Cold weather and record high temperatures have scorched south Florida for the past two weeks. Temperatures have been averaging several degrees above normal with daytime highs in the low to mid 90’s with nighttime lows mostly in the mid 60’s. High temperatures and breezy condition have kept evapotranspiration rates high and most crops are displaying signs of moisture stress with blossom end rot and sunscald common. High temperatures have greatly accelerated plant growth and development and many crops a week or more ahead of schedule.

Most locations are reporting no measurable precipitation for the period. Growers indicate that water tables are becoming increasingly more difficult to maintain as ground water levels drop rapidly in response to the heat and continued dry conditions.

Crops across the area are in mostly fair condition with some reduced quality resulting from high temperatures and dry conditions. Volume of most vegetables slowing seasonally with many fields already finished. Watermelon harvest is more than half way around Immokalee with most fields having been harvested at least once if not several times. Vegetables being harvested include tomatoes, peppers, cantaloupe, Chinese cabbage, eggplant, snap beans, squash, sweet corn, strawberries, specialty vegetables and watermelons.

FAWN Weather Summary

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Wishing you all the best for a safe and restful summer break.

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The short term forecast from the National Weather Service in Miami calls for partly cloudy skies with a chance of afternoon showers tonight and tomorrow over interior sections. Dry conditions will prevail into next week with a renewed chance of showers on Tuesday and Wednesday. Daytime temperatures should top 90 most days with nighttime lows in the mid 60’s.

The National Weather Service indicates that things are slowly changing and perhaps the wet season will start in a few days for South Florida. Computer models show afternoon convection developing over the west coast, beginning around noon today near Cape Sable and developing north toward Naples. Sea breeze convergence with the predominant easterly flow will introduce a chance of thunderstorms for this afternoon in interior and gulf coast forecasts.

Another hopeful sign is that it appears to have cooled aloft over the last 24 hours and the cap does not appear as strong as it has been for the past few weeks. It would take temperatures in the low to mid 90s today to break the cap on the east coast and that won’t happen because of the sea breeze but it could happen over the interior.

With a little more instability we may start to see the nighttime marine showers begin to affect the beaches in the next few nights. Even with all these hopeful signs, we need more surface moisture available and with the strong high-pressure system still dominating our weather it will still be a few more days before the rains commence. 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.

Reports indicate that insect pressure continues to build as temperatures rise. As one respondent stated, “it would probably be easier to report on what we don’t have in our fields right now.” With most crops nearing termination most growers have reduced pesticide applications and are mainly concerned with preventing major outbreaks of highly destructive pests like worms.

Reports from Palm Beach indicate that in late April and early May there was a sudden increase in beet armyworm populations in pepper. There has also been an increase in melon worms in cucumbers and squash and some pickleworms are being found in cucumbers.

Around Immokalee, growers are reporting scattered problems with worms. Growers are finding a few southern armyworms and loopers with an occasional beet armyworm or fruitworm on tomato and pepper. There have been a few reports of armyworms causing rind damage in melons.

Several growers in southwest Florida are reporting increased pressure from melonworms in cucurbits especially cucumber and cantaloupe and squash.

Pinworms are widespread in most of the remaining tomato fields around southwest Florida. Reports indicate that they are present in high numbers in some “hotspots” and at filed margins but there have been few reports of injury to fruit to date.

On the east coast, pinworm infestations have gotten out of hand in mostly abandoned eggplant and tomato fields that have been turned over to pin hookers.

Some growers around south Florida are reporting strong worm pressure in brassicas with 2 - 3 different species being found in addition to diamond backs.

Around south Florida whiteflies are very high in nearly every remaining "live and green" field. Several growers have mentioned observing whitefly adults swarming out of fields shortly after the water was cut off.
Scouts in Palm Beach report that silverleaf whitefly populations are very high in cucumbers. Populations are said to resemble those of the “pre-Admire” days where the undersides of leaves are completely covered with adults and nymphs.

Around Palm Beach scouts indicate that *Thrips palmi* are still around in pepper and that some calyx injury is evident. For the most part however, growers have stopped targeting controls for thrips.

Around southwest Florida flower thrips are widely present on a variety of crops at mostly low levels. Few problems have been reported.

Reports from southwest Florida indicate that aphid populations continue to increase in some locations.

Respondents from Palm Beach indicate that aphid populations have declined over the last few weeks.

Growers in southwest Florida indicate that spider mites are building up in many fields but most growers are beyond the point of seeing any utility in controlling spider mites.

On the east coast, two spotted and red spider mites continue to be a problem in eggplant, cantaloupe, and watermelon.

Broadmites are widely present on both coasts.

Pepper weevil pressure persists at high levels in most of the remaining pepper fields in Southwest Florida.

Around Palm Beach County, pepper weevils have continued to get worse in areas where they had previously been reported.

Dry conditions have slowed most diseases with the notable exception of rust and powdery mildew.

Powdery mildew seems to be one the diseases that likes the hot and dry weather we have been having. Scouts around Immokalee indicate that it is about the only foliar disease that has done much over the past two weeks. New activity has been reported in both cucurbits and peppers.

Powdery mildew is also still present on peppers in Palm Beach County with some infection in tomatoes and eggplant. For the most part sprays for control have been discontinued. Injury on eggplant has been confined mostly to the calyx area.

Powdery mildew is present in scattered locations in older pepper fields around southwest Florida and in some locations is casing serious defoliation.

Growers in the Immokalee area are seeing more powdery mildew in watermelon as well.

When powdery mildew occurs on watermelon, it often will not display clear white powdery growth on the leaves as it does on squash and other plant species. The yellowing of leaves is often the first indication that powdery mildew is present. Symptoms may begin as a faint interveinal yellowing on the upper leaf surface of leaves near the crown of a few plants. With the aid of a hand lens, faint white mycelial growth may be seen on the lower side of the leaves. Powdery mildew is capable of producing typical white powdery growth on leaves of watermelon, but in many cases it does not appear that way. Chlorothalonil or Quadris do well in suppressing powdery mildew. To promote good a resistance management strategy, do not use block sprays of Quadris. Alternate Quadris with chlorothalonil and other fungicides. The maneb and mancozeb fungicides will also
suppress powdery mildew to some extent and they are broad-spectrum types, which makes them good choices for alternating with Quadris.

Late blight activity has slowed around southwest Florida, although a few new lesions have been observed on foggy mornings in some places.

Tomato yellow leaf curl virus continues to spread around south Florida along with high whitefly pressure. Infection levels in some tomato fields still being picked are approaching 100% on the tops of plants.

Respondents from Palm Beach indicate that bacterial spot is still present in pepper but is causing little concern. The situation is similar on tomato and pepper around Immokalee and southwest Florida.

Gummy stem blight remains is widely present on watermelon southwest Florida. In most cases incidence and severity remains low to moderate. In some places infections that started early in the season are girding vines causing wilting.

Some growers are questioning the efficacy of strobilurin-based fungicides on gummy stem blight although there have not been any confirmed cases of resistance in Florida to date.

Scouts in Palm Beach report that gummy stem blight and Fusarium have slowed down in cucurbits and tomatoes.

Fusarium wilt is widely present on watermelon across southwest Florida. Incidence and severity is mostly low. Growers also report problems with fusarium crown rot in cantaloupe.

Growers around southwest Florida report the incidence of fusarium crown rot continues to ratchet up slowly in tomato.

Downy mildew was widely present in squash plantings around Immokalee and is now being seen more widely on cantaloupe and watermelon around southwest Florida.

Reports from Palm Beach indicate that some cucumber fruit is being found with Phytophthora even though symptoms are not being found on the leaves and stems.

Following recent heavy showers in interior sections of southwest Florida, there have been reports of patchy occurrence of Phytophthora in pepper.

Watermelon mosaic is now very common around southwest Florida. It is especially prevalent in older fields that have been walked over a couple of times with new growth flushes showing mosaic symptoms. Several melon fields have some patches of plant decline/death from mosaic but nearly all of the infections that I have seen were late enough that the plants made good size melons. Fruit symptoms have been very rare.

Some melon producers around southwest Florida report seeing mosaic that just doesn’t look quite like mosaic. Cucurbit crops are frequently affected by viruses. The most commonly occurring virus in watermelons in South Florida is Papaya Ringspot Virus –Type W. (PRSV-W)

The results of viral surveys conducted this spring by Dr. Susan Webb, University of Florida, Gainesville have detected a rare potyvirus named Watermelon Leaf Mottle Virus (WLMV) in one squash and three watermelon plants sampled in the Devils Garden area of southwest Florida. The only time that WLMV was detected previously was in Florida in 1990. In total, four watermelons plants and one squash plant from field sites tested positive for WLMV in the past 12 years.
Symptoms of WLMV are typical of a virus infection such as mottling and stunting. However, WLMV does not produce unique, visible symptoms that are distinct from the symptoms caused by other viruses infecting watermelon. It was first detected by the unusual nuclear inclusions found in the infected plant’s cells. The procedure for detecting a nuclear inclusion is to stain infected plant cells with certain dyes and then to examine the stained cell under the microscope. The contents of the cells can be identified visually after staining. Cells infected with viruses will have unusual ‘bodies’ or structures in them that are diagnostic for a virus. After WLMV was detected by its inclusion bodies, antibodies were made to the purified virus and a serological assay is now used to screen for the virus in infected plants.

The virus that causes WLMV is a potyvirus, which is the same type as PRSV-W. Potyviruses are transmitted by aphids. In lab tests, the virus was transmitted in a nonpersistent manner by the green peach aphid (Myzus persicae) from squash to squash in two of three trials. The host range of WLMV was determined experimentally in the greenhouse. Only squash and watermelon showed symptoms but the virus also infected cucumber and other melons without causing symptoms.

It is too early to speculate as to the significance of these detections. One scenario is that there may not be any additional finds of this virus for another 12 years. Or it may be that the virus has always been here but at such low levels that it is not detected or its presence is masked by other viruses. Another possibility is that we may be experiencing an increase in its incidence and will find it more frequently in the future. Regardless of which, if any, scenario occurs, there is not any evidence at this time to suggest that this virus is any worse or better than PRSV-W or any other potyviruses out there.

Management practices for potyviruses should include the use of resistant varieties when possible and management of aphid populations. Host resistance to PRSV-W is available in several squash varieties.

Nematode problems are being widely observed in vegetable fields in scattered locations across south Florida. High temperatures and moisture stress often make nematodes problems more readily apparent in the late spring since they primarily affect the root system reducing the plants ability to cope with stress. Growers can take advantage of this fact to help identify problem areas and plan control strategies for the coming season.

Crop production problems induced by nematodes generally occur as a result of root dysfunction, reducing rooting volume and efficient utilization of water and nutrients. Typical symptoms of nematode injury can involve both above ground and below ground plant parts. Foliar symptoms of nematode infestation of roots generally involve stunting and general unthriftiness, premature wilting and slow recovery to improved soil moisture conditions, leaf chlorosis (yellowing) and other symptoms characteristic of nutrient deficiency.

Many different genera and species of nematodes occur in vegetables in Florida. In many cases a mixed community of plant parasitic nematodes is present in a field, rather than having a single species occurring alone. In general however, the most widespread and economically important nematode species include the root-knot nematode, Meloidogyne spp., and sting nematode, Belonolaimus longicaudatus.

Based on the fact that the root-knot nematode causes the formation of large swollen areas or galls on the root systems of susceptible crops, relative population levels and field distribution of this nematode can be determined by simply examining the crop root system for root gall severity. Root gall severity is merely a measure of the proportion of the root system that is galled. Immediately after final harvest, a sufficient number of plants should be carefully removed from soil and examined to characterize the nature and extent of the problem within the field. In general, soil population levels increase with root gall severity. This form of sampling can in many cases provide immediate confirmation of a nematode problem and allows mapping of current field infestation. The detection of any level of root galling usually suggests a nematode problem for planting a susceptible crop, particularly within the immediate areas from which the galled plant(s) were recovered.
Advisory or Predictive Sample

Samples to predict the risk of nematode injury to a newly planted crop must be taken well in advance of planting to allow for sample analysis and treatment if required. For best results, you should sample for nematodes at the end of the growing season before crop destruction, when nematodes are most numerous and easiest to detect. Collect soil and root samples from 10 to 20 field locations using a cylindrical sampling tube, or if unavailable, a trowel or shovel. Since most species of nematodes are concentrated in the crop-rooting zone, samples should be collected to a soil depth of 6 to 10 inches. Collect samples in a regular pattern over the area, sampling across rows rather than along rows. One sample should represent no more than 10 acres for relatively low-value crops and no more than 5 acres for high value crops. Fields which have different crops (or varieties) during the past season or which have obvious differences either in soil type or previous history of cropping problems should be sampled separately. Sample only when soil moisture is appropriate for working the field, avoiding extremely dry or wet soil conditions.

Once the samples are collected, the entire sample should then be mixed thoroughly and a 1 to 2 pint subsample removed to an appropriately labeled plastic bag. Remember to include sufficient feeder roots. The plastic bag will prevent drying of the sample and guarantee an intact sample upon arrival at the laboratory. Never subject the sample(s) to overheating, freezing, drying, or to prolonged periods of direct sunlight. Samples should be submitted immediately to a commercial laboratory or to the University of Florida Nematode Assay Laboratory for analysis. If sample submission is delayed, then temporary refrigerated storage at temperatures of 40 to 60°F is recommended.

Nematode Management

Currently nematode management strategies include crop rotation of less susceptible crops or resistant varieties, cultural and tillage practices, use of transplants, and preplant nematicide treatments. More information can be found in the UF/IFAS publication Nematode Management for Commercial Vegetable Production – available through your County Extension Office or on the web at http://edis.ifas.ufl.edu/NG004. Where practical, these practices should be integrated into the summer 'off-season'. It should be recognized that not all cultural control practices are equally effective in controlling plant parasitic nematodes and varying degrees of nematode control should be expected. These methods, unlike other chemical methods, tend to reduce nematode populations gradually through time.

Growers are reminded not to overlook the importance of rapid destruction of the infested crop root system following harvest. Disking fields as soon as possible after the crop is harvested will not only prevent further nematode population growth but subject existing populations to dissipation by sun and wind. In cases of particularly severe nematode infestations growers may wish to consider combining a broadcast treatment of a chemical fumigant at the end of the crop followed by preplant in-bed fumigation prior to planting.

Your Fall IPM Program Should Start Now!

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.

Action taken now will help build a foundation for next year’s pest control strategy. There are a number of cultural practices that a grower should consider when designing an integrated disease control system. Before planting a crop, a vegetable grower can take a number of steps to help control potential pest and disease
problems in the coming season. As a general approach, growers should take steps to grow vigorous, high-quality plants using the best farming practices possible.

Sanitation, Sanitation, Sanitation... As we near the end of the season growers are reminded of the importance of sanitation in an integrated pest management program.

Leon Lucas with Glades Crop Care indicates that they have been checking around some cull piles and also looking at some pastures where culls have been dumped and can find tomato volunteers right now and have found some with late blight and TYLCV. Although Leon did not indicate, I am sure that whiteflies and other insects are also present on these volunteers. Leon’s observations underscore the importance of sanitation in pest management. Disease and insects do not magically materialize to plaque growers. Many require a living host to carry them from one season to another.

Field sanitation is one of the most important tactics in vegetable pest and disease management. One of the best things 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 disk 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.

Soil tillage can destroy insects and expose them to birds and other predators. It can also speed the breakdown of plant residues that harbor insects and plant pathogens. By either allowing the organic matter in a field to decompose completely before you plant the next crop and/or allowing a fallow period between crops, you can enhance the control of a number of insects and diseases.

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.

A little extra effort spent in cleaning up old fields at the end of the season may well prevent or reduce a number of potential problems next fall!

One of the most important components in an integrated disease control program is the selection and planting of cultivars that are resistant to pathogens. The term resistance usually describes the plant host’s ability to sup-press or retard the activity and progress of pathogenic agent, which results in the absence or reduction of symptoms. It is important to clearly establish a common definition of the term. Growers, researchers, plant breeders, and seed sellers may have slightly different understandings of the term. The word tolerance, which has a slightly different meaning, is some-times used interchangeably with resistance, resulting in some confusion. By definition, tolerant plants can endure severe disease without suffering significant losses
in quality or yield; however, these tolerant plants do not significantly inhibit the pathogen’s activity, and disease symptoms may be clearly evident. Resistant plants usually suppress the pathogen in some fashion.

**There are some distinct advantages to planting disease resistant plant cultivars.** Such selections are completely non-disruptive to the environment, and their use may enable growers to reduce and in some cases eliminate the application of chemicals used for pathogen control. The use of cultivars resistant to one disease is compatible with disease management steps taken to control other diseases. A final advantage is that for some host-pathogen systems the stability of the resistance is long lasting and the cultivars can remain resistant for many years.

**There are some disadvantages to the use of resistant cultivars.** The greatest shortcoming is that resistance is not available for all diseases on all crops. For several of the most damaging plant diseases, such as tomato late blight (*Phytophthora infestans*), no acceptable resistant cultivars are yet available. Seed companies and plant breeders rarely invest in efforts to develop resistant cultivars for specialty or minor crops. Another shortcoming of some resistant cultivars is that some selections lack adequate horticultural characteristics in regard to appearance, quality, color, yield, and other important criteria.

**A cultivar that is resistant to one disease may be quite susceptible to another important disease or insect pest.** A final disadvantage to resistance is that, depending on the host-pathogen system, resistance is not long lasting and new strains of the pathogen readily develop, making the crop susceptible once again. Depending on the particular disease involved, the failure of plant resistance can be either a rare or a regular event. In most cases, resistance failure is attributed to the development of new strains of the target pathogen that overcome the resistance genes of the previously resistant cultivar.

**Despite the challenges of developing resistant cultivars and the setbacks of resistance breakdown, resistant plants remain an important weapon for disease.** Growers are encouraged to actively and thoroughly investigate which resistant cultivars are available and to test to determine which cultivars perform best under their particular growing conditions.

**Before planting crops, a grower should carefully plan out planting and crop rotation strategies to avoid insofar as possible any known problem areas.** A grower can incur significant losses if he or she plants susceptible crops in a field known to be infested with persistent soilborne pathogens. Plant-pathogenic fungi such as *Fusarium* and *Sclerotium*, are true soil inhabitants and will persist in soil for many years, even in the absence of a plant host. Because not all fields are infested with these fungi, growers are advised to select a planting site away from such fields. Soil-borne fungi such as *Phytophthora*, *Pythium*, and *Rhizoctonia* often are much more widespread, so site selection might be less of an option in avoiding these organisms.

**Steps taken prior to and during the planting process can also influence disease.** Attention to crop rotations and crop residue incorporation, can help prevent population buildup in many pest species. The practice of growing the same crop continuously, season after season, on the same piece of ground is an invitation to insect pests and diseases.

**Summer weed management can be a challenge.** Growers should check field margins to make sure that pest species are not building up there and migrating out into cropping areas. Many insects over summer on weeds, so efforts to control them can be profitable by reducing their movement into the crops next growing season.

**Weeds are also known reservoirs of nematodes as well as a number of viral and bacterial pathogens.** Weeds and volunteers should be removed to prevent the survival and over-summering of pathogen’s that could serve as inoculum reservoirs for the next crop. Techniques such as mowing off pepper should not be relied upon as this often results in re-sprouts, which can harbor pests and disease problems over summer.
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 disk ing 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.

Vegetable growers need to provide optimum growing conditions for their crops. Many plants are able to withstand insect feeding if they are actively growing and are able to compensate for some loss of foliage and root tissues. Soil nutrients can affect crop vigor. There is no substitute for soil testing to determine a fertilization program. Excessively low or high soil pH may induce physiological problems or predispose crops to attack by pests and disease. This past season, I saw several problems that might have been averted by checking and maintaining a favorable soil pH.

Poor soil preparation can result in stressed and exposed plants and increased damping-off problems due to soil fungi. Proper preparation of the field and the subsequent raised beds will help reduce problems in areas that are subject to poor drainage, pooling of water, and other conditions that favor pathogens. Soil and bed preparation should result in good soil tilth so that seed or transplants are placed in a soil that favors plant development. Planting depth for seed or transplants should be tailored to enhance seed emergence or transplant establishment.

The practice of keeping out any materials or objects that are contaminated with pathogens or diseased plants and preventing them from entering the production system is known as exclusion. For some diseases, seed borne pathogens are a primary means of pathogen dissemination. Growers should purchase seed that has been tested and certified to be below a certain threshold infestation level or that has been treated to reduce pathogen infestation levels. Note that the designation “pathogen-free seed” really is not a valid term because it is not possible to know whether a seed lot is, in its entirety, absolutely free of all pathogens. Seed tests only examine representative samples, but in most cases the tests are accurate enough to give a true picture of the risk of diseases initiated by seedborne pathogens.

When purchasing transplants, they should be free of as free as possible pathogen contamination (where the pathogen is present on the plant but has not yet caused visible symptoms) and from disease (where symptoms are actually visible). Sanitation measures are important in greenhouse situations. The removal of dead or dying transplants can help reduce inoculum that could otherwise spread to adjacent transplants. Evidence of poor sanitation may suggest that you look more closely at your choice of transplant producer.

Soil and water can harbor pathogens as well. Take care to see that no infested soil or water is introduced into un-infested areas. Pathogens may be found in surface, flood, and runoff waters. Growers who have dredged up soil from ditches and dispersed it onto fields may introduce inoculum of pathogens such as phytophthora. Water draining from fields can carry a number of pathogens, and growers should not recycle or reuse it without carefully considering potential risks and then taking appropriate safety precautions. Soil adhering to tractor equipment and implements can spread soilborne pathogens and weeds from infested fields into clean fields. It is a good idea to reduce the movement of these infested materials as much as possible.

Incorporation of composts into soils is a fundamental cultural practice in organic production, which can be extended to chemical systems as well. Composts benefit the soil’s fertility and condition in a number of ways, and also undoubtedly benefit disease management in some way. However, research studies and empirical data that clearly document any disease control benefits resulting from field-application of compost are lacking.
Despite this lack of information on disease control, composites should benefit soils by increasing soil microflora diversity and populations.

**Soil solarization** is the use of plastic tarps placed on the soil surface to increase soil temperatures to a level that kills soilborne pathogens, weeds, and other crop pests. Soil solarization works best when summer temperatures are uniformly high. These conditions don’t always occur in Florida. Soil solarization will not eradicate a pathogen from a field, but it may lower pathogen populations.

**Soil flooding** is a related means of creating conditions—in this case, saturated soil over an extended period—that might result in a decline of soil-borne pathogens.

**Crop rotation** is an important consideration in disease management. Rotation employing the inclusion of cover crops, and appropriate use of fallow (host-free) periods can contribute to the reduction of inoculum levels for soil-borne pathogens and the increase of diversity in soil microflora. In contrast, consecutive plantings of the same crop in the same field often lead to increases in soil-borne pathogens. Inadequate rotation can simulate a monoculture effect that might increase foliar diseases. Proper rotation of pest-susceptible main crops with non-susceptible cover crops can keep pest numbers low. The incorporation of a grass species into a rotation is often recommended, as grasses tend to be resistant to most of the insect and disease pests of common cash crops.

Recent research has shown that certain plants can have a suppressive effect on diseases and nematodes. For example, after broccoli and other crucifer crops are harvested and the plant residue is plowed into the soil, the decomposition of the broccoli stems and leaves releases natural chemicals that can significantly reduce the number of certain pathogens. This broccoli effect can be an important consideration in crop rotation strategies. Some cover crops (mustards, sudangrass) might also share this beneficial effect and could be considered in the crop rotation scheme. It is important to remember that while rotations with non-susceptible plants and cover crops may help reduce soil-borne pathogen numbers, significant decreases in such populations are likely to take many seasons.

When devising a crop rotation strategy, a grower should also be aware of which crops and cover crops might increase disease problems. Sunn hemp can increase soil populations of *Pythium* and *Rhizoctonia* damping-off fungi. Some varieties of cowpea may host of root-knot nematode. There are many factors to consider in regard to planting a crop.

Cover crops planted prior to the main cash crop can also improve soil fertility and provide a valuable source of organic matter.

An integrated approach to pest and disease management will become increasingly important 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.

Interestingly enough—I recently found a copy of the 1908 USDA Yearbook of Agriculture and most of these ideas were being actively promoted at that time.

**FQPA Update**

Indications are that the FQPA safety factor for the EPA’s risk assessment of endosulfan has been raised so Thiodan labels may be in jeopardy. If you use Thiodan for insect control on the following crops: eggplant, bell peppers, tomatoes, cucumbers, summer squash, succulent beans, you may want to follow developments closely and make your feelings known. Thiodan certainly proved valuable on tomatoes this season with the intense whitefly pressure and high incidence of TYLCV experienced by growers. Losing this material will also have impacts on resistance management options available to growers. We will keep you posted as information becomes available.
Up Coming Meetings

Palm Beach

May 16, 2002  Vapam and KPAM Certification Training  4:00 - 6:00 PM
Pro Source One, 8245 SR 7
Boynton Beach, FL  * 2.0 CEU’s
Contact Maria Kelly or Ken Shuler, 561-233-1725 or 1718

May 29, 2002  A Fertilizer Meeting  8:15 - 1:00 PM
Chris Albright, Lykes Agri Sales
Holiday Inn Catalina lunch (12:15 - 1:00)
1601 N. Congress Ave., Boynton Beach, FL  CEU’s requested
RSVP Maria Kelly or Ken Shuler, 561-233-1725 or 1718

June 13, 2002  We Have the Answers: FL DACs - Bureau of Compliance Monitoring - 1:30 - 3:00PM
Dale Dubberly, Chief, Bureau of Compliance Monitoring
EREC Conference Center
3200 East Palm Beach Rd, Belle Glade  * 2 CEU’s
Contact Laura Andrews, 561-996-1657

Southwest Florida

May 14, 2002  Spring Vegetable Field Day - 10 AM - Noon
Southwest Florida Research and Education Center
SR 29 N
Immokalee, FL  * 2.0 CEU’s
Contact Sheila Griffith or Gene McAvoy at 863-674-4092

May 15, 2002  Vapam and KPAM Certification Training  4:00 - 6:00 PM
Southwest Florida Research and Education Center
SR 29 N
Immokalee, FL  * 2.5 CEU’s
Contact Sheila Griffith or Gene McAvoy at 863-674-4092

May 23, 2002  Farming in the New Millennium – Risk Management Seminar
Southwest Florida Research and Education Center
SR 29 N
Immokalee, FL
To register contact Carolee Howe at 352-378-8100 ext. 1091 or e mail chowe@sfbecic.com
See details below.

June 1, 2002  2002 Southwest Florida Farm Safety Day
Southwest Florida Research and Education Center
SR 29 N
Immokalee, FL  * 4 CEU’s
Contact Barbara Hyman at 941-658-3415

This is a great opportunity to provide your employees with quality training that emphasizes the importance of farm and equipment safety.
ATTENTION FARMERS!!!

Have You Had Difficulty Getting Paid? Are You Looking for Ways to Protect your Crop? Are You Looking for Ways to Manage your Risk?

Then… Florida Farm Bureau has a Seminar that you must attend: “Farming in the New Millennium”

Topics to be covered:

- Production Management Strategies
- PACA
- Dispute Resolution
- License & Bond
- Crop Insurance

FREE AND OPEN TO THE PUBLIC: All Seminars are from 8:30 am – 1:00 pm and Includes Lunch

PLAN TO ATTEND: Contact Carolee Howe to register (352) 378-8100 ext. 1091 or e-mail: chowe@sfbcic.com

Ken Shuler Announces Retirement From Extension

Dear Vegetable Growers and Industry Reps,

I have decided to take advantage of an early retirement opportunity with the Extension Service and will be leaving as of May 31, 2002. It has been a very great 25 years for me working with you, “my” growers and industry reps. You have provided me with some of the best on-the-job-training that anyone wanting to work with vegetable crops could ever hope for. My wife, Anne, will continue teaching high school in Palm Beach County so we plan to stay right at home in Jupiter Farms for the near future. This will give me a chance to do even more of the “farming” for “Stephen’s Produce,” our “garden fresh” vegetables which we’ve sold at local green markets for the past seven years. Come by and see us at the Green Market in West Palm Beach on Saturday mornings from late October to April. As I soon change from an Extension provider to an Extension client like yourselves, I’ll be attending seminars, field days, and collect CEU credits so I should still be seeing you from time to time.

It has been a joy and an honor to have worked with you all. Best wishes to you as you continue to provide us with some of the safest and most healthy food -- fresh vegetables -- that can be grown.

Sincerely,

Ken Shuler

Home address is
12657 158th St North
Jupiter, FL 33478
561-744-4946

skshuler@aol.com

PS. Although I have only known Ken for the short span of 5 years, I must say that it has been great working with Ken and has been a fantastic learning experience. He is a true gentleman and has provided me with a
strong role model as an extension agent leading the way in providing service to the vegetable industry in south Florida. I am sure that everyone joins with me in wishing him and his family the best of luck and all God’s blessings as he moves into the next phase of his long and distinguished career.

Gene

Websites

**The Official US Time** – every wonder what time it really is? This public service website is provided cooperatively by two US agencies: the National Institute of Standards and Technology (NIST), and its military counterpart, the U. S. Naval Observatory (USNO). Readings from the clocks of these agencies contribute to world time, called Coordinated Universal Time (UTC). The time maintained by both on this site never differs by more than 0.000 0001 seconds from UTC. Go to [http://www.time.gov/](http://www.time.gov/)

**Vegetable Disease Identification** – this website contains colored pictures and descriptions of many common vegetable diseases as found in the Penn State publication titled "Identifying Diseases of Vegetables." authored by Alan MacNab, Arden Sherf, and Jack Springer. [http://vegdis.cas.psu.edu/VegDiseases/identification.html](http://vegdis.cas.psu.edu/VegDiseases/identification.html)

Quotable Quotes

"No other human occupation opens so wide a field for the profitable and agreeable combination of labor with cultivated thought as agriculture." - Abraham Lincoln

Search others for their virtues, thyself for thy vices. -- Benjamin Franklin

Take rest; a field that has rested gives a bountiful crop. -- Ovid

The Lighter Side

**Did you ever wonder why…**

- a pizza gets to your house faster than an ambulance.
- there are handicap parking places in front of a skating rink.
- drugstores make sick people walk all the way to the back of the store to get their prescriptions while healthy people can buy cigarettes at the front.
- people order double cheese burgers, large fries, and a diet Coke.
- banks leave both doors to the vault open and then chain the pens to the counters.
- folks leave cars worth thousands of dollars in the driveway and put their useless junk in the garage.
- they sell hot dogs in packages of ten and buns in packages of eight.
- they have drive-up ATM machines with Braille lettering.
- they call what doctors do, practice?

**Puns**

A pessimist's blood type is always b-negative.

My wife really likes to make pottery, but to me it's just kiln time.

I fired my masseuse today. She just rubbed me the wrong way.

A Freudian slip is when you say one thing but mean your mother.
Shotgun wedding: A case of wife or death.

I used to work in a blanket factory, but it folded.

A hangover is the wrath of grapes.

Hope that you all have a great summer and get some well-deserved rest and relaxation.

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 of 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: 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, Loren Horsman/Grades Crop Care, Bruce Johnson/General Crop Management, Leon Lucas/Grades Crop Care, Gene McAvoy/Hendry County Extension, Alice McGhee/Thomas Produce, Jimmy Morales/Pro Source One, Tim Nychk/Nychk Bros. Farm, Chuck Obern/C+B Farm, Dr Ken Pernezny/EREC, Dr. Pam Roberts/SWFREC, Dr Nancy Roe/Farming Systems Research, Wes Roan/6 L's, Kevin Seitzinger/Gargiulo, Jay Shivler/ F& F Farm, Ken Shuler/Palm Beach County Extension, John Stanford/LNA Farm, Mike Stanford/MED Farms, Dr. Phil Stansly/SWFREC, Eugene Tolar/Red Star Farms, Dr.Charlie Vavrina/SWFREC, Donna Verbeck/GulfCoast Ag. and Mark Verbeck/Bayer Crop Protection.

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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Special Thanks to the generous support of our sponsors; who make this publication possible.

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Donna Muir Strickland
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Alva, Florida 33920  
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Paramount Seeds, Inc.  
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Palm City, Florida 34991  
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Manatee Fruit Company  
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Palmetto, Florida 34220-0128  
Phone 941-722-3279  Fax 941-729-5151

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292 Lake Pearl Drive  
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