SOUTH FLORIDA
VEGETABLE PEST AND DISEASE
HOTLINE

September 28, 2001

Tropical Storm Gabrielle brought varying amounts of rain to south Florida on September 13 – 15th. Totals were highly variable and generally higher as one moved north. Although wet weather did cause some delays in land preparation and planting schedules, the brunt of the storm passed north of us and caused little flooding and damage to crops. Rainfall totals reported at FAWN weather stations ranged from just under 3 inches in Homestead and Fort Pierce, 3.66 inches in Immokalee and 4.23 inches in Fort Lauderdale. Some areas north of LaBelle, however received in excess of 10 inches for the period and experienced some flooding. Reports indicate that growers in the Ruskin and Manatee areas were not so lucky as strong winds and heavy rains caused significant damage including increased disease incidence and flower abortion.

Drier weather following Tropical Storm Gabrielle has permitted most growers across the area to get back on schedule. Temperatures at have been seasonable with daytime highs in the mid to upper 80’s to low 90’s and lows in the low to mid 70’s.

A cool front, which moved over central Florida, has bought heavy rains to the area since yesterday. The National Weather Service is forecasting occasional thunderstorms and heavy rain for all of south Florida and has issued a flood watch for the region through Saturday night. Following this, the forecast for next week indicates a return to the normal pattern of scattered afternoon showers and thunderstorms with daytime temperatures in the 80’s and lows in the 70’s. 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](http://www.srh.noaa.gov/mia/newpage/cgi-bin/master.pl?suite=home)

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></td>
<td>Min</td>
<td>Max</td>
<td>40°F</td>
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<tr>
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<td>91.5</td>
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</tr>
<tr>
<td>Immokalee</td>
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<td>91.0</td>
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</tbody>
</table>
Reports indicate that crops across the area are in fair to good condition. Cooler temperatures over the past two weeks are aiding plant growth and development. The oldest plantings are setting fruit with oldest fruit gaining size. Workers continue to prepare land and transplant eggplant, peppers, squash and tomatoes. Planting of snap beans and cucumbers has started and should increase over the next few weeks. Cultural operations such as pruning, staking, tying and spraying are being conducted as needed.

Growers on both coasts are reporting a variety of worms in a wide range of crops.

On the east coast, growers are reporting wide spread hatches of armyworms and some loopers on pepper, eggplant, tomato, and beans. Armyworms are mostly southern armyworm with increasing populations of beet armyworms. Sprays have been made and worms are generally under control.

In southwest Florida, growers are seeing a mix of fruitworms, southern armyworms, beet armyworms, hornworms and loopers. In some areas, respondents report seeing mainly fruitworms on tomato while in other locations southern armyworms are most common. Several growers have indicated finding substantial numbers of armyworm egg masses in crops and spraying as necessary.

The UF/IFAS research station in Immokalee reports heavy pressure from fall armyworm on experimental plantings of sweet corn.

Reports also indicate large populations of armyworm present on weedy ditch banks and cover crops in some areas. Several growers have indicated that they anticipate increased worm pressure over the next few days with the full moon approaching.

Growers in southwest Florida are also seeing low levels of melonworm on cucurbits and as well as very low levels of diamondbacks on cabbage and other brassicas.

Scouting is extremely important in detecting worms early before they can do significant damage. The Florida Tomato Scouting Guide indicates a pre-bloom threshold of 1 larva/6plants and post-bloom threshold of 1 egg mass or larva/field. The different armyworms are similar in color, size and markings and can be difficult to tell apart.

The following information was excerpted from the Florida Tomato Scouting Guide to help growers identify these different worms. The guide can be found on the web at the Florida Tomato Scouting Guide has excellent color photographs to help you identify these and other common tomato pests. It can be found on the web at http://FTSG.ifas.ufl.edu/intro.htm and can also be purchased in bound form from the University of Florida/IFAS Publications.

- **Beet armyworm:** *(Spodoptera exigua)* is generally less numerous than southern armyworm but is more difficult to control. The larva are generally green, mottled with white spots with black spot over the middle pair of true legs. 1 -1 1/4 in. long at maturity. The adults have light brownish gray front wings with indistinct lines and are active at night. The eggs are laid in masses of 50-75 eggs covered with a felt-like mass of scales from female's body. Eggs are generally found on underside of leaves and hatch in 3 days.

- **Southern armyworm:** *(Spodoptera eridania)* The larva are dark caterpillars with a yellowish brown head and a yellowish line along the side of body that is interrupted by a large dark spot on first abdominal segment. Approximately 2 in. long at maturity. Large larvae have 2 rows of dark triangles on dorsal surface. The young larvae feed on under surface of leaflets leaving upper epidermis intact to give a "window pane" appearance. The adult has the front wing streaked with cream, gray, light brown and black and hind wing white with some dark on margins. Large masses of 100-200 eggs covered with moth body scales are found on underside of leaves.
**Tomato fruitworm:** (*Helicoverpa zea*) Larval color is variable, ranging from very dark to light green or pink with alternating longitudinal dark and light stripes. The skin is covered with short sharp micro-spines. Adults are active at night, with a 1-½ in. wing span. Males display a cream-colored forewing with orange or olive cast, while females have a light yellow brown forewing with indistinct vertical lines. Eggs are waxy white and ribbed, with a flat base, and are deposited singly usually on lower surfaces of leaves adjacent to or near flowers. Eggs hatch in 2-3 days.

**Cabbage or soybean looper:** (*Trichoplusia ni or Pseudoplusia includens*) Larva are pale green with white line along side of body and only 3 pair of prolegs. Mature size 1 – 1 1/4 in. Adult is a grayish-brown moth that is active at night. Front wings marked near center with a figure 8-shaped, silver-white spot. Eggs are greenish-white, ridged but flattened laterally and are found singly on upper or lower leaf surfaces of upper canopy leaves. Hatches in 2-3 days.

**Spotty but widespread occurrence of broadmites at low levels in older pepper and eggplant are being seen on both coasts.** Infestations have been sprayed where detected and are mostly under control. Thiodan, Agrimek, and Kelthane have all been used for broadmite control. Growers are advised to use care when applying Kelthane to avoid crop damage. From grower experience, Kelthane should be used alone and rates should not exceed 1 pint per 100 gallons, especially on hot days.

**Reports from Palm Beach indicate infestations of two spotted mites and red spider mites are spotty and have not increased probably because of all of the recent rainy weather.**

**Growers across south Florida indicate low numbers of silverleaf whiteflies on tomatoes and eggplant.** Several respondents report that numbers are variable from day to day indicating that there are some adults are moving around. All reports agree that soil applied nicotinoids (Admire/Platinum) appear to be working well in controlling the incoming whiteflies.

**With the labeling of additional nicotinoid compounds, (Platinum and Actara/Syngenta – and more in the pipeline from other manufacturers), growers are urged to be careful not to over use this class of compounds to avoid the development of resistance.**

**Because imidacloprid and thiamethoxam are both in the nicotinoid class of insecticides, there is potential for the development of cross-resistance.** Such cross-resistance has already been observed in Spain. This fact lends additional import to the necessity for attention to resistance management.

**Nicotinoid Resistance Management Strategies**

- **Reduce overall whitefly populations by strictly adhering to cultural practices including:**
  - Planting whitefly free transplants
  - Delay planting of new crops as long as possible and destroy old crops immediately after harvest to create or lengthen a tomato-free period
  - Do not plant new crops near or adjacent to infested weeds or crops, abandoned fields awaiting destruction or areas with volunteer plants
  - Use UV reflective (aluminum) plastic soil mulch
  - Control weeds on field edges if whiteflies are present and natural enemies are absent
  - Manage weeds within crops to minimize interference with spraying
  - Avoid U-Pick or pin-hooking operations unless effective whitefly control measures are continued
- **Do not use a nicotinoid on transplants or apply only once 7 – 10 days before transplanting; use other products in other chemical classes, including pymetrozine (Fulfill®) before this time.**
- **Apply a nicotinoid at transplanting and use other products of other chemical classes, such as the insect growth regulators Knack® or Applaud® as the control with the nicotinoid diminishes**
Never follow an application (soil or foliar) of a nicotinoid with another application (soil or foliar) of the same or different nicotinoid on the same crop or in the same field within the same season (i.e. do not treat a double crop with a nicotinoid if the main crop had been treated previously)

Save applications of nicotinoids for crops threatened by whitefly transmitted plant viruses or whitefly inflicted plant disorders (i.e. tomato, beans or squash) and consider the use of chemicals of other classes for whitefly control on other crops.

Growers are urged to follow these recommendations and help assure the continued effectiveness of these important whitefly management tools.


A few leafminers are beginning to appear on both coasts but numbers are low and no sprays have been targeted for them yet. Some respondents have observed that they are not finding any leafminers where SpinTor has been used for worms.

In eastern Palm Beach, growers indicate finding some thrips in pepper blooms but at this time no *Thrips palmi* have been detected.

Scattered bacterial spot infection is being reported on tomato in all areas. Incidence is low to moderate on older tomatoes with some infection being detected on younger plantings. Occurrence varies widely with many growers indicate they remain clean. In several instance, reports indicate that plants had begun to put out new clean growth as conditions dried up following Tropical Storm Gabrielle.

Respondents on both coasts are reporting tomato yellow leaf curl virus in a few widely scattered single tomato plants. Incidence is rare and most indications are that fewer infected plants are being seen compared to previous years. Infected plants are being rouged out on identification.

There are a few isolated reports of soil-borne phytophthora being reported on older eggplant, pepper, squash and tomato in Palm Beach.

Around Immokalee, pythium is being widely seen in a number of locations on primarily pepper and tomato. Most infections are confined to low spots and the wetter areas at the ends of rows and field margins. Respondents in Palm Beach, indicate that infections on newly planted pepper appear to be slowing down since last report.

We have isolated reports of southern blight on tomato across the area. Occurrence is spotty and occasional.

There has been one report from Palm Beach of tomato spotted wilt on pepper. It is suspected that these were infected in the plant house. The plants have been rouged out and no spread has been detected in the field.

Up Coming Meetings

Palm Beach County

October 3, 2001  Phytophthora and Pythium Research and Use of Tensiometers to Monitor Soil Moisture Levels
PB Co. Fire Station #42, 14276 Hagen Ranch Road, Delray Beach, FL
Dinner 5:30 PM, Program 6:15 PM
1.0 CEU credit (Private, Ag Row Crop, Demo/Res) and 1.5 CCA credit
Contact Ken Shuler at 561-233-1718 or 1725
October 3, 2001  
**Florida Lettuce Advisory Committee Small Meeting**,  
Drawbridge Café, Belle Glade, FL. Contact David Basore, Florida Lettuce Advisory Committee; 561-996-1655

October 30, 2001  
**Vegetable Growers' Seminar on Sandea Herbicide Control of Nutsedge and Certain Broadleaf Weeds in Florida Vegetables**  
Holiday Inn Catalina, 1601 N. Congress Ave., Boynton Beach  
Lunch 11:45 - 12:30 PM, Program 12:30 - 1:30 PM  
1.0 CEU's (Private, Aerial, Ag Row Crop, Demo/Res), 1.0 CCA credits  
Contact Ken Shuler at 561-233-1718 or 1725

Southwest Florida

October 1, 2001  
**WPS -Train-The-Trainer.** Dallas Townsend Agricultural Center, 1085 Pratt Blvd., LaBelle. Contact Sheila at 863-674-4092 to register or for more information.

October 11, 2001  
**Vegetable Growers Meeting - DuPont Product Update - 6:00 to 8:00P.M.**  
UF/IFAS - SW Florida Research and Education Center  
Hwy 29 N, Immokalee, FL

October 18, 2001  
**Vegetable Growers Meeting -Association of fungi with tomato roots in the field, Recovery of Phytophthora and other Pathogens in Irrigation Water and Nu Farm America - Agricultural Product Update - Noon to 12:00 P.M.**  
UF/IFAS - SW Florida Research and Education Center  
Hwy 29 N, Immokalee, FL

October 30, 2001  
**Vegetable Growers Meeting - Mycorrhizae, What They Are, How They Function and the Potential for Vegetable Production In Florida – 6:00 to 8:00 P.M.**  
UF/IFAS - SW Florida Research and Education Center  
Hwy 29 N, Immokalee, FL

Other Meetings

October 2-3, 2001  

November 8-9, 2001  
**17th Annual Tomato Disease Workshop**  
West Palm Beach, Florida.  
Presentations and discussions on the occurrence and management of tomato diseases. Both processing and fresh market tomato problems will be addressed.  
For additional information visit: [http://erec.ifas.ufl.edu/TDW.htm](http://erec.ifas.ufl.edu/TDW.htm)

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.

**Agricultural Pest Management, Inc** is a newly formed scouting service for growers in SW Florida. APM is owned and operated by Kathy Carbiener. Kathy has over 23 years experience scouting Florida vegetables including 10 years experience in SW Florida. Growers interested in learning more about this service can call 941-628-4541 or 863-494-3112.
DOES THE WORKER PROTECTION STANDARD APPLY TO YOU?

Do not forget that workers and pesticide handlers must be trained under WPS every five years. It has been just over five years since WPS was passed. It has been announced that you can expect greater enforcement of WPS. Failure to comply with WPS could mean substantial liability (law suits) for your operation.

You must comply with the Worker Protection Standard if:

1. You own or manage a farm, forest, nursery, or greenhouse where pesticides are used in the production of agricultural plants.

Even if you are the owner of the farm, forest, nursery, or greenhouse and you or members of your family do all the work there, you are a "WPS employer." You must comply with SOME of the WPS requirements, such as restricted-entry intervals and personal protective equipment, and ALL the specific requirements listed in the pesticide labeling.

2. You hire or contract for the services of agricultural workers to do tasks related to the production of agricultural plants on a farm, forest, nursery, or greenhouse. This includes labor contractors and others who contract with growers to supply agricultural laborers.

3. You operate a business in which you (or people you employ) apply pesticides that are used for the production of agricultural plants on any farm, forest, nursery, or greenhouse.

Commercial pesticide handlers and their employees are included with respect to such pesticides even if the pesticide handling task (mixing, loading, disposal, etc.) takes place somewhere other than the farm, forest, nursery, or greenhouse--at the commercial handling establishment or an airport hangar, for example.

4. You operate a business in which you (or people you employ) perform tasks as a crop advisor on any farm, forest, nursery, or greenhouse.

"Crop advisor" means any person who is assessing pest numbers or damage, pesticide distribution, or the status, condition, or requirements of agricultural plants. Examples include crop consultants and scouts. WPS provisions for crop advisors are different than those for agricultural workers and pesticide handlers.

Who Must Be Trained?

Each worker and handler must be trained. This requirement is met if the worker or handler:

1. has been trained within the last 5 years as a WPS handler or WPS worker, even if he or she has changed employers, OR

2. is currently a certified applicator of restricted-use pesticides, OR

3. is currently trained (as specified in EPA's certification and training regulations) as a handler who works under the supervision of a certified pesticide applicator.

How To Conduct Training?

1. Anyone who conducts worker or handler training must:

   a. use written and/or audiovisual materials,
b. present the training orally or audiovisually,
c. present the information in a manner that the trainees can understand, using a translator, if necessary,
d. respond to trainees' questions.

2. WPS training for workers must include at least the following information:

a. Where and in what form pesticides may be encountered during work activities.
b. Hazards of pesticides resulting from toxicity and exposure, including acute effects, chronic effects, delayed effects, and sensitization.
c. Routes through which pesticides can enter the body.
d. Signs and symptoms of common types of pesticide poisoning.
e. Emergency first aid for pesticide injuries or poisonings.
f. How to obtain emergency medical care.
g. Routine and emergency decontamination procedures, including emergency eye flushing techniques.
h. Hazards from chemigation and drift.
i. Hazards from pesticide residues on clothing.
j. Warnings about taking pesticides or pesticide containers home.
k. An explanation of the WPS requirements designed to protect workers, including application and entry restrictions, design of the warning sign, posting of warning signs, oral warnings, availability of specific information about applications, and protection against retaliatory acts.

2. WPS worker training materials must use terms that the worker can understand.

3. You should have documentation listing the WPS worker training materials used to provide the required WPS worker training. This is not required but will help you in the event of an inspection.

The EPA has an extensive WPS - web site at http://ipmwww.ncsu.edu/safety/epawps_intro.html#CONTENTS, this site provides almost all the information you need to comply with the WPS training requirements.

Feel free to contact your County Extension Office for more information on WPS.

Agricultural Terrorism?

Both the President and many experts outside his administration have indicated that should a second terrorist attack occur, it could be in the form of chemical or biological weapons. You can do your part by being diligent in establishing and maintaining appropriate security measures to ensure that all people, products and animals flowing into and out of your operation remain as safe as possible from contamination.

Conduct a security review of your farm or facility including your structures, parking areas, personnel who have access to your properties, alarm systems, emergency power systems, employee/visitor identifications, communications, perimeter security, and contingency plans.

Agriculture Commissioner Charles Bronson has suggested several strategies for protecting agricultural products from contamination as a result of terrorist-related activities.

These strategies include:

- Make certain you have a list of all emergency contacts and numbers and ensure appropriate posting and notification in your firm.
- Review your internal security, safety procedures, and provide training to personnel.
- Ensure plans and procedures are in compliance with local, state, and federal requirements.
- Report all suspicious activities, vehicles, or persons.
- Report all threats on personnel and facilities.
- Report all thefts, inventory shortages, or missing products that could pose a public health or safety risk.
- Report all burglaries, sabotage to facilities or equipment, and all vandalism or activities that may pose a safety or security risk.

Should you suspect any problems, or discover evidence of tampering, trespassing, etc., immediately contact the state Agriculture Department at (800) 342-5869.

For more information, visit the Division of Emergency Management Web site, [http://floridadisaster.org/bpr/emtools/severe/terrorism.htm](http://floridadisaster.org/bpr/emtools/severe/terrorism.htm)

**Produce Association To Form Food Security Task Force**

The United Fresh Fruit & Vegetable Association has announced it is forming a new Food Security Task Force to coordinate the industry's overall support for anti-terrorist actions and to ensure the security of the fresh produce supply. The task force will bring together representatives from each of United's policy councils, who in turn will work with members of the association's Allied Association Council, which includes association representatives from all parts of the North American produce industry. Tim Shaheen, chief executive officer of Sun World International, has been appointed to head the new task force. "We have to ensure that our industry has the proper tools to maintain the abundant, safe and affordable supply of fresh produce that Americans enjoy today," Shaheen said.


**Websites**

**National Biological Control Institute** – This USDA/APHIS website is aimed at fast-tracking biocontrol by promoting, facilitating, and providing leadership for Biological Control. Go to [http://www.aphis.usda.gov/ppq/nbci/](http://www.aphis.usda.gov/ppq/nbci/)

**The Council for Biotechnology Information** – Food and agricultural biotechnology has the potential to provide more and better food for a growing world population while helping protect and sustain the environment. This website is committed to providing objective, balanced information to promote better understanding and appreciation of the benefits biotechnology offers, as well as to encourage informed debate about the issues it raises. Set your browser to [http://www.whybiotech.com/](http://www.whybiotech.com/)

**Nematodes as Biological Control Agents of Insects** – This University of Nebraska site presents information on how entomopathogenic nematodes can be used as biological agents of insects and the taxonomy and systematics of these nematodes. Visit [http://nematode.unl.edu/wormepns.htm](http://nematode.unl.edu/wormepns.htm)

**Dumb Criminal Acts** - While most of us realize that criminals aren't usually the brightest people, some just stand out, or ...sink below, the rest. Get the straight skinny at [http://www.dumbcriminalacts.com/](http://www.dumbcriminalacts.com/) and try not to laugh to hard.

**Hysterical Research**

After much careful research, it has been discovered that the artist Vincent Van Gogh had many relatives. Among them were:

- His obnoxious brother, Please Gogh
- His dizzy aunt, Verti Gogh
- The brother who ate prunes, Gotta Gogh
The brother who worked at a convenience store, Stop n Gogh
The cousin from Illinois, Chica Gogh
His magician uncle, Wherediddy Gogh
His Mexican uncle, Amee Gogh
The Mexican cousin's American half brother, Grin Gogh
The nephew who drove a stage coach, Wellsfar Gogh
The ballroom dancing aunt, Tan Gogh
A sister who loved disco, Go Gogh
The bird lover uncle who lives in Florida, Flamin Gogh
A bouncy nephew, Poe Gogh
and finally a niece who travels to Florida every winter, Winnie Bay Gogh!

Southwest Florida Vegetable Pest and Disease Hotline is now the South Florida Vegetable Pest and Disease Hotline

You may have noticed that the name of the hotline has changed to the South Florida Vegetable Pest and Disease Hotline. In response to numerous requests from readers and in an effort to better serve growers and the vegetable industry, we are expanding coverage of the hotline to include southwest Florida and eastern Palm Beach County. We hope to further expand our coverage over the next few weeks to include all of South Florida. Comments and suggestions are appreciated. Let us know what you think.

Contributors include: Joel Allingham/AgriCare, Inc, Karen Armbrester/SWFREC, Jim Connor/SWFREC, Bruce Corbitt/West Coast Tomato Growers, Fred Heald/Farmers Supply, Sarah Hornsby/AgCropCon, Cecil Howell/H&R Farm, Bruce Johnson/General Crop Management, Leon Lucas/Grades 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, Nancy Roe/Farming Systems Research, Wes Roan/6 L's, Kevin Seitzinger/Gargiulo, Jay Shivler/ F& F Farm, Ken Shuler/Palm Beach County Extension, Ben Stanaland/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/Gulf Coast Ag.

The South 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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