

AGRONOMY

UNIVERSITY OF FLORIDA

NOTES

IFAS EXTENSION

April, 2003

DATES TO REMEMBER	
May 8	Forage Field Day - Jay Research Farm
May 19-22	Aquatic Weed Control Short Course 2003 - Ft. Lauderdale
May 21-23	Soil and Crop Science Society of Florida Meeting - Daytona Beach
July 8	Agronomy Weed Science Field Day (Deep South Weed Tour) - Jay Research Farm
September 5	Row Crop Field Day - Jay Research Farm

IN THIS ISSUE	PAGE
CORN	
Rootworm Protected Corn Registered with Controversy	2
COTTON	
Cover Crops for Cotton or Peanuts	2
No Increase in Resistance Seen for Pink Bollworm Populations	2
Planting Date for Cotton	3
PEANUTS	
Inoculants for Peanuts	3
New Florida Peanut Varieties	3
Twin Rows for Peanuts	4
TOBACCO	
Actigard for Transplanted Tobacco	4
Blue Mold Found in Tobacco	4
Pesticide Potpourri	4
Pesticide Registrations and Actions	5
Slow Growth of Tobacco	5
MISCELLANEOUS	
Biomass of a Cover Crop	6
Buyer Beware - Telemarketers are in the AG Business Too!	6
Nematicidal <i>Bacillus thuringiensis</i> Proteins?	6
Reduced Tillage	7
Publications	7

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 / Christine Taylor Waddill, Director.

Rootworm Protected Corn Registered with Controversy

On February 25, the EPA approved Monsanto's new biotech corn, YieldGard® Rootworm Corn, for planting in 2003. Asst. Administrator Steve Johnson said the Agency put the plant-incorporated protectant through a multiyear science-based review process to "ensure that it is safe for human health and the environment." The USDA has estimated that the devastating pest costs U.S. corn growers about \$1 billion annually. In order to reduce potential insect resistance, Monsanto must ensure that a 20 percent "refuge" exists. The company also is required to conduct added research on resistance management.

However, scientists who were consulted before the February decision say that the EPA ignored their advice and is doing too little to ensure that insects don't develop resistance to the insecticide produced by the plant. Last October, a scientific review board recommended that the strain should only be grown if farmers plant an equal area of non-transgenic corn next to it. Such a stipulation would have undermined the commercial viability of the strain, however, and the EPA rejected it, saying that a 20 percent "refuge" of non-transgenic corn will suffice. The controversy surrounds the fact that YieldGard® produces much less toxin than existing Bt crops - killing only about half of the rootworm population. With such a low mortality rate, resistance is certain to arise, the panel said - the only question is when. Eleven members of the scientific review board that looked at Monsanto's application urged the EPA to require a refuge size of at least 50 percent of the total area planted with corn. In the end, the EPA sided with three dissenting review board members, and sanctioned the 20 percent refuge size that Monsanto had requested. (CropLife America *Spotlight*, 2/28/03 & AgNet, 3/6/03).

MAM

Cover Crops for Cotton or Peanuts

Where cotton or peanuts are to be planted in April or May, cover crops should be killed 3-4

weeks ahead of planting to conserve moisture, eliminate or reduce soil insects and reduce populations of grass hoppers or other insects feeding on green foliage. Mixtures of Roundup and 2,4-D can be very effective against both broadleaf and grass cover crops and weeds. Phenoxy herbicides require application 30 days ahead of planting cotton and are important in controlling winter weeds such as cut leaf evening primrose, horseweed and wild radish that are hard to control with glyphosate.

DLW

No Increase in Resistance Seen for Pink Bollworm Populations

Genetically engineered cotton in Arizona, grown using a strategy mandated by the EPA, is effectively controlling a common crop pest without causing increased pesticide resistance, suggesting that transgenic crops could help the environment through reduced insecticide use. Researcher Yves Carriere, an evolutionary ecologist at the University of Arizona in Tucson, believes that "Transgenic crops have potential to improve agriculture, but we must be careful when we use them." To minimize the risk of evolved resistance against Bt crops, the EPA in 1995 required all growers of Bt cotton to plant crops that do not generate the toxins alongside Bt crops. Insects vulnerable to Bt toxins are kept alive in such fields to mix their insecticide-susceptible genes with resistance traits to dilute and therefore delay the evolution of resistance among their descendants. "The EPA was right in doing so," Carriere explained. "This refuge strategy is absolutely needed to delay the evolution of resistance." Carriere and colleagues looked at the population density of pink bollworm, a key cotton pest, across 300,000 acres of cotton in Arizona over a 10-year span - five years before Bt cotton was deployed and five years after. More than 1,000 traps containing sex pheromones were deployed to capture insects for study. Investigators found up to a four-fold decrease in pesticide applications following the introduction of Bt cotton, which also led to up to six-fold decrease in pink bollworm population density. This steady decline suggests the pink bollworm soon could be eliminated as a key pest.

A senior staff scientist for the Union of Concerned Scientists in Washington, was pleased to see the results. "The Arizona scientists deserve a lot of credit for their systematic study of the use of Bt cotton," she said. "Frankly, this is what we'd like to see in many other places in the country." Both groups feel these results do not necessarily extrapolate to Bt crops in other parts of the country. Says Carriere, "Here in Arizona it is clear Bt cotton has caused a dramatic reduction in the use of synthetic insecticides. But I'm talking about Arizona. This is not my general position for every transgenic." (UPI, 2/4/03 via AgNet).

MAM

Planting Date for Cotton

Cotton can generally be planted from late March through the third week of June in Florida. However, early planted cotton has several advantages including the ability to overcome insect, weed, or environmental stresses if enough growing season is left. Sometimes there are stand failures due to any number of causes and it allows growers time to replant if it has been planted early enough. Recent data with hardlock on cotton shows that high temperature and relative humidity during blooming contributes to the disease. Early planting may reduce hardlock through cooler temperatures and lower humidity during the bloom period. However, temperature and humidity can be high at any time from May until late August. Planting full season varieties any time from late March until mid May would be preferable to mid June plantings. Moisture may be more available under non irrigated conditions in early April as compared to early May to get stand establishment.

DLW

Inoculants for Peanuts

There are reports that many fields of peanuts 2003 may be planted in non-traditional areas of production. In such situations growers should assess the need for adding nitrogen-fixing bacteria to the peanuts. The cowpea strain of bacteria is effective on peanuts as well as a large

group of other legume crops and weeds. If peanuts, beggarweeds, alyceclover, cowpeas, and other legumes are growing or have grown on the field in recent years, then the bacteria occur naturally in the soil and an inoculant may not be needed. If only grass or other non-legume plants have grown recently on the field, then adding an inoculant at planting would be advisable. The bacteria infect the roots and form nodules that allows nitrogen to be extracted from the air and used for growth by the bacteria and the peanut plant.

EBW

New Florida Peanut Varieties

The University of Florida released six new peanut varieties in 2002. Although 2003 seed supplies are limited, farmers may be able to get some seed, or if not they could observe any tests or fields planted in their area. There are two early maturity varieties and both have the high oleic oil chemistry. Andru II has excellent tomato spotted wilt virus (TSWV) resistance and some white mold resistance. Anderson's Peanuts has the marketing contract for Andru II and would be the source of seed. GP-1 is also an early maturity variety and is licensed to Golden Peanut, but seed will not be generally available until 2004. Norden and Carver are medium maturity and both varieties have good TSWV and white mold resistance. Norden has high oleic oil chemistry and is a replacement for SunOleic 97R. Of the six new varieties, more seed of Norden are available than for any other. Carver has some CBR resistance. The late maturity varieties are Hull and DP-1. Hull is a high oleic variety that has resistance to TSWV, late leaf spot, white mold, and has some resistance to CBR and root knot nematodes. Seed supplies of Hull are limited. DP-1 has the highest level of resistance of any variety to late leaf spot, TSWV, and white mold. Seed are marketed through Damascus Peanut Company, but supplies are limited for 2003.

EBW

Twin Rows for Peanuts

Research at Marianna and many other locations for several years have shown that higher yields are usually obtained when peanuts are planted in twin rows rather than in single rows. Twin rows provide for more competition for weeds, while reducing competition between the peanut plants. Infection by tomato spotted wilt virus is usually less in twin rows, which is probably due to the faster ground cover by the peanut vines. Since the seeding rate for single rows is usually six seed per foot, while in twin rows it is three seed per foot, the seed requirements per acre are the same. A twin row planter and possible adjustments to the digger would be needed when growing peanuts in twin rows.

EBW

Actigard for Transplanted Tobacco

Growers that received an Actigard label from the Flue-Cured Tobacco Stabilization may note that in addition to using Actigard in the greenhouse or plant bed for suppression of tomato spotted wilt virus (TSWV), the chemical can also be applied soon after transplanting, also for TSWV suppression. The label for blue mold prevention calls for Actigard applications to begin after the plants are 18 inches tall. However the application for TSWV suppression should also provide some prevention of blue mold. Growers should have a copy of the label from Stabilization if they use Actigard as directed for TSWV suppression.

EBW

Blue Mold Found in Tobacco

Active blue mold has been found in both Florida and Georgia plant beds, and wet and cool weather would be favorable for further development of the disease. Agronomic practices to limit development of blue mold in both plant beds and the field include irrigating only as needed to maintain plant growth, avoiding excessive rates of nitrogen fertilizer, and avoiding high plant populations when transplanting. Succulent, tender plants are more susceptible to

blue mold infection and damage than are hardier plants. Fungicides that can be used to prevent blue mold include mancozeb in both the plant bed and field, and Acrobat and Actigard in the field. Follow label directions for rate and timing of applications.

EBW

Pesticide Potpourri

Ralstonia solanacearum race 3, biovar 2 on geraniums has been confirmed in the U.S. This is a bacterial pathogen that causes southern bacterial wilt of solanaceous crops, including potato, tomato, pepper, and tobacco. This pathogen is on the bioterrorism list because of its threat to food crops. The infected cuttings were shipped from Kenya by a supplier to companies in Michigan and New Hampshire. Once rooted, these cuttings were shipped again. There are currently no confirmed detections in Florida. (UF/IFAS Pest Alert, 2/24/03).

With the phaseout of methyl bromide looming, scientists have been looking for replacements for sites where this fumigant has historically been employed. For stored grain, researchers at Purdue have found that ozone may be a promising chemical. The team set out to test the efficacy of the reactive gas on a variety of grains, including rice, popcorn, soft red winter wheat, hard red winter wheat, soybean, and corn. Except for immature weevils that were inside grain kernels, a 50-ppm treatment affected all insect species tested. Additionally, the treatment did not affect any of the characteristics of the grains, such as the popping volume of corn, the milling characteristics of wheat, and the stickiness of rice. (*Pesticide & Toxic Chemical News*, 2/17/03).

The Environmental Regulatory Commission (ERC) met in late February in Tallahassee to continue rule adoption of a phosphorus criterion for the Everglades Protection Area. The ERC is considering setting the standard for every part of the system at 10 ppb. The Florida ag community is asking ERC members to: base the criterion on scientific information; consider economic impacts; and, to consider the risks/benefits to the

public. The Duke University Wetlands Center and other highly respected experts dispute the need for 10 ppb even for water flowing into pristine areas, citing actual research that shows 16 ppb is an appropriate standard that would fully protect the Everglades. Nearly half of the planned Stormwater Treatment Areas (STAs) have been built, with more than 22,000 additional acres to come on line by the end of 2004. These STAs, paid for by farmers and taxpayers at a cost of \$800 million, may be capable of lowering phosphorus concentration to the 15 ppb range. There is no proven technology that can reduce the concentration to 10 ppb. (FFAA *Florida Focus*, 2/18/03).

In a meeting with FDA's Center for Food Safety and Applied Nutrition staff to discuss priorities for FY2003 and beyond, it was learned that FDA's primary focus will be on anti-terrorism programs. Also of interest is the provision of the Public Health Security and Bioterrorism Preparedness and Response Act of 2002, requiring all domestic and foreign facilities that manufacture, process, pack, or hold food for human or animal consumption in the U.S. to register with FDA by December 2003, regardless of whether or not FDA has issued the final regulation. While farms, food retailers, and restaurants are currently exempted, this process will have an impact on food chain partners and could provide a possible platform for traceability of biotech-derived food and feed. (CropLife America *Spotlight*, 2/14/03).

MAM

Pesticide Registrations and Actions

On February 6, the Florida Department of Agriculture and Consumer Services (FDACS) sent a letter to Syngenta Crop Protection, Inc. to inform them that the Department had accepted the Section 24(c) application for the use of Actigard® (acibenzolar-s-methyl) fungicide (EPA Reg. # 100-922) on tobacco seedlings grown in seed beds or plant/float houses. Users must sign a waiver from the Flue Cured Tobacco Cooperative Stabilization Corporation. The Special Local Needs (SLN) number is FL-030003. (FDACS letter of 2/6/03).

The Interim Risk Management Decision (IREM) for the organophosphate pesticide dicrotophos (Bidrin®) is now available, according to a Federal Register notice published on February 5. Dicrotophos is primarily used on cotton and is eligible for reregistration with certain changes, including a reduction in the total application rate, a prohibition of aerial applications, and a production cap to reduce risks to workers and the environment. The IREM states that dicrotophos fits into its own risk cup, i.e., its individual, aggregate risks from food and drinking water are within acceptable levels. (EPA OPP *Update*, 2/12/03).

MAM

Slow Growth of Tobacco

There are often a number of complaints about slow recovery and growth of plants after they are transplanted, even if a good stand has been obtained. There are several possibilities for this slow growth. Plant quality may be a factor, as plants that are or have been mildly infected with blue mold, rhizoctonia, or other diseases may be slow to resume growth. If the plants have been clipped and hardened excessively, they may live and eventually grow well, but they are slower in development. Likewise, plants that were grown with too little nitrogen are slow to develop. Generally plants that have been moderately hardened and clipped, live well and resume growth fairly soon after transplanting.

Greenhouse-grown plants may grow slower than plant bed plants, especially if they are small and transplanted at a shallow depth and little or no shank or stem is below ground. New root development out of the root ball is often slower than on the below-ground shank. Soil-applied pesticides may also slow the growth of transplants. Fumigants have not been a major problem in recent years, but could be this year because of wet weather and fumigation shortly before transplanting. It would usually be more noticeable on heavier soils or in wetter areas of the field. Plants stunted by fumigants form few new roots and the shank is generally enlarged. Prowl may often temporarily stunt plants, but generally there is no loss in yield. New roots on

Prowl-damaged plants are often short, swollen and have a blunt root tip. Other herbicides may stunt the tobacco plants. There have been some reports that plants treated with Actigard may be slow in resuming growth after transplanting. Cool weather, insects and diseases may prevent fast early growth. Be sure to inspect for active pest problems.

EBW

Biomass of a Cover Crop

Cover crops should be managed (fertilized and planted at the proper date and seeding rate) to make maximum amounts of cover for the crop being planted into it. Research has shown that high rates of cover crops (3000 lbs dry matter or more) will result in cooler soil conditions during the summer and more soil moisture throughout the season and better yields in drought years. Cover crops that reach 3 feet tall before killing can make ideal situations to strip till cotton or peanuts in. Most cover crops are never managed or fertilized and often result in little more than natural winter weed growth and will make little difference to crop yield or soil quality. However, it is better to plant the main crop on a timely basis than to wait for the cover crop to make the most growth.

DLW

Buyer Beware - Telemarketers are in the AG Business Too!

It happens every year, generally in the spring, but it can happen at any time. An unsuspecting grower gets a phone call and is presented with a 'wonder' product that is his or her answer to weed control. The product name is often coded; something like SP124, SM409, etc., etc. This past week SK142 was a product name brought to my attention. These people who call are very good, and present a good argument and seem to know what they are talking about. They will often ask for a credit card number and will ship the product directly to you. In addition, the price sounds great.

The catch you ask? Snake Oil? Well here are a

couple of things to make you scratch your head.

- 1) how come I never heard of it before?, not mentioned in grower meetings, etc.
- 2) why doesn't a distributor carry it?
- 3) if its so good, why is it so cheap?
- 4) what kind of a name is SK142?

Actually the product is generally a legitimate herbicide, but not the wonder product you are led to believe. Remember that all pesticides have a twenty year patent life and after that time anyone can market the product, but must use a different trade name. So, the "wonder product" is an old herbicide with a new name. 2,4-D is a common material used in these marketing schemes. I was even asked about a wonder product for pecans. The marketing person claimed 4 years worth of bareground weed control under the trees. I checked with agent, he checked and found out the firm was in Georgia but home base for the company was in Long Island, NY. They finally sent a product label and it was prometon. Prometon is the active ingredient in Pramitol, which has been used for years as a soil sterilant. In essence the grower would have gotten 4 years worth of weed control but all the pecan trees would have died from the prometon.

When someone gets a phone call of this type, the best thing to do is ask for specifics. Can you send (fax) a label? Do you have a web site? What is the active ingredient(s)? What is your EPA registration number? Also, ask for a phone number where they can be reached. In addition, if the product is 2,4-D or similar, are you really saving money? Remember that buying a pesticide over the phone has a lot of risks including purity or authenticity of the product, and lack of product support. Buyer Beware!

GEM

Nematicidal *Bacillus thuringiensis* Proteins?

Crystal proteins from the Gram-positive soil bacterium, *Bacillus thuringiensis* (Bt), are pore-forming toxins used extensively to control insect pests, but their effect on the invertebrate phylum Nematoda, which includes many soil dwelling species, has been under-investigated. However, researchers at the University of California, San

Diego, are demonstrating that Bt crystal proteins are also toxic to nematodes. The group expressed seven different crystal toxin proteins from two largely unstudied Bt protein subfamilies and measured their toxicity on diverse free-living nematode species. They observed that four of these crystal proteins are active against multiple nematode species. Toxicity in nematodes correlated with damage to the intestine, consistent with the mechanism of crystal toxin action in insects. In addition, they showed that one novel nematocidal crystal protein can be engineered to a small 43-kDa active core. "Given the very low toxicity of Bt crystal proteins in general toward vertebrates, Bt crystal proteins may one day provide safe, cost-effective control of nematode parasites, such as those that infect over one quarter of the human population," conclude the researchers. (*The Scientist*, 2/18/03).

MAM

Reduced Tillage

Are there tillage passes that can be eliminated when fuel prices are high without affecting yield? Much of the small grain this year has shown yellow spots in the fields. Past examination of these fields indicates to us that about 80% of small grain problems are caused by lack of deep tillage to break the compaction layer. This may

show up in a wet season, as we have had this fall and winter, when nutrients leach below the compaction layer and roots cannot get down to them. Subsoiling on most of our Coastal Plain soils will give a significant yield response on most crops. However, most data shows that corn, cotton, peanut, and soybean can be strip till planted without any yield loss and all but the planting pass eliminated.

DLW

Publications

The following publication has been recently **UPDATED** and is available through EDIS. A PDF file for this publication is also available.

SS-AGR-176 Fertilizing and Liming Forage Crops

The following **NEW** publication is available through EDIS. A PDF file for this publication is also available.

SS-AGR-190 Producing Peanuts for the Fresh Market

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; C. G. Chambliss, Extension Agronomist; G. E. MacDonald, Weed Researcher, M. A. Mossler, Pest Management Information Specialist, E. B. Whitty, Extension Agronomist. D. L. Wright, Extension Agronomist.