



Berry/Vegetable Times

October 2003



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Calendar of Events

- Oct. 14 — Pesticide Testing 9 am, Hills. Co. Extension Office, Seffner 813-744-5519.
- Oct. 14-16 —Sunbelt Agricultural Exposition, Moultrie, GA. Over 1,100 agricultural exhibitors. Call 229-985-1968 or email info@sunbeltexpo.com or visit their website www.sunbeltexpo.com
- Oct. 16 —FOG Organic Agricultural Marketing seminar GCREC Bradenton 7—9 pm. See notice on Page 3
- Oct. 25 — Hills. Co. Extension Office Open House, Seffner, 9 am—2 pm 813-744-5519.
- Nov. 7 —WPS Train the Trainer Program, Hills. Co. Extension Office, Seffner. 10 am to 12 noon. RSVP required. See notice on page 3. 2.5 CEU's.
- Nov. 18 —Strawberry School 2003. GCREC Dover, 9 am to mid-afternoon. CEU's requested. RSVP required. See information in *From your Extension Agent* article, page 1.

From your Extension Agent...

This is a hectic month for all the strawberry industry as everyone is busy setting plants. We also have several meetings coming up in our area. Please check the calendar of events and all meeting announcements in this newsletter.

The first meeting will be on Oct. 16 at GCREC-Bradenton from 7-9 pm and is on organic agricultural marketing. FOG and IFAS are presenting this free seminar so if you have ever considered organic production this is an excellent opportunity to learn what is involved and get answers to your questions without having to travel a great distance. Please see the announcement in the newsletter.

On Nov. 7th there will be a WPS Train the Trainer program from 12 at the Extension Office in Seffner. This meeting will give you the information you will need to be able to train your workers and also cover things such as what signs need to be posted at each work site. Fines are getting tougher- one operation in Colorado was fined over \$200,000 for not having their workers properly trained. 2.5 CEUs will be given. There is a notice of the meeting in the newsletter; please see it for reservation information.

IFAS Research and Extension will be having **Strawberry School 2003** at the Dover Strawberry Lab on Nov. 18th from 9:00 till mid-afternoon. The program will cover a

range of topics from BMPs, fertilization, bird predation to sprayer calibration. CEUs and CCAs are being requested. Lunch will be provided by Chemical Dynamics. An added feature will be a question and answer session on fertility to water management. We would like to have the questions in advance. Please send your questions ahead of time to Dr. John Duval at 13138 Lewis Gallagher Rd. Dover, FL, 33527 or e-mail them to him at JRduval@ifas.ufl.edu. Also please RSVP by Nov. 14 to Christine Cooley at the lab (813) 744-6630 X60 or ccooley@ufl.edu.

For those who have not heard, Dr. Natalia Perez from Sao Paulo, Brazil will be joining GCREC-Dover this coming strawberry season. She has accepted the position of assistant professor of plant pathology. Welcome Natalia!

Alicia Whidden



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Strawberry Breeding Program Trials —

Craig Chandler

This season we are continuing an active breeding program aimed at identifying strawberry genotypes that produce firm, attractive, and flavorful fruit and are resistant to important fruit, crown, and leaf diseases. Here are the specifics:

- 7,000 seedlings (stage 1) are being screened for desirable fruit quality traits.
- 200 selections (stage 2) are being evaluated for consistency of fruit quality.
- 15 advanced selections (stage 3) are being evaluated for ease of harvest, production pattern, fruit size, post-harvest fruit quality, and resistance to powdery mildew.
- Trials to evaluate FL 95-269, FL 99-56, FL 99-140, FL 01-89, and FL 01-216 for resistance to Botrytis fruit, anthracnose fruit rot, and angular leaf spot.
- A “time-of-planting” trial to determine the effect of planting date on the fruiting pattern of ‘Strawberry Festival’ and ‘Carmine’.

Be Proactive to Control Plant Diseases —

Jim Mertely

A good disease management program usually starts early. In annual strawberry, the grower should be prepared to initiate fungicide sprays fairly quickly after the transplants are watered in. During establishment, overhead sprinkling creates an artificial environment characterized by mild temperatures,

high humidity, and prolonged leaf wetness. These conditions favor the production and spread of spores by *Botrytis cinerea* and *Colletotrichum acutatum*. Young, emerging leaves are highly susceptible to infection by these spores, and serve to carry the pathogens over the winter. They senesce and die in January and February, and produce new inoculum which fuels epidemics of Botrytis fruit rot (gray mold) and anthracnose fruit rot in the spring. While early applications of captan or thiram don’t cure infections that occurred during the watering in period, leaves protected in November will not contribute to the start of an epidemic later on. During the winter period, temperatures are cool and inoculum levels are relatively low. Spray coverage is also quite good due to small plant size. For these reasons, fungicides can be applied at low label rates from November to mid-January. The keys to success during this period have more to do with starting early and spraying regularly than with hitting the pathogen with maximum levels of active ingredient.

One can attempt to manage plant diseases reactively. We all know the drill. Scout the field regularly. When the first diseased fruit are found, initiate an intensive fungicide spray program immediately to prevent epidemics from starting. Unfortunately, this strategy often results in costly failures. In the case of Botrytis fruit rot, most diseased fruit are the result of flower infections which occurred 20 to 30 days earlier. If susceptible young flowers are not well protected during the major bloom period, fruit losses will occur regardless of any changes in the fungicide spray program. This is because none of the available fungicides have enough systemic and curative activity to eliminate Botrytis from most colonized fruit. Therefore, applications of Elevate, CaptEvate, Thiram, or Switch should be timed to coincide with the

major bloom period from mid-January to mid-February. This period often passes before Botrytis-diseased fruit are commonly seen in the field.

The anthracnose fruit rot situation is a little different. Abound (Quadris), Captan, and Cabrio are labeled for anthracnose control in strawberry. Two other strawberry fungicides (Switch and Thiram) also suppressed anthracnose in our trials. Unfortunately, none of these products will stop an epidemic of anthracnose fruit rot in a susceptible cultivar when the weather favors disease development. Waiting too long before initiating an intensive anthracnose control program is a gamble. By the time a few anthracnose-diseased fruit are spotted, the pathogen has invisibly colonized large numbers of plants, and visibly blighted some blossoms. This low level of inoculum is sufficient to start an epidemic during rainy spring weather in susceptible cultivars. However, if the cultivar is sufficiently resistant (Carmine, Sweet Charlie, and maybe Festival) or if the weather turns dry, the gamble may pay off. There hasn’t been enough research on this topic to accurately calculate the odds.

Look for Cyclamen Mites Early in Strawberry Fields

Jim Price

The cyclamen mite can be a very serious pest of Florida strawberries. Infested plants are stunted and produce a late and reduced crop. The cyclamen mite is found frequently on ornamental crops in Florida, particularly those crops produced in greenhouses. However, infestations in Florida strawberry fields occur only occasionally. In the northeastern United States, California and the Pacific Northwest cyclamen mites in strawberry crops are common. The following sum-

marizes points concerning this pest that are important to Florida strawberry growers.

Symptoms of Attack on Strawberries from Hillsborough County: When local strawberry fields are infested we find that strawberry leaves are small, chlorotic, highly wrinkled, thickened, and possess short petioles. Runners often-times have numerous small "thorns" rather than a smooth texture. Additional symptoms include dark brown, dry flowers, russeted berries and poorly developed root systems. Examination of plants under a stereomicroscope reveal cyclamen mites in the crevices of leaf wrinkles, on unopened and opened flowers, on newly formed fruit and in the plant bud. Some plants contain as many as a few hundred of these mites.

Development of the Problem on Strawberries: Problems with the cyclamen mite on strawberries in Florida develop from setting infested plants imported from the north. In more northern climates, where strawberries are grown for late spring fruiting, cyclamen mites overwinter as adult females in the crowns of infested strawberry plants. Populations begin to develop in the early spring and reach peaks in midsummer.

Cyclamen mites move along runners from mother plants to daughter plants. New fields established from the daughter plants are rarely heavily infested unless the daughter plants had been severely infested earlier. Plants grown for a second year, such as mother plants, are much more heavily infested and thus, should not be used as planting stock.

This pest, once introduced into fields in Florida, can move along runners to infest neighboring plants or can be carried by bees, other insects, birds, field workers or machinery to infest other fields. The movement of mites along the soil or on plastic mulch is not likely since the mite requires the humid environment of plant surfaces.

Appearance and Development of the Mite: All forms are so small that they are only faintly visible without optical magnification. In the field, they can be seen with a 14X hand lens. Eggs, nymphs and adult females are the forms most frequently observed. Eggs are about half as large as adult females, oval and smooth, opaque white. Several eggs may be found bunched together. The adult female is slightly tan with its hind legs reduced to thread-like structures. Males are smaller and with hind legs modified with claspers to hold onto and transport adult females and immobile pupae. Nymphs (larvae) are opaque white with a triangular enlargement on their posterior.

Distribution and Host

Plants: The cyclamen mite is distributed worldwide. It has been reported mostly on flowers and shrubs from Europe, Asia and the Hawaiian Islands as well as from throughout North America.

Controlling a Cyclamen Mite Infestation: Control of an outbreak of cyclamen mites is difficult to achieve, so strategies should be directed toward preventing an outbreak through the use of plants certified to be free of the pest. To control cyclamen mites established in a fruiting crop in Florida, it is extremely important to detect the infestation early before plant growth has been significantly affected and before the numbers of mites have become too large. A regular program of crop scouting should insure the earliest detection of this pest.

Thiodan[®] (endosulfan), Kelthane[®] (dicofol) and diazinon are the miticides available for cyclamen mites on strawberries, but none provides the rapid control of this pest that is desired. Thiodan[®] should be applied at 2 pounds of active ingredient in 400 gallons of preparation per acre. This material cannot be applied more than once in 35 days. There is a 4-day waiting period between appli-

cation of the product and the earliest permissible harvest.

Kelthane[®] should be applied twice at 1.5-2 pounds of active ingredient in 400 gallons preparation per acre at 10 to 20-day intervals. There is a 3-day waiting period between application of Kelthane[®] and the earliest permissible harvest.

Diazinon should be applied at 1 pound of active ingredient in 100 gallons of preparation per acre and directed to the plant crown and leaves. A maximum of four applications can be made, but no application should be made within 5 days of harvest.

High volumes of spray preparations are favored for miticides to contact the mites deep in the plant bud. At least 150 psi is required to penetrate the strawberry canopy and contact mites in crevices. Application machinery and methods must be adjusted in order to achieve proper delivery of Thiodan[®] or Kelthane[®]. All pesticide label restrictions must be observed.

Special predatory mites are sold to control cyclamen mites, however the predators cannot control an infestation sufficiently quickly under our conditions to avoid excessive losses.

Summary of Precautions Against Cyclamen Mites:

1. Plant inspected strawberries free of cyclamen mites.
2. Plant only first year daughter plants.
3. Inspect fields regularly for outbreaks.
4. Restrict movements of possibly contaminated personnel and machinery into noninfested sites.
5. Provide the greatest separation in time and distance that is practical between infested and newly planted fields. This may require an agreement from managers of infested farms to destroy their completed crop as early as possible.
6. As the cyclamen mite has

few weed hosts on which to survive the noncropped summer, the elimination of cultivated and noncultivated strawberry plants from the area of an infested farm is important to prevent reinfestation in the following year.

7. Kelthane® and Thiodan® should be used to control any infestations discovered.

Pesticide Registrations and Actions

Chemically Speaking, Aug./Sept. 2003

- On July 15, the FDACS issued a letter stating that the EPA had issued a specific exemption under the provision of Section 18 of FIFRA, for the use of Topsin® fungicide (thiophanate-methyl) for control of white mold on fruiting vegetables (tomato, pepper, and eggplant). The exemption will expire on March 31, 2004. The products acceptable for use carry the EPA registration number 4581-408, 73545-8, or 4581-377. The material can only be applied by ground application at a rate of 0.7 lb ai/A (1 lb/A of product) and a maximum of four applications per crop may be made at 7 to 14 day intervals. The crop limit is 2.8 lb ai/A. The REI is 12 hours and PHI is 2 days. Up to 43,800 acres of tomato, 21,600 acres of pepper, and 1,600 acres of eggplant may be treated. (FDACS letter of 7/15/03).
- Based on issued Section 18's, a tolerance has been established for residues of the fungicide thiophanate-methyl (Topsin®) in or on fruiting vegetables—group 8 (0.5 ppm). The tolerance expires on 12/31/05. (Federal Register, 7/23/03).
- Based on request by BASF Corporation, tolerances have been established for residues of the fungicide boscalid in or on berries—group 13 (3.5 ppm), cucumber (0.20 ppm), grape (3.5 ppm), head lettuce (6.5 ppm), leaf lettuce (11.0 ppm), peanut (0.05 ppm), peanut oil/meal (0.15 ppm), mint (30 ppm), strawberry (1.2 ppm), brassica vegetables—subgroup 5A (3.0 ppm), brassica vegetables—subgroup 5B (18 ppm), bulb vegetables—group 3 (3.0 ppm), cucurbits except cucumber (1.6 ppm), fruiting vegetables—group 8 (1.2 ppm), legume vegetables—subgroups 6A/6B/6C (1.6/0.6/2.5 ppm), root vegetables—subgroup 1A (0.7 ppm), and tuberous and corm vegetables—subgroup 1C (0.05 ppm). (Federal Register, 7/30/03).
- Based on a request by DuPont Crop Protection, tolerances have been established for residues of the fungicide famoxadone in or on potato (0.02 ppm), tomato (1.0 ppm), fruiting vegetables except tomato—group 8 (4.0 ppm), and cucurbit vegetables—group 9 (0.30 ppm). (Federal Register, 7/2/03).
- Based on a request by IR-4, tolerances have been established for residues of the fungicide cyromoxanil (Curzate®) in or on head lettuce (4.0 ppm), cucurbit vegetables—group 9 (0.05 ppm) and fruiting vegetables—group 8 (0.2 ppm). (Federal Register, 7/16/03).
- The FDACS issued the Special Local Needs [24(c)] registration number FL-030011 to Crompton Manufacturing Company for use of Terramaster® fungicide (etridiazole) to control pythium and phytophthora root rot in greenhouse tomatoes. The EPA registration number for the product is 400-422. (FDACS letter of 8/26/03).
- On August 29, FDACS sent a letter to Florida Fruit and Vegetable Association to inform them that the EPA had granted a specific exemption for the use of Aim® (carfentrazone-ethyl) herbicide (EPA Reg. #279-3241) for control of paraquat-resistant nightshade, purslane, and morning glory on fruiting vegetables (tomato, pepper, eggplant). The exemption expires on May 31, 2004. (FDACS letter of 8/29/03).

FOG/IFAS/FDACS sponsor one night seminar on

organic agricultural marketing, regulation, and certification cost share in Bradenton on October 16, 2003. Contact: Marty Mesh, Florida Certified Organic Growers and Consumers, Inc. (FOG) (352) 377-6345 fogoffice@aol.com.

Florida Certified Organic Growers and Consumers, Inc., (FOG) and the University of Florida's Institute for Food and Agricultural Sciences (IFAS), with support from the Florida Department of Agriculture and Consumer Services (FDACS), is pleased to announce a seminar on the global organic marketplace, opportunities, and regulations in organic agriculture to be held in Bradenton on the night of October 16, 2003. Among the topics to be covered during this free seminar are the following:

Bill Pischer will speak about his experiences in producing and marketing organic products using direct and wholesale markets for many years. Bill Pischer has been a successful small scale grower of organic crops for many years and currently owns and manages Desoto Lakes, a successful organic farm that currently does direct marketing rough a farm stand.

Marty Mesh, Executive Director of FOG, will speak about the opportunities and challenges that exist in the worldwide organic marketplace today. He will also discuss the regulatory requirements of the new National Organic Program and introduce the Florida Specialty Crop Organic Certification Costshare Program.

Under the Costshare Program, sponsored by a grant from FDACS, qualified certified organic growers and producers in the State of Florida can now apply for reimbursement of up to 75% or a maximum of \$500 of certification costs.

The free seminar will be held from 7 to 9 pm on October 16 at the IFAS Research and Education Center located at 5007 60th Street East, in Bradenton, Florida. For more information, please contact any of the following:

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WPS Train the Trainer Program

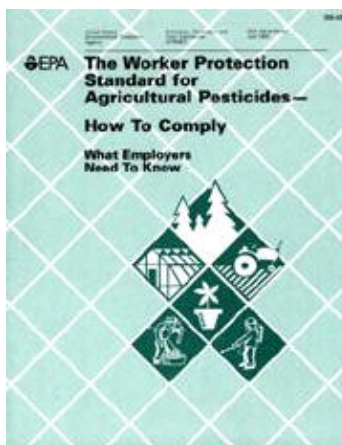
There will be a Worker Protection Standard (WPS) Train the Trainer program on November 7th starting at 10:00am at the Hillsborough County Cooperative Extension Service Office in Seffner. Upon completion of this training you will be permitted to provide Worker Protection Training to your employees. This program is open to all growers, production managers, personnel managers, and harvesting managers who would like to provide your own in house WPS training. Workers are only allowed to work 5 days prior to having WPS training. If you wish to attend you must call Traci Buck at 813-744-5519 ext. 104 to register for

this free program. 2.5 CEUs will be given.

Scientific Review Meeting Planned for Captan

Chemically Speaking, Aug. 2003

Captan has been in use as a nonselective fungicide for over fifty years. EPA currently classifies captan as a "probable human carcinogen" (B2) using their 1986 guidelines for cancer risk assessment. Registrants as well as other investigators have developed additional data that can be used to describe a mode of action for captan. In 2001, the Captan Task Force requested that EPA re-evaluate captan under its current draft cancer risk assessment guidelines. The Agency was not able to allocate resources to this task, reflecting budgetary constraints and higher priorities. The Agency, however, saw value in addressing this issue, particularly with the pending tolerance reassessments for other B2 compounds, and agreed in principle with the proposal to reevaluate captan by using an independent third party review. This alternative approach is an option EPA is making available to the registrants; that is, while it is noted as a viable approach, the Agency is not directing



that a third party review be undertaken. The document to be reviewed presents a cancer hazard assessment and weight of evidence narrative for captan following EPA's 2003 Draft Final Guidelines for Cancer Risk Assessment. The objective of the meeting was to review the document for the validity of the arguments and conclusions regarding the characteristics of captan.

The meeting was held last month at the University of Cincinnati, and documentation has been prepared by VJP Consulting, Inc. and C. Wilkinson, LLC on behalf of the Captan Task Force. More information can be found at <http://www.tera.org/peer/captan/captanwelcome.htm>. (Toxicology Excellence for Risk Assessment (TERA) Press Release, 7/21/03.)

Pesticide Potpourri

Chemically Speaking Sept. 03

An Auburn University research believes that sodium azide may be a good replacement for methyl bromide, and may be potentially better than this material for two reasons. Sodium azide applied via drip irrigation has shown yield results in Alabama, Florida, and California that are equivalent to methyl bromide or better. The material also breaks down within a couple of weeks. The chemical's manufacturer, American Pacific, is trying to register the compound under the trade name SEP100. (Pesticide & Toxic Chemical News, 8/4/03).

