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Calendar of Events 2004

Sept. 8—Florida Tomato Institute, 9-3 at the Ritz Carlton in Naples. For more information, contact Diana Hester, Florida Tomato Committee, 407-894-3071

Sept 16- Hillsborough County Agriculture Pesticide Collection Day. See attached flyer.

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

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What Will the Weather Be Like This Winter?
Alicia Whidden

I'm sure west central Florida strawberry and vegetable growers would like to know the expected weather conditions for the coming growing season. This information could be valuable in the formulation of an overall management plan.

During July, sea surface temperature anomalies in the central equatorial Pacific increased quite a bit. What implication does this have for our future weather? About half the climate models are predicting El Niño conditions for the next 3 months (till the end of 2004). The other models are predicting neutral conditions. Does this remind you of the weather forecasts from the local TV stations?

El Niño conditions mean that in the winter there is a strong jet stream over the southern U.S., which brings us wet and cool weather, while the northern U.S. typically enjoys a milder and less stormy winter. Since the predictions are for a mild El Niño to neutral winter, our weather could be moderately wetter and cooler this coming season than last. Remember, this is just the weather service's best guess based on current trends in the Pacific Ocean.

For additional information on climate forecasts and agriculture check out the EDIS publication- ABE352: Climate Forecast and Decision Making in Agriculture at <http://edis.ifas.ufl.edu/AE267>.

New UF Website for Grapes
Alicia Whidden

For anyone who is interested in growing grapes in Florida, I want to bring a new website to your attention. Recently the Mid-Florida Research and Education Center created a website devoted to grapes - <http://mrec.ifas.ufl.edu/grapes>. On the website you will find UF publications on grapes, as well as information on new varieties, trellis construction, propagation, and pruning. The site also contains links to other grape websites.

Another New Strawberry Miticide
James F. Price and Curtis A. Nagle

We have been working with Arvesta Corp. for several years to evaluate and register Kanemite® for twospotted spider mite control in strawberries. Arvesta Corp. has announced that Kanemite® now has a federal registration and that The Florida Department of Agriculture is expected to grant a registration before the 2004-2005 strawberry season.

Kanemite® has been classified by the EPA as a reduced risk compound because it has little impact on numerous predacious species and it is an excellent candidate for Integrated Pest Management programs. It has

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performed consistently well in tests at Dover.

Kanemite? is a chemically unique naphthoquinone derivative and can be applied up to twice in a season.

Oh Canada ..., and Thoughts about Strawberry Cultivars and Planting Dates

Craig Chandler

Chip Hinton and I visited with strawberry nurserymen in Nova Scotia, Quebec, and Ontario and toured some of their fields August 11-14. We have traveled to Canada nearly every other summer since shipping stock of 'Sweet Charlie' to Canadian nurseries in the spring of 1992. These trips have allowed us to maintain close relationships with some of the largest suppliers of transplants for Florida. We are heartened by the fact that the Canadian nurserymen are an experienced and bright group. There has been, or is currently, a smooth transition of management responsibilities from the older to the younger generation, and the present managers of these farming operations are typically individuals that have university training in addition to plenty of practical experience. We think this bodes well for the future of our industry.

Based on what we saw in Canada, 'Festival' should occupy over 50% of the west central Florida strawberry acreage this season. There will also be significant acreage of 'Treasure' and Driscoll cultivars. 'Carmine', 'Camino Real', 'Camarosa', and 'Ventana' will be planted to a lesser extent, but will probably play an important roll in supplying fruit for niche markets. 'Festival' has emerged as the standard cultivar for the supermarket trade (among non-Driscoll growers)

because of its consistent quality, long shelf life, and suitability to the popular one-pound clamshell container.

'Festival' appears to have a relatively wide planting window. In a trial that John Duval and I conducted last season, 'Festival' planted on Oct. 3, 10, and 17 had similar December through February total yield. 'Festival' planted on Oct. 3 had higher December yield, but lower January yield, than 'Festival' planted on Oct. 10 and 17, while February yield was similar across planting dates. Planting date does, however, have a significant effect on runnering. 'Festival' planted on Oct. 3, 10, and 17 produced about nine, five, and three runners per plant respectively.

'Carmine' appears to have a narrower optimal planting window. 'Carmine' planted on Oct. 10 and 17 had higher December through February total yield than 'Carmine' planted on Oct. 3. In fact, the 'Carmine' planted on Oct. 17 had a yield of nearly a pound of marketable fruit per plant by the end of February! The highest December yield was obtained from 'Carmine' planted on Oct. 10, while the highest January yield was obtained from 'Carmine' planted on Oct. 17. The higher fruit yields from the later planting dates may be an indication that this cultivar benefits from a later digging date. 'Carmine' is slower than 'Festival' to produce runners in the nursery, and therefore a later digging date would allow more time for daughter plants to mature. Once 'Carmine' is planted in the fruiting field, it generally doesn't produce many runners (less than two per plant in last season's study) – regardless of planting date.

Putting together what we know about 'Festival' and 'Carmine' at this point, I believe that in a "normal" season, the Dover/Plant City production area would receive maximum benefit from these cultivars if the planting of 'Festival'

were spread out over the first three weeks of October, and 'Carmine' were dug during the first or second week of October and planted before the 20th of the month.

Don't Stress-Out Your Transplants

John R. Duval

Transplants move an awfully long way to call Florida home every October. Moving can be difficult on anyone and especially if you are a young strawberry transplant. To make sure young berry plants adjust to life easily and give us the best results possible in their new home here in the sunshine state there are a few things we need to remember:

1. Keep them cool as long as possible. Transplants should be stored at 36 - 40 degrees F until they are moved to the field for transplanting.
2. Plant as soon as possible. The less time spent in storage the better a transplant will perform.
3. Once transplants are moved to the field keep boxes in the shade until they can be planted. Boxes left in the sun can heat rapidly and increase transplant stress.
4. A dip in plain water can help re-hydrate plants before they are transplanted. While not necessary, research has shown that this can improve transplant performance and dips in fungicide solution may also be advisable. (See Jim Mertely and Natalia Peres article, Page 3.)
5. Plastic mulch in October can be very hot (well over 100°F degrees). Start overhead irrigation immediately to relieve heat stress on transplants.
6. Once transplants have established a root system and do

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not wilt during the heat of the day overhead irrigation should stop. Research has shown that eight days of overhead irrigation is sufficient to establish transplants with no loss of yield. However, additional overhead irrigation may be required if transplants are weak or the weather is extremely hot, dry or windy. Drip irrigation and fertilization should begin immediately after overhead irrigation is halted. Delay of fertilization can reduce early plant growth and yields.

A stress free start for strawberry transplants will improve their performance and help ensure a good season.

To Dip or Not to Dip

Jim Mertely and Natalia Peres

Planting time is coming, and strawberry growers are faced with many important decisions. One of them is: "Should I dip my transplants in a fungicide solution before planting?" Pre-plant dips are viewed as an insurance policy against *Colletotrichum acutatum*, a fungus which causes root necrosis disease and anthracnose fruit rot. Unfortunately, insurance policies cost money, and don't always pay off as expected. Similarly, dipping may be a key crop input for some growers, but an unnecessary expense for others. Some of the pros and cons of dipping are given below.

Diseases caused by *C. acutatum* usually begin when nursery plants are shipped to Florida with the pathogen colonizing or adhering to roots, crowns, or leaves. Root necrosis disease develops when infected or contaminated roots are killed during the establishment period, and new roots are damaged or prevented from growing (Photo 1). These symptoms are aggravated

by plant stress, which is associated with hot weather and poor management of overhead irrigation. Affected plants are difficult to wean from overhead sprinkling, and grow slowly, if at all, after the water is finally withdrawn (Photo 2). Once symptoms appear, treatment is hindered by the difficulty of reaching a root system covered with soil. Chemigation is one possibility, but a drip irrigation system cannot reliably deliver an effective dose to a knotted mass of roots in the upper reaches of the bed. Pre-plant dips are probably the best way of applying a product to all parts of the plant.

Abound, Oxidate, and Switch are currently labeled for dip treatment of strawberry transplants. Labels for Abound and Switch can be viewed on the CDMS website www.cdms.net. The Oxidate label is available on the manufacturer's website at www.biosafesystems.com. All three products have been tested in replicated field trials here at GCREC-Dover. Abound and Switch gave promising results when used to treat transplants naturally infected with *C. acutatum*. Oxidate gave inconsistent results and is scheduled for more testing. Switch carries a plant-back restriction which prevents rotation to many other crops for a 12-month period following treatment. Also keep in mind that all three products are toxic to fish and other aquatic life. Spent solution must be disposed of properly.

No matter what product is used, worker safety should be an important concern. Field workers who set treated plants are exposed to the dipping solution for long periods of time. Applicators and handlers of these products must wear Personal Protective Equipment (PPE) such as long sleeved shirts and long pants (plus coveralls for Oxidate), chemical resistant gloves, and shoes plus socks (or waterproof footwear). Protective eyewear would make a good addition to this list since chemical splash from dripping plants

is fairly common. Consult the Precautionary Statement section at the beginning of your label for specific PPE recommendations.

Pre-plant treatment is recommended when susceptible transplants are known (or strongly suspected) to be infected with *C. acutatum*. Unfortunately, most of the popular cultivars grown in Florida (e.g., Camarosa, Treasure, and to a lesser extent Festival) are susceptible. Resistant cultivars such as Carmine or Sweet Charlie should not require treatment. In a properly managed nursery, it is highly unlikely that either of these cultivars would be infected in the first place.

If you are planning to grow Camarosa, Festival, or Treasure, the decision to dip or not to dip hinges on whether your transplants are carrying *C. acutatum*, and to what extent the shipment is contaminated. Making this determination is more of an art than a science. One method is to check a hundred plants from each of several boxes in the shipment. Carefully inspect each plant for dark sunken spots on the leaf stalks (petioles) (Photo 3). Infected petioles may be broken, twisted, or curved near the lesion. These symptoms are commonly caused by anthracnose fungi. Also look for dead roots, blackened roots, or live roots with dark spots (lesions) on them. These symptoms are less specific and may be caused by a number of root pathogens. If plants with suspicious symptoms (especially petiole lesions) are found, submit them to our Diagnostic Clinic for confirmation of the disease.

A grower should be very concerned if anthracnose disease is confirmed. Under these circumstances, treating is usually a wise decision. Even one or two diseased petioles per hundred plants is an indication that anthracnose developed in the nursery, probably spreading from mother to daughter plants. One should also assume that

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additional plants in the shipment are colonized by the pathogen, but not showing obvious symptoms. In addition, many good plants are probably contaminated by spores, soil, and debris from diseased plants. Dip treatment may not eliminate deep-seated infections, but serves its purpose by reducing superficial colonization and killing spores and contaminated material adhering to healthy plants. Because so many plants fall into the healthy but contaminated category, even washing with clean running water has been shown to be helpful. Treatment with chemicals increases the odds that contaminated plants will remain healthy, and that superficially colonized plants will be cured or better equipped to out-grow the pathogen.



Photo 1. Root necrosis symptoms.



Photo 2. Above-ground symptoms (late November).



Photo 3. Anthracnose on petioles.

vine decline. The problem was first seen in the spring of 2003 in southwest Florida and fall of 2003 in west central Florida, when a number of growers reported problems with watermelon vine collapsing as the crop approached harvest or soon after first harvest. Initial symptoms appear as a slight yellowing or weak area in the field, followed by wilting of the vines, scorched and brown leaves, defoliation, and rapid mature vine collapse. In most case progression of symptoms is quite rapid with a week to 10 days between the onset of symptoms and destruction of an entire field. In a high proportion of affected fields harvested fruit displayed a greasy necrosis (brown) on the interior portion of the rind that rendered the fruit non-marketable. In almost all cases fruit quality was greatly reduced.

It is estimated that approximately 60% of the watermelon acreage in the Immokalee area was affected this spring with losses ranging from 30% to nearly 100% depending on the field. Estimates of losses to growers range from \$25 to \$50 million dollars.

The disease is particularly vicious in that it manifests itself after growers have made their maximum investment in bringing the crop to maturity. In cases where fruit necrosis is present the disease is even more devastating as a grower loses additional money in the form of harvest and transport cost to market. Also there is a loss of confidence among the buyers who have had to turn back loads.

Under the leadership of Dr. Pam Roberts, Pathologist at UF/IFAS-SWFREC, in Immokalee, investigations on the disease and its occurrence are under way thanks to an emergency grant from the Assistant Vice-President and the Deans of IFAS. With grand funds, Dr. Roberts has recruited three plant pathologists who are worldwide-

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.

Watermelon Vine Decline and Fruit Rot Update

Pam Roberts, SWFREC-Immokalee, Rosa Muchovej, Gene McAvoy, Hendry County and Phyllis Gilreath, Manatee Ext.

This spring, Southwest Florida watermelon growers have been hammered by a disorder currently being called watermelon

recognized specialists in melon declines and other disorders to help look into the problem.

Since the disease first appeared in 2003, numerous samples and field visits have been made. To date, results are inconclusive but indicate that there are nutritional deficiencies in most fields tested, for both plant tissue and soil nutrients. The most frequent soil deficiencies are K and S, with some fields having B, Mn and Fe deficiencies as well. A number of the tissue samples were deficient in K and S, and some showed deficiencies of N, P, Mg, Cu, and Mn.

Although nutrient deficiencies have been detected, it is believed that they simply may have contributed to weakening the plants, thus increasing susceptibility to disease and allowing for some pathogenic organism to invade the plant.

There seems to be no consistency regarding soil moisture as it varies from very high (>20%) to very low (<3%) in the various sampled fields. It does appear that wetter areas are affected first, but then the decline spreads over drier areas of the field.

Microorganisms including fungi and bacteria were isolated from symptomatic tissue. The predominant fungus recovered was *Fusarium* spp.; however, *Rhizoctonia* and *Pythium* spp. and other soil-borne fungi were recovered. Further isolations are currently being made. Symptomatic fruit tissue is also being tested for pathogens. Fungal and bacterial cultures are being maintained for pathogenicity screening in the next few months. The ability to cause similar symptoms by planting in soil from infested fields will be investigated in greenhouse studies.

Samples are also being examined for the presence of viruses/viroids, especially those that could be transmitted by insects. Screening of plant tissue for known

viruses by serological testing has not yielded any viruses other than those commonly found in watermelon fields in South Florida.

In summary, considerable effort and resources are being directed towards finding the cause of the problem and avoiding it in the future. However, to date all studies have been inconclusive. Recently the Florida Watermelon Association offered to contribute additional funds to help identify the causal agent and possible remedies.

Is All Glyphosate Created Equal?

UN Crop Watch News Service, 6/18/04

The proliferation of glyphosate products into the Roundup® Ready crop arena has taken the generic herbicide market to a new level. No matter how many herbicides are introduced, the question always comes back to: will glyphosate in product X perform as well as glyphosate in product Y? Soybean and corn field studies were conducted for three years in five locations across Nebraska to evaluate different brands of glyphosate herbicides. In 2001 and 2002, equivalent rate treatments of 16 and 32 ounces per acre of the glyphosate products Roundup® UltraMax, Roundup® Ultra, Roundup® WeatherMAX, Roundup® UltraDry, Touchdown®, Clearout® 41 Plus, Glyfos® Xtra, Cornerstone®, Glyphomax®, and Glyphomax® Plus were applied. In 2003, treatments were reduced to 12 and 24 ounces per acre. Ammonium sulfate (AMS) was added to all treatments at a rate of 17 lbs/100 gallons. Most of the products represent the isopropylamine (IPA) salt of glyphosate; however, Touchdown® is formulated as the diammonium salt of glyphosate,

Roundup® UltraDry is formulated as the mono-ammonium salt of glyphosate and Roundup® WeatherMAX is formulated as a potassium salt of glyphosate. All sites were evaluated for percent control of both grass and broadleaf species at 10-15 and 25-30 days after treatment.

Over the three year time frame, differences were small and varied slightly across the different trade names in the glyphosate tolerant soybean and corn treatments. Control remained similar across the different locations in wheat stubble, with few significant differences between products at either rate. As a whole, few differences were seen among the different glyphosate brands in this study across the locations, especially in row crop situations. With a difficult to control species, such as barnyardgrass, or in a more demanding climate, such as western Nebraska, differences are easier to find although they will be random and varied. In most climates there seems to be little or no differences between brands. Rate, environmental factors, and cost will most likely play a larger role in the decision process than brand name. In addition, service may be an important factor to a producer. The most important two factors are knowing whether to add surfactant and always adding AMS to your glyphosate. The glyphosate product label will tell you if “no surfactant is needed,” “you may add surfactant” or “you must add surfactant.” The “no” and “must” statements are easy to understand but the “may” statement is confusing. “May” means that your glyphosate product contains some surfactant but that this may not be enough in the right environmental situation. If you are spraying tall weeds or are in very dry conditions, adding 0.25% (1 quart/100 gallons) surfactant to the glyphosate tank may be beneficial. Ammonium sulfate will help combat hard water problems and improve

glyphosate’s efficacy. Always add at least 8.5 lbs per 100 gallons or the equivalent 1% rate for liquid AMS. As you sort through the glyphosate products be sure to find out the surfactant load situation, plan to add AMS, and choose a product with which you are comfortable.

(Eds. note: Although this article refers to Roundup® Ready Crops, the glyphosate recommendations are appropriate to anyone using large amounts of glyphosate.)

GCREC-Balm Update

Christine Cooley

Construction continues at the new GCREC Balm located at 14625 Balm Road in Wimauma. The pace of the construction is on schedule and occupancy by the Bradenton faculty and staff is expected early 2005. The Dover staff will remain at their current location until early summer 2005. As shown in the aerial view of the property, the perimeter is large and allows for future development. For continued updates, visit <http://grec.ifas.ufl.edu>.



Aerial view taken July 2004.

Pesticide Registrations and Actions

FDACS PREC Agenda, 7/1/04

The EPA has issued a specific exemption for the use of Aim® (carfentrazone) herbicide to manage paraquat-resistant nightshade, purslane, and morning-glory in fruiting vegetables (tomato, eggplant, pepper). The exemption will expire on May 31, 2005.



Front entrance and auditorium to the right.

It’s a Fact...

- ?? 84% of a raw apple is water.
- ?? A cucumber is 95% water.
- ?? A notch in a tree will remain the same distance from the ground as the tree grows.
- ?? A pineapple is a berry.
- ?? An average ear of corn has 800 kernels, arranged in 16 rows.
- ?? Banana oil never saw a banana; it’s made from petroleum.
- ?? Bananas are actually herbs. Bananas die after fruiting, like all herbs do.
- ?? Dr. Joel Poinsett, the 1st US ambassador to Mexico, brought the poinsettia to the US in 1828. The plant, called the “flower of the blessed night” in Mexico was renamed after Poinsett.



Residence for students and large barn.