Cool dry conditions have dominated weather patterns over Southwest Florida for the past two weeks. Skies have been mostly sunny and clear and temperatures seasonably moderate with temperatures running 1 - 4 degrees below normal.

The fall season has been abnormally dry with most locales reporting no measurable precipitation or only a trace of rain since the first week of October. The FAWN Weather Station in Immokalee has recorded a total of 0.01 inches of rain for the month of November. Favorable weather has greatly reduced many disease problems. One respondent pointed out that many second tie tomato plantings have not yet been rained on!

The top soil moisture indices for most of the area is short to very short and growers are irrigating steadily to maintain favorable moisture conditions. Penman evapo-transpiration has ranged between 0.100 and 0.129 for the past few weeks.

Daytime temperatures for the period were in the low to mid to upper 80’s with nighttime temperatures fluctuating in the middle to upper 50’s and low 60’s. A mild cold front caused a slight dip in temperatures on November 15th. Warm days and cool nights have been favorable for crop development.

The National Weather Service extended forecast for the next seven days is for cool dry weather and partly cloudy skies with highs in the low to mid-80’s with lows in the mid 60’s through Monday. On Tuesday, a cold front will drop down over the peninsula bringing a chance of showers and breezy conditions. Through Thursday, predicted highs will only reach near 70 and nighttime lows will be in the lower 50's and possibly the upper 40's in some areas.

Planting is going well throughout SW Florida. Cucumber and squash plantings are winding down. Plantings of eggplants, pepper, potato, tomato and other crops remains steady. Acreage of most crops is similar to last year although there has been a significant fall in tomato acreage reported across the state.
Growers are laying plastic, staking and tying crops, and spraying to control insects and disease. Most reports indicate crops in fair to good condition. Picking of beans, cucumbers, eggplant, peppers, squash, tomato and watermelon is underway.

Immokalee Weather Summary

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Leafminer populations are beginning to increase across the area. A number of respondents have indicated that they have reached threshold levels in tomato and that they are now spraying Agrimek to maintain control. Leafminers are also being seen at lower levels in cucurbits and beans.

The vegetable leafminer (Liriomyza trifolii y sativae) larvae mine between upper and lower leaf surfaces, creating the familiar winding, whitish tunnels that are initially narrow, but then widen as the larvae grow. Heavy leafmining damage can reduce photosynthesis and cause leaf desiccation and abscission.

Liriomyzid leafminer adults are small, shiny, black flies with a bright yellow, triangular spot on the upper thorax. Eggs are white and oval and laid within the leaf. There can be many generations a year.

A number of natural enemies, primarily parasitic wasps, often control leafminers. If these parasites are killed by pesticides leafminer outbreaks may become more severe.

Regularly check crops for stippled leaves and leaf mines. Adult females use their ovipositor to tear holes (stipples) in upper leaf surface for feeding and laying eggs. Most mines occur on older bottom leaves. If leafminer populations build to high levels, a chemical treatment may be necessary. Action thresholds for tomato given in the Florida Tomato Scouting Guide are 0.7 larva/plant from the 0-2 true leaf stage and above the two true leaf stage 0.7 larva/3 terminal leaflets. Growers should avoid the use of harsh chemicals to control other insects if possible to help preserve beneficial populations.

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. There are a number of other labeled materials that will give good control.

Worm pressure appears to be diminishing as the season progresses.

Melonworms continue to be a problem on cantaloupe, cucumbers and squash from a number of locations at this time. Reports indicate that populations remain high but Bt's, Confirm, Spintor and pyrethroids are giving good results.

Several respondents have indicated scattered problems with tomato fruitworms.

Growers and scouts are reporting sporadic low to moderate pressure from beet and southern armyworms. Low numbers of armyworm egg masses and adults continue to be observed indicating that continued vigilance is warranted to prevent possible crop damage. Beet armyworms are more prevalent on pepper, while reports indicate that southern armyworms make up the majority of the worms identified in tomato.

Reports indicate continued high levels of fall armyworm in sweet corn.
**Winged aphids** are being encountered widely across the area in a wide variety of crops.

**Whiteflies remain at fairly low levels across SW Florida.** Most respondents are now reporting counts below one per plant for the most part. For the most part Admire seems to be keeping whitefly and aphids under control.

A few isolated reports of flower thrips have been reported in pepper. Numbers are low.

**Broad mites continue to be reported widely in pepper from a number of sites.** They have also been seen in eggplant. Pepper and eggplant producers are advised to be on the look out for this pest. There are indications that numbers and incidence may be declining.

Growers have reported good control with a number of products including sulfur, Agrimek, Kelthane and oil. Some respondents have indicated success, using Trilogy to control broadmites. In all cases, frequent treatment is necessary to break the cycle of egg production.

**Widespread reports of pepper weevil are being received in the past few weeks.** Populations are low but growers report finding adults in traps and feeding on pepper blossoms. A few reports of dropped fruit with weevil larvae inside has been received.

**Dry conditions over the past month have bought several reports of red spider mites on tomato and eggplants.** Initial infestations tend to occur in fields bordering weedy fields or grassy areas. Field perimeters and corners tend to exhibit the earliest symptoms of infestation. Dispersal over a wide area occurs when spider mites are carried on a balloon of their webbing by the wind. When environmental conditions are hot and dry - spider mites can multiply rapidly and become a pest in a wide range of vegetable crops.

In making an assessment of a spider mite infested field, it is important that one recognize the early signs of mite feeding, which is the stippling or speckled effect that initially appears on the foliage when foliage is still green. When conditions are optimal for spider mite outbreaks, early detection facilitates timely and effective treatment. For detection of spider mites, a 10X to 15X magnifying glass is a necessity. Examine the undersides of the leaves closely for mites, cast skins and webbing. A more efficient technique is to place a sheet of white typing paper beneath the leaves and strike the foliage sharply. The mites will fall onto the paper and can be more easily observed and identified than on the green foliage.

Predators are very important in regulating spider mite populations and should be protected whenever possible. Important genera include the predatory mites, Amblyseius, Metaseiulus, and Phytoseiulus, the lady beetle, Stethorus, the minute pirate bug, Orius, the thrips, Leptothrips, and the lacewing larvae, Chrysopa.

Favorable growing conditions have mitigated against any widespread disease problems.

There are scattered reports of low levels of target spot and early blight in tomato but no reports of any significant outbreaks.

Most growers are reporting very low or non-existent new bacterial spot activity on peppers and tomatoes, although there are some lingering infections slowly progressing in some older plantings that were infected during wetter conditions in September and early October.

Growers should rotate fungicides to avoid the development of resistance as well as having a disease escape control. For example, cooper - mancozeb tank mixes commonly used on tomatoes for bacteria and other diseases will not give satisfactory control of certain fungal diseases such as target spot.
Scattered reports of downy mildew and powdery mildew have been noted on cantaloupes, cucumbers, squash and watermelon. In general, incidence and severity is low to moderate although in some older picked over fields both diseases are reaching serious proportions.

Downy mildew, caused by the fungus Pseudoperonospora cubensis, is found annually on squash, cucumbers, pumpkins, and muskmelons. Downy mildew can reduce yield, fruit quality, and harvesting time. Downy mildew can kill plants if plants are severely infected early. It does so by leaf infections, which impair necessary food production in the plant. Late season infections often signal an excuse to buyers for reduced prices because of alleged reduced sugar content in the fruit.

Leaf symptoms can be used to diagnose downy mildew in the field in most cases. On cucurbits other than watermelon, small yellowish areas occur on the upper leaf surface. Later, a more brilliant yellow coloration occurs with the internal part of the lesion turning brown.

Usually the spots will be angular as they are somewhat restricted by the small leaf veins. When the leaves are wet, a downy white-gray-light blue fungus growth can be seen on the underside of individual spots (lesions). On watermelons, yellow leaf spots may be angular or non-angular, and they will later turn brown to black in color. Often on watermelons, an exaggerated upward leaf curling will occur.

Good photos and field diagnostics for downy mildew and other cucurbit foliar diseases can be seen on the North Carolina State University website at http://www.ces.ncsu.edu/depts/pp/cucurbit/disease/disease.htm

Downy mildew inoculum is always present in southwest Florida and preventative applications of labeled fungicides are recommended.

Gummy stem blight has been noted on watermelon. Incidence and severity is low.

Scattered incidence of fusarium wilt and crown rot is being reported in tomato.

Tomato yellow leaf curl virus is widely present at low levels across the area. In most cases incidence is very low with only an occasional infected plant every few of acres present. There are a few reports where in older fields that have already been harvested where disease incidence is approaching 1%. Growers are universal in their use of Admire and whiteflies remain at low levels in most fields limiting the potential for spread.

Growers should be prepared to use alternative whitefly control measures including IGR's as Admire begins to where 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.

In addition to TYLCV, respondents are reporting isolated cases of mosaic in squash and melons. Incidence is low in most fields.

Growers are also reporting low levels of potyvirus and tobacco mosaic virus on tomato and pepper mosaic and potyvirus on peppers.

Potyviruses are aphid-vectored viruses. Use of labeled insecticides to manage aphid populations is important. The use of JMS stylist oil can help reduce transmission from infected aphids. Destruction and incorporation of infected plantings following harvest is an important cultural control measure. Reflective mulches have been shown to have some efficacy in reducing the incidence of these diseases, as has isolation of production fields using non-susceptible crops.
**Tobacco mosaic virus is seed and mechanically transmitted.** Seed should be treated with anti-viral compounds. Growers should avoid moving equipment and personnel between infected and non-infected fields where possible. Pruning tools and hands should be disinfected with 70% alcohol or other labeled personal disinfectant before handling plants. This disease may be present on tobacco products, therefore growers should not smoke when handling plants and disinfect hands after smoking. A two year rotation between susceptible crops should be observed.

**Tomato Dump Tank Advisory**

Dr Steve Sargent, UF/IFAS Post Harvest Specialist in Gainesville has passed on these observations based on several recent packhouse visits in various parts of the state. At one location, the packer had an automated chlorine/pH monitoring system, and a man monitoring the dump tank each 30 minutes for water temperature, pH and milliVolt reading, but not for free chlorine. When the water was checked, there was NO free chlorine present, despite all of these precautions.

Visits to two other packers in another part of the state revealed that both had virtually NO chlorine, despite the presence of sophisticated monitoring/injection systems. In all three of these instances there was no double-check by reading actual free chlorine concentration.

Steve suspects that it is quite possible that other packers may run into the same situation by relying solely on the automated equipment.

He recommends that packers continue to install and use automated monitoring systems for chlorine/pH to maintain the following UF-IFAS recommended dump tank water conditions:

- free chlorine in the range of 100-150 PPM
- pH from 6.8-7.2
- water temperature heated 10F above tomato incoming pulp temperature.

However, since some automated monitoring systems attempt to correlate mV readings with actual chlorine concentration, it is critical that these systems be checked regularly by measuring actual free chlorine concentration in the dump tank water. Packers should not rely only on the digital readouts from these systems, but must also measure and record the above parameters at least hourly as part of their overall quality control program. Sensors can get out of calibration or become fouled by dump tank water. Packers should work with their equipment suppliers to ensure the systems are functioning reliably throughout the entire packing day and during the packing season.

As per previous recommendations, Steve continues to recommend changing dump tank water daily, and sanitizing the empty tank and packing line daily with steam or quaternary ammonia to avoid buildup of biofilms. The recently published *Florida Vegetable Production Guide* (2000 Edition) has an updated chapter by Sargent, Ritenour and Brecht that covers post-harvest sanitation in greater detail.

**Publications available**

The Hendry County Extension Office has copies of the following publications available:

- 2000 Florida Tomato Institute Proceedings
- FACTS 2000 Proceedings
- Vegetable Production Guide for Florida
- UF/IFAS Vegetable Variety Trial Results in Florida for 1999
- Best Management Practices for Agrichemical Handling and Farm Equipment Maintenance
Product Updates

Zeneca has divested Tillam, Ro-Neet, and Sutan herbicides to the Tri-Ag Cedar Chemical Corporation as of October 10, 2000. A joint press release concerning the details is expected soon.

Vegetable producers are risk from FQPA because many of EPA's concerns focus on produce. In addition vegetable crops represent a relatively small financial incentive for pesticide companies. You owe it to your self to keep informed. Keep in touch at http://www.epa.gov/opppsps1/fqpa/

The Environmental Protection Agency held a technical briefing on November 9th on the organophosphate (OP) pesticide malathion. Malathion is one of the most widely used OPs in the country with over 100 agricultural and non-agricultural uses.

The EPA proposed the following risk mitigation ideas for public comment:
(1) To Reduce Residential Exposure - decrease turf application rates, eliminate the use of handwand use for turf or delete residential turf use.
(2) To Reduce Worker Exposure - Increase levels of personal protection equipment and engineering controls as needed, increase reentry intervals for most crops.
(3) To Reduce Ecological Exposure - create buffer zones, lower application rates, specify number of applications, specify application intervals, revise application methods.
(4) To Reduce Homeowner Concerns - Strengthen storage containers and packaging material.
(5) To Reduce Dietary Exposure Concerns (even though no dietary risk concerns exist) - delete the agricultural uses listed above.

Comment on the mitigation recommendations for malathion by sending comments to: U.S. EPA, OP Pesticide Docket (7502C), 401 M Street, SW, Washington, D.C., 20460, or by e-mail at opp-docket@epa.gov
The comment period closes January 9, 2001

Gramoxone now has a supplemental label for use on tomatoes for post-harvest burn-down application. This use was denied by EPA last year which inconvenienced many growers and deprived them of a potential method of cleaning tomato fields in a timely fashion for the control of TYLCV and eliminating shelter for the virus's whitefly vector.

Although it was reported in a previous issue that BOA, a paraquat product from Griffin LLV, had this application on it's label, I would like to thank Bob Gregg, who pointed out that it was Zeneca, who had the original label on this compound, who took the lead on this change of labeling to allow tomato burndown.

Quadris fungicide from Zeneca now has an expanded label which includes bulb vegetables, carrots, celery, corn, cucurbits, leafy vegetables, potatoes, vegetable -leaves of the root and tuber group, vegetables - root subgroup and vegetables - tuberous and corm subgroup.

EPA has ruled that cilantro may be considered to be Chinese parsley. Since a tolerance for Lorox has been established for parsley, this tolerance also applies to cilantro. This does not necessarily mean that Lorox may be legally used as herbicide on cilantro. Wording on the labeling may or may not rule out such an application.
Pesticide Record-keeping Benefits and requirements

**BENEFITS**

**Evaluate effectiveness of controls.** Use your records to analyze your pest management programs: what works and what doesn't. Evaluate pesticide or other control effectiveness.

**Resolve pesticide failures.** If reduced pesticide product performance occurs, record information will help you determine the cause such as pest resistance or use of the wrong application rate.

**Improve you ability to buy the right amount of pesticide.** Records will help you buy the correct amount of pesticide the following year. You'll save money and eliminate excess pesticide disposal problems.

**Provide buyers with required records of pesticide use.** Some produce and grain buyers now require a report on pesticides used on the crop. Nurserymen must document certain preventative applications before selling nursery stock.

**Improve crop rotation decisions.** With records, you know your crop rotation options. Some herbicides have restrictions on following crops.

**Determine Carryover injury.** If your fields exhibit pesticide carryover injury, records are necessary to evaluate the situation.

**Document your legal use of pesticides.** Records are your best defense if you are accused of an improper application that causes drift or personal injury.

**Provide necessary information in a medical emergency.** If an accident occurs, records may be necessary for medical personnel to give treatment.

**Support studies that identify critical pesticide registrations.** Through surveys, your records can contribute data needed to preserve pesticide registrations.

**Provide accurate data to respond to public concerns about pesticide use.** Your records can be added to national database that will accurately show pesticide use by farmers. Producer’s efforts to reduce pesticide use can be documented in the information.

**Be prepared for requirements of lending institutions.** Some lending institutions and buyers request field records to evaluate potential environmental liability when making land sales or loans.

**Be in compliance with the law.** The Florida Pesticide Law requires all licensed pesticide applicators to keep records of restricted use pesticides applied.

**RECORD KEEPING REQUIREMENTS**

The following information must be recorded for each application of a restricted use pesticide:

- Name and license number of licensed applicator
- Name of person who applied the pesticide (may be an unlicensed assistant)
- Date and time of treatment
• Location of treatment site using one of the following methods:

1. County, range, township, and section.
2. Maps and/or written descriptions that accurately identify the treatment location and distinguish it from other sites.
3. USDA identification system found in 7 CFR 110, which uses maps and numbering systems.
4. Legal property description.

• Crop, commodity, or target site treated

• Total size of area treated

• Brand name and EPA Reg. No. of product applied

• Total amount of product applied

• Application method

• Name of person authorizing the treatment, if the application was made to property not owned or leased by the licensed applicator.

ADDITIONAL REQUIREMENTS

• The required pesticide application information must be recorded within 2 working days after application.

• Records may be kept in any format that includes all the required information and may be incorporated into other business records.

• It is not necessary to record repetitive information that applies to all records, as long as the information is recorded one time and there is a written record that this information applies to other application as well.

• Records must be kept for 2 years from application date and must be made available to authorized FDACS representatives upon request.

• Commercial applicators- must provide a copy of the application record to the person for whom the application was made within 30 days of application.

• Pesticide application records and any available label information must be provided to licensed health care professionals or their designated agents in the event of a medical emergency or if the health care professional determines the information is necessary to provide medical treatment to an individual who may have been exposed to a pesticide included in the record information.

VIOLATIONS

Licensed applicators that violate any of the above requirements are subject to a fine imposed by FDACS. Violators who are fined have the right to respond to the charges or request a hearing.

CONTACT

For more information contact the FDACS Bureau of Compliance Monitoring, 3125 Conner Blvd., Bldg.- 8 (L-29), Tallahassee, Florida 32399-1650, telephone (850) 488-3314.
Please indicate how many of each is needed:  

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Mail or fax order form to:  

FDACS / Ms. Ginger Hawkins  
3125 Conner Blvd., Bldg. 8 (L29)  
Tallahassee, FL 32399-1650  
Fax # 850-922-6961
Up Coming Meetings:

December 13, 2000  Fall Vegetable Field Day – 10:00 AM - Noon

SW Florida Research and Education Center
Hwy 29 N
Immokalee, Florida

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

Equipment for Sale

Green Cay Farm

- Allis –Chalmers 7010 Hi Crop – clean, good running condition.
- Allis Chalmers D-19 Hi Crop - belly mounted cross ditcher, good running condition clean.
- 10' Bush-hog/Kewaunee tandem disk – good blades.
- Signode Spirit 220V carton strapper with 20 rolls of strap.

Contact Ted Winsberg: Green Cay Farm at 561-499-5345.

Joiner & Son Farms, Inc

- 1987 38 Passenger International Bus-Diesel, $6,500.00
- 1974 Ford F700 2-Ton Flat Bed Truck, $4,500.00
- 1974 GMC C-90 Single Axle Tractor Truck 6-71 Diesel, $5,500.00
- 1991 Ford F-350 Automatic/Air Flat Bed Truck, $6,000.00
- 7- Truck mounted overhead irrigation Units w/Fiberglass Cabs, John Deere Power Units, with Cornell Pumps, 9,500 Each
- 2- 8" Hale PTO Pumps for sprinkler system, $4,500 Each
- 70 acres Wade Rain aluminum irrigation pipe/sprinklers, 6", 4", 3" with all connections, $1000 per acre
- 70 acres- 26" Rebar steel stakes, $Best Offer
- 2 Ft. Heavy Duty Double Axle Field Trailer, $1,400.00

Equipment is located in Homestead, FL, please call for appointment.

Joiner & Son Farms, Inc
PO Box 3420
Immokalee, FL 34143-3420
(941) 657-2312

Web Sites:

Interested in strawberry diseases and fungicides - check out the UF/IFAS Gulfcoast Research and Education Center at Dover Plant Pathology web site at http://strawberry.ifas.ufl.edu/pathinfo.htm

Quality Control Assay for Commercial Innoculants - are you interested in biological innoculants and arbuscular mycorrhizae? Many make various claims without any quality data available. Dr David Sylvia, UF/IFAS soil microbiologist has initiated a quality control assay program for AM products. A list of
commercial suppliers and test results can be seen at his web site at http://dmsylvia.ifas.ufl.edu/Commercial.htm. Unfortunately, only one company Plant Health Care, has opted to have their product tested - they passed. Makes you wonder about the others.

**Overview of Mycorrhizal Symbioses** - want to learn more about arbuscular mycorrhizae (AM), what they are and what they do? Mycorrhizae are symbiotic associations between plant roots and fungi. Mycorrhizal plants are often more competitive and better able to tolerate environmental stresses than are non-mycorrhizal plants. Dr David Sylvia, UF/IFAS soil microbiologist has an interesting site that will help you better understand this complex relationship - complete with slide show. http://dmsylvia.ifas.ufl.edu/mycorrhiza.htm

**The Beetles Official web site** - a collection of everyone of the 27 Beetles tunes that reached the top of the US or UK charts. It's been a hard days night …. http://www.thebeatles.com/

**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 0ber/C+B Farm, Dr. Pam Roberts/SWFREC, Wes Roan/6 L's, Kevin Seitzinger/Gargiulo, Jay Shivler/ F& F Farm, 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/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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http://www.ifas.ufl.edu/~gmcavoy/index.htm
Special Thanks to the generous support of our sponsors; who make this publication possible.

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