



Berry/Vegetable Times

October/November 2010



Calendar of Events

Nov. 3 FAWN Strawberry Weather School, FSGA office, Dover, Fl. 9-12. See inside for more info.

Nov. 10 2010 AgExpo at GCREC. For more information, go to <http://grec.ifas.ufl.edu/>.

Nov. 16-18 25th Annual Tomato Disease Workshop, GCREC. Registration \$120. See website for details <http://grec.ifas.ufl.edu/TomDiseaseWorkshop.htm>.

Jan 7-10, 2011 Southeast Regional Fruit & Vegetable Conference, Savannah, Ga. For more info: <http://gfvga.org/conferences/2010FVWC/ConferenceMain.html>.

Jan 29, 2011 2011 Agritunity, Bushnell, Fl. For more info go to: <http://sumter.ifas.ufl.edu/Agritunity/index.shtml>.

Feb. 11, 2011. Strawberry Field Day at GCREC. More details to come.

Feb. 8-11, 2011 North American Strawberry Growers Association and North American Strawberry Research Symposium Joint Meeting. Tampa. For more information go to www.nasga.org.



Nov. 10th
at
GCREC

www.floridaagexpo.com

A University of Florida/IFAS and Florida Cooperative Extension Service Newsletter
Hillsborough County, 5339 CR 579
Seffner, FL 33584 (813) 744-5519
Alicia Whidden, Editor
Gulf Coast Research & Education Center
14625 County Road 672,
Wimauma, FL 33598 (813) 634-0000
Jack Rechcigl, Center Director
Christine Cooley, Layout and Design
James F. Price, Co-Editor
<http://grec.ifas.ufl.edu>

From Your Agent...New Vegetable Pest Now in Florida



A new pest of vegetables has just been confirmed to be in Florida. The European pepper moth, *Duponchelia fovealis*, was captured in a trap in Orange County recently. This moth is a pest of many herbaceous ornamental plants, peppers, cucumbers, tomatoes, corn, pomegranate, and certain herbs.

The following information is taken from a California Detection and Advisory Alert put out by Kevin Hoffman. Eggs are whitish green when laid and as they mature they turn red. Eggs are laid singly or in masses of 3 to 10 and arranged in an overlapping tile-like pattern. They are deposited on the underside of the leaf near veins, low down on plant stalks or

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Cultural Practices for Vegetable and Small Fruit Crops: Using Kaolin Clay to Reduce Sprinkler Irrigation for Strawberry Transplant Establishment

Bielinski M. Santos, Teresa P. Salame-Donoso and Alicia J. Whidden

Strawberry Transplant Establishment Practices

Strawberry production in Florida uses the annual hill system to supply fresh fruit during the winter market in the U.S. Most of the acreage is concentrated in Hillsborough County in west-central Florida, where fast-draining, deep sandy soils are the norm. Growers rely on bare-root strawberry transplants to establish the crop from late September to late-October. To achieve this, sprinkler irrigation is applied during 10 to 14 consecutive days between 12 to 14 h/day, which totals approximately 16 to 24 acre-inch/acre (1 acre/inch = 27,154 gal) of water for that period. The purpose of this practice is two-fold: cooling down strawberry

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at the base of the plant, or even in the upper layer of the soil. Larvae feed on the leaves, flowers, and buds and bore into stems and fruit or decaying plant material. The larvae move rapidly and like humid sites lower down on plants, on the ground or on exposed roots. Mature larvae are approximately 1 inch long and the body color is creamy white to brown with a dark head capsule and dark spots on the body. A cocoon is formed to pupate. The adult moth has a wing span of about $\frac{3}{4}$ inch and are $\frac{3}{8}$ inch long. Wings are grayish brown with 2 yellowish white transverse lines. The second line has a distinctive finger-like projection which can be used to identify the moth. When the moth is at rest it holds its wings flat and out to the side a little which give it a triangular shape. The adult lifespan is 1 to 2 weeks. A complete life cycle can be completed in 6 weeks. It is considered to be a good flier so it can be move quite a distance.

This is a pest of concern that we need to keep a watch out for. Please let me know if you think you have this pest so we can take samples and confirm the identification.

Alicia Whidden

813-744-5519 ext. 134
awhidden@ufl.edu

Continuing Education Units (CEUs) for 2010 Florida Ag Expo

This year for the Ag Expo Educational sessions there is a number of pesticide license CEUs being offered. For the first session of the day which will be a growers roundtable we have been given 1 CORE CEU. For Session 1, which will be at 10:20 to 11:40, and Session 2, from 1:20 to 2:40, each will have available 1.5 private applicator CEUs. The last session of the day on invasive pests will have 1 private applicator CEU.

For attending all 4 sessions, you will get a total of 1 CORE CEU and 4 private applicator CEUs.

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crowns to promote new root and shoot development, and to provide some soil moisture to the newly developed roots. Although, the former reason is essential to establish bare-root transplants, the latter might be unnecessary, especially because more than 95% of the water runs off plastic mulch and ends up in field drainage canals and as subsurface water.

Because of the current limitations of water usage for strawberry growers in the Plant City area, Hillsborough County, production practices aimed to minimize the sprinkler irrigation without affecting net income are desirable. At the same time, the environmental impact of applying less water for strawberry establishment could have a significant effect on public perception about water conservation efforts in agriculture.

Crop protectants are mostly naturally-occurring substances designed to reduce sun-scalding in fruit crops and vegetables, such as apples, pears, and peppers. The mode of action of crop protectants is through the formation of a white film around the target area to reflect light and reduce temperature, as well as to “clog up” leaf stomata, all of which might reduce tissue transpiration. Kaolin clay, calcium carbonate, and wax-derived products are commonly found in commercial crop protectant products around the world. Preliminary observations conducted in strawberry fields located at the Gulf Coast Research and Education Center (GCREC), IFAS, University of Florida, indicated that foliar application on strawberry bare-root transplants to reduce sprinkler irrigation volumes might result in a potential new use for these materials (Figure 1). The objective of this document is to present research results on the effect of kaolin clay application on sprinkler irrigation volumes applied to newly-transplanted strawberries.

(Continued from page 2)

Small-Plot Studies

Two field studies were conducted at the GCREC in Balm, Florida, in a fine sand soil with very low organic matter content (<1.5%). Planting beds were 27 inches wide at the base, 24 inches wide at the top, 10 inches high, and spaced 4 ft apart on centers. On mid-September of each season, pressed beds were fumigated with methyl bromide plus chloropicrin (67:33 v/v) at a rate of 350 lb/acre to eliminate soilborne diseases, nematodes and weeds in the soil. A standard fumigation rig with three knives per bed delivering the fumigant 8 inches deep was utilized. Within 1 min of fumigation, beds were covered with black high-density polyethylene mulch (0.7-mil thick), and a single line of drip irrigation tubing (25 gal/acre per min) was buried 1 inch deep on bed centers.

'Strawberry Festival' bare-root transplants were set 15 inches apart in double rows in mid-October 2007 and 2008. Double rows were separated 15 inches apart. Seven combinations of number of days of sprinkler irrigation (4 gal/min per sprinkler; 10 h/day) and timing of kaolin clay (Surround WP, Tessenderlo Group, Brussels, Belgium) application were established using strawberry plots (80 plants/plot) as follows: 10 days of sprinkler irrigation (control), 8 days of irrigation plus or minus kaolin clay on the 9th day, 6 days of irrigation plus or

minus kaolin clay on the 7th day, and 4 days of irrigation plus or minus kaolin clay on the 5th day. Kaolin clay was applied using a backpack sprayer calibrated to deliver 60 gal/acre of water at a rate of 25 gal/acre (Figure 2). The product was applied before 9 am on the following day after sprinkler irrigation was suspended. The crop was grown following current production practices for strawberry in west-central Florida.



Figure 2. Strawberry foliage applied with kaolin clay. Balm, Florida. Credits: P. Huang.

Strawberry plant establishment and canopy plant diameter were measured at 3 weeks after transplanting (WAT). Plant establishment was determined as the proportion of actively-growing transplants of the total number of transplants set in the field. Plant diameter was measured perpendicular to



Figure 1. Strawberry field applied with kaolin clay. Balm, Florida. Credits: B.M. Santos.

the direction of the rows, using five randomly-selected plants per plot but avoiding border plants. Early marketable fruit weight was collected starting at 10 WAT using every plant of each plot. Early marketable fruit weight was defined as the cumulative marketable weight of the first 10 harvests. Treatments were set up in a randomized complete block design with five replications. Means were analyzed with analysis of variance and compared with a Fisher's protected least significance difference (LSD) test at the 5% significance level.

The results showed that the application of kaolin clay on the strawberry foliage the following morning after either 6 or 8 days of sprinkler irrigation had the same plant establishment, plant canopy diameter, and early fruit weight as the 10-day irrigated control (Table 1). Therefore, a 40% reduction of establishment irrigation volumes can be achieved with the application of kaolin clay, which might represent major water savings for strawberry production in west-central Florida. The white film of kaolin clay dissipated within 3 to 5 weeks and it did not show reduction on plant growth, flowering and yields.

Table 1. Effects of length of sprinkler irrigation and timing of kaolin clay application on the plant establishment and canopy plant diameter at 3 weeks after transplant, and early marketable fruit weight for the first ten harvests.

Establishment programs	Plant establishment ¹ -----%-----	Canopy diameter -----cm-----	Early fruit weight ---ton/acre---
10 days of sprinkler (control)	99 a	18 a	3.5 a
8 days of sprinkler	88 b	18 a	2.9 b
8 days of sprinkler + kaolin clay on the 9 th day	99 a	18 a	3.6 a
6 days of sprinkler	79 b	17 a	2.8 b
6 days of sprinkler + kaolin clay on the 7 th day	98 a	17 a	3.5 a
4 days of sprinkler	57 c	13 b	1.6 d
4 days of sprinkler + kaolin clay on the 5 th day	81 b	17 a	2.3 c
Significance (P<0.05)	*	*	*

¹Values followed by the same letter do not significantly differ at the 5% level.



There's still time to register for the Florida Ag Expo - Wednesday November 10, 2010. This year's expo will include a Growers Roundtable regarding —Current Issues Facing the Vegetable Industry. In addition speakers will include the new Sr. Vice President of IFAS, Dr. Jack Payne and Congressman Adam Putnam (schedule permitting). Other highlights will include field tours, vendor shows and much more. Registration is free, but is closing November 3rd to sign up today - <http://flaagexpo.ifas.ufl.edu>. Call (813) 634-0000 for information.

Endosulfan (Thiodan[®], Thionex[®], etc.) Registration Cancellations

James F. Price

EPA has announced the voluntary cancellation of endosulfan (Thiodan[®], Thionex[®], etc.) registrations. The cancellations will occur in several waves, the first beginning December 31, 2010. That is only 2 months away! On that date manufacturers will no longer produce products for affected crops. Then on May 31, 2011 distributors will no longer be able to sell the products for use on affected crops and on July 31, 2012 growers will be unable to use the products on affected crops.

Affected vegetable crops of importance in Florida that are involved in the first wave of cancellations include Brussels sprouts, carrots, cauliflower, celery, collard greens, egg plant, kale, kohlrabi, mustard greens, annual strawberry, sweet potato, and turnip.

The second wave will prohibit the sale of endosulfan products for affected crops after May 31, 2013 and the use of those after July 31, 2013. Affected vegetable crops of importance in Florida that are involved in the second wave of cancellations include cabbage, cucumbers, lettuce, summer melons (cantaloupe, honeydew, and watermelon), and summer squash.

Big Changes in Cyclamen Mite Management in Strawberry

James F. Price and Curtis A. Nagle

In the "good old days" episodes of cyclamen mite infested transplants were managed with a program of Kelthane[®] (dicofol) and Thiodan[®] (endosulfan) applied to strawberry crowns in high volumes of preparation. Episodes were cleared up in short order with little disruption to the harvest schedule. Times have changed!

The Kelthane[®] reentry interval (REI) was changed some time ago from 48 or 24

hours (depending on the formulation) to 31 days, making its use during fruiting season completely impractical. Now we are poised to lose Thiodan[®].

Manufacturers of Thiodan[®] will cease to produce Thiodan[®] (and other endosulfan products of other names such as Thionex[®]) for strawberries at the end of 2010. Our distributors will be unable to sell Thiodan[®] after May 2011, essentially the end of this strawberry season. Strawberry growers will be unable to use their supplies of Thiodan[®] after July of 2012. This means that Thiodan can be used for this season and one season more if growers have the product.

But there is some good news. We now have a new product available for cyclamen mites, Portal[®] 5% EC (fenpyroximate) manufactured by Nichino America, Inc. This miticide/insecticide can be applied up to twice per season in applications separated by at least 14 days. The label specifies that adjuvants should not be used. Other aspects of good cyclamen mite control measures should be observed such as providing for good coverage in the strawberry bud.

Temprano[®] formulation of abamectin (same active ingredient as Agri-Mek[®]) possesses a label that claims suppression of cyclamen mites and growers have used this material with success in the past. Also, diazinon is still available for good cyclamen mite control, but the problematic 5 day PHI remains.

So this is what growers may find most practical if Thiodan[®] is unavailable. After discovering a cyclamen mite infestation that requires control, two applications of Portal[®] separated by 2 weeks with abamectin applied 1 week after the first Portal[®] application. Additional abamectin treatments could be necessary, as determined by scouting. For additional information on the cyclamen mite in strawberry and its management, see the October, 2007 issue of Berry Vegetable Times. <http://strawberry.ifas.ufl.edu/BerryTimes/2007/BVT1007.pdf>

syngenta Crop Protection is introducing Quilt Xcel

Attention Florida strawberry growers: Quilt Xcel contains the power of two actives to provide both preventative and curative disease control for anthracnose and powdery mildew. You can contact Doug Wilbanks with Syngenta at (941) 755-1021 or your supplier for more information.

Chili Thrips Already Seen on Strawberry

James F. Price

An infestation of chili thrips was spotted 1 November 2010 on bare root transplant set at UF/GCREC on 5 October 2010. Growers should be vigilant. For more information on chili thrips of strawberry see:

<http://strawberry.ifas.ufl.edu/BVT0309.pdf> and <http://strawberry.ifas.ufl.edu/BerryTimes/2008/BVT0208.pdf>.

FOR IMMEDIATE RELEASE

Contact:

Rick Lusher

Florida Automated Weather Network

(352) 392-0429

(352) 392-5757

rlusher@ufl.edu

fawn.ifas.ufl.edu



FAWN Winter Weather School

Gainesville, FL - September 29, 2010 - On November 3, 2010, the University of Florida Florida Automated Weather Network (FAWN) will host a winter weather seminar at the Florida Strawberry Growers Association from 9 am - 12 pm, with lunch provided. This seminar is free and is being funded by the Southwest Florida Water Management District.

Topics covered will include the winter climate outlook, guidelines for operating a freeze protection for strawberries and blueberries, use of the FAWN Cold Protection Toolkit, and use of instruments and technology to better evaluate cold protection needs.

FAWN is a program of the University of Florida Institute of Food and Agricultural Science (UF/IFAS), and provides weather data and weather-related services to a wide variety of users in Florida.

The Florida Strawberry Growers Association is located at 13138 Lewis Gallagher Road Dover, FL 33527.

To register contact Rick Lusher at (352) 392-0429, or rlusher@ufl.edu.

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UF/IFAS Polk County Cooperative Extension Service Winter Weather Watch 2010-11 Edition

Chris Oswalt, UF/IFAS Citrus Extension Agent
Polk & Hillsborough Counties

Is freezing weather a concern for your agricultural operation? Would you like additional agricultural weather forecast information to make better cold protection decisions? Are you interested in potentially saving money and resources while protecting your crops from freezes? Has someone ever asked “how do you make your cold protection decisions”? If you answered yes to any of the above questions then the Polk County UF/IFAS Winter Weather Watch program might be right for you. The program started over 45 years ago primarily for citrus interests, but freezing temperatures in Florida also affect strawberries, blueberries and many other cold sensitive crops.

The 2010-11 edition of the Polk County Winter Weather Watch program will begin on November 15, 2010. The program provides growers with winter weather forecast information specifically geared toward agricultural interests in West Central and Southwest Florida. The program provides subscribers with an unlisted phone number for (24 hour/7 days a week) access to daily weather forecasts. The zone forecasts are from the National Weather Service (NWS) and are listed on the automated phone menu, so you can select the products you are interested in. Forecasts include the zone forecasts, 6-10 and 8-14 day outlook forecasts. In addition to the

NWS forecasts we have special weather narratives provided as needed in the event of freezing temperatures and a weekly outlooks provided by our consulting meteorologist. When freezing temperatures are predicted in our area additional updates will include the afternoon zone forecast and the modified sunset brunt minimum temperature equation. You will also receive a copy of the 2010-11 Winter Weather Watch manual full of information to better help you make cold protection decisions.

Subscriptions for the Winter Weather Watch program are only \$100.00 for the entire 4 month period (Nov 15 to Mar 15). You can subscribe to the Winter Weather Watch by requesting a registration form at wcoswalt@ufl.edu or by calling 863-519-8677.

The Polk County Winter Weather Watch covers the following areas listed by county: Pasco, Hillsborough, Polk, Highlands, Hardee, Manatee, Sarasota, DeSoto, Charlotte, Lee, Glades, Hendry and Collier (inland only) counties.





25th Annual Tomato Disease Workshop
University of Florida/IFAS
Gulf Coast Research and Education Center, Wimauma, FL

Tuesday, November 16, 2010

- 1:00 – 5:00 p.m. SolCap Workshop: Using the tomato genome sequence and infinium array in breeding
- 7:00 – 10:00 p.m. Welcome Reception at Crowne Plaza Hotel - Hors d'oeuvres and soft drinks Sponsored by Marrone Bio, cash bar

Wednesday, November 17, 2010

- 7:15 a.m. Leave hotel for GCREC (bus transportation provided)
- 8:00 **Registration and Continental Breakfast**
- 8:45 Welcome and Introductions - Jack Rechcigl, Center Director Univ. of Florida/IFAS Gulf Coast REC
Moderator - Gene McAvoy, Hendry Co. Extension Agent/CED
- 9:00 Tomato production updates: Reggie Brown, Manger Florida Tomato Committee
- 9:20 Tomato grower update: Tony DiMare, Owner DiMare Company
- 9:40 Changes to fumigant labels and potential implications to Florida agriculture - Joe Noling, Professor Univ. of Florida/IFAS Citrus REC
- 10:00 **Break - Sponsored by BASF**
- 10:20 Methyl bromide alternative fumigant systems for Florida tomato - Andrew MacRae, Assistant Professor Univ. of Florida/IFAS Gulf Coast REC; Joseph Noling, Professor Univ. of Florida/IFAS Citrus REC and Gary Vallad, Assistant Professor Univ. of Florida/IFAS Gulf Coast REC
- 10:40 Diversification and development of IPM tactics to manage soilborne diseases in tomato - Frank Louws, Professor and Extension Specialist NC State Univ.
- 11:00 Paladin® U.S. registration and UPI Paladin® soil fumigant program - Clay Owens, Field Development United Phosphorus Inc. (UPI)
- 11:20 Grafting: The science and art of building disease tolerance in tomato - Michael Bausher, Research Plant Physiologist USDA/ARS/USHRL
- 11:40 Grafting for disease management in open-field and high tunnel production systems - Cary Rivard, Graduate Research Assistant NC State Univ.
- 12:00 p.m. **Lunch - Sponsored by Syngenta**
- 1:00 Utilization of grafted tomato seedlings for bacterial wilt resistance in open field production - Josh Freeman^{1*}, Mathews Paret², Theodore McAvoy¹, Steve Olson², and Steve Rideout¹. ¹Virginia Polytechnic Institute and State Univ., Eastern Shore Agricultural

REC., ²Univ. of Florida/IFAS, North Florida REC

- 1:20 Identification of source of resistance for bacterial wilt in tomato: A challenge - Dilip Panthee, Assistant Professor NC State Univ.
- 1:40 Breeding for bacterial wilt resistance in tomato: The struggle continues - Jay Scott, Professor Univ. of Florida/IFAS Gulf Coast REC
- 2:00 Evaluating the efficacy of phosphorous acid drip applications for controlling bacterial wilt - Kelly Ivors, Assistant Professor and Extension Specialist Mountain Horticultural Crops REC NC State University
- 2:20 Population structure of *Fusarium oxysporum* f. sp. *radicis-lycopersici* in Florida - Cheng-Hua Huang, Biological Scientist, Univ. of Florida/IFAS Gulf Coast REC
- 2:40 Susceptibility to bacterial spot race T4 is associated with resistance to Fusarium wilt race 3 - Sam Hutton, Assistant Professor Univ. of Florida/IFAS Gulf Coast REC
- 3:00 **Break - Sponsored by Dow**
- 3:20 Overview of resistance to bacterial spot - David Francis, Associate Professor Ohio State Univ.
- 3:40 Selecting for resistance to bacterial spot in complex breeding populations - Sung-Chur Sim, Research Associate Ohio State Univ.
- 4:00 Effective genetic resistance to bacterial spot - the case for transgenic resistance - Diana Horvath, Director Two Blades Foundation
- 4:20 Changes in bacterial spot in Midwest processing tomatoes - Sally Miller, Professor; Xing Ma, Student Assistant and Melanie Lewis Ivey, Research Associate The Ohio State University
- 4:40 Genomics and molecular analysis provide insight into the recent shift in field populations of *Pseudomonas syringae* pathovar tomato - Christopher Clarke, PhD candidate Virginia Tech
- 5:00 Bacterial spot management in Florida: An ongoing saga - Gary Vallad, Assistant Professor Univ. of Florida/IFAS Gulf Coast REC
- 5:20 Tomatoes and Salmonella: How realistic is the identification of "resistance" to human eateries? - Max Teplitski, Associate Professor Univ. of Florida/IFAS
- 5:40 p.m. **Adjourn** (bus transportation provided)
- 6:30 p.m. **Dinner at Crowne Plaza Hotel** (provided with cash bar)

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There's still time to register for the 25th Tomato Disease Workshop
<http://2010tdworkshop.eventbrite.com>.

Thursday, November 18, 2010

- 7:15 a.m. Leave hotel for GCREC (bus transportation provided)
- 8:00 **Registration and Continental Breakfast**
Moderators - Alicia Whidden and Crystal Snodgrass
- 8:40 Taking on the challenges facing US hydroponic vegetable production: From clavibacter to viroids - Michael Bledsoe, VP Scientific & Regulatory Affairs Village Farms
- 9:00 GH tomato disease management: What we know now and what we hope to accomplish through the SCRI - David Ingram, Extension Plant Pathologist Mississippi State Univ. Central MS REC
- 9:20 Genetic diversity of tomato viroids in North America - Kai-Shu Ling, Research Plant Pathologist (Virology) USDA, ARS, U.S. Vegetable Laboratory
- 9:40 Evaluation of post-harvest applications on tomatoes using the Smart Fog[®] tunnel system - Fulya Baysal-Gurel¹, Michael Bledsoe² and Sally Miller¹, ¹Department of Plant Pathology, The Ohio State University, ²Village Farms International, Inc.
- 10:00 Agdia's novel isothermal technology for an on-site Cmm test and new details regarding the properties of current Cmm ImmunoStrip test - Chet Sutula, Vice President of Business Development Agdia
- 10:20 *DNable* – Rapid on-site DNA detection of Cmm - Dan Myhaver, Product Manager – Horticulture, EnviroLogix Inc.
- 10:40 **Break - Sponsored by Gowan**
- 11:00 Evaluation of fungicidal control of tomato powdery mildew in Central Valley, California - Gene Miyao, Farm Advisor, Univ. of Calif. Coop Extension, Yolo, Solano & Sacramento counties, Brenna Aegerter, Scott Stoddard, Michelle Le Strange, Tom Turini (Farm Advisors, UCCE, San Joaquin, Merced, Tulare/Kings, Fresno counties, respectively).
- 11:20 Use of genetic resistance and reduced-risk fungicides to maximize tomato foliar disease control - Thomas A. Zitter, Professor; Stella M. Zitter, Research Associate and Martha M. Mutschler, Professor Cornell Univ.
- 11:40 Comparing septoria leaf spot (SLS) control and fruit characteristics in lines and hybrids homozygous and heterozygous for SLS resistance - Martha A. Mutschler, Professor; Stella M. Zitter, Research Associate and Wenzhe Li, Graduate Assistant Cornell Univ.
- 12:00 Molecular characterization of alternative oxidase gene for combating disease incidence in tomato - Ashok Chaudhury, Monika Bansal, Arun Sharma, and Guru Jambheshkar, Univ. of Science and Technology India
- 12:30 – 1:30 p.m. **Adjourn and Lunch - Sponsored by Bayer Crop Science**
Concluding Remarks and Selection of Next Year's Host
- 1:30 – 5:30 p.m. **Tour of GCREC Field Trials and Tomato Packinghouse** (return bus transportation provided)