residual herbicides to help prevent weed resistance.

Photo: D. Wright

Strip tillage is used widely in many areas of the southeast U.S. There has been some concern among many people about weed resistance especially from palmer amaranth with the impact of possibly decreasing the area planted with conservation tillage. However, many growers still have hooded or shielded sprayers for direct spraying and there are many effective, residual herbicides that can be used in cotton, peanut, corn and soybean.

Rope wick applicators can be used in peanut fields late in the season. Strip tillage has reduced time in the field and fuel costs as well as preserved stands from sand blasting and fields from erosion. Most growers who have adopted this method of planting have found that it is not necessarily easier but has economic as well as timeliness advantages and do not want to go back to conventional tillage practices. For years, weed control was the main disadvantage to planting crops using strip tillage methods and directed spray equipment was necessary for late emerging weeds. However, Roundup Ready and other genetic technology have often been relied upon for all of the weed and pest control without using residual chemicals at planting and at layby thus creating a weed resistance problem. Growers must rely on several modes of action for weed control as well as residual herbicides to help prevent weed resistance.

Many fields were plowed this winter and spring to help control glyphosate resistant weeds and heavy rains washed many fields to levels unseen in many years. Take care not to create a worse problem by turning ground. Many of these washed fields have sanded areas that will take decades if ever to reach the yield potential of pre rain/erosion levels. There are enough residual herbicides in the arsenal to control weeds with strip tillage without resorting to turning ground or other intensive tillage operations.