The strongest blast of cold air for the season moved down over the peninsula on the weekend of November 16 –17 dipping nighttime temperatures in the low to mid 40’s and bringing cooler drier air to the region. Since then daytime highs have been in the mid to upper 70’s and nighttime lows mostly in the 50’s. Heavy rains and winds which proceeded the front dropped from one and half to three inches of rain in most locations with some parts of southwest Florida receiving higher amounts from 7 – 13 inches.

Planting continues in all areas with potato planting reaching full speed in most areas. Last week’s rains delayed planting and harvesting operations in some areas. In other places, heavy rains and wind caused some damage to crops with reduced yields expected. Growers are reporting seeing staining and rain check on tomato fruit. Workers remain busy pruning, staking and tying and spraying.

Growers have been busy harvesting crops to meet the Thanksgiving Day demand. Plentiful supplies of beans, cucumbers, eggplants, endive, escarole, lettuce, okra, peppers, radishes squash, sweet corn, tomatoes and specialty crops are available on the market. Light supplies of strawberries and watermelons are also coming to market. Quality is good although higher than normal grade-out and post–harvest disorders are being reported.

FAWN Weather Summary

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<tr>
<th>Date</th>
<th>Air Temp (°F)</th>
<th>Rainfall (Inches)</th>
<th>Hours Below Certain Temperature</th>
<th>(hours)</th>
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<td>Max</td>
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Wishing you and your families a Happy Thanksgiving Day Holiday!

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COOPERATIVE EXTENSION WORK IN AGRICULTURE, FAMILY AND CONSUMER SCIENCES, SEA GRANT AND 4-H YOUTH, STATE OF FLORIDA, IFAS, UNIVERSITY OF FLORIDA, U.S. DEPARTMENT OF AGRICULTURE, AND BOARDS OF COUNTY COMMISSIONERS Cooperating
The short term forecast from the National Weather Service in Miami calls for partly cloudy conditions and isolated showers through Thanksgiving Day followed by cooler temperatures on Friday as a weak cold front drops down over the peninsula. High temperatures will fall to the low to mid 70’s through the weekend with low temperatures in the mid 40’s on Saturday morning. A gradual warming trend will begin on Sunday with daytime highs reaching the upper 70’s and nighttime lows in the 50’s.

For additional information, visit the National Weather Service in Miami website at http://www.srh.noaa.gov.mia

Insects

Worms

Worm pressure remains consistent at low to moderate levels around Immokalee. Depending on the crop and location, respondents note finding mostly southern armyworm, with some beet armyworms, tomato fruit worms, loopers, hornworms, and leaf-tier also being seen.

Around Palm Beach County, growers and scouts in indicate that worm pressure has been falling off in recent weeks. Respondents are seeing mainly southern and some beet armyworms and note that there have been some problems where growers grew inattentive and populations built up to damaging levels in individual fields.

Reports from Homestead indicate that worm pressure is increasing on all crops southern armyworms, beet armyworms, fruit worms, loopers, and horn worms all being seen.

Melonworms are widely present in cucumbers and squash through out the area. A few pickleworms have been noted in cucumber blossoms.

Leafminers

Reports out of Homestead indicate leafminer populations are approaching late fall seasonally high levels on tomatoes as well as other crops including beans, eggplant and tomato and growers are starting to implement control strategies.

Around Palm Beach, leafminer pressure continues to build particularly in eggplant and tomatoes. Reports indicate suppression of leafminer activity where Platinum had been applied.

In Southwest Florida, respondents indicate that leafminer pressure has increased significantly over the past 7-10 days and is beginning to cause problems in some fields. Several tomato fields have reached threshold levels and have had insecticide applications aimed at leafminer. Both Trigard and Agrimek have been providing good results.

With the on-set of cooler weather across the peninsula, growers across south Florida can expect to see an increase in leafminer pressure. Leafminers attack many crops but are particularly damaging on celery, crucifers, cucurbits, okra, potato and tomato. Florida growers report that leafminers are the second most important tomato insect pest especially in south and central production areas. In south Florida, populations peak between October and March while in central Florida they are a problem in both spring and fall.

The two major species of leafminer that cause problems in vegetables in Florida are the vegetable leafminer (L. sativae) and most commonly (Liriomyza trifolii) - sometimes referred to as the celery leafminer or American sepentine leafminer. The adults are small yellow and black flies about the size of a
gnat. The female punctures or "stipples" the leaves with her ovipositor to lay eggs in the leaf tissue or to feed on sap.

**Leafminer damage is easily recognized by the irregular serpentine mines in leaves, which are caused by feeding larvae.** Heavy leaf mining damage can reduce photosynthesis and cause leaf desiccation and abscission. The yellow maggots with black, sickle-shaped mouthparts feed on the mesophyll or chlorophyll tissue between upper and lower leaf surface leaving a winding trail or pattern through the leaf. The tunnel is clear with the exception of a trail of black fecal material left behind as the maggot feeds.

**Leafminer injury is readily visible to the grower but healthy plants can tolerate considerable damage without excessive loss of vigor and yield.** The Florida Tomato Scouting Guide sets action thresholds at 0.7 larva per plant for young plants with less than 2 true leaves and 0.7 larva per 3 terminal leaflets for larger plants. Heavily damaged leaves will often drop, due in part to entry of pathogenic organisms into old mines.

**An integrated pest management program that stresses conservation of natural enemies is the primary tactic for the successful control of leafminer.** Chemical control is difficult due to the feeding habits inside the leaf of the host plant. Insecticides that specifically target the leafminer are recommended as use of broad-spectrum materials may decimate beneficial insects including those that attack leafminer. This often results in a larger leafminer problem if the pesticide reduces field densities of leafminer parasites.

**Fortunately, populations are usually prevented from reaching truly damaging levels by a number of parasites that attack leafminers.** Several parasites for this insect have been recorded in Florida, but parasitic wasps such as *Opius, Diglyphus* are most common. Wasp larvae develop on or in the leafminer larva or pupa. The host ceases to feed and the parasitoid egg or larva is visible through the leaf epidermis using a hand lens against strong light. In scouting fields, growers should be careful to note the number of parasitized mines before deciding to apply insecticides.

**Due to its feeding habit, this pest is resistant to many insecticides. Cyromazine (Trigard) alternated with abamectin (Agrimek) are effective against leafminer in tomato.** Both of these products have limited crop registrations and must not be used on unregistered crops. Spinosad (Spintor) has also given good results and is labeled on a wide range of crops. Some other materials that may be used to conserve beneficials include azadirachtin and insecticidal oils. Both products are approved for use by organic growers.

**Field sanitation is an important control tactic that is overlooked.** When crops are not present in the fields, leafminers can survive on a variety of broad-leaf weeds. These plants serve as reservoirs for the pest.

For more information on leafminers, visit UF/IFAS Featured Creatures website at [http://creatures.ifas.ufl.edu/veg/leaf/a_serpentine_leafminer.htm](http://creatures.ifas.ufl.edu/veg/leaf/a_serpentine_leafminer.htm) and [http://creatures.ifas.ufl.edu/veg/leaf/vegetable_leafminer.htm](http://creatures.ifas.ufl.edu/veg/leaf/vegetable_leafminer.htm)

### Aphids

Growers and scouts around Homestead note that aphids are widely present in cucurbits and report that mosaic is present in fields where aphids are active.

**Respondents in Palm Beach indicate that winged aphids are beginning to be seen in tomato as well as cucurbits and specialty crops.** Colony formation has been noted in arrugula and cilantro.

**Around southwest Florida, winged aphids are showing up more widely in variety of crops with some colony formation being observed.**
**Pepper Weevil**

Respondents from Homestead report that pepper weevils are well established in pepper.

Around southwest Florida, reports indicate that pepper weevils are building up especially in older fields in a number of places. Several growers note that they are aggressively spraying in an effort to maintain control.

On the east coast, growers and scouts indicate that pepper weevil populations are building and are present in widely scattered locations.

The UF/IFAS Featured Creatures website has recently added a profile on the pepper weevil which can be found at [http://creatures.ifas.ufl.edu/veg/beetle/pepper_weevil.htm](http://creatures.ifas.ufl.edu/veg/beetle/pepper_weevil.htm).

**Mites**

Respondents in Palm Beach continue to report the occurrence of low to moderate broadmite pressure in eggplant and pepper.

Around Immokalee indicate that broadmites numbers remains low to moderate in pepper and eggplant.

Growers and scouts in Homestead report that broadmites and spider mites are increasing on eggplant and pepper.

**Whiteflies**

Around southwest Florida, whiteflies continue to increase especially in older tomato fields where nymphs and adults are being seen. Several respondents have noted apparent migration of adult whiteflies into tomato plantings with counts as high as ten per plant being seen on border rows at field edges. In some cases respondents note that incoming whiteflies appear to be infected with TYLCV. Whiteflies are also being reported on eggplant and pepper and have reached high levels in a few squash fields where no nicotinoid was applied at planting. Silverleaf symptoms have been noted in several of these locations.

Respondents from Palm Beach note increasing whitefly populations in older tomato fields where growers are reported to be applying a variety of controls as the effect of soil applied nicotinoids wear off. Scouts have also noted the apparent migration of whiteflies from older fields to new plantings with significantly higher whitefly counts being recorded on borders and edges of fields.

Scouts in Homestead are noting a gradual buildup of whitefly populations in tomato. Whiteflies are also present in beans in some locations. Silverleaf is being observed in heavily infested squash.

Growers are advised to monitor whitefly populations and maintain control of in-field populations as soil applied nicotinoids wear off, preferably with IGR such as Courier and Knacks, in order to reduce carryover to the next crop.

**Thrips**

Melon thrips (*Thrips palmi*) are widely present in Homestead and are causing problems in eggplant and pepper. Scouts are reporting heavy *Thrips palmi* infestations in some bean fields.
Growers and scouts around in Palm Beach are reporting finding a few Florida flower thrips (*Frankliniella bispinosa*) in pepper and tomato. Scouts are also beginning to note the occasional widely scattered appearance of symptoms consistent with *Thrips palmi* on pepper foliage.

**Melon thrips cause severe injury to infested plants.** Feeding usually occurs on foliage. Leaves become yellow, white or brown, and then crinkle and die. Heavily infested fields sometimes acquire a bronze color. Damaged terminal growth may be discolored, stunted, and deformed. Densities from one to 10 per cucumber leaf have been considered to be the threshold for economic damage in some studies.

For a further discussion of this pest, check out the UF/IFAS Featured Creatures profile at [http://creatures.ifas.ufl.edu/veg/melon_thrips.htm](http://creatures.ifas.ufl.edu/veg/melon_thrips.htm).

**Diseases**

**Bacterial Spot**

Around southwest Florida, bacterial spot remains active and continues to spread within established plantings as well as appearing in new plantings. Occurrence is widespread and incidence and severity ranges widely but is high in some fields. In some places, fruit has been infected and is being removed during picking and grading.

**On the east Coast, reports indicate that bacterial leaf spot is widespread in tomato.** In most places incidence and severity remain low to moderate although there are some reports of “bad” bacteria with significant quantities of fruit affected. Scouts also note that bacterial spot is becoming more widespread in pepper with some indication that it is coming in on transplants.

**Reports from Homestead indicate that bacterial spot has reached seasonally high levels in tomato.** Severity varies from low to moderate with some hot spots.

**Target spot and early blight**

Growers and scouts on both coasts have noted a noticeable increase in the occurrence of alternaria (early blight) and target spot creeping higher into the canopy in older tomato. Target spot has also been detected in the canopy of younger plantings. There have also been reports of target spot appearing on harvested fruit.

**Foliar symptoms of this disease are often difficult to distinguish from bacterial spot with out laboratory diagnosis.** Initially small water soaked lesions appear on the upper leaf surface. The lesions develop gradually increasing in size becoming round and pale brown with conspicuous yellow halos. Petiole and stem lesions are brown and oblong and may girdle and kill individual leaflets.

**The fruit lesions are quite distinct.** They first appear as dark pinpoint brown spots, which may enlarge and develop into sunken lesions with pale brown centers that often crack open. Fruit lesions may be found anywhere on tomato fruit but are most often concentrated on the shoulders.

**Target spot is a polycyclic disease that develops rapidly under cool damp conditions.** Optimum conditions for disease development include temperatures of 68° to 82° F and long periods of high moisture. The heavy night dews and foggy mornings often experienced in the fall in conjunction with tomato canopy closure are optimal for the development of this disease. Spray programs based on copper and manzate aimed at bacterial spot are ineffective in controlling target spot, chlorothalani based compounds are recommended for control and should be rotated into a tomato disease control.
**Tomato Yellow Leaf Curl Virus**

Growers and scouts on both coasts report finding a very low percentage of Tomato Yellow Leaf Curl infected tomatoes. In most instances infected plants are still few and far between although several reports are beginning to note the occurrence of secondary spread from initial infections. The incidence of infection remains mostly below 1% although there have been a few scattered reports of fields in the 2-3% range. A few recent reports indicate that new infections are being observed in conjunction with incoming migrations of infected whiteflies.

**Phytophthora**

Scouts in Palm Beach continue to report isolated widely scattered cases of *Phytophthora capsici* on pepper.

**Southern Blight**

Reports of southern blight continue to come in from scattered areas around southwest Florida as well as Palm Beach County. Incidence has reached one percent or more in several fields and is reported as high as 10% in at least on location.

Tomato plants with southern blight (*Sclerotium rolfsii*) display lesions on the stem at or near the soil line. These lesions develop rapidly during warm wet weather, girdling the stem and resulting in a sudden and permanent wilting of the plant. White mats of mycelia are produced on the stem and in the adjacent soil. In a few days, tiny tan to brown spherical sclerotia about 0.06 inches in diameter appears on the mycelial mat. The presence of abundant sclerotia is a good diagnostic feature.

There is no chemical control for this disease. Growers should use a preplant fumigant and practice long rotations between susceptible crops such as tomato, eggplant, beans, celery and lettuce. Sanitation including the removal and destruction of infected plants and deep plowing of crop debris are also recommended.

**Downy Mildew**

Downy mildew is widely present on cucurbits including squash and cantaloupe from widely scattered locations across south Florida. The downy mildew fungus, *Psuedoperonospora cubensis*, can complete its life cycle in three to four days. Because downy mildew increases over time at a rapid rate, spraying twice per week may necessary if the grower intends to hold the crop for later harvests. Since temperature and humidity in south Florida are nearly always right for the development of this disease, growers should apply protectant fungicides prior to the appearance of symptoms. Fungicides that are effective include, chlorothalonil (Bravo types), mancozeb (Dithane, Manex II, Manzate, Penncozeb), Ridomil Bravo, Ridomil MZ 68, or Quadris. Do not use Quadris in repeated sprays. It should be rotated with other fungicides for resistance management purposes.

**Powdery Mildew**

Respondents across south Florida note that powdery mildew is active on a range of cucurbits including squash and cucumbers. Strobularin fungicides like Quadris and Nova are said to be providing good control.

**Gummy Stem Blight**

Gummy stem blight is widely present on cucurbits around southwest Florida. Incidence and severity ranges from low to moderate depending the location.
Dr Tom Kucharek UF/IFAS Plant Pathologist has passed on the following caution to growers. Cabrio 2.08 FL, Headline 2.08 FL, Quadris 2.08 FL, Nova and Abound 2.08 FL are in the strobilurin group of fungicides and they all have the same specific mode of action.

Resistance to this chemistry is present in some pathogens including gummy stem blight. Many isolates from Florida of *Didymella bryoniae*, the causal agent of gummy stem blight, are no longer sensitive to Quadris 2.08 FL. Thus, rotation of Quadris with Cabrio in a spray program should not be relied on for resistance management. Syngenta, the manufacturer of Quadris and Abound, and BASF, the manufacturer of Cabrio and Headline, will clearly state this situation on their future labels and are in the throws of informing users of these products about the close relatedness of these products.

In Florida, gummy stem blight (black rot) is a serious disease that occurs annually on watermelons. Cucumbers, muskmelons, cantaloupes, squash, and other members of the cucurbit family may also be infected with gummy stem blight. Cucurbits may be infected at any time from seedlings to mature vines with fruit. Butternut and other winter squash are likely to exhibit symptoms only on the fruit or older leaves.

Infection and symptoms may occur on all plant parts except roots. Symptoms appear as light to dark brown circular spots on leaves or as a light to dark brown to black, often gummy, lesions on stems. Prior to the occurrence of chlorosis or necrosis, tissues may appear watersoaked. Wilting, followed by death of young plants may occur. Stem lesions enlarge and slowly girdle the main stem resulting in a red-brown-black canker that cracks and may exude a red to amber gummy substance. Vine wilting is usually a late symptom. Use of a hand lens will reveal small, clear white (when young) to black (when old), pimple-like pycnidia embedded in older diseased tissue.

Gummy stem blight typically progresses from the central stem of the plant to growing tips. Leaf spots are variable in shape, red-brown in color and initial infections are generally seen on leaf margins and veinal areas.

The fungus (*Didymella bryoniae*) that causes gummy stem blight produces two spore stages, a sexually produced spore (ascospore) and an asexually produced spore (pycnidiospore). The ascospore is windborne and can be disseminated from field to field serving as a primary source of inoculum. The pycnidiospore functions mainly in secondary spread of the disease. Pycnidiospores are released in a gummy substance that makes them more adaptable for spread by splashing water.

Growers often comment on this disease occurring “overnight.” What they are actually seeing are the results of secondary spread, which is more difficult to control than primary spread simply because of increased spore numbers with increased diseased tissue.

Nighttime temperatures and moisture conditions are ideal during much of the growing season in Florida. Gummy stem blight is most severe in wet years since moisture from dew, rain or irrigation is necessary for spore germination. The optimum temperature for infection is 61 to 75°F. After a spore germinates on a susceptible host, the fungus penetrates the plant tissue and symptoms can appear in 7 to 12 days. Wounds assist in promoting infection.

Gummy stem blight can be successfully managed if the grower utilizes a combination of control strategies. Control of primary sources of inoculum is important. Growers should purchase clean seed from reputable companies produced in arid western locations and avoid transplants that have gummy stem blight or other diseases.

In addition to seed, the most important source of primary inoculum is organic debris from previous cucurbit crops. After harvest, crop debris from should be plowed under to reduce inoculum. Volunteers and wild cucurbits provide an additional source of inoculum. Crop rotation and destruction of weed hosts are important for gummy stem blight control.
Multiple applications of fungicides are necessary to control gummy stem blight. It is important to begin a fungicide program prior to the first sign of gummy stem blight. In south Florida, the spray program should be initiated soon after emergence. Manzate, Bravo, Benlate and Quadris have given good results locally.

Mosaic

Growers and scouts are beginning to report finding low levels of virus in squash in scattered locations across south Florida. Some locally heavy hotspots with a higher incidence of the disease have been reported.

Fusarium

Respondents in Palm Beach report that fusarium wilt is beginning to show up on older tomato. Some have noted that it seems to be most severe in fields where nematodes are present.

Growers and scouts around southwest Florida are also noting an increase in the incidence of fusarium wilt and fusarium crown rot in tomato.

Symptoms of Fusarium crown rot are distinctly different from those of Fusarium wilt of tomato. The brilliant yellowing of the foliage typical of Fusarium wilt does not occur with crown rot. Crown rot generally first appears as marginal chlorosis or necrosis of the oldest leaves of scattered individuals plants as the crop nears first fruit maturity. These symptoms may be followed by a rapid wilt-to-death or more typically a slow wilt with upward progression of leaf chlorosis. Infected plants will often wilt during the day and recover during the night. Unlike the vascular symptoms associated with Fusarium wilt; the vascular discoloration evident in stem and/or roots is limited to the lower 12" of the stem. In addition with crown rot, definite root and crown rots occur. The pith of the stem at soil line may be necrotic, and will often display external cankers or lesions on the stem from soil line upward.

Control of crown rot is similar to that of Fusarium wilt, e.g., crop rotation, sanitation, increased soil pH, minimize use of ammoniacal nitrogen, and soil fumigation.

Tomato little leaf

More fields around Immokalee have been displaying symptoms of tomato little leaf. Incidence and occurrence ranges from low to severe with at least one 40-acre field nearly 100 percent affected. There have also been a few scattered reports of this problem on the east coast.

Tomato little leaf is a non-parasitic disease of tomatoes that causes virus-like symptoms in tomato. The disorder also affects other crops and has been referred to as fenching in tobacco. Symptoms of this condition are characterized by unusual growth consisting of interveinal chlorosis in young leaves. Subsequent growth becomes severely distorted with leaflets along the mid-rib failing to expand properly resulting in a “little leaf” appearance. Leaflets are twisted and distorted. In addition, failure of blooms to set fruit and fruit distortion consisting of radial cracks extending from the calyx to the blossom scar is often seen. Overall the appearance is reminiscent of viral or phenoxy herbicide symptoms.

The problem typically occurs on wet soils and is apparently caused by the release of amino acid analogs by soil microorganisms under wet conditions. It is important to note that symptoms often begin to appear as waterlogged soils begin to dry out. These compounds are taken up by plant causing the expression of virus-like symptoms.

The current hypothesis is that one or more amino acid analogs are synthesized by certain soil microorganisms and released into the rhizosphere. These compounds are structurally similar to the amino acid leucine. They are taken up by the plant and are capable of causing morphological changes and stunting in
susceptible plants at very low concentrations. It is believed that these compounds act as an anti-metabolite of the amino acid leucine. Currently, three soil microorganisms have been implicated as the causal agent. The first organism implicated was the bacterium *Bacillus cereus*. In controlled experiments, symptoms of frenching were obtained from diffusion of a compound produced by *B. cereus* into small tobacco plants. *B. cereus* is a ubiquitous soil inhabitant and has been observed in large numbers in the root zone of tobacco plants with frenching symptoms. Another organism that has been implicated is the fungus *Aspergillus wentii*. This organism has been shown to produce a compound (ANCPA, 1-amino-2-nitro-cyclopentane-1-carboxylic acid), which is a potent antagonist of leucine. In the lab it has been shown that ANCPA in minute quantities can produce symptoms on tobacco similar to frenching and can similarly affect the growth of other crops such as bean, tomato, sunflower and chrysanthemum.

**Control consists largely of managing soil moisture to avoid water logging.** Maintaining soil pH below 6.3 or less can also reduce development of the problem however changing soil pH should be approached carefully to avoid problems that might accompany reduced lime utilization in tomato. Affected plants generally resume normal growth once soil moisture levels become more favorable.

**Post-Harvest Disorders**

Growers and pack house operators around south Florida are reporting a higher than normal level of post harvest problems in tomatoes and other crops. Many of these problems are undoubtedly related to hot wet conditions during the early part of the growing season.

Post harvest diseases can be caused by a variety of bacterial and fungal pathogens. These include bacterial soft rot (*Erwinia carotovora subsp. carotovora*) and other bacteria such as *Pseudomonas*, *Xanthomonas* and *Bacillus* sp. Fungal pathogens include sour-rot (*Geotrichum candidum*), *Rhizopus stolonifer*, target spot (*Corynespora cassiicola*), *Phytophthora* sp., *Alternaria* sp. and others.

Effective water sanitation is one of the most important means of combating these problems. Maintenance of 100 ppm to 150-ppm free (also known as available or active, not to be confused with "total") chlorine at a neutral pH (~6.5 to 7.5) is the recommended treatment of dump tanks, flumes, and washers. Free chlorine reacts quickly with this organic matter plant and fruit surfaces as well as with soil or other inanimate matter. The products of these reactions make chlorine ineffective in killing microbes. Therefore, free chlorine concentration and NOT total chlorine concentration must be measured to determine the efficacy of the biocide in the tank.

As tomatoes are introduced into the dump-tank, leaves and soil also enter the water. Free chlorine reacts quickly with this organic matter plant and fruit surfaces as well as with soil or other inanimate matter. The products of these reactions make chlorine ineffective in killing microbes. Therefore, free chlorine concentration and NOT total chlorine concentration must be measured to determine the efficacy of the biocide in the tank.

Only free chlorine will destroy microbes. To further understand the difference between free and total chlorine, one can imagine a room full of chairs. With no one in the room, all of the chairs, the total number of chairs, are empty, or free. If several people come into the room and sit down, there is still the same total number of chairs present, but not as many chairs remain empty, or free for more people to sit in. As more people enter the room, all of the chairs eventually become occupied. This is similar to the free chlorine in the dump tank. As it reacts in the water, less is available for sanitizing and more free chlorine must be added to the water.

Effective water chlorination is also dependent on the pH of the water. Maintaining neutral pH (~6.5 to 7.4) maximizes efficacy of chlorine. Lowering the pH below 5 increases the amount of free chlorine, but can also increase off gassing, accelerate the rate at which chlorine is lost from the system (increasing the amount that must be added) and enhance corrosion of equipment. Alternatively, raising the pH above 7.5 reduces chlorine's efficacy.

It is also important to minimize infiltration of dump tank water (and any potential accompanying pathogens) into the tomato. Heating dump-tank water 5°C (about 10°F) above tomato pulp temperature has
been shown to reduce infiltration through the stem-end or blossom-end scars and skin breaks and, therefore, reduce post harvest decay.

**Tomatoes should be kept in the water for two minutes (one to three minutes).** This assures sufficient contact with the sanitizer, while avoiding extended soaking time that can increase water uptake.

**For effective sanitation, the dump tank must be frequently monitored for free chlorine, pH and water temperature throughout the packing day.** Automated systems using ORP and pH probes are commonly used in the industry, but manual readings should still be made and recorded every 30 minutes to an hour to ensure proper equipment operation. Record keeping is critical for trace-back and evaluation/resolution should a decay outbreak, occur during later handling, shipping or marketing. Hand-held electronic mV and pH meters, free chlorine test kits, and free chlorine are very reliable for this purpose.

**Dump-tank water is not the only potential source of pathogen inoculation of fruit.** Improper or careless handling during harvest or bin filling/dumping operations can cause serious mechanical damage. Some damage is obvious and is culled by sorters on the packing line. However, some other damage is nearly invisible without close inspection. A good example is the scraping wounds due to fruit rubbing rough bin walls, or abrasion caused by sand grains. Abrasions and micro perforations can directly inoculate the tomato. Sand is most common, but dried plant material, attached stems, wood splinters on bins, etc. can also be causal agents. Open wounds can also become infected later by other pathogens.

**Food Safety Program Offered Free to Florida Producers**

Florida Fruit & Vegetable Research & Education Foundation is offering growers and packinghouse managers an opportunity to implement an individualized food safety program. A federal grant pays everything except any future improvements the producer decides are necessary.

The Florida Department of Agriculture & Consumer Services awarded the Foundation $500,000 earlier this year to teach producers about basic Good Agricultural Practices. Glades Crop Care will work with participants to determine their needs, and then provide educational toolkits containing print and audio/visual materials that outline food safety standards and present guidelines for evaluating and modifying any potential problem areas.

The program benefits producers of all types of fruits and vegetables and is applicable throughout the entire state of Florida.

**Implementation is scheduled for November.** To be included in the initial phase of the program, contact Glades Crop Care at (561) 746-3740. Glades Crop Care will send a letter requesting more information about each producer's individual situation.

To learn more about the program, visit the Glades Crop Care website at [www.gladescropcare.com](http://www.gladescropcare.com).

**Relevance of Food Safety Programs**

The need for a food safety initiative has been promoted for several reasons. Foremost is the globalization of our food supply along with consumer demand for a wide variety of fresh fruits and vegetables all year round. Additional pressure for a high level of microbial food safety comes from the fresh cut industry, which offers an array of ready-to-eat, pre-cut salads, fruits (notably melons) and vegetables. Along with these consumer trends, changes in U.S. demographics also play a role. As the baby boomers get older, more people are elderly and may have compromised immune systems or chronic diseases. Consequently, more people are especially susceptible to food-borne illnesses.
With these consumer trends, unfortunately, has come a nationwide increase in produce-related food born illnesses. The following figures come from Food Safety Begins on the Farm: A Grower's Guide, published by Cornell University as part of a national effort to develop Good Agricultural Practices (GAP's), jointly sponsored by the Cooperative State Research, Education and Extension Service, the U.S. Department of Agriculture and the U.S. Food and Drug Administration (this GAP task force includes representatives from the University of Florida and Georgia). Between 1970 and 1997 per capita consumption of fruits in the U.S. went up 24%, from 577 to 718 pounds. With this increase, however, the number of outbreaks of food related illnesses has steadily risen. Between 1996 and 2000, 113 outbreaks with 3,805 individual cases associated with produce were reported to the Food and Drug Administration.

In these outbreaks, bacterial human pathogens outnumbered other types of pathogens as the disease-causing agents. The most common of these bacterial pathogens are Salmonella spp. and E. coli O157:H7, which accounted for over 75% of produce-related outbreaks between 1988 and 1998. These bacteria belong to groups that have both human and animal reservoirs, and are also associated with fecal contamination. These facts help explain why food safety experts place great emphasis on worker health, safety and hygiene and on the management of animals, manure and other biosolids in and around farms where fruits and vegetables are grown. In fact, a farm's management of toilet facilities, hand washing stations and the cleanliness of the audit. For produce run through a packinghouse or hydro-cooler, the same issues can be even more important!

But there is important good news. The latest round of testing by the Food and Drug Administration shows that 98.4% of the samples are free of microbial contamination from eight commodities. Out of 687 samples, 11 tested positive for Salmonella and Shigella. A 1999 survey of imported produce showed 94% to be free of pathogens. (Information excerpted from the Glades Crop Care website.)

BRANCH MANAGER POSITION - Sakata Seed America, Inc. seeks a Branch Manager for it’s Fort Myers, Florida Research Station. Position responsible for overall administrative management and general operation of the research station. May also be responsible for product management of one or more crops and/or breeder supervision. BS in related discipline and min. 10 years agriculture related experience required. Advanced degree desirable. Excellent wage and benefits package commensurate with experience. Submit CV to any of the following: Fax: 408-779-4398, E-Mail: hr@sakata.com or mail to 18095 Serene Drive, Morgan Hill, CA 95037. Sakata is an equal opportunity employer committed to a culturally diverse workforce.

AG CONSULTING /SCOUTING SERVICE – Dr. Henry Yonce would like to announce the opening of his new company – KAC Agricultural Research, INC. KAC Agricultural Research will conduct contract research for companies and growers and will also be available for scouting and consulting with citrus and vegetable producers. For more information, call Henry at 386-736-0098 (office), 386-527-1124 (cell) or 158*17*45805 (Nextel).

OPPORTUNITY – Exhibitors wanted for the National Association of County Agricultural Agents Annual Meeting to be held in Orlando in July 2004. This is a great opportunity to present your products to the more than 2500 County Extension Agents from all over the United States that are expected to attend this meeting.

To reserve a place contact Ed Jennings at 352-793-6376.

Websites

Pesticide.Net – this site claims to be the world's most comprehensive source of continuously updated pesticide related news and regulatory information, with over ten thousand full text documents and many other resources. Go to http://www.pesticide.net/?source=google.
CIA World Factbook 2000 – Whether you are planning a trip to an exotic place or helping a child with a report the CIA World Factbook can provide you with everything you need to know about a country and then some. Set your browser to http://www.cia.gov/cia/publications/factbook/

Up Coming Meetings

Southwest Florida

December 13, 2002  Fall Field Day  10 AM - Noon

UF/IFAS Southwest Florida Research and Education Center
Hwy, 29
Immokalee

Contact 863-674-4092 for details.

Palm Beach County

December 2, 2002  General Standards/Core Test Review  8 AM - 10 AM
Aquatic Weed Control Test Review  1 PM - 3 PM

Clayton E. Hutcheson Agricultural Center
559 N. Military Trail
West Palm Beach
For information, call (561) 233-1700, select option 1, then option 3

Other Meetings

December 8-12, 2002  Cucurbitaceae 2002

Naples Beach and Golf Club, Naples, Florida
Contact Don Maynard at 941-751-7636 ext 239 or
dnma@mail.ifas.ufl.edu.

March 10 –13, 2003  Florida Post-Harvest Horticulture Industry Tour
Contact Steve Sargent at 352-392-1928

April 29-30, 2003  FACTs - Florida Agricultural Conference and Trade Show
Lakeland Center, Lakeland, Florida

Quotable Quotes

Bugs are not going to inherit the earth. They own it now. So we might as well make peace with the landlord. -- T. Eisner

Humanity has advanced, when it has advanced, not because it has been sober, responsible, and cautious, but because it has been playful, rebellious, and immature. -- Tom Robbins

Knowledge is of two kinds. We know a subject ourselves, or we know where we can find information on it. -- Samuel Johnson
A government that robs Peter to pay Paul can always depend upon the support of Paul. -- George Bernard Shaw

**On the Lighter Side**

A well-known speaker started off his seminar by holding up a $20 bill. In the room of 200, he asked, who would like this $20 bill? Hands started going up.

He said, I am going to give this to one of you, but first, let me do this. He proceeded to crumple the bill up. He then asked, who still wants it?

Still the hands were up in the air.

Well, he replied, what if I do this? He dropped it on the ground, and started to grind it into the floor with his shoe. He picked it up, now crumpled and dirty. Now, who still wants it?

Still hands went into the air.

My friends, you all have learned a very valuable lesson. No matter what I did to the money, you still wanted it, because, it did not decrease in value. It was still worth 20 dollars.

Many times in our lives, we are dropped, crumpled and ground into the dirt by the decisions we make and the circumstances that come our way.

We feel that we are worthless, but, no matter what has happened or what will happen, you will never lose your value, dirty or clean, crumpled or finely creased, you are still priceless to those who love you.

The worth of our lives come not in what we do, or who we know, but, by who we are. You are special; don't ever forget it!

Pass this on to those you care about. You will never know the lives it touches, the hurting hearts it speaks to, or the hope that it can bring.

Always count your blessings, not your problems.

**The Real Seven Wonders of the World**

A group of students was asked to list what they thought were the present Seven Wonders of the World. Though there was some disagreement, the following got the most votes:

1. Egypt's Great Pyramids
2. Taj Mahal
3. Grand Canyon
4. Panama Canal
5. Empire State Building
6. St. Peter's Basilica
7. China's Great Wall

While gathering the votes, the teacher noted that one quiet student hadn't turned in her paper yet. So she asked the girl if she was having trouble with her list.

The girl replied, "Yes, a little. I couldn't quite make up my mind because there were so many."
The teacher said, "Well, tell us what you have, and maybe we can help." The girl hesitated, then read, "I think the Seven Wonders of the World are:

1. to touch
2. to taste
3. to see
4. to hear

...She hesitated a little, and then added

5. to feel
6. to laugh!
7. and to love

The room was so full of silence you could have heard a pin drop. Those things we overlook as simple and "ordinary" are truly wondrous.

A gentle reminder on Thanksgiving that the most precious things are before you: your family, your faith, your love, your good health and your friends.

Contributors include: Joel Allingham/AgriCare, Inc, Karen Armbrester/SWFREC, Kathy Carbiener/Agricultural Pest Management, Jim Connor/SWFREC, Bruce Corbitt/West Coast Tomato Growers, Fred Heald/Farmers Supply, Sarah Hornsby/AgCropCon, Cecil Howell/H&R Farm, Loren Horsman/Glades Crop Care, Bruce Johnson/General Crop Management, Dr Mary Lamberts/Miami-Dade County Extension, Leon Lucas/Glades 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, Teresa Olczyk/ Miami-Dade County Extension, 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/Stephen’s Produce, Ed Skvarch/St Lucie County Extension, John Stanford/LNA Farm, Mike Stanford/MED Farms, Dr. Phil Stansly/SWFREC, Eugene Tolar/Red Star Farms, Dr Charlie Vavrina/SWFREC, Mark Verbeck and Donna Verbeck/GulfCoast Ag.

The South Florida Pest and Disease Hotline is compiled by Gene McAvoy and is issued on a biweekly basis by the Hendry County Cooperative Extension Office as a service to the vegetable industry.

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