South Florida vegetable growers had a couple of anxious nights over the past few weeks as a series of back to back cold fronts dropped temperatures to close to freezing on four separate occasions bringing widespread frost to most south Florida growing areas. Low temperatures recorded at FAWN weather stations around the region ranged from 31.9°F in Fort Pierce, 32.3°F in Immokalee to just over 39°F in Fort Lauderdale and Homestead. In some of the colder areas, growers reported temperatures as low as 28°F associated with the second of these events.

Despite the near freezing vegetable growers were spared any significant damage. Most Dade County acreage escaped significant damage because temperatures stayed above freezing. In colder sections of eastern Palm Beach County and around Immokalee, growers report that frost burned the foliage on some of the more tender crops including beans, cucurbits and sweet corn but for the most part crop injury was minimal with no fruit damage and crops are expected to grow out. Windy conditions associated with these fronts also contributed to some amount of sandblasting and foliar damage and blew over row sections of staked tomato in some cases.

A weak front that passed through the area on January 14th bought dropped from one and a half to two inches of rain in many parts of southwest Florida. Over the past week temperatures have moderated considerably with daytime temperatures ranging in the 70’s and low 80’s with nighttime lows in the 50’s and 60’s. Growers and scouts are indicating that the cool wet weather has caused some increase in disease pressure.

FAWN Weather Summary

<table>
<thead>
<tr>
<th>Date</th>
<th>Air Temp (°F)</th>
<th>Rainfall (Inches)</th>
<th>Hours Below Certain Temperature (hours)</th>
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<tr>
<td>Ft Lauderdale</td>
<td>1/4/02-1/17/02</td>
<td>39.9 80.3</td>
<td>0.20 0.4 19.9 58.2 82.3 116.6 164.8 236.7 301.8</td>
</tr>
<tr>
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<td>1/4/02-1/17/02</td>
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<td>0.89 50.0 76.4 99.7 138.3 186.2 239.8 287.4 326.5</td>
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<tr>
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<td>1/4/02-1/17/02</td>
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<td>0.01 1.1 35.0 62.6 98.9 130.0 192.5 248.6 296.4</td>
</tr>
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<td>Immokalee</td>
<td>1/4/02-1/17/02</td>
<td>32.3 82.9</td>
<td>1.35 44.9 64.0 86.7 119.1 165.8 226.1 271.9 312.7</td>
</tr>
</tbody>
</table>
Reports indicate that crops across the area are in mostly fair to good condition. Vegetables available include tomatoes, peppers, Chinese cabbage, cucumbers, eggplant, endive, escarole, lettuce, parsley, pickles, radishes, snap beans, squash, a few strawberries, and specialty items.

The short term forecast from the National Weather Service in Miami calls for mostly sunny skies through the weekend becoming partly cloudy early next week. Daytime highs will remain in the low 80’s through midweek with nighttime lows in the upper 50’s to low 60’s. There will be a slight chance of scattered showers throughout the week. For additional information, visit the National Weather Service in Miami website at http://www.srh.noaa.gov/mia/newpage/cgi-bin/master.pl?suite=home

Around southwest Florida, leafminer pressure remains high especially in young tomato. Growers are reporting problems with leafminers in range of crops including tomato, potato, pepper, cucurbits and beans. Most respondents report that they have had to make repeated application for leafminer control over the past few weeks.

Growers have obtained good results with abamectin (Agri-Mek), cyromazine (Tri-gard) - peppers, spinosad (Spintor) and azadirachtin (Neemix). These materials are relatively soft on beneficials. Although there are a number of other labeled materials that will give good control, growers should avoid the use of harsh chemicals to control other insects if possible to help preserve beneficial populations.

Natural enemies, primarily parasitic wasps, will often help control leafminers. If these parasites are killed by pesticides leafminer outbreaks may become more severe.

As always, growers are advised to practice resistance management and avoid repeated back-to-back applications of all pesticides. Attention to sanitation and destruction of old fields is also important as leafminer populations can build in abandoned fields.

Broadmite problems seem to have abated with the onset of cooler weather and there have been few reports on ongoing problems around southwest Florida.

Reports indicate that silverleaf whitefly numbers are picking up with scattered hotspots where whiteflies appear to be moving in from old crops including pepper. Growers are encouraged to monitor whitefly populations more closely as crops begin to mature and initial control from imidacloprid and thiamethoxam has begun to dissipate.

As control with soil-applied nicotinoids diminishes growers should begin to use other products of other chemical classes for control. Choices would include products such as Thiodan, soaps or the insect growth regulators Knack® or Applaud. With Knack® or Applaud, growers will need to work around the 14 and 7 day PHI’s where treatment is needed at harvest.

Growers are also reminded of the importance of sanitation and rapid destruction of crop residues once harvest is complete.

Worm pressure remains relatively low although several respondents have noted some increase in pressure over the past few days as temperatures began to return to more seasonable norms.

Pepper weevils remain widespread at low to moderate levels especially in older plantings.

Around southwest Florida, scouts are starting to find a few more thrips in pepper and eggplant but numbers are still low and reports indicate that nearly all Florida flower thrips (Frankliniella bispinosa). At this time, pressure is light and generally not considered to be a problem.
Several respondents have noted a modest increase in disease pressure over the past few weeks. Several periods of cool rainy weather have undoubtedly contributed to this situation.

**Bacterial leafspot remains active at low to moderate levels generally remaining low in the plant.**

Growers and scouts have indicated that early blight continues to be active on tomato and potato. Incidence and severity is low to moderate in most cases although in some older tomato fields it has nearly defoliated the lower portions of plants.

**New occurrences of target spot continue to be noted in tomato.** Incidence and severity is mostly low.

There have been reports of scattered problems with Rhizoctonia and blackleg in potato fields around Immokalee.

**Control of Rhizoctonia can be difficult and erratic.** Because of the versatility of *Rhizoctonia* spp., growers are advised to utilize several control measures, often in a sequence, to attain maximum control if soil fumigation is not used. The following control measures used collectively will reduce blights caused by *Rhizoctonia* and other fungi.

The major objective with these measures is control on stems of young plants by establishing a fast growing plant that essentially reduces the “hazard time” as young tender plants are more susceptible than older plants.

1) Use only healthy disease-free seed pieces. Although *Rhizoctonia* is not notorious for being seed-transmitted, poor quality seed pieces will grow slowly, which offers a distinct advantage to *Rhizoctonia* spp.
2) Avoid deep seeding, if moisture permits, as deep planting is advantageous for infection.
3) Especially in fields where fumigation was not used, plant when the soil temperature is suitable for rapid growth.
4) Seed pieces should be treated with a fungicide for protection against infection from *Rhizoctonia* spp. in the soil.
5) Use crop rotation where possible.
6) Prepare land so that a minimum amount of old plant debris is on the soil surface in the seeding zone.
7) Control soil insects and nematodes. These organisms weaken the plant, thereby pre-disposing the plant to infection.

**Powdery mildew remains active on squash.** Powdery mildew is widespread in older cucurbits especially squash. Incidence and severity is generally low to moderate although some severe infections have been noted.

Since an initial report of powdery mildew on tomato in the last edition of the South Florida Pest and Disease Hotline, several respondents have noted the scattered occurrence of powdery mildew on both pepper and tomato.

**An integrated spray program that rotates products in order to prevent development of pathogen resistance is recommended.** Bravo typically included in a tomato spray program contribute to powdery mildew control Quadris (azoxystrobin) and Nova (myclobutanil) provides excellent preventative and residual protection. The biofungicides AQ10 (Ecogen) - *Ampelomyces quisqualis* and Serenade (AgriQuest) – *Bacillus subtilis* are also reported to be effective in controlling the disease. Refer to product labels for spray intervals.

Growers continue to report finding tomato yellow leaf curl virus tomato plants. Incidence is low although most reports there has been an increase in the number of infected plants. In most cases incidence remains fairly low with an occasional infected plant every few of acres present. Some higher rates of infection are being noticed in older plantings where SLWF management of has decreased.
Growers should be prepared to use alternative whitefly control measures including IGR’s as Admire begins to wear off and whitefly populations increase. Growers should rogue out infected plants as identified. It is disturbing to see some fairly large infected plants in fields that have apparently been left in place for several weeks or more. A complete IPM approach including sanitation, eradication (roguing) and chemical control of the whitefly vector is essential in controlling this disease.

The incidence of fusarium crown rot in tomato has increased dramatically in some fields especially in those fields with a history of the disease where water levels were raised as a measure of frost protection.

Crown rot is associated with particularly cold periods during fruit maturation. The causal organism is a fungus, *Fusarium oxysporum* f. sp. *radicis-lycopersici*. It grows best from 50°F to 68°F, which is lower than the optimum for the fungus that causes Fusarium wilt.

Symptoms of Fusarium crown rot are distinctly different from those of Fusarium wilt of tomato. The brilliant yellowing of the foliage typical of Fusarium wilt does not occur with crown rot. Crown rot generally first appears as marginal chlorosis or necrosis of the oldest leaves of scattered individuals plants as the crop nears first fruit maturity. These symptoms may be followed by a rapid wilt-to-death or more typically a slow wilt with upward progression of leaf chlorosis. Infected plants will often wilt during the day and recover during the night. Unlike the vascular symptoms associated with Fusarium wilt; the vascular discoloration evident in stem and/or roots is limited to the lower 12" of the stem. In addition with crown rot, definite root and crown rots occur. The pith of the stem at soil line may be necrotic, and will often display external cankers or lesions on the stem from soil line upward.

Control of crown rot is similar to that of Fusarium wilt (e.g., crop rotation, sanitation, increased soil pH, minimize use of ammoniacal nitrogen, and soil fumigation). Successful control of Fusarium crown rot begins with healthy transplants, and properly prepared land.

The primary control for Fusarium crown rot is the combined use of disease free transplants, and pre plant fumigation with a broad-spectrum fumigant (e.g., methyl bromide + chloropicrin, Telone + chloropicrin, vapam, etc). Changes of soil fertility, avoidance of plant stresses (biological and physical), and cultural manipulations can be used successfully in some situations.

Recontamination of fumigated soil with non-fumigated soil and surface water should be avoided because fumigated soil has less natural biological diversity. Soils with less microbiological diversity may allow for a rapid increase of a plant pathogen.

Since the initial report of tomato spotted wilt virus by Dr Pam Roberts in the last edition of the South Florida Pest and Disease Hotline, there have been several additional reports of widely scattered of cases of tomato spotted wilt virus in southwest Florida.

It is a destructive disease causing reductions in the amount and quality of fruit harvested. Yield losses typically range from 20 to 40% and sometimes reach 100%. The virus is particularly insidious since symptoms and the true extent of losses may not be apparent until the fruit has reached market and begins to ripen.

The spotted wilt virus has a wide host range and can affect a number of crop and ornamental plants as well as tomato. In all some one hundred-sixty-three plant species are affected by tomato spotted wilt virus. It has been found in Florida in tobacco, peanuts, pepper, watermelon, Impatiens, gloxinia, and other ornamentals in addition to tomato.

Early symptoms of spotted wilt on tomato are difficult to diagnose. Young, infected plants show an inward cupping of leaves, and the foliage may appear off-color or have a slight bronze cast. Small dark-colored lesions appear on the middle or lower leaves or on other green parts of the plant. As the disease progresses, the leaves
turn brown and droop downward, giving the plant a wilted appearance. This is often accompanied by dieback of tips of terminal branches and a distinctive purplish streaking of stems and petioles. One half of the plant may be more affected than the other half. The entire plant is usually dwarfed.

**The most characteristic symptom of spotted wilt appears on the fruit.** On green fruit, faint, yellowish or brown, rings on the fruit skin develop. These spots are up to ½” in diameter and usually display a distinct target-like appearance, with concentric rings of yellow or light brown, alternating with green, then later pink or red as the fruit ripen. The area within the ring typically is raised, which gives the fruit a bumpy or warty appearance. The target-like appearance becomes more prominent as the fruit ripens. The bright yellow rings on red, mature fruit are quite distinctive and are usually enough to identify this disease.

**The virus is transmitted from plant to plant by several species of thrips, including the western flower thrips (Frankliniella occidentalis) and the onion thrips, (Thrips tabaci).** The virus is acquired in the larval stage, and is transmitted by adults. Nymphs that acquire the virus by feeding on infected plants will retain the ability to transmit it for the remainder of their lives. Tomato spotted wilt virus can be passed from infected females through the eggs. There is a latent period of at least four days between acquisition and transmission. Mechanical spread from plant sap is possible.

**Control is not easy since several cultivated crops as well as a number of weedy hosts and ornamental plants may serve as alternate hosts for the virus.** Roguing has been done but the benefits have not been demonstrated. Transplant production in or close to ornamental greenhouse production sites infected with tomato spotted wilt have been identified as sources of infection for field-grown crops.

**Use of broad-spectrum insecticides for control of the vector has not been particularly effective in preventing most of the losses due to tomato spotted wilt.** In some instances insecticidal sprays have actually increased the incidence of tomato spotted wilt by reducing the populations of beneficial insects known to prey on thrips.

Research conducted at the UF/IFAS North Florida Research and Education Center in Quincy has helped to develop effective integrated pest management solutions for vegetable growers that are practical and that rely on reduced-risk tactics. Investigations indicate that the predatory minute pirate bug naturally suppresses populations of the thrips vector. Trials have shown that Spintor (spinosad) is efficacious against the western flower thrips while sparing predator populations. Pepper growers using this knowledge have been able to avoid the use of the toxic, broad-spectrum insecticides for thrips and tomato spotted wilt virus control. In tomato, the minute pirate bug is irritated by the plant’s volatiles, and their numbers in tomato fields are generally insufficient to suppress thrips populations.

**The use of UV-reflective mulches in combination with reduced-risk insecticides has been demonstrated to be very effective way to reduce losses from tomato spotted wilt in tomato.** The western flower thrips are attracted to yellow, blue, and white flowers radiating in the lower range of the ultra-violet spectrum. UV reflective mulches confuse them so that they are unable to locate the tomato flowers. This approach also relies on spinosad to suppress western flower thrips and reduce late-season disease spread.

BHN Seed has recently released cultivars (BHN 444 and BHN 555) with spotted wilt resistance that have shown some promise in reducing losses in the field.

**Up Coming Meetings**

**February 12, 2002**
Training in the Production and Utilization of Compost for Horticultural Cropping Systems
Southwest Florida Research and Education Center
Immokalee, Florida
For more information contact Dr Monica Ozores-Hampton at 941-658-3400
Orlando, Florida
For more information check out the convention link at United Fresh Fruit and Vegetable Website at: http://www.uffva.org

December 8-12, 2002  Cucurbitaceae 2002
Naples Beach and Golf Club, Naples, Florida
Contact Don Maynard at 941-751-7636 ext 239 or dnma@mail.ifas.ufl.edu.

Grower Alert

Reports indicate that watermelon growers will be the targets of increased scrutiny by WPS inspectors this spring. Watermelon producers are advised to have their WPS records in order and that their operations are in compliance with the provisions of the Worker Protection Standard.

Growers can contact the Hendry County Extension Office for information on WPS as well as an inspection form that will help them perform a WPS self audit.

Job Opportunity

Major agricultural chemical company is seeking an Account Manager for Southwest Florida. Should be experienced in selling and recommending crop protection products to citrus and vegetable growers. College degree preferred. Salary + incentive, company car, and benefits. Please fax resume to 813-754-3840

Ag News

PUBLIC AWARENESS CAMPAIGN TO SHOW ECONOMIC VALUE OF AGRICULTURE, FLORIDA'S SECOND-LARGEST INDUSTRY

TALLAHASSEE -- Florida Agriculture Commissioner Charles H. Bronson and Florida Farm Bureau President Carl Loop today announced a cooperative project to help increase public awareness about the state's second-largest industry.

"The downturn in travel in recent months has greatly affected tourism, Florida's top industry, leading to increased interest about our state's overall economy," Bronson said. "Many people are surprised to learn that agriculture is Florida's second-largest industry, generating billions of dollars annually and providing jobs and economic stability for our state."

To help foster a better understanding about the importance of agriculture to Florida's economy, the Florida Department of Agriculture and Consumer Services has joined with the Florida Farm Bureau Federation to develop a public awareness campaign that will be launched next month.

"Florida agriculture faces many challenges," Bronson said. "Thousands of acres of farmland are lost each year to urban sprawl and development. In addition, Florida growers are at a disadvantage in the global marketplace, competing with foreign companies that often do not pay taxes, do not follow environmental regulations, and pay below-poverty-level wages."

"Keeping Florida agriculture viable is crucial to the continued stability and prosperity of our state," Loop said. "It's important for the public to understand the vital role agriculture plays in the well-being of our state, not just in these current uncertain times, but into the future."
The public awareness campaign will focus on how affordable food is for American consumers; the abundance, variety and safety of Florida agricultural products; and the importance of maintaining a reliable and secure domestic food source.

The campaign will include television public service announcements, outdoor advertising, radio, outreach programs, newspaper and magazine articles, and other informational and promotional media. The Florida Farm Bureau Federation is funding the initiative, while the Florida Department of Agriculture and Consumer Services is providing marketing and advertising services in accordance with its statutory responsibility to promote Florida agriculture.

"Florida agriculture is not usually visible to the general public, and, as a result, most Floridians and visitors are not aware of its importance to our state's economy," Bronson said. "We believe it is important that Floridians be well informed about the immense value of this bedrock of our state's economy."

Florida farmers receive nearly $7 billion in cash receipts for crops and other commodities annually. In addition, Florida agriculture and forestry products have an estimated overall economic impact of more than $50 billion annually.

Consumer research recently conducted by the Department on behalf of Florida Farm Bureau showed that less than 10 percent of the general public understands the economic value or importance of agriculture; only one-third could identify major crops produced in Florida; and a majority do not consider where their food comes from when grocery shopping.

Florida Farm Bureau Federation has served Florida agriculture for more than 60 years. With more than 144,400 members, Florida Farm Bureau is the state's largest agricultural organization. There are county Farm Bureaus in 62 counties in the state.

More than 40,000 Florida commercial farmers are among the most productive in the world, furnishing the nation with a dependable and safe supply of food, and providing Florida with a stable economic base. Florida farmers annually produce more than 35 billion pounds of food and more than 1.5 million tons of livestock feed. Florida is the nation's ninth agricultural state overall, ranking first in citrus production, and second in the production of vegetables and horticulture products.

PARwin – A New Pesticide Record-keeping Program for Windows

PARwin is a user-friendly very efficient computer program for recording, reporting and keeping track of your pesticide spray applications.

PARwin complies with FIFRA and WPS and can be self installed either by downloading from the Internet via http://parwin.spraytec.com or ordering a free CD Rom from Bill Hunt Company at bilihun@spraytec.com

Downloading or installing the CD will give the user 20 sessions to try the product, after which it must be registered at a cost of $149.95 for unlimited use. Try PARwin, you'll like it and find out how easy it is to do the spray records!

Contact the  Bill Hunt Company
World-Wide Agricultural Spray Technology
14400 SW 149 Terrace
Miami FL  33186
Tel: 305-238-0991    Fax: 305-254-6319
Internet: www.spraytec.com
Websites

NPIC – the National Pesticide Information Center provides objective scientific information on wide variety of pesticide related topics. Visit the site at http://npic.orst.edu or you can call toll free – 1-800-858-7378.

CDMS Label and MSDS Database – The Crop Data Management Systems website provides a searchable crop protectant database that allows users to access the full labels and MSDS for hundreds of crop protectant materials from over 80 manufacturers. Go to http://www.cdms.net/manuf/manuf.asp.

The Organic Transitions Program (ORG) supports projects that assist farmers and ranchers in successfully adopting organic practices by conducting systems research on organic farming combined with outreach and education programs. Here is a direct link to the longer program description and contact link. http://www.reeusda.gov/agsys/pestmgt/organic.htm

The Lighter Side

MARTHA STEWART'S TIPS FOR REDNECKS

1. Never take a beer to a job interview.
2. Always identify people in your yard before shooting at them.
3. It's considered tacky to take a cooler to church.
4. If you have to vacuum the bed, it's time to change the sheets.
5. Even if you're certain that you are in the will, it's still considered tacky to drive a U-Haul to the funeral.

ENTERTAINING IN YOUR HOME

6. A centerpiece for the table should never be anything prepared by a taxidermist.
7. Do not allow your dog to eat at the table... no matter how good his manners are.

DATING (OUTSIDE THE FAMILY)

8. Always offer to bait your date's hook, especially on the first date.
9. Establish with her parents what time she is expected back home. Some might say 10:00 PM; others might say "Monday." No matter what time the curfew, it is always the man's responsibility to get her to school on time.

DRIVING ETIQUETTE

10. Dim your headlights for approaching vehicles, even if the gun is loaded, and the deer is in the light.
11. When approaching a four way stop, the vehicle with the largest tires always has the right of way.
12. Never tow another car using panty hoses and duct tape.
13. When sending your wife down the road with a gas can, it is impolite to ask her to bring back beer.
14. Do not lay rubber while traveling in a funeral procession.

Quotable Quotes

Good judgment comes from experience. Experience comes from bad judgment.

Never confuse motion with action. -- Benjamin Franklin
Under certain circumstances, profanity provides a relief denied even to prayer. -- Mark Twain

We can't all be heroes because somebody has to sit on the curb and clap as they go by. -- Will Rogers

In theory, there is no difference between theory and practice; in practice, there is. -- Chuck Reid

A liberal is a man too broadminded to take his own side in a quarrel. -- Robert Frost

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