May 19, 2000

Hot weather has arrived in Southwest Florida over the past two weeks. With the exception of the early part of the period which saw a few nights in the 50’s, nighttime temperatures have not fallen below the mid to upper 60’s, while most days have seen the mercury soar to the upper 80’s and low 90’s.

Rainfall has been extremely variable over the past two weeks. The FAWN Weather Station in Immokalee recorded no precipitation for the period. Respondents in other areas have reported between a few tenths of an inch to over 4 inches falling in widely scattered showers. Total accumulation appears to have been highest along the coast, with lesser amounts in interior regions. High winds and hail associated with storm cells resulting in severe crop damage were reported in localized areas.

Hot breezy conditions have resulted in evapo-transpiration rates ranging from 0.19 to 0.25 inches. Many growers have reported observing plants suffering from mid-day moisture stress on most afternoons.

Although some growers have reported relief from recent showers, many growers continue to report difficulty in irrigating. Any benefit from recent showers was short-lived and many growers indicate that they are running their irrigation pumps around the clock in an effort to maintain adequate soil moisture for optimum plant growth. Hot dry weather is having an adverse effect on many crops with plants beginning to decline from the heat. A number of growers have indicated that this season has been one of the driest in recent memory.

The National Weather Service extended forecast for the next five days calls partly cloudy conditions with highs in the low 90’s and lows in the upper 60’s. The chance for scattered afternoon showers and thunderstorms will improve on Sunday and continue through Tuesday. Although scattered afternoon showers have been rumbling around the area for the past few weeks, forecasters predict chances are good for continued drought over the next several weeks.

WISHING YOU ALL A SAFE AND RESTFUL SUMMER
Disease and insect pressure has been low to moderate with the exception of scattered hot spots.

The watermelon harvest has peaked and harvesting of many other crops has slowed seasonally. Harvesting of most fields is expected to be over in the next few weeks as the season rapidly winds down. Workers are removing stakes and strings from acreage completely picked and mowing or burning down plants. Major vegetables harvested during the week include tomatoes, peppers, okra, cucumbers, snap beans, squash, sweet corn, eggplant and watermelon.

Due to the proximity of the end of the season and low commodity prices for many crops, spraying has virtually ceased in many fields. As a result, whiteflies have reached very high levels in a number of fields. There have been some isolated reports of honeydew and sooty mold appearing on melon rinds.

Spider mites continue to be active in several crops. Several growers are experiencing problems with spider mites on eggplant, tomato, as well as melons, cucumbers and other crops. In most instances, infestations are largely confined to drier dusty areas along roads and field margins, although there have been some reports of more serious infestations. Occurrence is spotty and damage is low to moderate in most cases.

Melonworm and pickleworms are very active on cucurbits. For the most part, respondents indicate that they have been able to remain on top of the situation and damage has been minimal. Phil Stansly reports that in his spring trials on cantaloupe all the so-called “rindworm” damage often associated with various other worms such as armyworms, was actually caused by pickleworms and adds that he suspects that most of the “rindworm” damage observed by growers might also be due to pickleworm.

Broadmites are being reported in pepper and eggplants. Occurrence is sporadic and damage low.

Growers are trying to stay ahead of worms as the season winds down. Growers are reporting scattered outbreaks of southern armyworms, beet armyworms, loopers, and tomato fruitworms as well. Armyworms are active in tomatoes, peppers, crucifers, cucurbits and a number of other crops.

Pepper weevil numbers remain at high levels in many locations. In a number of cases, they have moved into new fields causing damage in young plants including damage to foliage and growing points and weevil larvae have been observed in dropped flower buds in pepper that is just starting to set fruit. Many growers are battling to remain in control of the situation.

Pinworms remain active and several respondents have indicated very high pest pressure. Despite this, there have been few reports of fruit damage.

A rise in stinkbug activity has been reported in tomato. Damage has been minimal.

TYLCV continues remains low. Most growers are still seeing only isolated occurrences of single infected plants here and there. Incidence remains well below 1% in most cases.

A TYLCV resistant tomato variety trial currently underway at SWFREC, in Immokalee, has shown some promising results. This trial is part of a series of TYLCV-Resistant Variety Trials conducted in Manatee and Hillsborough Counties and at the Gulf Coast Research and Education Center (GCREC) in Bradenton as well as Palm Beach County. The goal of these trial is to compare the performance of 6 new Tomato Yellow Leaf Curl Virus (TYLCV)-resistant varieties with several known TYLCV susceptible cultivars that are widely planted in the industry.
The trials coordinated by Dr. Jane Polston, in cooperation with a number of extension and research faculty, evaluated included two lines from PetoSeed, (Ps 150535 and Ps 150420), and four from Hazera, (HA 3017A, 3017B, 3044 and 3048). Standard varieties were Sanibel, FL 47 and Leila.

Although, there was very little virus pressure in the Manatee/Hillsborough and Palm Beach trials, observations of yield data were obtained. In the Bradenton trial, there was no significant difference in early yield for any variety, except Ps 150420, which was lower than that of Ps 150535, Sanibel, FL 47 and HA3017B.

Yields of extra large fruit from the first harvest ranged from 456 - 25 lb. cartons/A for Ps150420 to 683 cartons/A for HA3017B. Yields were comparable for other sizes and for total early marketable yield. When the 3 harvests were totaled, there was no significant difference in extra large fruit production. Total marketable yield was highest for HA 3017B at 2399 cartons/A, but was not significantly different from Sanibel or HA3017B.

In the Palm Beach trial, the highest yield of extra large fruit at first harvest was obtained from Ps 150535 with 206 cartons/A, but it was not significantly different from Sanibel or FL47. The same was true for total early yield. When the four harvests were totaled, the highest extra large fruit yield was with Sanibel, but it was not significantly different from Ps 150535. The same was true for total marketable yield, with 2120 cartons/A for Sanibel. In both trials, the highest yielding varieties all had acceptable horticultural characteristics.

In Immokalee, preliminary observations, based on plants, which have been in the field approximately 2 months, are exciting. Virus pressure is very heavy as plots were inoculated by planting infected plants between each treatment. The susceptible cultivars are 100% infected, with symptoms initially appearing after three weeks and spreading rapidly. To date, the resistant lines have shown little to no infection. Plants will be harvested and evaluated for yield and horticultural characteristics.

In nearby insecticide trials evaluating various materials for the control of TYLCV, through the control of the silverleaf whitefly vector, the best plots resulted in an approximately 20 % infection rate.

Of the varieties tested, Ps 150535 is expected to be available commercially and is now being evaluated in some areas. Although it performed well, Peto feels it more suited as a spring tomato. Ps150420 is still in pre-commercial stages. Contact your Peto representative for additional availability information.

Hazera indicates that they have one line, HA3057, which is currently in initial commercial introduction. Although not one of the lines evaluated in these trials, HA3057 is very similar to the 3017 lines with reportedly an even higher level of resistance. Modest quantities will be available for growers to trial. For additional information or seed availability, contact Glenn Kaufman at 561-221-0653. Note: Thanks to Phyllis Gilreath, who provided much of this information, in her recent piece in the UF/IFAS Vegetarian.

Respondents have reported the occurrence of powdery mildew in watermelon. Incidence is sporadic and damage low. Powdery mildew is also widely present in zucchini and yellow squash particularly in older fields.

Powdery mildew has also been reported in pepper and tomato. In some pepper and tomato fields, disease pressure and severity has resulted in growers initiating control measures.

Downy mildew is being seen widely on cucurbits in a number of locations throughout the area across the area. Recent rains have flared the disease in some areas. The disease is present on cucumber, muskmelon and watermelons. Spread is being assisted by harvest operations, more favorable conditions and reduction in disease control efforts.
Early blight (Alternaria sp.) and target spot has been reported on tomato. In general, incidence and occurrence is low to moderate, although in some older planting, disease incidence has reached high levels where spraying has been reduced and the size of the bush and harvesting is complicating control efforts.

There has been some localized increase in bacterial leaf spot activity on pepper and tomato. As might be expected problems have been greatest in areas most affected by recent rains and foggy mornings. Incidence and damage is low and occurrence patchy.

Recent rains caused gummy stem blight to flare up on watermelon in a number of locations. Occurrence is more widespread than in past reports. Incidence is low to moderate in some fields.

Powdery mildew and mosaic is widely present in squash across the area. Incidence and damage is variable. Problems are generally most severe in older plantings.

Watermelon mosaic on watermelon is being reported from several widely scattered sites. Incidence is low and most fields are in such an advanced state of maturity that mosaic is unlikely to have a serious impact on production.

Fusarium wilt is being reported widely on watermelon across the area. Some plantings have been hard hit. This is not surprising, as many growers have been producing melons for many years on the same piece of ground. In addition, there has been a strong trend toward the production of seedless cultivars, which do not have fusarium resistance.

Fusarium crown rot continues to affect tomatoes in areas where fusarium has traditionally been a problem.

As we approach the end of the spring season, it is not too early to start thinking about and even implementing your fall season IPM program. With all the advances in pest management, new chemistries and space age spray rigs, it is often easy to overlook some of the basics.

Field sanitation is one of the most important tactics in vegetable pest and disease management. The best thing that growers can do for themselves and their neighbors is to clean up crop residues promptly after harvest. Sanitation is an important IPM technique that should not be over looked as an effective, preventative tool against many vegetable pest and disease problems. Sanitation includes any practice that eradicates or reduces the amount of pathogen inoculum, pests, or weed seeds present and thus helps reduce or eliminate subsequent pest and disease problems.

Prompt crop destruction at the end of the season will immediately end the production of disease inoculum and insects and eliminate the spread of diseases and pests to any other host plants in the vicinity. Downy and powdery mildew on melons can spread via wind from older, diseased plants to plants in surrounding fields that are still maturing. These diseases are obligate parasites. This means that they can only grow and multiply on living host tissue. Some plant pathogens, such as the bacterium that causes bacterial spot of tomato and pepper, are unable to survive for extended periods of time outside of the host tissue. Plowing or disking under infected plant debris helps not only by covering up the inoculum but also speeds up the disintegration of plant tissue and kills the pathogen. Good sanitation will help control a number of important vegetable pathogens.

Destruction of tomato vines will kill off white fly populations and eliminate transmission of the tomato yellow leaf curl virus to subsequent crops and also eliminate inoculum from late blight and other fungal diseases. This is particularly important in the case of TYLCV, as sanitation and whitefly control are the only tools currently available for the management of this disease. A crop-free period is also considered a necessity for the control of a number of other important vegetable pests such as pepper weevil, tomato pinworm, and Thrips palmi and is
recommended for management of all vegetable pests. Techniques such as mowing off pepper and eggplant should not be relied upon as this often results in re-sprouts which can harbor pests and disease problems over summer.

Weeds and volunteers should also be removed to prevent the survival and over-summering of pathogens that could serve as inoculum reservoirs for the next crop. Don’t forget to destroy weeds on ditch banks and in windbreaks and field perimeters because they may also serve as alternate hosts for insect pests.

The use of cover crops and summer fallowing of fields are also effective tools in reducing weed populations that can cause problems in the subsequent crop. The role of summer fallow in weed management is often overlooked. Summer fallow keeps new weed seeds from being added to the soil seed-bank. It also reduces the increases in asexual propagated plants such as nutsedges. Yellow nutsedge can put out 70 new tubers (nuts) every two months. Keeping the weeds from propagating will reduce the weed problems encountered during the next cropping season and help reduce insects and diseases that may over summer in weedy fields.

Chemical fallowing is a twist on the traditional method of fallowing that depends on discing fields through out the summer period to reduce weed pressure in subsequent crops. One approach uses Roundup to kill weeds during the crop free period.

The key to a successful chemical fallow program is the timing of the applications. Two Roundup treatments with one tillage trip in between should cover the entire fallow period. Repeated applications at a low rate give better results than one application at a high rate.

Procedure

Disc field and laser level after harvest.
Allow weeds to germinate and grow to a desirable height (approximately 25-30 days).
Treat with Roundup (first treatment).
Allow treated weeds time to translocate product throughout plant (at least one week).
Lightly disk field (can be one to five weeks after herbicide treatment).
Allow weeds to germinate and regrow to a desirable height (approximately 25-30 days).
Treat with Roundup (second treatment)
Allow treated weeds time to translocate product throughout plant (at least one week).
Prepare field for planting (can be one to five weeks after herbicide treatment).

Allow 3 days between last application and planting. Hard water, containing cations, such as calcium, magnesium, iron and manganese, can bind to the glyphosate molecule, reducing efficacy. The addition of ammonium sulfate and use of low water volumes can help reduce these antagonistic effects.

Given the impending loss of methyl bromide, this technique may prove valuable in some vegetable cropping systems for the control of persistent weed species such as nutsedge.

Field sanitation will be come an increasingly important tool to growers in face of the impending loss of methyl bromide – whose ease of use and effectiveness in controlling a wide range of problems allowed us to neglect some of these practical common sense pest management techniques.

There are a number of alternatives to methyl bromide out there and growers would be well advised to start to consider these and experiment with them before the 2005 cutoff date. Supplies are already starting to get tight and prices are rising on this material. At our May vegetable growers meeting, which focused on methyl bromide alternatives, Dr. Jim Gilreath, summed up the situation nicely by stating that growers should not
wait around for some magic bullet. He advised that all the tools that a likely to be available to growers are available now and growers will have to learn how to use these to their best advantage. MB alternatives will certainly involve some changes in your crop management program and it would be wise begin conducting on-farm trials to see what’s involved and how these alternatives might be successfully incorporated into your operation.

Up Coming Meetings:

June 3, 2000  
**Tenth Annual Farm Safety Day**  
Southwest Florida Research and Education Center  
Highway 29,  
Immokalee, Florida  
Contact Barbara Hyman at 941-658-3400 for more information.

June 7, 2000  
**Southwest Florida Vegetable Research Investment Fund Organizational Meeting**  
Southwest Florida Research and Education Center  
Highway 29,  
Immokalee, Florida  
Contact Gene McAvoy at 863-674-4092 for more information.

Web Sites:

The **Plant Pathology Internet GuideBook** is a subject oriented internet resource guide for plant pathology, applied entomology, and all related fields. The site has a search feature plus lots of links to a wide variety of plant pathology related internet sites and more useful resources. Check out the guidebook at [http://www.scisoc.org/ppigb/search.htm](http://www.scisoc.org/ppigb/search.htm)

**Biological Control: A Guide to Natural Enemies in North America** - this Cornell University world wide web site provides great photographs and descriptions of biological control or bio-control agents of insect, disease and weed pests in North America. Set your browser to [http://www.nysaes.cornell.edu/ent/biocontrol/](http://www.nysaes.cornell.edu/ent/biocontrol/)

**Organizational Meeting of the Southwest Florida Vegetable Research Investment Fund Scheduled for June 7**

The second organizational meeting of the **SW Florida Vegetable Research and Investment Fund** will be held at the SW Florida Research and Education Center, 2686 Hwy. 29 N, Immokalee on Wednesday June 7, 2000 from 10:00 AM - 12:00 noon. All growers and others in the vegetable industry are invited to come and join in support of the fund. At this meeting, a steering committee will be elected from paid members.

**Since our successful kickoff meeting on May 11th, over $18,000 dollars of industry and grower support have been pledged.** To date, Griffin LLC, Nychyk Brothers Farm, C&B Farms, Paramount Seeds and Sieverts have sent in checks while verbal pledges from 6 L’s, West Coast Tomato, Red Star Farms, Asgrow, Bayer Ag Products, Dow Agrosciences, DuPont, Gowan, Monsanto, and Novartis, have rounded out the early commitments. Industry pledges were set at a minimum of $500, but Griffin and Gowan have both committed $5,000 to the cause.

The **“SW Florida Vegetable Research Investment Fund.”** fund is envisioned as a strategic partnership of growers and others in the vegetable industry who come together to pool their resources to address research needs of common concern.
The contributor members, who will prioritize and fund research projects through a democratically elected advisory committee, will manage the SW FLORIDA Vegetable Research Investment Fund. Membership is based on contributions of one dollar per cropped acre per year or flat fee for industry partners. Contributors will hold the purse strings and will be free to choose from public or private research groups and hold researchers accountable for performance.

The process of change is certain to move faster and faster. Challenges will continue to confront the industry. Foreign competition is here to stay and will undoubtedly increase. Our industry will never be able to compete on the basis of cheap land or labor - we must compete on the basis of technological advances based on sound research.

It really is time for everyone involved in the vegetable industry to take stock, circle the wagons, and look after our own best interests. If we don’t - no one else will. As a participant in the vegetable industry, you need to ask yourself several questions. What will the future bring? Will our needs be meet? How will our needs be meet?

By participating in the SW Florida Vegetable Research Investment Fund, you will be helping to ensure the future of practical research that addresses the needs of the local vegetable grower. The strength and ultimately the future survival of not only the vegetable industry in southwest Florida, but also every vegetable grower will depend on cooperation and unity within the industry.

The advisory committee of the SW Florida Vegetable Research Investment Fund hopes you will consider this proposal favorably and attend this important meeting with checkbook in hand - your future may depend on it!

This will be the last regular Pest and Disease Hotline issued for this season. We will resume publication this fall and wish to acknowledge and extend our sincerest thanks to all our many contributors who shared valuable information, which has made the hotline so successful and also the generous support of our sponsors with out which publication of the hotline would not be possible.

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 0bern/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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