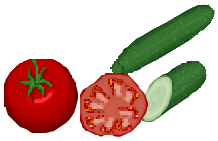
UNIVERSITY OF FLORIDA
EXTENSION
Institute of Food and Agricultural Sciences

Berry/Vegetable Times

October 2004



In this issue...

Calendar of Events 2004

Oct. 14 Hillsborough County Agriculture Pesticide Collection Day. Rescheduled from Sept. 16. 8:00-2:00. EQ Florida, 7202 E. 8th Ave., Tampa. For more info, call Stephen Gran, 272-5506.

Nov. 14-16 17th International Pepper Conference, Naples Beach Hotel and Golf Club. For more info, go to http://conference.ifas.ufl.edu.

Dec. 7 Rule Development Workshop on Vegetable and Agronomic Crop Best Management Practices Manual. Hillsborough County Extension Office, corner of Old Hillsborough and C. R. 579, Seffner. 2:00. For more information call Alicia Whidden at 813-744-5519,ext 134.

A monthly newsletter of the University of Florida IFAS, Gulf Coast Research and Education Center, and Florida Cooperative Extension Service.
Hillsborough County Cooperative Ext. Service
5339 CR 579, Seffner, FL 33584
(813) 744-5519 SC 541-5772
Alicia Whidden, Editor Mary Chernesky, Director

Gulf Coast Research and Education Center
13138 Lewis Gallagher Road, Dover, FL 33527
(813) 744-6630 SC 512-1160
Christine Cooley, Layout and Design
Jack Rechcigl, Director
http://gcrec.ifas.ufl.edu

From Your Extension Agent…

WOW! Three hurricanes in one year! This is one for the history books! I am sure all of you will be as happy as I will be when Dec. 1 gets here and the 2004 hurricane season is over. I hope each of you came through safely and have repaired and cleaned up from Hurricane Jeanne, which was the worst one for us.

For our vegetable growers, Hurricanes Jeanne and Frances caused much havoc, tearing up plastic, breaking stakes and plants, knocking off fruit, and spreading disease. For many strawberry growers, mulched beds were torn up, and fields that were too wet to bed because of Frances were put under water again from Jeanne -- further delaying preparation for planting.

Our national government has many agencies helping citizens and the businesses of our state recover from the history making 4 hurricanes that hit Florida. The Farm Service Agency, which is part of USDA, is the agency handling the Florida Hurricane Agricultural Disaster Assistance program for growers. This program will be for producers of citrus, fruits and vegetables, and nursery crops. Originally, money in this program was for losses caused by Hurricanes Charley and Frances, but now it is also for losses caused by Hurricane Jeanne.

Hillsborough County has been declared a disaster area for Frances and Jeanne. Sign-up dates for the various commodities are staggered to help with the number of people wanting to enroll. The sign-up for citrus is now; the sign-up for nursery crops will start Oct. 26th, and the sign-up for vegetables and non-citrus fruit will begin on Nov. 9th. There are so many producers needing assistance that Farm Service Agency in Plant City asks that you make an appointment. Their address is 1001 E. Baker St., Plant City and their phone number is 813-752-1474.

Payments for plasticulture vegetables and selected tropical fruit losses are to be $2,500 per planted acre ($2,000 per acre if damage occurred to beds prior to planting the crop). If the crop damaged is the second crop in a double-crop situation, then payments will be $1,000 per acre. And the payments for conventional row crops (i.e. vegetable crops grown on bare ground), where more than half the crop has been lost, will be $250 per acre. Eligibility requirements are still being worked out. For example, a grower may have to document a 50% or greater loss of plastic in order to qualify for payment. Payments are limited to $80,000 for each producer, and adjusted gross income must be below $2.5 million unless 75% or more of a producer's income is derived from farming or forestry. Payments will be adjusted depending on whether or not the crop is covered by crop insurance (for insurable crops) or covered under the Noninsured Crop Disaster Assistance Program (NAP). Growers receiving payments will be expected to purchase crop insurance

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or NAP coverage for the next crop year. If you have questions contact the Plant City office.

Be sure to keep detailed records of all expenses you incur for repairs to hurricane-damaged fields. Take pictures if possible. For the latest information go to the USDA Farm Service agency website- http://disaster.fsa.usda.gov/fl_hurricane.htm. This site is updated as new information on the program comes out.

Blueberry growers: be sure to read the article by Dr. Jeff Williamson in this issue of the newsletter. Dr. Williamson discusses hurricane damage to blueberries and its possible effects on next season's harvest.

As we move towards the end of the year it will be time to start thinking about protecting your crop from freeze events. Chris Oswalt, the citrus extension agent for Hillsborough and Polk, will be starting the 2004-05 Winter Weather Watch Program that runs from Nov. 15 to March 15. Participants will receive a number to call to receive daily ag forecasts. Or if you are enrolled in the new pilot program, you will receive the forecasts as a text message on your Nextel. During periods when freezes are likely, forecasts will be updated every 2-3 hours. The cost to receive this information for the 2004-05 season is $100. For more information on the program or to receive a registration form call Chris at 863-519-8677, ext 108.

Good luck to everyone for the upcoming season!

Alicia Whidden

Possible Effects of Hurricane Damage

Jeff Williamson

There is no doubt that a direct hit from a strong hurricane can cause damage to blueberry plantings in many different forms. Heavy rains on the order of 8 to 12 inches can flood plants resulting in direct injury to the root systems and later injury from *Phytophthora* root rot which may not be readily apparent for several months. High winds can remove or damage leaves and buds. If a significant number of leaves are removed, or damaged to the point of being non-functional, adverse consequences will likely result.

Our research has shown that early fall defoliation can significantly reduce flower bud initiation and development needed for next year's crop. Each leaf initially has a vegetative bud in its axil that can potentially convert to a flower bud, usually during the fall. If a leaf is removed too early in the fall, the chances of the associated vegetative bud converting to a flower bud are greatly reduced. With significant early fall defoliation, the net result can be a large reduction in the number of flower buds from during the late fall and winter. Our research indicates that defoliation in September can cause a dramatic reduction in the number of flower buds formed.

Additionally, further development of an already existing flower bud can be retarded by early fall defoliation. That is, the number of florets per flower bud can be reduced which can also result in reduced yields the following spring. The above effects of early defoliation have been demonstrated experimentally with 'Sharpblue' and 'Misty' but probably apply to most cultivars.

With 'Star' a different response occurred in our experiments when entire plants were defoliated in early/mid September. These plants initiated a late season vegetative growth flush characterized by numerous short flushes primarily on the upper portions of the canes. These short flushes quickly set terminal buds and developed numerous flower buds in the leaf axils. However, since these flowers buds developed very late during the growing season, their bloom was delayed the following spring by 2 to 3 weeks. In this particular experiment, even though yields were not reduced by September defoliation, the resulting fruit were harvested much later than usual because of the delayed bloom period. In cases where leaves are damaged but plants are not defoliated, it is very difficult to guess what the effects on overall plant health and yield might be.

Details on New Kanemite 15 SC® Miticide for Strawberries

James F. Price and Curtis Nagle

Recently I passed on the information that Kanemite 15 SC® acequinocyl miticide had been registered federally and would be available for Florida strawberry production this season. That announcement did not contain details of the registration or expected methods of use. This article provides some of that important information.

We at GCREC Dover have worked with the Arvesta Corporation registrant on developing this excellent miticide since 2001. Before that though, we performed major work with acequinocyl, then known as DPX-3792, until DuPont abandoned further development in 1982. Through all of this experience we have found that acequinocyl provides exceptional control of

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twospotted spider mites on strawberries under our environmental conditions.

Kanemite 15 SC® possesses favorable toxicological and environmental qualities and gained the EPA "Reduced Risk" designation that allowed a "fast-track" to registration…that is, "fast" after Arvesta Corporation resurrected it! It cannot be applied, however, within 75 feet of aquatic areas and precautions must be taken to prevent its entering ponds and streams.

Kanemite 15 SC® is a fluid that will be applied in a minimum of 100 gallons of preparation per acre. There is a 1-day PHI and 12-hour REI. Only two applications may be made per year and they must be separated by at least 21 days. The second application cannot be made until a miticide of another mode of action is used. Acequinocyl acts as a site III mitochondrial electron transfer inhibitor. There is no similar miticide registered in strawberry and cross-resistance to existing products is not expected.

Kanemite 15 SC® is not systemic. It is taken into the mite primarily by contact action and secondarily by feeding on surface residues. Therefore it is very important that spraying principles are followed to ensure contact to the mites hidden on the undersides of leaves.

There is one restriction that can be very important to some of our farms and must be noted. Crops other than strawberries may not be planted in rotation for at least one year following treatment of strawberries. Therefore use of this product would eliminate the option of double cropping with squash and other vegetables and would prohibit planting the strawberry field to fall or perhaps spring (depending on date of application) vegetables.

The miticide was registered only on almonds, citrus, and pome fruits in addition to the strawberries, so we are fortunate. It is also registered for use on ornamentals, but under a different name. Product will not be available at local distributors until the first of the year.

For those of us who worked on acequinocyl in its first life, this event has been a long time coming. It is good to see the material finally going to work for Florida strawberry growers .

The Florida Department of Agriculture and Consumer Services,

Office of Agricultural Water Policy, is hosting a rule development workshop on December 7 at the Hillsborough County Cooperative Extension Service to share their draft Vegetable and Agronomic Crop Best Management Practices(BMP) manual with area growers. This is an important workshop because state law requires that the BMP manual be adopted by rule under Florida Administrative Code, and the manual then becomes the vehicle by which growers can comply with emerging water quality requirements under Florida's Total Maximum Daily Load program. Please make plans to attend this meeting that begins at 2:00 p.m.! Access to the manual online is at: www.floridaagwaterpolicy.com under Best Management Practices The web site also have information on TMDLs and other water quality and BMP issues.

Herbicides in Strawberries

Bill Stall, Horticultural Sciences Department - Vegetarian 04-09

FFVA was able to obtain a CUE (critical use exemption) for strawberry production in Florida for 2005. This has reduced the crises that would have existed for herbicide use under the mulch for season long weed control in strawberry production in Florida. The following is an update on herbicide labels for use in Florida and the work in progress to obtain more tools for weed management.

Available Labels

Napropamide (Devrinol 50 DF) now is labeled for preplant incorporation or preplant-water incorporated. The previous label was for application post-plant. Devrinol is labeled for 4 lb ai/A under mulch. The herbicide will leach with all the irrigation use at the present time for stand establishment. Changes in irrigation timing and amounts need to be made for all herbicides to be effective under mulch.

Clethodim (Select) is labeled for control of emerged grasses. This is the only post-grass herbicide labeled in Florida.

Terbacil (Sinbar) has a label for application under mulch for annual strawberries in Florida only. Sinbar is not as leachable as Devrinol, but there is a 110 day preharvest interval on the use.

Oxyfluorfen (Goal) does not have a label for strawberries, but does have a stale seed-bed label and may be applied under mulch 30 days preplant.

Paraquat (Gramoxone Max, Gramoxone SuperTres, Cyclone Max) is labeled for preplant application to burn down emerged weeds and a directed shielded label for row middles. None of the above products have a crop destruct label. Boa, the product that had the crop destruct label had been discontinued.

Glyphosate (Roundup Original II, Roundup UltrMax, Roundup WeatherMax) have fallow labels, preplant labels and row middle application labels.

Work in Progress

Terbacil (Sinbar). Residue studies are being carried out to reduce the preharvest interval to less than 110 days. Two trials were carried out last year where harvest was 45 days from application, but the supplied herbicide did not meet EPA standards. Two more trials will have to be redone this year to reduce the PHI for Florida needs.

Oxyfluorfen (Goal). A request has been submitted to the IR-4 committee from the southeastern states to obtain residues of Goal under mulch on annual strawberries at 5-7 days preplant. The Goal formulation may also change from a 2XL to a 4F making the product less volatile. Row middle residue trials have already been done.

Clopyralid (Stinger). Residue trials on the use of Stinger in strawberries have been carried out. Stinger is a growth regulator herbicide and is good for POST control of many broadleaf weeds, including vetch, black medic, and clovers as well as Carolina geranium and evening primrose. Under some conditions, Stinger will deform flowers and fruit. The preharvest interval on the labels in other states now is 30 days. We have run residue tests in Florida for 3 and 7 days. There is too much residue at 3 days, and we have not been informed on the 7 day PHI. Hopefully, chlopyralid will be labeled in the state this year. The label on strawberries will have to be a third-party label if obtained.

Sulfentrazone (Spartan) is another herbicide that does not have a Florida label at the present time. It is used on tobacco in several southeastern states, and is a candidate for use in tomato, pepper, and several cucurbits. Spartan does control nutsedges when applied under mulch. In trials in Florida, strawberry does have a great deal of tolerance to its application. IR-4 residue trials have been carried out in 2003.

Carfentrazone (Aim) is a burn down herbicide that has a section 18 label in tomato, pepper and eggplant in Florida as a post-directed shielded spray for control of paraquat resistant nightshade. EPA is expected to give a super-crop group tolerance to carfentrazone for use in row middles. When that happens, Aim may be labeled in strawberries.

Crop Destruct Labels

Even though Boa had a crop destruct label, there had to be efficacy trials run with the Gramoxone products for them to obtain a crop destruct label. This was done this past year at 3 rates and 4 different gallon/a applications. Hopefully, a crop destruct label can be obtained.

Pesticide Registrations and Actions

?? In July, the EPA released the most recent risk assessment for the fungicide thiram. Due to perceived risks, the agency is considering canceling the use of this material on strawberry and apple. Comments regarding the use and benefit of the fungicide are being collected on the agency's docket (http://www.spa.gov/edocket/). The docket number is OPP-2004-0183. (Federal Register, 7/2/04).

?? On August 6, the FDACS issued the special local needs registration SLN FL-040005 to Dow AgroSciences for the use of chlorpyrifos (Lorsban®) insecticide (EPA Reg.#62719-301) on pepper to manage beet armyworm. (FDACS letter of 8/6/04).

?? Based on a request by Syngenta Crop Protection Inc., tolerances have been approved for the fungicide propiconazole (Tilt®). Tolerances of importance to Florida include sweet corn and peanut. (Federal Register, 8/4/04).

?? Based on a request by Bayer CropScience tolerances have been approved for the fungicide propamocarb (Previcur®). Tolerances of importance to Florida include fruiting vegetables, cucurbit vegetables, and head and leafy lettuce. (Federal Register, 8/4/04).

?? Based on a request by Arvesta Corporation, tolerances have been approved for the miticide acequinocyl. This is a broad spectrum miticide (except rust mites) with a new mode of action that is less detrimental to beneficial species. Tolerances of importance to Florida, include: citrus and strawberry. (Federal Register, 7/21/04).

The use of trade names in this publication is solely for the purpose of providing specific information. It is not a guarantee or warranty of the products names and does not signify that they are approved to the exclusion of others of suitable composition. Use pesticides safely. Read and follow directions on the manufacturer's label.

SPECIAL GCREC FACT SHEET

Root Necrosis of Strawberries Caused by *Colletotrichum acutatum*

Jim Mertely and Natalia Peres

Pathogen and Symptoms. Since the 2000 season, establishing a healthy stand of strawberry plants has become more problematic for Florida strawberry growers. Transplants in affected fields wilt, die, or grow slowly after overhead irrigation is withdrawn. In 1997, Dr. Stan Freeman reported similar symptoms in Israel, and linked the problem to root necrosis (root rot) caused by *Colletotrichum acutatum.* This fungus causes epidemics of anthracnose fruit rot in Florida, and is now known to impede plant establishment as well. Few functional roots are found on infected plants even 1 to 2 weeks after transplanting (Fig. 1). Old structural roots are brown or black with few feeder roots, while new roots develop brown lesions, die back from the tip, or fail to emerge from the crown (Fig. 2). In severe cases, *C. acutatum* enters the crown, causing a basal crown rot and eventually killing the plant (Fig. 3). Plants in affected fields are stunted or irregular in size, flower late, and produce a poor early crop (Fig. 4 & 5). Infected plants may recover during the cool winter months and produce normally in February and March, if an outbreak of anthracnose fruit rot does not occur.

Disease Development and Spread. *C. acutatum* frequently colonizes leaves and petioles of runner plants in the nursery. Obvious symptoms may not be visible in the nursery environment, but if inoculum is allowed to build up and the weather is favorable, lesions may develop on the petioles (Fig. 6). Little is known about how or when the pathogen spreads from colonized tissue above the ground to the root system below. However, *C. acutatum* grows freely in diseased tissues, and has been isolated from the soil around diseased plants. Healthy plants are presumably contaminated by this inoculum during normal digging, trimming, and packing operations in the nursery.

Cultivars that are highly susceptible to anthracnose fruit rot, e.g., Camarosa and Treasure, are susceptible to root necrosis disease as well. Observations made at the GCREC-Dover suggest that symptom severity is directly related to plant stress during the establishment period. Preliminary studies have shown that plant mortality is also enhanced by high levels of fertilization. Early in the season, plant-to-plant disease spread is not thought to occur below ground as the root systems are relatively isolated. However, above-ground spread does occur and may be facilitated by overhead irrigation during establishment. Studies are needed to verify these observations and investigate factors which influence disease development in the production field.

Control. Diseases caused by *C. acutatum* are best controlled by exclusion (not introducing the pathogen into the field in the first place). Purchase transplants from a reputable source. While this does not guarantee disease free material, reputable nurserymen take measures to limit disease occurrence and spread, and avoid selling transplants from obviously infected fields when control measures fail. Inspect transplants for petiole lesions caused by *C. acutatum* (Fig. 6). If suspicious spots are found, the disease can be confirmed at the Plant Diagnostic Lab in Dover. A pre-plant fungicide dip may suppress disease development when the disease is confirmed or susceptible cultivars are being grown. Abound® and Oxidate® are labeled for this use (Table 1). In addition, Switch® has a Special Local Needs label for use as a pre-plant dip in Florida. All three products were tested at GCREC-Dover by dipping naturally infected runner plants for 5 minutes just before planting. Each product reduced inoculum levels 10 days after planting. None increased early marketable yields, although the Switch treatment increased yield later in the season. All treatments in this study were sprayed weekly with captan throughout the season, beginning soon after establishment. Little anthracnose fruit rot developed in any of the experimental plots.

Measures which reduce plant stress during establishment will reduce the severity of root necrosis disease as well. Strawberries should be planted in the morning whenever possible to avoid high temperatures and drying conditions that occur in the afternoon. After setting, start overhead irrigating as soon as possible to prevent transplants from wilting on the hot plastic. After 7 to 8 days, use plant response to determine if overhead irrigation is still necessary. Continue irrigating in the afternoons if drying conditions are encountered or the plants wilt when water is withdrawn. If hot weather is anticipated after overhead irrigation has ended, consider spraying the beds with Surround®, which reduces heat stress by coating the plants and plastic with white kaolin clay. Surround was the only product that significantly increased early season yields in the previously mentioned study. Note that overhead irrigation was stopped after 6 days to intentionally stress plants in that study.

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Table 1. Products used in Florida to suppress root necrosis disease (*Colletotrichum acutatum*)

Trade name	Active ingredient	Type	REI (hours)	Comments
Abound	azoxystrobin	strobilurin	4	Pre-plant dip in 5 to 8 fl oz of 2.08 lb flowable formulation per 100 gal water
Oxidate	hydrogen peroxide	oxidizer disinfectant	*	Pre-plant dip in 64 fl oz of 27% formulation per 100 gal water. Higher rates (e.g., 128 fl oz) may cause stunting or phytotoxicity.
Switch	cyprodinil + fludioxonil	pyrimidine, pyrrole	12	Pre-plant dip in 5 to 8 dry oz of 62.5WG formulation in 100 gal water. One-year plant back restriction.
Surround	kaolin clay	Stress reducer	4	Add 25 to 50 lbs to 100 gal water and spray over tops of beds. Gradually washes off plants and plastic during subsequent rains.

*After the application has dried.

Fig. 1 Few function roots.
Photo: UF, GCREC

Fig. 2 Other symptoms.
Photo: UF, GCREC

Fig. 3 Basal crown rot.
Photo: UF, GCREC

Fig. 4 Stunted plants.
Photo: UF, GCREC

Fig. 5 Poor early harvest.
Photo: UF, GCREC

Fig. 6 Lesions on petioles.
Photo: UF, GCREC

You Might Be a Floridian If…

...You exhibit a slight twitch when introduced to anyone with the first names Charley, Frances, Ivan, or Jeanne.
...If an airboat is parked in your driveway instead of a car.
...You no longer worry about relatives visiting during the summer months.
...You too haven't heard back from the insurance adjusters.
...You've ordered gas cans via FedEx.
...You now understand what that little "2% hurricane deductible" phrase really means.
...You're putting a collage together on your driveway of roof shingles from your neighborhood.
...Your Street has more than 3 "NO WAKE" signs posted on it.
...You now own 5 large ice chests.
...You recognize all the people in line at the free ice, gas, and plywood locations.
...You stop what you're doing and clap and wave when you see a convoy of power trucks come down your street.
...You get depressed when they don't stop.
...You have the personal cell phone numbers of the managers for: plywood, roofing supplies, and generators at Home Depot on your speed dial.
...You've spent more than $20 on "Tall white kitchen bags" to make your own sandbags.
...You now think that $6000 for a whole-house generator seems reasonable.
...You ask your relatives up north to start saving the Sunday real estate classifieds.

Thanks to Donna Maranto with the Family, Youth & Community Sciences Dept. at the Univ. of Florida for sending this to IFAS personnel.

Mean Jeanne. Al Herndon of Ferris Farms in Floral City has given us permission to publish Silvia Rondon's photo of his torn plastic as a result of Hurricane Jeanne. The hurricane force winds dislodged some of the plastic mulch. The amount of damaged plastic was related to the slope and elevation of the field, and workers were able to replace most of the plastic.

Fall Blueberry Short Course

Thursday, October 21, 2004
Florida Farm Bureau Building
5700 SW 34th Street
Gainesville, Fla.
Beginning at 8 am
Highlights include:

?? Results of fertilizer studies in pine bark culture.
?? Overview of blueberry varieties for use in Florida.
?? Update on promotional and research activities at the United States Highbush Blueberry Council.
?? Update on insect pest management in blueberry.
?? Available fungicides and their uses for Florida blueberry production.

Registration - A ***pre-registration form*** for the Fall Blueberry Short Course is below. **This form must be returned <u>postmarked by October 12</u> to guarantee your meal. There is no registration fee for FBGA members provided their membership is up-to-date. Non-members will be asked to join, and delinquent members will be asked to renew their membership, or pay a $20 registration fee per person.** You can join or re-new your membership at the door but we need to know who is attending so **PLEASE RETURN THE PRE-REGISTRATION FORM by October 12.**

Directions to the Farm Bureau Building in Gainesville - Traveling north on I-75, take the first Gainesville exit on the south side of town (Williston Rd. or Hwy 121 exit). Go about 1,000 feet east toward Gainesville on Hwy 121 and turn south (right) on Hwy 23 (Rocky Point Rd /S.W. 34th Street). The Farm Bureau building is less than 1 mile south on the right side of the road. Drive around to the opposite side of the building which is the front of the building and faces I-75. Park there and enter. If you are coming on Hwy 441, turn west on Williston Rd. and go toward I-75. Turn south on 34th Street (Rocky Point Rd.) Just before you get to I-75.

Blueberry Fall Short Course Pre-registration

Please pre-register for the FBGA Fall Short Course by
October 12, 2004

Please complete this form and return postmarked no later than October 12, 2004 to:
Florida Blueberry Growers' Association
P.O. Box 141733
Gainesville, FL 32614

Name(s) attending Short Course:
_____

_____

_____

Contact Phone No. _____