



UNIVERSITY OF  
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E X T E N S I O N

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# SOUTH FLORIDA VEGETABLE PEST AND DISEASE HOTLINE

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Despite forecaster's predictions for a drier than normal winter season, South Florida has been the recipient of scattered showers ahead of a number of cold fronts which has bought above average precipitation to the area over the past few months. Frequent showers and foggy mornings have kept diseases active.

With only one real bout of freezing weather in January, this winter has been relatively kind to growers. Strawberries are about finished in Central Florida while some growers are beginning to cut watermelons around SW Florida and volumes will increase over the next few weeks.

### FAWN Weather Summary

Date	Air Temp °F		Rainfall (Inches)	Ave Relative Humidity (Percent)	ET (Inches/Day) (Average)
	Min	Max			
<b>Balm</b>					
2/4 – 3/26/14	34.51	85.96	4.97	80	0.1
<b>Belle Glade</b>					
2/4 – 3/26/14	38.67	89.64	3.93	82	0.11
<b>Clewiston</b>					
2/4 – 3/26/14	39.66	88.77	3.80	80	0.11
<b>Ft Lauderdale</b>					
2/4 – 3/26/14	47.44	88.27	3.63	77	0.12
<b>Homestead</b>					
2/4 – 3/26/14	45.45	89.37	4.12	80	0.12
<b>Immokalee</b>					
2/4 – 3/26/14	40.47	90.28	2.61	80	0.11
<b>Okeechobee</b>					
2/4 – 3/26/14	36.79	87.1	3.62	82	0.1

**“Remember, when in doubt - scout.”**

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**Cool temperatures have reduced supplies and helped keep prices up on many commodities.** Crops coming to market include beets, cabbage, celery, collards, cucumbers, eggplant, herbs, lettuce, kale, peppers, potatoes, radishes, snap beans, squash, strawberries, sweet corn tomatoes, watermelons and a variety of specialty items.

**The National Weather Service indicates the high pressure which moved in behind a cold front which moved across the area last night will quickly slide to the east, allowing an easterly flow to return to the area by Thursday.** This will bring back surface moisture and warmer temperatures, although highs will only be in the mid-70s.

**By Friday, a southeasterly flow will continue to bring warmer, moister air to the area bringing a slight chance of showers Thursday night and Friday morning, and a chance of showers by Friday afternoon for the northwestern locations of the South Florida.**

**A developing low over the high plains of Texas will move east, moving a cold front towards the region by Saturday afternoon, placing South Florida in the warm sector for Saturday and increasing the chance of showers for Saturday afternoon through Sunday.**

**Behind the cold front, high pressure will build in once again for the beginning of next week.**

**For additional information, visit the National Weather Service in Miami website at <http://www.srh.noaa.gov/mfl/newpage/index.html>**

## **Insects**

**Cool conditions over the past few weeks have kept insect pressure mostly low.**

### **Whiteflies**

**Around Southwest Florida, whiteflies have been up and down depending on locations.** In general whitefly pressure is increasing seasonally in a number of crops but is about normal for this time of the season. Whitefly pressure is reported to be higher where tomatoes are close to potatoes.

**Growers and scouts are reporting adult whiteflies migrating from fields being destroyed.** Nymphs are building in these older fields allowing adults to reach high levels before the fields are cleaned up. Some high numbers have been reported in some melon fields which causes potential concerns about possible virus issues.

**Around Palm Beach County, whitefly pressure is reported to range from moderate to very high.** There continue to be reports of instances where growers have not cleaned up resulting in huge numbers of whitefly blowing onto neighboring farms.

**In some cases, it appears that broadmites are also coming in on whiteflies blowing in from old pepper fields.**

**In the Manatee Ruskin area whitefly numbers range from not too bad to around 1/plant depending on location**

**Around Homestead, whitefly activity remains high along with resulting virus spread.**

**As crops reach completion growers should strive to disrupt the virus-whitefly cycle by creating a break between crops, especially tomato by destroying the crop quickly and thoroughly, killing whiteflies and preventing re-growth.**

- a. Promptly and efficiently destroy all vegetable crops within 5 days of final harvest to decrease whitefly numbers and sources of plant begomoviruses like TYLCV.
- b. Use a contact desiccant (“burn down”) herbicide in conjunction with a heavy application of oil (not less than 3 % emulsion) and a non-ionic adjuvant to destroy crop plants and to kill whiteflies quickly.
- c. Time burn down sprays to avoid crop destruction during windy periods, especially when prevailing winds are blowing whiteflies toward adjacent plantings.
- d. Destroy crops block by block as harvest is completed rather than waiting and destroying the entire field at one time.

For more information on control see Management of Whiteflies, Whitefly-Vectored Plant Virus, and Insecticide Resistance for Vegetable Production in Southern Florida at <http://edis.ifas.ufl.edu/in695>

### **Pepper Weevils**

**In Palm Beach County, reports indicate weevils continue to be active and pressure is reported to be extremely high in some fields.**

**Pepper weevils remain a major issue in Homestead.** Actara, Vydate, the diamide insecticides (Coragen, Verimark, Exirel and others) and pyrethroids can be used in rotation to control weevils. Field sanitation is also important and abandoned fields should be disked up in a timely fashion.

**Around Southwest Florida, pepper weevil pressure is increasing and populations are becoming established in a number of younger spring fields.** Growers and scouts are also reporting big migrations from older pepper fields.

**In the Manatee Ruskin area, respondents indicate peppers are looking good with no weevils reported yet.**

### **Thrips**

**Around Homestead, growers are having hard time with melon thrips.** Nearly all vegetables, except tomato, have suffered economic damage due to melon thrips infestation. Dr Dak Seal conducted various chemical evaluation studies with some success.

**Flower thrips have also been active around Miami-Dade County and a number of growers are reporting tomato plantings infected with flower thrips transmitted GRSV.**

**Dr Dak Seal, Entomologist at UF/IFAS TREC reports that he trialed Entrust, Radiant, Closer, Agrimek, Verimark, Exirel, Belay, tolfenpyrad, Movento, Requiem, Lannate, and various pyrethroids for efficacy against thrips.** All products were applied four times at weekly intervals. Verimark was applied once at planting. Depending on application rates, all experimental products showed reduction of melon thrips. However, better reduction in melon thrips populations was achieved by combining Radiant with Requiem and alternating this combination in rotation with other above mentioned insecticides.

**Around Palm Beach, scouts report that thrips very high in some locations and note that thrips are moving from older pepper fields to adjacent younger ones.** Respondents indicate that these appear to be mostly western flowers thrips and are causing damage in pepper and eggplant and etching some tomatoes as well.

**In the Glades, thrips populations have been extreme on some of the leafy vegetables but seem to be declining following Coragen applications.** Dr Rick Raid, Pathologist at UF/IFAS EREC warns that thrips transmitted viruses like tobacco streak virus, the cause of bean red node virus and escarole necrosis could be severe if not controlled.

**Around SW Florida, thrips have been mostly low but are beginning to move around and show up in numbers that warrant concern.**

**Natural enemies, particularly predators like the minute pirate bug, are important enemies of thrips.** In fact, population numbers and damage caused by thrips may be increased by application of some broad-spectrum insecticides.

**Foliar insecticides are frequently applied for thrips suppression, but at times it is difficult to attain effective suppression.** It is usually inadvisable to apply insecticides if predators are present.

**Consult UF/IFAS recommendations for currently labeled insecticides for thrips control in Florida.** Growers should be sure to rotate between insecticides with different modes of action to avoid the development of resistance.

**Group 5 insecticides (Radiant and Entrust) have been effective on thrips, but overuse can lead to the development of resistance.**

### **Aphids**

**Around SW Florida aphids are moving around and pressure is increasing in several crops and locations.**

**Around the EAA, aphids of remain active in leafy greens.**

**In eastern Palm Beach County, aphids are around but not a major concern at this time.**

### **Leafminers**

**On the East Coast, leafminers are generally low on most crops.**

**Around Immokalee, leafminers are still around and growers have noted some movement from older fields to younger plantings.**

**Reports indicate leafminer have been causing problems in Ruskin area.**

### **Corn Silk Fly**

**Corn silk fly remains a common and persistent problem on sweet corn in Homestead and around Belle Glade.**

**Dak Seal reports that in Homestead there is a serious influx of silk fly adults from tomato, papaya, guava, banana, sorghum and other alternate host crop fields.** Where possible, growers are advised to pay attention to cleaning up fruit crops near sweet corn fields.

### **Worms**

**Around South Florida, worm pressure is mostly low with few exceptions.** Pressure is likely to increase as we move into warmer weather over the next few weeks.

**A few pinworms and beet armyworms have been reported around the Manatee Ruskin area.**

**A few new armyworm hatches have been reported in Palm Beach County.**

### **Broad Mites**

**Broad mites remain active is starting to pick up around South Florida.**

**Around Palm Beach County, broad mites are still common in older pepper and eggplant.** Scouts report that in some places broad mites are being carried into fields of young pepper by whiteflies from nearby older fields.

**Respondents report that broad mite activity has been persistent around Homestead.**

**Growers in SW Florida report that broad mites continue to flare up and cause problems in pepper and eggplant.**

**Broadmites are also showing up around Ruskin.**

### **Spider mites**

**Around Immokalee, spider mites have become more common but remain mostly low.** Some respondents indicate that they are building in some cucumbers and squash.

**Red and two-spotted spider mites continue to be found on eggplant and beans in Palm Beach County.**

**Around Homestead, spider mites are active on beans and squash.**

### **Stinkbugs**

**Low levels of stinkbugs and leaf-footed bugs continue to show up in pepper and tomato fields around South Florida and are causing some fruit damage in places.**

### **Diseases**

**Cool foggy mornings and light rains over the past few weeks have increased disease potential, growers are advised to tighten up scouting and review their disease control program.** Remember most fungicides are protectants and must be applied preventatively before infections occur for maximum benefit. In addition with many crops approaching maturity, coverage is important especially in those crops where dense canopies exist.

### **Late Blight**

**Late blight is now present across South Florida.**

**Late blight has flared up in several tomato fields around SW Florida over the past couple of weeks with some locations reaching moderate to high levels.** In most tomato fields, late blight is hanging around just enough to be annoying and worrisome. Growers and scouts also note some spread in potatoes but note that incidence remains at low levels. There have been some notable exceptions where serious losses have occurred in tomatoes.

**Respondents in the Manatee Ruskin area note that while mostly low, late blight occurrence really ratcheted up in some location following recent rains.**

**Late blight remains low in most east coast locations.**

**Growers would be well advised to scout susceptible crops carefully as the NWS is calling for damp weather over the next several days which is conducive to disease development.** Since the disease can spread so rapidly, growers should scout their fields thoroughly each day, especially when cool and wet conditions conducive to disease development prevails.

**The disease thrives under cool and wet conditions.** Temperatures between 50 and 80 F combined with moist conditions such as rain, fog, heavy dews, or relative humidity above 90 percent are conducive for disease development. Night temperatures in the mid-fifties with daytime temperatures from the mid-fifties to mid-seventies are ideal for this disease.

**Late blight symptoms on leaves appear as irregularly shaped brown to purplish lesions with indefinite border lesions that can span veins.** The lesions may be seen any time of day, on any stage of plant growth and on leaves of any age. Velvety, white fungal growth may appear on the lower surface of affected leaflets early in the morning before leaves dry and/or in the lower canopy.

**On stems, purplish lesions may be found anywhere on the stem.** Cottony, white growth of fungus on stems with lesions can often be seen early in the morning and/or in the lower canopy. Stems with lesions are brittle and break easily. Lesions are confined to epidermis and cortex. Leaf rolling and wilting is often associated with stem lesions and purpling of leaflets may occur in some varieties.

**Begin a spray program with fungicides if late blight is in your area or weather conditions are suitable for late blight development.** After potato harvest, kill infected foliage to minimize tuber infection.

**Currently, fungicides are the most effective means of controlling late blight and will remain the primary tool until cultivars with resistance to this disease become available.** Fungicides slow the rate at which the disease develops in the field by creating a protective barrier on the foliage.

**Just applying a chemical, however, does not necessarily equate with effective disease control.** Relative effectiveness of a product, coverage, and timing must be factored into the equation for maximum benefit.

**Numerous fungicide products are registered for late blight control.**

**Protectants, as the name implies, protect foliage from infection by spores.** Protectant chemicals must be well distributed over the leaf surface and must be applied before spores land on leaves. They are ineffective against established infections.

**PROTECTIVE applications of chlorothalonil are your first line of defense for managing late blight.** Timing is critical - applications must be made when conditions are conducive for disease development and before infection occurs!!! Once late blight is present, growers are advised to transition to more efficacious materials – see list below.

**Systemic products become distributed locally within plant tissues and protect foliage from infection by spores.** They may kill some established infections and may suppress production of new spores. Even a short break in spray schedules, despite what is said regarding some of the newer fungicides, can result in a dramatic increase in blight under the conditions we have had during the past two weeks.

**Consult current UF/IFAS recommendations for labeled fungicides for the control of late blight.**

## Fungicides for Late Blight

Product	Brand Name	FRAC Number
• chlorothalonil	many brands	M5
• maneb/mancozeb	many brands	M3
• cyazofamid	Ranman	21
• cymoxanil	Curzate	27
• strobilurins*	Quadris, Cabrio, Flint	11
• fluopicolide	Presidio	43
• famoxadone + cymoxanil	Tanos	11 + 27
• mandipropamid	Revus	40
• Dimethomorph	Acrobat, Forum	40
• mefenoxam**	Ridomil	4
• propamocarb	Previcur Flex	28
• zoaxamide + mancozeb	Gavel	22 + M3
• dimethamorph +ametoctradin	Zampro	40 + 45

\* see caution from Dr Gary Vallad about efficacy of strobilurins fungicides for target spot below.

\*\* resistance documented in many races

For more info, check out USABlight for more info and photos - <http://usablight.org/lateblight>

USABlight.org is a national website that was constructed to provide information on late blight. Users can find useful information on upcoming webinars, scouting videos, genotyping of the pathogen, and other information including locations of disease occurrence.

### Target Spot

**Target spot continues to plague tomato growers around SW Florida and respondents indicate that many fields are experiencing some reductions in pack outs due to fruit infections.**

**Around Palm Beach County, target spot has reached high levels in some tomato fields.**

**Target spot remains common on tomatoes around Homestead.**

**Target spot is present at low levels around Manatee County.**

**Target spot is frequently misdiagnosed as in its early stages as symptoms are difficult to recognize and can be confused with bacterial spot and early blight.**

**On tomato fruit, lesions are more distinct.** Small, brown, slightly sunken flecks are seen initially and may resemble abiotic injury such as sandblasting. As fruits mature the lesions become larger and coalesce resulting in large pitted areas. Advanced symptoms include large deeply sunken lesions, often with visible dark gray to black fungal growth in the center. A zone of wrinkled looking tissue may surround the margins of lesions on mature fruit. Placing suspect fruit in a moist environment for 24 hours will often induce the growth of dark gray mycelia providing telltale diagnostic evidence of target spot infection.

**Currently, target spot is controlled primarily by applications of protectant fungicides.** It should be noted that tank-mix sprays of copper fungicides and maneb do not provide acceptable levels of target spot control.

**Dr Gary Vallad writes that he does not recommend using QoI fungicides (FRAC #11) for managing target spot.** He notes that to date, all the strains of target spot (*Corynespora cassiicola*) he has collected or received from consultants are resistant to QoI fungicides (FRAC #11).

**In field trials, QoI (FRAC #11) fungicides have proven ineffective as well.** In controlled trials, treating tomato plants with QoI fungicides in the presence of these resistant strains actually enhanced disease severity compared to plants not treated with any fungicide.

**Dr. Vallad also collected several isolates of *Corynespora cassiicola* resistant to SDHI fungicides (FRAC #7), but at a much lower frequency.** So, growers need to be sure to rotate any SDHI fungicide (whether single or mixed formulations) appropriately with other effective fungicides.

**Gary's recommendation for target spot management, ranked by efficacy:**

- 1) Scala (a.i. pyrimethanil; FRAC #9)
- 2) Inspire Super (a.i. cyprodinil + difenoconazole; FRAC #9 & #3)
- 3) Endura (a.i. boscalid; FRAC #7) or Fontelis (a.i. penthiopyrad; FRAC #7)
- 3) Revus Top (a.i. mandipropramid + difenoconazole; FRAC #40 & #3)
- 4) a.i. mancozeb; FRAC M3, various formulations
- 5) a.i. chlorothalonil; FRAC M5, various formulations

**\*\*Pristine and Priaxor are fungicide formulations containing a SDHI fungicide (FRAC #7) mixed with pyraclostrobin, a QoI fungicide.** In field trials, these formulations were still effective against target spot, in the absence of SDHI resistant strains of *C. cassiicola*. Growers should be cautious when using these products, using them early within an effective fungicide rotation.

**Target spot has also been active on cucumbers in Palm Beach County.**

### **Bacterial Spot/Speck**

**Bacterial spot remains active on pepper and tomato around South Florida and growers and scouts report finding new bacterial spot in a number of fields behind recent rainy weather and note that bacteria has remained persistent problem all season long.**

**Some bacterial speck has been reported along with the more common bacterial spot in a number of areas.**

### **Downy Mildew**

**Around SW Florida, downy mildew has been showing up at mostly low levels in a number of watermelon fields over the past week.** Downy mildew has increased in cucumber following recent rains and to a lesser extent in squash as well.

**In Palm Beach County and other east coast locations, downy mildew is active in cucumber and squash.**

**Reports from Central Florida indicate that downy mildew is beginning to show up in some watermelon fields in the Manatee/Hillsborough area.**



**On cucurbits, downy mildew lesions start out as yellow angular leaf spots typically located away from leaf margins that will later turn brown to black in color.** Often leaf curling and water soaking are associated with downy mildew. A white to grayish fungal growth will appear in the undersides of these lesions when the leaves are wet from heavy dews, rainfall and high humidity (> 90%).

**Protectant fungicides (chlorothalonil and mancozeb) provide excellent control early in the season, but their effectiveness is limited once the disease becomes established.** Downy mildew has been reported to have resistance to Ridomil Gold and FRAC group 11 (e.g., Cabrio, Quadris) fungicides. Revus, Ranman, Presidio and Previcur Flex are the recommended fungicides for DM control once it is present. These fungicides should be mixed with a protectant fungicide to provide optimal control of DM.

**In addition to the cucurbits, downy mildews are having a field day on a number of other crops.**

**Downy mildew pressure in basil has been relentless and growers have to work hard to keep it in check.**

**In basil, symptoms of downy mildew initially appear as yellowing and cupping of the leaves and are typically concentrated around the mid-vein.** Growers may not realize their basil is infected with downy mildew since the yellowing of the foliage is similar to a nutritional deficiency. The discolored area may cover most of the leaf surface.

**On the underside of leaves, a gray, fuzzy growth may be apparent by visual inspection.** Under high humidity, the chlorotic areas on the leaf turn to dark brown quickly. Sporangia, the reproductive structures of the pathogen, are easily detected under magnification and are diagnostic for this disease.

**The dark sporulation of the lower leaf surface renders the product unacceptable for market and may result in severe losses.** The disease symptoms can intensify in transit on harvested product and again result in unsalable product on arrival.

**Disease development is favored by high humidity and leaf wetness.** In field spread is through spores. This disease can become very severe if crops are not protected with a rigid fungicide program.

**Although few fungicides are specifically labeled for this disease, some broadly labeled fungicides which are labeled under the herb crop grouping on current labels, such as Ranman, Quadris and Amistar (Azoxystrobin) and the phosphonic acids have shown efficacy in managing the disease.**

**Recently Revus received a label for use against pythium but it also provides excellent control of downy mildew when used early as a soil drench.** These fungicides are most effective when applications are started before or just after initial symptoms are found.

**Downy mildew has been active on lettuce around Belle Glade.** Although pressure has declined recently it will likely be present for the remainder of the season, requiring protective sprays.

**Downy mildew has also been active on kale.** Respondents report that it has been very severe on spring mix kale, but a bit less severe on large leaf kale.

**Dr. Rick Raid reports that growers are seeing downy mildew problems on sage and rosemary.** He notes that this is a new one for South Florida and like basil downy mildew it looks like it is here to stay.

## Powdery Mildew

**On the East Coast, powdery mildew remains active in pepper and has reached high levels in some locations.** Powdery mildew is also causing problems in squash. Incidence ranges from none to high depending on location and age of the field.

**Around SW Florida, powdery mildew is showing up in some watermelons, reaching moderate to high levels in squash and also present in several pepper fields.**

**Growers in Homestead are reporting some problems with powdery mildew on beans and cucurbits.**

**Detecting powdery mildew on pepper can be difficult.** The white powdery growth characteristic of powdery mildew diseases occurs only on the underside of leaves and will often turn brown rather than remaining white. Diffuse yellow spotting often develops on the upper surface and affected leaves tend to drop off the plant, as occurs with bacterial leaf spot.

**Powdery mildew of pepper is caused by *Leveillula taurica*, which is a very different powdery mildew fungus from that causing powdery mildew on cucurbits.** This powdery mildew pathogen differs from powdery mildew pathogens in other genera in that it primarily occurs inside the leaf rather than on the leaf surface.

***Leveillula taurica* infects over 1000 plant species in 74 families, including tomato and eggplant as well as pepper.**

**Fungicides can provide satisfactory control and prevent economic loss if applied during the early stages of the infection.** Effective control requires spraying with high pressure and high volume of water for optimum penetration of the crop canopy by the fungicide.

**Organic growers may use sulfur and potassium bicarbonate for control.**

**Consult UF/IFAS recommendations for currently labeled fungicides for powdery mildew control in pepper and other vegetables.**

**Powdery mildew on cucurbits typically produces white, powder-like signs (this may be hard to see on watermelon) on the upper and lower surface of watermelon leaves.** This disease will start as small, faint yellowish spots on the leaves. The spread is facilitated by dry conditions; however moisture is required for infection.

**Symptoms first appear in the lower canopy on older leaves and can quickly spread throughout a field in the right environment.** Yields can be reduced by 30% or more in crops not sprayed for this disease. Powdery mildew has developed resistance to fungicides in FRAC groups 1 (e.g., Topsin M), 3 (e.g., tebuconazole) and 11 (e.g, Cabrio).

Currently, the recommended fungicides for PM are Torino, Quintec, Switch and Luna Experience.

## Gummy Stem Blight

**Gummy stem blight is present at low levels on watermelon around Southwest Florida.** Some infections seem to have started in transplant houses so growers should inspect plants carefully.

**Gummy stem blights primary symptom is dark circular leaf spots at the margin of the leaves where moisture holds for long durations.** When severely infected, complete leaf necrosis and leaf drop can be

noticed. Yield losses can be as high as 30-40% if the disease is not managed using an appropriate fungicide management strategy under high moisture and warmer weather conditions. If a severe outbreak happens early in the season leading to heavy leaf drop yield losses can be higher as exposed fruits can have sun scalding.

**The GSB pathogen is known to be resistant to a wide range of FRAC groups.** Hence a carefully planned fungicide rotation program is necessary to reduce the risk of fungicide resistance. Based on previous findings in the U.S, fungicides in FRAC groups 11 (e.g., Quadris), 1 (e.g., Topsin-M), and 7 (e.g. boscalid) have a high risk of failure if fungicide resistant GSB isolates are present in the field.

**The recommended fungicides for GSB management include rotation programs with FRAC group M5 (e.g. fungicides with Chlorothalonil active) with a group 3 (e.g. tebuconazole) or group 9 + 3 (e.g. Inspire Super) or group 7 + 3 (Luna experience) fungicides.**

### Alternaria

**Respondents around South Florida report an increase in Alternaria on tomato often in mixed infections with target spot.**

**Celery producers report some problems with early blight especially where fungicide coverage has been poor.**

**Growers around South Florida report finding Alternaria on dill and cilantro.** Control may require fungicides. Strobilurins most efficacious, and should be rotated with a triazole to prevent fungicide resistance.

**Alternaria has also been reported on cabbage around South Florida.**

### Corn Leaf Blight

**Around Belle Glade, southern corn leaf blight has wrapped around from fall due to the warm winter and northern corn leaf blight is beginning to pick up.**

**Northern corn leaf blight caused by the fungus *Exserohilum turcicum* was one of the most important sweet corn diseases in southern Florida causing significant losses some years.** It is still a potential threat, occurring every spring and occasionally late fall. Resistant varieties have helped reduce the impact of northern corn leaf blight in recent years.

**Initial symptoms of the disease include yellow spots that develop on the foliage.** These enlarge to form tan or straw-colored dead areas about 4 to 6 inches long and one half inch wide. NCLB produces a long, elliptical lesion, while those of southern corn leaf spot tend to be oblong and much smaller than those produced by NCLB. Southern blight lesions are also lighter in color (light tan to brown), and have parallel sides rather than the tapering sides of lesions caused by *E. turcicum*.

**Northern corn leaf blight, like southern corn leaf blight, moves from the lower canopy to the upper canopy.** Fungal sporulation may be observed with a hand lens on foliar lesions following periods of high humidity. When severe, lesions may become so numerous that they coalesce and turn the entire leaf necrotic.

**Spores are spread by rain and wind and may be carried long distances by the wind.** Lesions can produce spores in as little as one week, allowing NCLB to spread much faster than many other corn leaf diseases.

**Disease development is favored by heavy dews, frequent showers, high humidity and moderate temperatures.**

**Although some control can be reducing inoculum through the use of crop rotation and deep plowing of old crop debris, control is best achieved with resistant varieties.** Resistant varieties are available and should be considered, particularly for spring plantings.

**Fungicide application can effectively control Turcicum when applied at the right time.** Fungicides should be applied when lesions first become visible on the lower leaves or when disease is reported to be in the area. Threat is highest from mid Feb into April but it may be seen during the fall as well.

**Triazoles and strobilurins both provide control, with some pre-mixes giving superior control.** These products should be used with a broad spectrum protectant to minimize development of fungal resistance.

**Use EDBC fungicides such as mancozeb as a protectant before disease is present.** Apply 4- 6 sprays on a 5 – 7 day basis. Use a surfactant/sticker as corn leavers are waxy and spray tends to run off. Rotate with a stobulurin such as Headline etc. As corn matures or disease becomes present, rotate between triazoles such as Folicur, Monsoon, Propimax etc and strobilurins or premixes of the two.

### **Tomato Yellow Leaf Curl**

**Reports from Homestead indicate that TYLCV is rather common in tomato.**

**Around Southwest Florida, TYLCV remains mostly low with a few hotspots around but some reports indicate that incoming whiteflies appear to be highly viruliferous in some locations which may cause this situation to change rapidly.**

### **Groundnut ringspot virus**

**A few GRSV infected plants have been reported in Palm Beach and Miami Dade Counties.** Growers should monitor thrips populations and rouge infected plants as they are detected.

## **News You Can Use**

### **EPA Proposes Changes to WPS**

The Florida Department of Agriculture and Consumer Services (FDACS) will be hosting a meeting with growers and grower organizations to provide an overview of the recently proposed changes to U.S. Environmental Protection Agency's (EPA) Worker Protection Standard (WPS). The purpose of the meeting is to better inform the grower community on the WPS proposals and the comment submission process. Mr. Richard Pont with the U.S. EPA, Office of Pesticide Programs will be making a presentation and answering questions regarding the changes. The meeting will be held on April 3, 2014 at 9:30 AM-12:00 PM at the Citrus Research and Education Center (CREC), located at 700 Experiment Station Rd., Lake Alfred, FL. Please note that the public is strongly encouraged to submit their comments to the docket via Regulations.gov. For more information about EPA's WPS proposals go to:<http://www.epa.gov/oppfead1/safety/workers/proposed/index.html>.

Proposed changes include:

- Increased frequency of mandatory trainings (from once every five years to annually).
- Expanded mandatory posting of no-entry signs for the most hazardous pesticides.
- First time-ever minimum age requirement: Children under 16 will be prohibited from handling pesticides, with an exemption for family farms.
- No-entry buffer areas surrounding pesticide-treated fields for protecting workers and others.

- Measures to improve the ability to enforce compliance.
- Respirator use must be consistent with the OSHA standards.
- Make available to farm workers or their advocates (including medical personnel) information specific to the pesticide application, including the pesticide label and Safety Data Sheets.

**Environmental Protection Agency (EPA) Proposed Revision Information:**

<http://www.epa.gov/oppfead1/safety/workers/proposed/index.html>

**EPA Pre-Publication Copy:** <http://www.epa.gov/oppfead1/safety/workers/proposed/pre-pub-wps-proposed-rule.pdf>

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**EPA Purpose Statement:** The EPA proposes to revise the existing Worker Protection Standard (WPS) at 40 CFR part 170 to reduce the incidence of occupational pesticide exposure and related illness among agricultural workers (workers) and pesticide handlers (handlers) covered by the rule. This regulation, in combination with other components of EPA’s pesticide regulatory program, is intended to prevent unreasonable adverse effects of pesticides among pesticide applicators, workers, handlers, the general public, and vulnerable groups, such as minority and low-income populations. (The summary of proposed changes below was prepared by Washington State University)

<b>Posting and Oral Notification to Workers and Handlers</b>		
<b>Post/Oral Notification Timing</b> <b>Unit VIII A.</b> Pages 108-117	<b>Post Field Warning Signs</b> for treated areas when Restricted-Entry Interval (REI) is <b>greater than 48 hours</b> . Worker entry prohibited, “early-entry” workers allowed. Allow <b>oral or posted notification</b> for REIs <b>under 48 hours</b> . Outdoor production only. Indoor must post for those over 4 hours, and oral/post for 4 hours or less. Product label may require different notification.	Either oral or posted notification is acceptable for REIs of any length, unless the pesticide labeling requires both. Mandatory posting for all greenhouse applications is currently required.
<b>Warning Sign Location</b> <b>Unit VIII B.</b> Pages 117-120	Post warning sign visible from <b>worker housing area if</b> located within 100 feet of treated area and on the grower’s property.	Post all usual points of entry to treated area or location offering maximum visibility, and along border of labor camps.
<b>Warning Sign Content</b> <b>Unit VIII C.</b> Pages 120-124	Sign to read Danger, Pesticides and <b>Entry Restricted</b> . Change shape to <b>stop sign shape</b> around graphic of man and hand.	Sign reads Danger, Pesticides and Keep Out. Circle used for man and hand.

Hazard Communication – pesticide specific information/access/recordkeeping		
<b>Pesticide-Specific Hazard Communication Unit IX A.</b> Pages 124-134	<b>Retain application-specific information, labeling and Safety Data Sheets (SDS).</b> For <b>2 years</b> in paper or electronic form. <b>Retained labels</b> must correspond with labeling used at the application. Must <b>provide access to (not necessarily a paper copy)</b> the materials upon request.	Current worker/handler access at central location to record of: date, time and location of application, length of REI, pesticide product applied. No requirement to make hazard information (label, SDS) available to employee unless medical emergency. Recordkeeping is not required.
	Require employer to <b>make available</b> to workers, handlers, or <b>their authorized representatives</b> application-specific information, labeling and Safety Data Sheets (SDS). Must <b>provide access to (not necessarily a paper copy)</b> materials upon request.	Current worker/handler access to record of: date, time and location of application, length of REI, pesticide product applied. No requirement to make safety information available to authorized representative. Recordkeeping is not required.
<b>Application Information – Content/Timing Unit IX B.</b> Pages 134-138	<b>Add application items</b> to be recorded/kept: specific crop or site treated, start and stop times, end date for REI. <b>Record</b> no later than the <b>end of the day</b> of the application.	Record and display pesticide application information at central location: location/description of treated area, product name, EPA registration number, active ingredient, time/date pesticide is to be applied, and REI. Displayed before workers are present.
<b>Application Information – Location/Access Unit IX C.</b> Pages 138-143	<b>Remove burdensome central display</b> requirement for posting application-specific information. <b>Retain</b> records for <b>2 years</b> and <b>make available to employee/representative.</b>	Post application-specific information at a central display until 30 days after the REI expires.
<b>Application Information – Retain Records Unit IX D.</b> Pages 143-146	<b>Retain hazard communication and application information</b> for <b>2 years</b> from the date of the end of the REI in paper or electronic form.	Retain records for 30 days past REI expiration.
Information Exchange – Cease Application – Minimum Age		
<b>Information Exchange Unit X.</b> Pages 146-149	<b>Add 2 items</b> to list to be exchanged: location of the Entry-Restricted Area and the start/end times of the application.	Current items to be exchanged: location/description of treated area, product name, EPA registration number, active ingredient, time/date pesticide is to be applied, oral/posting requirement, and REI.
<b>Handler: Suspend Application Unit XI. A</b> Pages 149-151	Handler or applicator must “immediately cease or suspend application” if any untrained/non-equipped person enters the treatment or entry restricted area. Retains the prohibition on application that results in contact.	Prohibits the handler from applying in such a way as to contact to a worker or other persons directly or through drift.
<b>Handler Minimum Age Unit XI. B</b> Pages 151-1578	Require pesticide <b>handlers</b> be <b>16 years old.</b> Owners and members of the owner’s immediate family are exempt from this requirement of the WPS.	No minimum age
<b>Early Entry Worker Minimum Age Unit XII. A</b> Pages 157-160	Require <b>early-entry workers</b> (workers entering before REI expires) to be <b>16 years old.</b> Owners and members of the owner’s immediate family are exempt from this requirement of the WPS.	No minimum age
Early Entry during the Restricted Entry Interval		
<b>Entry During REI Unit XII. B</b>	<b>Notification:</b> specific exception, tasks permitted, PPE to be worn.	No detail on exception and tasks required. No record of notification required.

Pages 160-165	<b>Record of oral notification</b> including signature of each early-entry worker. Maintain record for <b>2 years</b> .	No detail on exception and tasks required. No record of notification required. Notification of product hazards from label.
<b>Decontamination Supplies: Early Entry Workers</b> <b>Unit XII. C</b> Pages 165-167	<b>Provide 3 gallons of water</b> for early entry tasks under an REI. (revised to be same as handler)	Early entry workers – sufficient water
<b>Early Entry Worker Exception.</b> <b>Unit XII. D</b> Pages 167-176	<b>Clarify no-contact</b> exception does not allow for use of PPE to achieve no contact.	Prohibits employers from directing workers into treated area under REI. Exceptions: no-contact
	<b>Limit to EPA or state/tribe lead pesticide agency</b> to declare an Agricultural Emergency exception. Limit to <b>no more than 4 hours in 24 hour day</b> that an early entry worker can be in treated area when double-notification products are applied.	Prohibits employers from directing workers into treated area under REI. Exceptions: Agricultural Emergencies.
	Codify/clarify <b>Limited Contact</b> and <b>Irrigation Exceptions</b> . Remove the term <b>unforeseen</b> in relation to irrigation.	Prohibits employers from directing workers into treated area under REI. Exceptions: short-term, limited contact and irrigation activities. Double notification products excluded from exception.
	<b>Eliminate</b> provision for specific exceptions requiring EPA approval	Specific exceptions to entry restrictions are allowed through administrative waiver process at EPA
<b>Buffers for Entry-Restricted Area</b> <b>Unit XII. E</b> Pages 176-179	<b>Prohibit entry into 25-100 foot entry-restricted buffer areas</b> around the farm/forest (but within the same property ownership) <b>during pesticide application</b> to protect persons from pesticide overspray and fumes. If labels have buffers for human exposure, label takes precedence. <b>Cease application</b> if untrained/unequipped person enters buffer area.	Currently applicable to nurseries and greenhouse only.
<b>Display of Basic Pesticide Safety Information (Safety Poster)</b>		
<b>Safety Information at Decontamination Site</b> <b>Unit XIII. A</b> Pages 179-182	<b>Display pesticide safety information</b> (safety poster) at <b>decontamination sites</b> in addition to a central location on the agricultural establishment.	Pesticide Safety poster at Central Location.
<b>Safety Information Content</b> <b>Unit XIII. B</b> Pages 182-185	<b>Add state or tribal enforcement agency contact</b> information to Safety Information and instructions to employees to seek medical care if they may have been made ill by pesticides.	Not required.
<b>Decontamination and Emergency Assistance</b>		
<b>Quantity of Water</b> <b>Unit XIV. A</b> Pages 185-187	Codify: <b>1 gallon of water per worker</b> . Codify: <b>3 gallons of water per handler</b>	Provide enough water for routine washing and emergency eyeflush.
<b>Natural Waters</b> <b>Unit XIV. B</b> Pages 187-189	<b>Natural Waters may not replace required decontamination supply water, but may be used</b> for decontamination if additional water is needed.	Can substitute clean, natural water for the potable water required for decontamination.
<b>Handler Ocular</b>	<b>In addition to 1 pint of portable eyewash</b>	Handlers must carry 1 pint of water for

<b>Decontamination</b> <b>Unit XIV. C</b> Pages 189-193	<b>water</b> , running water sufficient to flush eyes for 15 minutes must be available at permanent mix/load sites	eyewash if labels require eye protection.
<b>Emergency Assistance</b> <b>Unit XV.</b> Pages 194-201	Emergency assistance includes providing information on each pesticide to which the employee might have been exposed.	Employers must provide obtainable information about the product the person may have been exposed to the employee or attending medical personnel
	<b>Provide transportation</b> to the injured employee <b>within 30 minutes</b>	Employers must provide “prompt” emergency transportation for employees exposed to pesticides.
<b>Personal Protective Equipment</b>		
<b>Chemical Resistant PPE</b> <b>Unit XVI. A</b> Pages 201-202	“Chemical-resistant” means PPE must be identified by the manufacturer as chemical resistant.	“Chemical-resistant” means material that allows no measurable movement of the pesticide being used through the material during use.
<b>PPE Closed Systems</b> <b>Unit XVI. B</b> Pages 202-211	Add specific performance standard requirements for closed systems based on California (CA) standard to permit PPE exceptions. (Does not include the CA requirement to use closed systems for certain types of pesticides.)	Handlers can reduce PPE if a closed system is used. The closed system definition fails to provide specific criteria for the PPE exception.
<b>Contaminated PPE</b> <b>Unit XVI. C</b> Pages 211-212	Employer must <b>render PPE</b> that cannot be decontaminated to be <b>unusable</b> .	Employer must dispose of contaminated PPE that cannot be properly cleaned.
<b>Eye Protection for Open Cockpits</b> <b>Unit XVI. D</b> Pages 212-213	Use a helmet with a face shield lowered.	Protective eyewear may be replaced with a visor.
<b>PPE Respirators</b> <b>Unit XVI. E</b> Pages 213-217	Adopt the OSHA standard for respirators, including medical evaluation, fit test, and training.	Employer must provide the respirator listed on the pesticide labeling and ensure it fits.
	Require respirator program recordkeeping.	Recordkeeping is not required.
<b>Exemptions and Exceptions</b>		
<b>Crops Advisor and Employee Exemption</b> <b>Unit XVIII. B</b> Pages 230-233	<b>Eliminate exemption</b> for employees supervised by certified or licensed crop advisors. <b>Certified Crop Advisors</b> still provided the exemption.	Crop advisor tasks can be performed during the REI by the certified crop advisor and employees without required PPE (CCA can make determination of appropriate PPE).
	<b>Eliminate exemption</b> for employees supervised by certified or licensed crop advisors for <b>worker decontamination, pesticide safety training and emergency assistance</b> .	Crop advisor and employees exempt from requirements for decontamination, training, and emergency assistance.
<b>Time Frame to Train Workers</b> <b>Unit XVIII. C</b> Pages 233-244	<b>Grace period is 2 days</b> before full WPS training is required, expand the content of the abbreviated, pre-“grace period” training, and require distribution of information sheet listing training points.	<b>Grace period is 5 days</b> and there is less content to the abbreviated training, and no information sheet.



<b>Definitions – 170.5 pages 285-290 - (R)vised or (N)ew</b>	
Agricultural employer (R)	Any person who is an owner of, or is responsible for the management or condition of an agricultural establishment, and who employs any worker or handler. <i>(shortened)</i>
Agricultural establishment (R)	Any farm, <b>forest operation</b> , or <b>nursery engaged in the outdoor or enclosed space production of agricultural plants</b> . <i>Greenhouse deleted.</i>
Agricultural plant (R)	Any plant, or part thereof, grown, maintained, or otherwise <b>produced for commercial production</b> .
<b>Authorized employee representative (N)</b>	A person designated by the worker or handler, orally or in writing, to request and obtain any information that the employer is required to provide upon request to the worker or handler.
<b>Closed System (N)</b>	A system for mixing or loading pesticides that encloses the pesticide during removal of the pesticide from its original container and transfer, mixing, or loading of the pesticide product, mixtures or dilutions, and any rinse solution, if applicable, into a new container or application equipment, in such a manner that prevents the pesticide and any pesticide mixture or use dilution from contacting handlers or other persons before, during and after the transfer, except for negligible release associated with normal operation of the system.
<b>Commercial pesticide handler employer (N)</b>	Any person, other than an agricultural employer, who employs any handler to perform handler activities on an agricultural establishment.
Commercial pesticide handling establishment (R)	Any enterprise, other than an agricultural establishment, that <b>provides pesticide handler or crop advising services</b> to agricultural establishments. <i>(shortened)</i>
<b>Commercial production (N)</b>	Growing, maintaining or otherwise producing agricultural plants for sale or trade, for research or experimental purposes, or for use in their entirety in another location. Commercial production includes producing agricultural plants for use by the agricultural employer or agricultural establishment instead of purchasing the agricultural plants.
Crop advisor (R)	<b>Any person who is assessing</b> pest numbers, damage, pesticide distribution, or the status or requirements of agricultural plants. <i>(deleted "hand-labor task reference")</i>
<b>Employ (N)</b>	To obtain, <b>directly or through a labor contractor</b> , the services of a person in exchange for a salary or wages, including piece-rate wages, without regard to who may pay or who may receive the salary or wages. It includes obtaining the services of a self-employed person, an independent contractor, or a person compensated by a third party.
<b>Enclosed cab (N)</b>	A <b>cab with a nonporous barrier that totally surrounds the occupant(s)</b> of the cab and prevents dermal contact with pesticides that are being applied outside of the cab.
<b>Enclosed space production (N)</b>	A structure or space that is covered in whole or in part and that is large enough to permit a person to enter, <b>i.e. Greenhouse</b> .
<b>Entry-restricted area (N)</b>	The <b>area from which workers or other persons must be excluded</b> during and after the pesticide application
Farm (R)	Any <b>agricultural establishment</b> , other than a nursery or forest operation, engaged in the outdoor or enclosed production of agricultural plants
<b>Forest operation (N)</b>	An agricultural establishment engaged in the outdoor production of any agricultural plant to produce any wood fiber or timber products, i.e., Forest
Hand labor (R)	Any agricultural activity performed by hand or with hand tools that cause a worker to have substantial contact with plants, plant parts, or soil and other surfaces that may contain pesticide residues. <i>(deleted list)</i>
Handler (R)	<b>Any person, including a self-employed person, who is employed by an agricultural employer or commercial pesticide handler employer and performs any of the following activities:</b>

	<p>(1) Mixing, loading, or applying pesticides;</p> <p>(2) Disposing of pesticides;</p> <p>(3) <b>Handling opened containers of pesticides; emptying, triple-rinsing, or cleaning pesticide containers according to pesticide product labeling instructions; or disposing of pesticide containers that have not been cleaned. The term does not include any person who is only handling unopened pesticide containers or pesticide containers that have been emptied or cleaned according to pesticide product labeling instructions;</b></p> <p>(4) Acting as a flagger;</p> <p>(5) Cleaning, adjusting, handling, or repairing the parts of mixing, loading, or application equipment that may contain pesticide residues;</p> <p>(6) Assisting with the application of pesticides;</p> <p>(7) <b>Entering an enclosed space after the application of a pesticide and before the inhalation exposure level listed in the labeling has been reached or one of the ventilation criteria established by §170.105(b)(3) or the labeling has been met to operate ventilation equipment, monitor air levels, or adjust or remove coverings used in fumigation;</b></p> <p>(8) <b>Entering a treated area outdoors after application of any soil fumigant during the label-specified entry restricted period to adjust or remove coverings used in fumigation, such as tarpaulins;</b></p> <p>(9) <b>Performing tasks as a crop advisor during any pesticide application or restricted-entry interval, or before the inhalation exposure level listed in the pesticide product labeling has been reached or one of the ventilation criteria established by §170.105(b)(3) or the pesticide product labeling has been met.</b></p> <p>Handler employer means any person who is self-employed as a handler or who employs any handler.</p>
Handler employer (R)	Any person who is self-employed as a handler or who employs any handler. <i>(deleted “for any type of compensation”)</i>
<b>Immediate Family (R)</b>	Spouse, parents, stepparents, <b>foster parents, father-in-law, mother-in-law</b> , children, stepchildren, foster children, <b>sons-in-law, daughters-in-law; grandparents, grandchildren</b> , brothers, sisters, <b>brothers-in-law, and sisters-in-law</b>
Labor contractor (R)	A person who employs workers or handlers to perform tasks on an agricultural establishment for an agricultural employer or a commercial pesticide handler employer.
Nursery (R)	Any agricultural establishment engaged in the outdoor or enclosed space production of any agricultural plant to produce cut flowers or foliage, ferns, plants, or seedlings that will be used in part or their entirety in another location. Such plants include, but are not limited to, flowering and foliage plants or trees; tree seedlings; live Christmas trees; vegetable, fruit, and ornamental transplants; and turf grass produced for sod.
<b>Outdoor production (N)</b>	Production of an agricultural plant in an outside open space or area that is not enclosed or covered in any way
<b>Owner (N)</b>	Any person who has a present possessory interest (e.g., fee, leasehold, rental, or other) in an agricultural establishment. A person who has both leased such agricultural establishment to another person and granted that same person the right and full authority to manage and govern the use of such agricultural establishment is not an owner for purposes of this part.
<b>Personal protective equipment (N)</b>	Devices and apparel that are worn to protect the body from contact with pesticides or pesticide residues, including, but not limited to, coveralls, chemical-resistant suits, chemical-resistant gloves, chemical-resistant footwear, respirators, chemical-resistant aprons, chemical-resistant headgear, and protective eyewear.
<b>SDS - Safety Data Sheet (N)</b>	OSHA standard Safety Data Sheet (SDS). <i>Replaces Material Safety Data Sheet (MSDS)</i>
<b>Use (N)</b>	Use, as in “to use a pesticide” means any of the following: <p>(1) Pre-application activities, including, but not limited to:</p> <p>(i) Arranging for the application of the pesticide;</p> <p>(ii) Mixing and loading the pesticide;</p> <p>(iii) Making necessary preparations for the application of the pesticide, including responsibilities related to worker notification, training of workers or handlers, providing decontamination supplies,</p>

	<p>providing pesticide information, use and care of personal protective equipment, providing emergency assistance, and heat stress management.</p> <p>(2) Application of the pesticide.</p> <p>(3) Post-application activities intended to reduce the risks of illness and injury resulting from handlers' and workers' occupational exposures to pesticide residues during and after the restricted-entry interval, including responsibilities related to worker notification, training of workers or early entry workers, providing decontamination supplies, providing pesticide information, use and care of personal protective equipment, providing emergency assistance, and heat stress management.</p> <p>(4) Other pesticide-related activities, including, but not limited to, transporting or storing pesticides that have been opened, cleaning equipment, and disposing of excess pesticides, spray mix, equipment wash waters, pesticide containers, and other pesticide-containing materials.</p>
Worker (R)	Any person, including a self-employed person, who is employed and performs activities directly relating to the <b>production of agricultural plants on an agricultural establishment.</b> ( <i>shortened</i> )
<b>Worker housing area (N)</b>	Any place or area of land on or near an agricultural establishment where housing or space for housing is provided for workers or handlers by an agricultural employer, owner, labor contractor, or any other person responsible for the recruitment or employment of agricultural workers.
<b>Options considered but not proposed by EPA</b>	
<b>XVII. Pages 217-225</b>	Cholinesterase Monitoring for Handlers
<b>Unit XIV C. Pages 193-194</b>	Showers for Handler Decontamination
<b>Unit XVIII A. Pages 225-230</b>	Eliminate family exemption.

## RNAi Insecticides Coming

With corn rootworm building resistance to genetically modified corn that makes its own pesticide, seed companies are working on new crops that target the insects' genes. A decade ago, researchers developed corn genetically modified to produce a protein that kills the bugs, allowing farmers to back off chemical pesticides. However, the effectiveness of Bt corn is beginning to decrease, leading farmers across the Midwest to revert to older management schemes. Seed companies are preparing a new solution: RNA-interference, sometimes called gene silencing. Researchers using the technology introduce a strand of RNA that essentially stops an organism ingesting the molecule from expressing a certain gene.

Genes are expressed through RNA that is transcribed from DNA. By introducing a piece of interfering RNA, a gene can be suppressed. RNA-interference, or RNAi, is a natural way plants and animals fight off viruses, but scientists use it as a genetic on/off switch to study and manipulate plants. Tom Clemente, a researcher in plant biotechnology at the University of Nebraska Lincoln, says RNAi was discovered in plants when researchers were trying to make flowers darker. "They were trying to make a darker, purple flower and they were getting white flowers," Clemente said. "They were trying to make more of this protein and they were making zero of the protein."

As RNAi is being studied to treat human diseases from cancer to high cholesterol, RNAi crops are already in the field. "The classic example is for virus resistance," Clemente said. "In the state of Hawaii, the entire papaya population is papaya ringspot virus (resistant) and it is a form of RNAi that provides that resistance."

Corn could be the first row crop to attack an invading insect with RNA. Monsanto hopes to commercialize rootworm resistant corn with RNAi by the end of the decade. When a rootworm eats the corn roots, it would ingest interfering RNA that would silence a gene the rootworm can't live without. "It blocks expression of that particular gene – no other gene – and impedes the life cycle of that rootworm," Clemente said.

The question goes to the Environmental Protection Agency (EPA). At a meeting in early 2014, scientists from around the world will advise the EPA on how to assess the potential risks of RNAi crops. For his part, Tom

Clemente doesn't believe the technology warrants extra scrutiny. "You can dial it in to be very specific for a gene in a particular organism," Clemente said. "Now, we can never say with a straight face that would mitigate any collateral damage in any other organism. But you can mitigate that probability to a very, very small number." Clemente says, when paired with Bt in corn, RNAi would give farmers a more durable weapon against rootworms. (KCUR.org, 12/30/13).

## Pesticide Potpourri

- The Florida Department of Agriculture and Consumer Services (FDACS) has issued the special local needs (SLN) registration (FL-140003) to Gowan Company for the reduction in the post-emergence weed control PHI on cucumber in Florida for the herbicide halosulfuron (Sanda®) from 30 days to 21 days. (FDACS PREC Agenda, 3/6/14).
- Based on a request by Nichino America, Inc., tolerances have been granted for residues of the insecticide tolfenpyrad (Apta®/Torac®). Tolerances of interest to the region include citrus, pecan, persimmon, and stone fruit. (Federal Register, 1/9/14).
- Based on a request by DuPont Crop Protection, tolerances have been granted for residues of the insecticide cyantraniliprole (Exirel®/Verimark®). Tolerances of interest to the region include brassica head and stem (subgroup 5A), brassica leafy vegetables (subgroup 5B), blueberry, citrus, fruit, pecan, bulb/green onion, peach, cucurbit vegetable (group 9), fruiting vegetable (group 8-10), leafy vegetables except brassica (group 4), and tuberous and corm vegetable (subgroup 1C). (Federal Register, 2/5/14).
- Based on a request by Monsanto, tolerances have been granted for residues of the herbicide acetochlor. Tolerances of interest to the region include peanuts, peanut hay, and peanut meal. (Federal Register, 1/22/14).
- Based on a request by IR-4, tolerances have been granted for residues of the herbicide linuron (Linex®). Tolerances of interest to the region include fresh and dry cilantro, coriander, dill seed/oil, fresh and dry dill, and parsley. (Federal Register, 2/12/14).
- Based on requests by BASF Corporation, tolerances have been granted for residues of the fungicide fluxapyroxad (Sercadis®). Tolerances of interest to the region include pecan, strawberry, sugarcane, brassica leafy vegetable (group 5), bulb vegetable (group 3-07), cucurbit vegetable (group 9), leafy vegetable except brassica (group 4), root vegetable except sugar beet (subgroup 1B). (Federal Register, 2/26/14).
- Based on a request by IR-4, a tolerance has been granted for residues of the fungicide triflumizole on tomato. (Federal Register, 3/5/14).
- The EPA announced in early March that future methyl bromide critical use exemptions would only be available to California strawberry growers, certain stored products, and dry cured pork products for the 2014 and 2015 control periods. (Federal Register, 3/7/14).
- Based on requests by IR-4 and DuPont Crop Protection, tolerances have been granted for residues of the insecticide chlorantraniliprole (Coragen®). Tolerances of interest to the region include peanuts, peanut hay, green onion, papaya, passionfruit, stone fruit except cherry, chickasaw plum, and damson plum, and spice subgroup 19B. (Federal Register, 2/7/14).
- Amid concerns over climate change and environmental impacts of farming, "greener" agricultural technologies are drawing the attention of regulators, producers, and consumers. Not all will be equally successful, but the nascent biopesticide market will more than double to \$4.5 billion in 2023, or about 7% of the total pesticide market, according to Lux Research. That group expects outside pressures will provide new growth opportunities in biopesticide use, such as the case of the EU's ban on nicotinoid pesticides. Among other findings is that biopesticides offer new partnership opportunities. Incumbent pesticide developers should prepare to team up with biopesticide makers to offer a broader suite of products. Vestaron (synthetic spider poison produced by the plant) is an excellent example of a multi-pronged approach. (Digital Journal.com, 1/30/14).

## Up Coming Meetings

**April 3, 2014**                      **EPA hearing on WPS proposed revisions**                      **9:30 AM**  
  
**UF/IFAS CREC**  
**Lake Alfred**

This will also be broadcast live to the Cooperative Extension Offices in West Palm Beach, EREC in Belle Glade, IRREC in Ft. Pierce, and SWFREC in Immokalee.

**April 22, 2014**                      **Core and Private Applicator Training and Exams**  
  
**Core 8:30am-10:35am, Private 10:35am-11:40pm,**  
  
**Manatee County Extension Service,**  
**Palmetto, FL.**

Two separate exam prep classes will be held to help you prepare for the Core and Private Applicator RUP license exams. Exams will be offered immediately following the classes. However, you do not have to take the exams the same day. You may schedule a time to take the exams at your convenience. You may take one class without the other, if needed.

For details and registration visit:

Core link: <http://tinyurl.com/l94g76t>

Private Applicator link: <http://tinyurl.com/owo2vay>

**April 30, 2014**                      **Spring Vegetable Field Day**                      **9:00 AM to 2:00 PM**  
  
**UF/IFAS Southwest Florida Research and Education Center**  
**2685 SR 29 N**  
**Immokalee, Florida 34142**

**Mark your calendars - details will be forthcoming**

### Websites

**Watermelon Spray Guide for 2014** - Focused on gummy stem blight, powdery mildew, downy mildew and bacterial fruit blotch. Go to <http://nfrec.ifas.ufl.edu/paret/u-scout/Tutor.html>

**2014 Farm Bill summary** - <http://agriculture.house.gov/farmbill/>

### Quotable Quotes

In three words I can sum up everything I've learned about life: it goes on." - Robert Frost

Land is the only thing in the world worth working for, worth fighting for, worth dying for, because it's the only thing that lasts. – Scarlett O'Hara in Gone with the Wind

Life is much shorter than you can possibly realize ... It's way too short to do anything but follow one's heart and pursue one's dreams. - John Mackey

Oh, some people without brains do an awful lot of talking. - the Straw Man in Wizard of Oz

## **On the Lighter Side**

### **Husband and Wife**

A wife comes home late at night, and quietly opens the door to her bedroom. From under the blanket she sees four legs instead of two.

She reaches for a baseball bat and starts hitting the blanket as hard as she can.

Leaving the covered bodies groaning, she goes to the kitchen to have a drink.

As she enters, she sees her husband there, reading a magazine.

"Hi, darling," he says, "Your parents have come to visit us, so I let them stay in our bedroom.

Did you say 'hello'?"

### **Things I've Learned**

- That the best classroom in the world is at the feet of an elderly person.
- That when you're in love, it shows.
- That just one person saying to me, 'You've made my day!' makes my day.
- That having a child fall asleep in your arms is one of the most peaceful feelings in the world.
- That being kind is more important than being right.
- That you should never say no to a gift from a child.
- That I can always pray for someone when I don't have the strength to help him in some other way.
- That no matter how serious your life requires you to be, everyone needs a friend to act goofy with.
- That sometimes all a person needs is a hand to hold and a heart to understand.
- That simple walks with my father around the block on summer nights when I was a child did wonders for me as an adult.
- That life is like a roll of toilet paper. The closer it gets to the end, the faster it goes.
- That we should be glad God doesn't give us everything we ask for.
- That money doesn't buy class.
- That it's those small daily happenings that make life so spectacular.
- That under everyone's hard shell is someone who wants to be appreciated and loved.
- That to ignore the facts does not change the facts.
- That when you plan to get even with someone, you are only letting that person continue to hurt you.
- That love, not time, heals all wounds.
- That the easiest way for me to grow as a person is to surround myself with people smarter than I am.
- That everyone you meet deserves to be greeted with a smile.
- That no one is perfect until you fall in love with them.
- That life is tough, but I'm tougher.
- That opportunities are never lost; someone will take the ones you miss.
- I wish I could have told my Mom that I love her one more time before she passed away.
- That one should keep his words both soft and tender, because tomorrow he may have to eat them.
- That a smile is an inexpensive way to improve your looks.
- That when your newly born grandchild holds your little finger in his little fist, that you're hooked for life.
- That everyone wants to live on top of the mountain, but all the happiness and growth occurs while you're climbing it.

- That the less time I have to work with, the more things I get done.

## 100 wise Words

1. There are plenty of ways to enter a pool. The stairs is not one of them.
2. Never cancel dinner plans by text message.
3. Don't knock it 'til you try it.
4. If a street performer makes you stop walking, you owe him a buck.
5. Always use 'we' when referring to your home team or your government.
6. When entrusted with a secret, keep it.
7. Don't underestimate free throws in a game of 'horse'.
8. Just because you can doesn't mean you should.
9. Don't dumb it down.
10. You only get one chance to notice a new haircut.
11. If you're staying more than one night, unpack.
12. Never park in front of a bar.
13. Expect the seat in front of you to recline. Prepare accordingly.
14. Keep a picture of your first fish, first car, and first boy/girlfriend.
15. Hold your heroes to a high standard.
16. A suntan is earned, not bought.
17. Never lie to your doctor.
18. All guns are loaded.
19. Don't mention sunburns. Believe me, they know.
20. The best way to show thanks is to wear it. Even if it's only once.
21. Take a vacation of your cell phone, internet, and TV once a year.
22. Don't fill up on bread, no matter how good.
23. A handshake beats an autograph.
24. Don't linger in the doorway. In or out.
25. If you choose to go in drag, don't sell yourself short.
26. If you want to know what makes you unique, sit for a caricature.
27. Never get your hair cut the day of a special event.
28. Be mindful of what comes between you and the Earth. Always buy good shoes, tires, and sheets.
29. Never eat lunch at your desk if you can avoid it.
30. When you're with new friends, don't just talk about old friends.
31. Eat lunch with the new kids.
32. When traveling, keep your wits about you.
33. It's never too late for an apology.
34. Don't pose with booze.
35. If you have the right of way, take it.
36. You don't get to choose your own nickname.
37. When you marry someone, remember you marry their entire family.
38. Never push someone off a dock.
39. Under no circumstances should you ask a woman if she's pregnant.
40. It's not enough to be proud of your ancestry; live up to it.
41. Don't make a scene.
42. When giving a thank you speech, short and sweet is best.
43. Know when to ignore the camera.
44. Never gloat.
45. Invest in good luggage.
46. Make time for your mom on your birthday. It's her special day, too.
47. When opening presents, no one likes a good guesser.
48. Sympathy is a crutch, never fake a limp.

49. Give credit. Take blame.
50. Suck it up every now and again.
51. Never be the last one in the pool.
52. Don't stare.
53. Address everyone that carries a firearm professionally.
54. Stand up to bullies. You'll only have to do it once.
55. If you've made your point, stop talking.
56. Admit it when you're wrong.
57. If you offer to help don't quit until the job is done.
58. Look people in the eye when you thank them.
59. Thank the bus driver.
60. Never answer the phone at the dinner table.
61. Forgive yourself for your mistakes.
62. Know at least one good joke.
63. Don't boo. Even the ref is somebody's son.
64. Know how to cook one good meal.
65. Learn to drive a stick shift.
66. Be cool to younger kids. Reputations are built over a lifetime.
67. It's okay to go to the movies by yourself.
68. Dance with your mother/father.
69. Don't lose your cool. Especially at work.
70. Always thank the host.
71. If you don't understand, ask before it's too late.
72. Know the size of your boy/girlfriend's clothes.
73. There is nothing wrong with a plain t-shirt.
74. Be a good listener. Don't just wait for your turn to talk.
75. Keep your word.
76. In college, always sit in the front. You'll stand out immediately.
77. Carry your mother's bags. She carried you for nine months.
78. Be patient with airport security. They're just doing their jobs.
79. Don't be the talker in a movie.
80. The opposite sex likes people who shower.
81. You are what you do, not what you say.
82. Learn to change a tire.
83. Be kind. Everyone has a hard fight ahead of them.
84. An hour with grandparents is time well spent. Ask for advice when you need it.
85. Don't litter.
86. If you have a sister, get to know her boyfriend. Your opinion is important.
87. You won't always be the strongest or the fastest. But you can be the toughest.
88. Never call someone before 9am or after 9pm.
89. Buy the orange properties in Monopoly.
90. Make the little things count.
91. Always wear a bra at work.
92. There is a fine line between looking sultry and slutty. Find it.
93. You're never too old to need your mom.
94. Ladies, if you make the decision to wear heels on the first date, commit to keeping them on and keeping your trap shut about how much your feet kill.
95. Know the words to your national anthem.
96. Your dance moves might not be the best, but I promise making a fool of yourself is more fun than sitting on the bench alone.
97. Smile at strangers.
98. Make goals.



99. Being old is not dictated by your bedtime.  
100. If you have to fight, punch first and punch hard.



**Note: State and local budgets cuts are threatening to further reduce our funding – if you are receiving currently receiving the hotline by mail and would like to switch over to electronic delivery – just drop me an email. It is much quicker and you will get the hotline within minutes of my completing it and help conserve dwindling resources at the same time. Thanks to those that have already made the switch.**

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