A second strong cold front passed through SW Florida on February 5 – 6th. This event, following right on an brush with disaster a week before, caused many growers another sleepless night as temperatures plunged into the low 30’s. Once again, temperatures in most areas hovered right at freezing on the morning of February 6th, and frost was widely reported through out the area, but once again crops were spared and no reports of any major damage were noted. Temperatures recorded at the Fawn Weather Station in Immokalee dropped to a low of 31.9°F, which persisted for about 15 minutes.

In general, temperatures have been several degrees below normal over the early part of the period, ranging in the mid-60’s to the mid-70’s in the day and the 30’s, 40’s, and 50’s at night. A warming trend over the past five days has returned day-time highs into the lower to mid 80”s providing much needed relief for crops whose growth had been checked by the prevailing low temperatures over the past 3 –4 weeks.

Mostly dry weather has prevailed over the past two weeks. A shower on February 6th with up to a half an inch of rain was reported in Devils Garden and areas in the eastern part of SW Florida. The FAWN Weather Station in Immokalee recorded a total of 0.01 inch for this event.

A comparison of weather data accumulated last season from November to mid February with this season for the same period is quite interesting. As we all know, this season has been quite a bit colder with 469.5 hours below 50°F this season as compared to only 206.8 hours last year. It has been much drier as well with only about 1/3 the precipitation recorded for the same period last year. This may result in problems as the season progresses. See the discussion on Managing Stress in Vegetable Crops on page 5 of this issue.

**IMMOKALEE Weather Summary - Source: FAWN Weather Station at SWFREC**

<table>
<thead>
<tr>
<th>Begin Date</th>
<th>End Date</th>
<th>Air Temp °F</th>
<th>Rainfall (inches)</th>
<th>Hours Below Certain Temperature (hours)</th>
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<td>Min Max</td>
<td>40°F 45°F 50°F 55°F 60°F 65°F 70°F 75°F</td>
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</tr>
<tr>
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<td>9.12 17.0 56.7 133.1 226.1 424.8 863.0</td>
<td>1377.6 1781.2</td>
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<tr>
<td>11/01/99</td>
<td>02/17/2000</td>
<td>32.9 86.5</td>
<td>2.92 44.1 136.6 288.9 469.2 783.6</td>
<td>1310.7 1805.9 2155.5</td>
</tr>
</tbody>
</table>
The **five-day forecast** calls for the passage of a mild cold front on Sunday. This front is expected to cause temperatures to dip back into the upper 70’s in the day and the low 50’s at night. Mostly clear skies should predominate over the next several day.

**Major vegetables harvested** during the week include tomatoes, peppers, cucumbers, snap beans, squash, sweet corn, and eggplant. **Although strong winds and cold weather** had set back a number of crops, warmer temperatures over the past several days have seen a marked improvement in growing conditions. Most crops should grow out nicely as conditions improve. **Insect and disease pressure** continues to be **very light**.

**Leafminer pressure** has remained **fairly steady** at **moderate levels** across the area. Pressure seems to be cyclical, displaying **a correlation to temperature** with pressure rising as temperatures moderate. In addition to tomato, leafminers have been active in cucurbits, peppers, potato, and other vegetables. **Pressure** has been particularly **severe** in areas where new plantings are in close proximity to old fall crops. A number of respondents have also noted heavy pressure following the harvest of beans in nearby fields. Most growers have indicated that a regular control program is allowing them to keep leafminers under control.

**Scattered reports of pinworms** in tomato continue to be received. Where present, **pinworm counts** of 5 – 10 moths per night are being seen. Many growers are reporting that they have not yet observed any pinworms to date. Growers should begin to apply controls once **thresholds of 5 adults per trap per night** are observed.

Respondents continue to report some **increase** in **silver leaf whitefly populations**. Most counts are still in the range of 1 – 3 whiteflies per plant, although there have been some higher counts of up to 10 whiteflies per plant in some cases. Although **recommended thresholds** are set at 10 adults/plant – **the presence of TYLCV suggests lower thresholds be used.**

**Moderate to high levels** of winged **aphids** continues to be reported across the area. **Sizeable populations** continue to be observed **in several crops** including eggplant, leafy greens, pepper, potato and melons. Colony formation has been observed in pepper.

**Broad mites** are still around **on pepper and eggplant** in **widely scattered** locations and there are continuing reports of persistent **flare-ups** here and there.

Several growers are experiencing problems with **spider mites** on eggplant, **tomato, as well as melons, cucumbers and other crops**. Occurrence is **sporadic** but **damage is low to moderate** in most cases.

**A few worms** continue to be seen here and there. Most growers are reporting **little to no worm pressure** at this time, although there have been **some reports of loopers, southern armyworms** and the occasional **beet armyworm** on some farms.

**Diamondback moths** are being reported in crucifers. **Damage** has been **light**.

Persistent reports of **melon thrips** continue to be received from east Naples. **Incidence is sporadic** and **damage minimal**.

**Pepper weevil** numbers have reached fairly high levels in some older plantings. Some respondents are beginning to note the appearance of weevils in young pepper.

**Late blight** is widely present on potato. Incidence is sporadic and damage is low. Growers have responded with an aggressive control program and little further spread of the disease has been noted. **No late blight** has been reported **on tomato**.

**TYLCV** remains **low**. Most growers are still seeing only isolated occurrences of **single infected plants here and there**.
The high incidence of tomato yellow leaf curl virus that had been reported on several farms in the Immokalee area has proven to be situations where whitefly control efforts had been curtailed due to low market prices. The lapse in control allowed whitefly populations to escalate with the resulting rapid spread of TYLCV. Such incidents underscore the importance of consistent whitefly control. Reports of increases in whitefly populations coupled with the report of several hot spots of TYLCV could easily set the stage for problems with the spring crop. Grower complacency resulting in any appreciable relaxation of efforts in could easily result in significant increases in the incidence of this disease in the future.

Early blight has been reported on tomato. Incidence and occurrence of foliar problems is low.

Some increase in bacterial leaf spot activity has been reported in parts of Devil’s Garden which received significant rain fall last week. Incidence is low and occurrence patchy. In general, however, problems with foliar diseases on tomato and pepper have been minimal.

Some alternaria leaf blight and gummy stem blight has been noted in watermelon. Incidence is low.

Several growers are reporting significant levels of fusarium crown rot on tomato. Damage is severe in some fields particularly, where water levels were bought up for frost protection and where fusarium has traditionally been present.

Fusarium wilt is being noted in potato. Incidence is sporadic.

Downy mildew is being reported on crucifers in several locations.

Attention: Tomato Growers – a number of folks missed this in the last issue of the SW Florida Pest and Disease Hotline.

Dr Norm Nesheim: Pesticide Information Coordinator at UF/IFAS, has passed on the following information from the Bureau of Compliance Monitoring of the Florida Department of Agriculture and Consumer Services regarding the legality of the use of Gramoxone to burndown tomato vines at the end of the growing season.

The Florida Department of Agriculture and Consumer Services recently submitted a request for determination to the Pesticide Section at EPA Region IV Office in Atlanta, Georgia who in turn contacted EPA Headquarters in Washington, D.C.

Question #1: Can Gramoxone be used as a burndown agent on tomato vines at the end of the growing season?

EPA: No. Gramoxone cannot be used as a burndown agent on tomato vines at the end of the growing season. There are other products registered that could legally be applied for this purpose. Please contact your local County Extension Agent for products legally labeled for use.

Question #2: Can the applicator consider the tomato field to be fallow between plantings in the same growing season and the tomato vines considered weeds?

EPA: No. The OPP Glossary defines fallow land in part as "cropland left idle during the growing season". In their opinion, the target site of the application does not meet the criteria as defined above. Therefore, use of Gramoxone as a burndown agent on tomato vines would constitute a misuse.
At this time, the only labeled material for burndown on tomato vines is Diquat. This is a SLN for Florida. Remember that the labeling must be in possession of the user at the time of application.

NOTE: Dr Phil Stansly has advised that there have been some changes to the KNACK Section 18 SLN labeling for tomato in Florida and Georgia. Please note that the label passed out at the growers meeting on Feb 16 was an old label! I have a copy of the new supplemental label if you need it!

Specifically: The dosage per acre, which was 6-8 fl. oz, has been changed to 8-fl. oz. The PHI has been reduced to 7 days. No more than two (2) Knock applications per growing season are permitted. The old labeling allowed 3 applications. Remember that the labeling must be in possession of the user at the time of application.

Up Coming Meetings:

February 23, 2000  Field Demonstration – 10 AM – 2 PM. Come see the Latest Equipment for Broadcast Application of Telone C-35/Tillam Southwest Florida Research & Education Center, Immokalee Refreshments provided - Come at your own convenience.

March 6, 2000  2000 POST HARVEST INSTITUTE - This year’s topic is “Innovations in Fresh Produce Transportation” – the conference will be held at the University of Florida in Gainesville as well as the Southwest Florida Research & Education Center (Immokalee) and other Research & Education Centers via live, video-conferencing. For more information, contact Ms. Abbie Fox, at 352-392-1928, ext. 235 or Gene McAvoy at 941-674-4092 for information about the Immokalee site.

March 8-9, 2000  Pesticide Applicator Training and Testing - 8:00 AM – 5:00 PM March 8 – CORE and Private Applicator March 9 – Ag Row Crop, Tree Crop and Aquatic Dallas B Townsend Agricultural Center, 225 Pratt Boulevard, LaBelle Registration begins at 7:30 A.M. A $5.00 registration fee will apply. This is a great opportunity for obtain CEU’s in CORE (3.5) and other pesticide applicator license categories. CCA/CEU’s will be offered as well. For more information, contact Sheila Griffith at 941-674-4092

March 15, 2000  "Selection and Management of Cover Crops in Vegetable Production" Southwest Florida Research & Education Center, Immokalee - 11:00 AM - Noon For more information, contact Gene McAvoy at 941-674-4092

March 22, 2000  Vegetable Growers Meeting – 5:30 – 7:30 PM Management of Cucurbit Diseases and An Overview of Phytophthora Blight of Pepper and Eggplant Southwest Florida Research & Education Center, Immokalee For more information, contact Gene McAvoy at 941-674-4092

March 25, 2000  Utilizing Organic Materials in Horticultural Production Systems Workshop Southwest Florida Research & Education Center, Immokalee – 10 AM – 4:00 PM 2 CEU and 5 CCA credits will be offered Reservations Required – Contact Pam Watson at 941-658-3405
Managing Stress in Vegetable Crops

**Plant stress** in vegetable crops can **often be triggered by excess fertilizer salts and hot weather**. Although we have enjoyed near perfect growing conditions from a disease standpoint, and most area crops are doing well, with excellent fruit set, below normal rainfall levels and hot dry conditions as the spring progresses may result in instances where fertilizer salts can become a problem, both in non-mulched crops such as beans, and in mulched crops such as tomatoes and watermelons.

**Plants vary in their sensitivity or tolerance to soluble salts in the soil solution.** The crops, which are the most sensitive include beans, carrots, strawberries and onions (threshold EC values around 1.0 dS/m). Moderately sensitive crops include pepper, corn, potatoes, cabbage, cucumber, and tomato (threshold EC 1.2-3.2). Moderately tolerant plants include beets and zucchini squash (threshold EC 4.0-4.7). (Knott’s Handbook for Vegetable Growers, 4th edition).

Usually it is not the salts themselves that are toxic, but the **reduction in water uptake**. As the soluble salt concentration in the soil increases, plants have a harder time extracting water from the soil solution. Variables such as plant age, soil type and environmental conditions also affect salt sensitivity; thus, soluble salts become more critical under the hot, dry and windy conditions we have seen this spring. Excess salts in irrigation water can contribute to the total salt problem, especially wells in coastal areas, or very deep wells, which can be affected by saltwater intrusion under unusually dry conditions. Where poor quality irrigation water is used or where there is a field history of salt problems, low-salt index fertilizers are less likely to aggravate the problem.

**Fertilizer rate and placement** can affect soluble salt problems, which are then magnified under drought conditions. Following recommended fertilizer guidelines and paying careful attention to placement can minimize problems. In the absence of rainfall to either dilute or leach fertilizer salts down past the root system, what can be done? Typically, soluble salts are less of a problem with drip irrigation systems because lower amounts of in-bed fertilizer are used due to the ability to fertigate. In addition, with drip irrigation the movement of soluble salt laden water is down and away from the plant. In seep or subsurface systems, the movement of water is upward, towards the highest point of the bed, which is typically the plant hole. As water is evaporated from the soil surface around the plant, salts become more concentrated around the plant root system. For this reason, lowering the water table by pulling deeper ditches can be a double-edged sword. While some salts may move with the water as it drops lower in the bed or below, the salts that are left will concentrate as the soil dries. Conversely, raising the water table may also defeat the purpose as additional fertilizer salts will be solubilized. (Note, we have already begun to see some of these problems begin to crop up around SW Florida this season.)

A related problem that is often associated with high soluble salt levels is **blossom end rot**. Blossom end rot occurs when there is a lack of calcium in fruit tissue. Because calcium moves with water in the transpiration stream, anything which stresses roots and impedes water uptake will also limit calcium uptake, including too much water, too little water or high soluble salts.

Another problem that may be seen on tomatoes which is also related to the weather is a phenomenon termed **physiological leaf roll**. Under conditions which maximize photosynthesis (i.e. warm, very sunny days), excess carbohydrates build up in leaf tissue and cause the plants to become somewhat leathery, and leaves roll upward. Although normally seen on older, lower leaves, in a few cases leaf roll has been severe with the entire plant affected. Excessive fertilizer levels aggravate this condition, as does high N rates. It also seems to be worse in plants that have been pruned heavily. Usually, it does not cause too much problem with yield and quality. One exception might be some sun burning of exposed fruit on severely affected plants.

(Excerpted from P. Gilreath, Vegetarian 5/99)

**Web Sites:**
Peaceful Valley Farm Supply – tools and supplies for organic farmers and gardeners since 1976. Seeds, fertilizers, beneficial insects, hard to find warm season cover crop seed and more. Point your browser to http://www.groworganic.com

Electronic Newsletters:

Florida-Crop-Weather News – a free summary on weather and crop conditions in Florida. The crop-weather summary is prepared weekly by the USDA, National Agricultural Statistics Service in Orlando. To subscribe: send an email message to nass-state-releases@news.usda.gov with the following message: “subscribe fl-crop-weather”.


Sanet-mg-digest – This is an alternative/sustainable agriculture discussion list supported by the USDA and hosted by NC State University. The information ranges from useful to way out. It is an interesting insight into the world of alternative agriculture – wow! To subscribe to the digest: email majordomo@ces.ncsu.edu with the following message “subscribe sanet-mg-digest”. Be forewarned - these folks may not grow a lot of food but they do generate pages of discussion daily.

Contributors include: Karen Armbrester/SWFREC, Jim Connor/SWFREC, Bruce Corbitt/West Coast Tomato Growers, Marty Gross/SWFREC, Ed English/Pacific 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 Obern/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.

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.

Gene McAvoy
Extension Agent II
Vegetable/Ornamental Horticulture 941-674-4092 phone
Hendry County Extension Office 941-860-8811 mobile
PO Box 68 941-674-4097 fax
LaBelle, FL 33975 gmcaovoy@gnv.ifas.ufl.edu

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**Manatee Fruit Company**  
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**Agricultural Crop Consulting, Inc**  
Scouting: Manatee, Hillsborough, Collier  
Office/Fax 941-776-1122  
Cell 941-713-6116  
Email: [AgCropCon@aol.com](mailto:AgCropCon@aol.com)

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