A weak cold front passed through the area on January 25, dropping temperatures to just below freezing for a brief time on the morning of the 26th. The FAWN Weather Station recorded a low of 31.7 degrees, which persisted for about 30 minutes although no crop damage was reported in association with this event. In general temperatures have moderated, returning to more seasonal levels. Toward the end of the period daytime temperatures have been ranging in the upper 70’s to mid 80’s, while nighttime lows have been in the 40s, 50s and 60s.

Warmer temperatures are aiding crop growth, which was hindered by the cold weather that prevailed throughout most of January.

The National Weather Service is predicting a cold front to push through the area over the next day bringing with it breezy conditions and a good chance of showers and thunderstorms today and tomorrow. Following the front temperatures are expected to turn colder dropping to the mid 30’s to low 40’s Sunday night and gradually warming as we approach mid-week.

The FAWN Weather Station in Immokalee received 1.04 inches of rain since January 19th. Precipitation reports across the region vary widely with most places receiving only a trace over the past few weeks.

Late Blight Alert – see page 2. Otherwise pest and disease pressure remains at fairly low levels.

Immokalee Weather Summary

<table>
<thead>
<tr>
<th>Date</th>
<th>Air Temp °F</th>
<th>Rainfall</th>
<th>Hours Below Certain Temperature</th>
<th>(hours)</th>
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<tr>
<td></td>
<td>Min</td>
<td>Max</td>
<td>40°F</td>
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<tr>
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<td>27.0</td>
<td>85.4</td>
<td>1.61</td>
<td>70.2</td>
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<td>85.8</td>
<td>1.04</td>
<td>28.1</td>
</tr>
</tbody>
</table>
Tomato planting is complete while pepper planting is nearly finished. Growers are actively planting cucurbits and potato harvesting has begun. Most crops are in fair to good condition. Vegetables available include snap beans, tomatoes, squash, eggplant, sweet corn, peppers, endive, escarole, lettuce, radishes and specialty crops. Several respondents have indicated observing an increase in soluble salt damage on plantings. There have also been indications of rising salt levels in well water being pumped in coastal areas.

The National Weather Service in Miami forecast is calling for warm windy conditions with temperatures in the 80’s through next Wednesday. There will be slight chance of showers this weekend.

Water restrictions imposed on November 29th, by the South Florida Water Management District remain in place and have been extended to east coast production areas. Restrictions vary by area. More detailed information about water-use restrictions is available on the District’s web site at http://www.sfwmd.gov. Maps of the affected areas are also on the web site under "water shortage."

Phase 2 restrictions for water use, are now in effect for South Florida. This includes; Palm Beach, Monroe, Miami-Dade, Broward, Collier, Hendry, Lee, and parts of St. Lucie, Glades, Charlotte, and Okeechobee counties. Agricultural users dependent on Lake Okeechobee and the Caloosahatchee River remain under Phase 3 restrictions.

Reports indicate that leafminers are increasing rapidly in a number of locations. Reports indicate that growers are keeping populations under control but pressure is constant.

There have been a few scattered reports of worm activity. Pressure is generally low. Some beet armyworms and a few tomato fruitworms have been reported.

Winged aphids have become fairly active across the area in a variety of crops. Numbers are generally low and incidence is spotty. Respondents indicate that a few potato and pepper fields have required treatment for aphids where colonies became established.

Reports indicate that adult whiteflies remain low levels across SW Florida.

A few scattered reports of thrips activity on tomato have begun to trickle in. These are mainly flower thrips.

Growers should be alert for spider mites. Recent field surveys have indicated high populations of mites on nightshade along ditch banks and field margins, which represents a potential source of infestation.

Field sanitation is an important component of a complete integrated pest management program. Crops in fields that have been harvested or where planting have been destroyed by freezing weather should be cleaned up as soon as possible to prevent the carry over of insect populations and disease inoculum.

Scouts from Glades Crop Care report the presence of late blight on potatoes around Immokalee. Incidence is low and occurrence is sporadic. Dr. Pete Weingartner, Plant Pathologist at the UF/IFAS Hastings Research and Education Center diagnosed samples as the US 11 strain. This strain can be a problem on both tomato and potato. This is apparently the first confirmed finding of late blight in south Florida this season. Dr. Weingartner, who has studied the disease for many years, indicated that he had not seen any samples of US 11 for the past five years.

Late blight is caused by the fungus Phytophthora infestans, which is a specialized pathogen of potato and, to a lesser extent of tomato. The disease thrives under cool and wet conditions. Temperatures between 50 and 80°F combined with moist conditions such as rain, fog, heavy dews, or relative humidity above 90 percent are conducive for disease development. Night temperatures in the mid-fifties with daytime temperatures from the
mid-fifties to mid-seventies are ideal for this disease. Temperatures in the lower range (50 to 70°F) stimulate the formation of many swarm spores (zoospores) from the sporangia. This situation dramatically increases the potential for disease spread.

**Inoculum of Phytophthora infestans** can originate from diseased seed tubers, cull piles, volunteers springing from unharvested, infected tubers from the previous year, and adjacent plantings of potatoes or tomatoes that are affected. For tomatoes, infected transplants can serve as an original source of inoculum. Late blight can develop and spread rapidly if inoculum is present and conditions are conducive.

In Florida, it has been observed that seldom does a widespread late blight epidemic occur on tomatoes in the Manatee-Ruskin area unless the disease was present in the Immokalee area and/or Dade County. Therefore, growers in the central part of the state should monitor the late blight situation further south. Similarly, growers in the Immokalee area should be aware of the late blight situation further south. Infected seed tubers shipped from northern areas of the United States initiated the epidemics that occurred in the early 1990’s in Florida.

The disease can spread so rapidly, growers should scout their fields thoroughly each day, especially when cool and wet conditions conducive to disease development prevails. Since late blight symptoms may be confused with symptoms of other diseases, the following diagnostic pointers may help growers distinguish between the late blight and other diseases.

**Late blight symptoms on leaves appear as irregularly-shaped brown to purplish lesions with indefinite border lesions can span veins.** The lesions may be seen any time of day, on any stage of plant growth and on leaves of any age. Velvety, white fungal growth may appear on the lower surface of affected leaflets early in the morning before leaves dry and/or in the lower canopy.

On stems, purplish lesions may be seen any time of day and may be found any where on the stem. Cottony, white growth of fungus on stems with lesions can often be seen early in the morning and/or in the lower canopy. Stems with lesions are brittle and break easily. Lesions are confined to epidermis and cortex. Leaf rolling and wilting is often associated with stem lesions and purpling of leaflets may occur in some varieties.

**Some look-a-like diseases include early blight (Alternaria solani), gray mold (Botrytis cinerea), and potato leaf curl virus.** Early blight lesions are normally irregular or angular dark brown to inky-black lesions that may have concentric rings giving a target-like appearance. In addition, the lesions typically occur on lower, older leaves and do not cross large veins.

Gray mold lesions occur primarily on margins of older leaves and may be covered with a gray, cottony or moldy growth. Potato leaf roll virus causes an upward rolling of leaflets but no stem lesions are present.

White mold (Sclerotinia sclerotiorum), rhizoctonia canker (Rhizoctonia solani) and blackleg (Erwinia spp.) can all cause stem lesions that might be mistaken for late blight. Growers are advised to obtain a positive diagnosis if late blight is suspected.

**Several control measures plus observation are absolute necessities if late blight is to be properly controlled.** Potato growers should purchase certified, disease-free seed pieces and store seed in a dry location before planting. Seed pieces should be examined for infected tubers and suspect seed destroyed. Other important cultural controls include destruction of cull piles and volunteer potato or tomato plants. Remember that prevention is the key to success.
**Plant disease resistant varieties.** Atlantic, Kennebec, Pungo, Sebago, and Wauseon have a high degree of resistance to common races of late blight and can be grown in Florida. All red-skin varieties and the varieties Superior and La Chipper are more susceptible. Begin a spray program with fungicides if late blight is in your area or weather conditions are suitable for late blight development. Forecasting systems based on temperature and humidity, like that in the Hastings area, can help in deciding when to spray. After harvest, kill infected foliage to minimize tuber infection.

**Tomato growers should purchase disease-free transplants.** This is not a seed borne disease on tomatoes. Observe your fields thoroughly each day, especially when cool and wet weather prevails.

**Currently, fungicides are the most effective means of controlling late blight and will remain the primary tool until cultivars with resistance to this disease become available.** Fungicides slow the rate at which the disease develops in the field by creating a protective barrier on the foliage. Just applying a chemical, however, does not necessarily equate with effective disease control. Relative effectiveness of a product, coverage, and timing must be factored into the equation for maximum benefit.

**Numerous fungicide products are registered for late blight control.** They are often grouped as protectants or systemics. Protectants, as the name implies, protect foliage from infection by spores. Protectant chemicals must be well distributed over the leaf surface and must be applied before spores land on leaves. They are ineffective against established infections.

**Systemics products become distributed locally within plant tissues and protect foliage from infection by spores.** They may kill some established infections and may suppress production of new spores. Systemics include Curzate 60 DF (cymoxanil) and Acrobat MZ (dimethomorph). Protectants include a range of materials including a number of copper, maneb, mancozeb, chlorothalonil and mefenoxam compounds. Recently, Super Tin 80WP (triphenyltin hydroxide) and Quadris (azoxystrobin) have gained favor with growers.

**Although growers have been able to effectively control late blight by sanitation, cultural methods and judicious use of fungicides.** This situation became more complicated in recent years by the development of resistance to certain fungicides such as metalaxyl. Growers should be aware of this problem and be careful to incorporate fungicides with diverse modes of action into their spray programs.

**To further complicate matters P. infestans, like many members of the Oomycota, has two mating types, termed A1 and A2.** It can undergo sexual reproduction only if both mating types are present in a population. Up through 1992, only the A1 mating type existed in Florida. Beginning in 1993, both mating types have been identified in Florida. This is significant in that the fungus can now generate genetic variation via recombination. The stage is now set for even more rapid emergence of new pathogenic variants, to overcome our continuing attempts to control this disease.

**Some reports indicate an increase in tomato yellow leaf in older tomato plantings.** The incidence however remains below 1% in all cases.

**Several reports have indicated that fusarium crown rot has flared dramatically in some locations.** This is particularly true in fields where water levels had been held at high levels for a long period to provide cold protection. Some reports have indicated crown rot incidence approaching 10% in many tomato fields with some scattered fields showing over 50% infection rates.

**Several growers have indicated seeing bacterial leaf spot activity in plantings where overhead irrigation was employed for freeze protection.** Heavy early morning fog has also contributed to reports of bacterial leaf spot slowly increasing in some plantings. Overall incidence remains low.
There have also been some isolated reports of low levels of phytophthora in pepper where water levels were held up over an extended period for cold protection.

Reports indicate target spot is causing some serious foliage loss to inner foliage in some tomato fields. Several respondents indicate observing some new early blight activity in both tomato and potato fields.

Powdery mildew is showing up on the older lower leaves in squash.

**Product Updates:**

**Dupont Agricultural Products** has received state and federal labels for it’s new reduced risk insecticide “Avaunt.” Avaunt offers growers broad-spectrum residual worm control with a unique mode of action. Worms exposed to Avaunt stop feeding in 0 – 4 hours providing excellent plant protection.

The product is labeled on broccoli, heading cabbage, cauliflowers, sweet corn lettuce, pepper and tomato for control of a variety of worms. It has a 12-hour REI and a 3-day pre-harvest interval. The complete label can be seen on the web at [http://www.dupont.com/ag/us/prodinfo/prodsearch/information/H63941.pdf](http://www.dupont.com/ag/us/prodinfo/prodsearch/information/H63941.pdf)

**FMC** is excited to announce that Capture 2EC insecticide/miticide provides a new tool is available for bell and specialty pepper growers. Capture 2EC is said to provide excellent pepper weevil control as well as worm and thrips control at 4.2 oz/acre. Broad and spider mites can be controlled at the 5.12 – 6.4 oz rate. Capture has a 24 hour restricted entry interval and cannot be applied within 7 days of harvest. The label permits application of no more than 12.8 oz per crop. Several growers have indicated good results on pepper weevil.

**Corrections:** Vegetable REI’s - Please note that the REI for Roundup Ultra and new Roundup Ultra Max is 4 hours. The REI for the older formulation of Roundup Original is 12 hours. Kocide products have a 24 hr REI.

**Hungry, Helpful Insects Thrive on Special Fast-Food**

Beneficial insects like green lacewings and big-eyed bugs are now easier and less expensive to rear indoors-by the millions-thanks to a special fast-food recipe developed by an ARS scientist. The research-based formula for what's known as artificial diet is now being described as the most successful ever developed for indoor production of these helpful insects.

When set free in fields of corn or other crops, laboratory-reared lacewings and big-eyed bugs will find and make a tasty meal of whiteflies, bollworms, mealybugs and other notorious crop pests. By augmenting naturally occurring populations of their counterparts, the lab-reared insects can help reduce growers' reliance on chemical insecticides. That's according to the formula's developer, ARS entomologist Allen C. Cohen. And, because they rely on technologies other than chemical insecticides, the research is a boon to organic farmers, as well.

Beneficials reared on the Cohen cuisine are healthy and vigorous and produce more offspring than their counterparts. Too, they are up to 50 percent larger, and they typically mature earlier. Those are assets in outdoor living. Cohen, now based at the ARS Biological Control and Mass Rearing Research Unit at Mississippi State, Miss., did the research while with ARS at Phoenix, Ariz. Four U.S. companies currently hold licenses to use the patented concoction. They are Beneficial Insectary, Redding, Calif.; BioLogixs, Denver, Colo.; Buena Biosystems, Inc., Ventura, Calif.; and Oregon Freeze Dry, Inc., Albany, Ore.

Cohen's formula resulted from his pioneering investigations of the beneficial insects' feeding biology and of the nutrient composition of their typical menu-eggs or innards of their hapless prey. Cohen's fare has a liverwurst-like texture and is a blend of meat paste, sugar, yeast and specially cooked chicken eggs. Though
designed primarily for green lacewings and big-eyed bugs, the recipe can be slightly modified to nourish two other important beneficials—minute pirate bugs and ladybeetles.

Scientific contact: Allen C. Cohen, ARS Biological Control and Mass Rearing Research Unit, phone (662) 320-7524, fax (662) 320-0478, acohen@bcmrru.ars.usda.gov - ARS News Service, February 5, 2001

Websites

Florida Agsafe Network - Safety Information for Florida's Agricultural Safety and Health - Historically agriculture has had one of the highest injury and death rates among any of the major industries in the United States. This University of Florida site provides educational information for making agriculture a safer and healthier workplace. http://www.agen.ufl.edu/~clehtola/agsaferef.htm

Vegetable MD Online - Provides access to the many Vegetable Disease Fact Sheets produced over the years at Cornell University. Although much some of the information is specific to NY conditions, there is a lot of useful information here. The color photographs enhances the use of these sheets for plant disease diagnosis. http://vegetablemdonline.ppath.cornell.edu/

Up Coming Meetings:

February 15, 2001 Vegetable Growers Meeting Nutrient Management and BMP’s for Vegetable Growers Hendry County Extension Auditorium 12 Noon – 2 PM 1085 Pratt Blvd LaBelle, Florida

Contact Gene McAvoy at 863-674-4092 for more information.

February 27-28, 2001 Florida Weed Science Society Annual Meeting Gainesville, Florida For information call 941-722-4524

March 5 –8, 2001 Florida Post-Harvest Horticulture Industry Tour For information contact Abbie Fox 352-392-1928 ext. 235


This is a great opportunity to meet with your colleagues and counterparts in the vegetable industry from around the world! Highlights include a comprehensive educational program including produce technology, food safety, packaging, and commodity specific workshops. Vegetable growers, shipper, packers and others in the vegetable industry can take advantage of special discount registration rates by calling Gene McAvoy at the Hendry County Extension Office at 863-674-4092 or Claire E. Kratch at the United Fresh Fruit and Vegetable Association 703-836-3410 ext.125.

April 22-26, 2001 85th Annual Meeting of the Potato Association of America (PAA 2001) St. Augustine, Florida.

Hosted by the University of Florida/IFAS Hastings Research and Education Center, the conference will provide a forum for the presentation of new scientific
information, conduct business of the association and facilitate fellowship among colleagues. The conference theme is Potato Plant Health into the New Millennium. Three days of stimulating paper sessions will be kicked off with a dynamic symposium entitled, "Impact of New and Emerging Diseases and Technologies on Potato Seed Certification" co-sponsored by the Certification and Pathology Sections of the PAA. Emphasis will be on challenging soil-borne diseases.

Oral and poster abstracts are being accepted through January 10, 2001. For more information visit the conference website: http://www.ifas.ufl.edu/~conferweb/paa/ or contact the University of Florida, IFAS Office of Conferences by phone (352) 392-5930 or by fax (352) 392-9734, or by Email: mmatlock@gnv.ifas.ufl.edu

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CHILDREN

You spend the first 2 years of their life teaching them to walk and talk. Then you spend the next 16 telling them to sit down and shut-up.

We child proofed our home 3 years ago and they're still getting in!

Be nice to your kids. They'll choose your nursing home.

Children are natural mimics, who act like their parents despite every effort to teach them good manners.

Mothers of teens know why animals eat their young.

There is only one pretty child in the world and every mother has it. - Chinese Proverb.

Contributors include: Karen Armbrester/SWFREC, Jim Connor/SWFREC, Bruce Corbitt/West Coast Tomato Growers, Fred Heald/Farmers Supply, Sarah Hornsby/AgCropCon, Cecil Howell/H&R Farm, Leon Lucas/Glades Crop Care, Gene McAvoy/Hendry County Extension, Alice McGhee/Thomas Produce, Tim Nychk/Nychk Bros. Farm, Chuck 0bern/C+B Farm, Dr. Pam Roberts/SWFREC, Wes Roan/6 L's, Kevin Seitzinger/Gargiulo, Jay Shivler/ F& F Farm, Ben Stanalad/Pacific Tomato Growers, John Stanford/LNA Farm, Mike Stanford/MED Farms, Dr. Phil Stansly/SWFREC, Eugene Tolar/Red Star Farms, and Dr.Charlie Vavrina/SWFREC, Donna Verbeck/GulfCoast Ag.

The SW Florida Pest and Disease Hotline is compiled by Gene McAvoy and is issued on a biweekly basis by the Hendry County Cooperative Extension Office as a service to the vegetable industry.

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