

In-Service Training ([IST#: 31110](#))/CEU Roundup ([FDACS Program # 20920](#))

CCA Tracking #: AM session FL 52402 and PM session FL 52403

## New Technology for Commercial and Fruit Vegetable Production (IV)

**Conference ID: 7834010**

Polycom from 1306 Fifield Hall, Gainesville, Florida to 9 off-campus host sites statewide

**Wednesday, February 24, 2016**



Dr. Oscar E. Liburd

**What We Have Accomplished in Twospotted Spider Mite Management and Where We Are Going with the Technology**

**How Much Water Can We Save for Potato Production by Using Center Pivot Irrigation?**



Dr. Dewayne L. Ingram  
*University of Kentucky*

**Carbon Footprint and Ecosystem Services During the Life Cycle of Landscape Plants**

**Extending Your Growing Season with High Tunnels and Biodegradable Mulches**



Dr. Kelly Morgan

**Use of Soil and Tissue Testing for Sustainable Crop Nutrient Programs**



Dr. Guodong (David) Liu



Dr. Annette Wszelaid  
*University of Tennessee*

## **Instructions for local Hosts:**

1. Please download and print the [Sign-in sheet](#); [Pre-test](#); [Post-test](#); and [Survey](#)
2. Please have all of your participants fill out or complete
  - the sign-in sheet
  - the pre-test before the first presentation starts
  - the post-test and survey after the last presentation is completed
3. Please mail the above papers including **sign-in sheet, pre-test, post-test, survey** to **David Liu at PO Box 110690, 1253 Fifield Hall, Gainesville, FL 32611-0690 TODAY**
4. Please collect and email the questions from your participants to [guodong@ufl.edu](mailto:guodong@ufl.edu) and the answers will sent to you
5. Please disseminate the CEU attendance forms

All of the materials plus related publications are available online at <http://hos.ufl.edu/faculty/gdliu/service-training>

## **Conference information**

**Conference ID:** 7834010

**Sip connections:** [7834010@128.227.8.45](tel:7834010@128.227.8.45)

**Polycom connections:** 128.227.8.45##7834010

**IT Professional:** Mr. Dennis Brown

**Cell phone:** (352)317-1701

If you need any help please call Dennis.

All sites need to be manually got connected at 9 am EST.

## New Technology for Commercial Crop Production (IV)

In-Service Training (IST#: 31110)

With Three FDACS CEUs (Program ID: 20920) and Four CCA CEUs

# Agenda

The Conference ID: 7834010

Statewide available via Polycom based at 1306 Fifield Hall

Our IT Professional, Mr. Dennis Brown's Cell phone: (352)317-1701

Wednesday, February 24, 2016

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**Delivery Format:** a face-to-face session based in Gainesville with a supporting webinar

**Moderator:** Dr. Denise DeBusk

|                                    |  |
|------------------------------------|--|
| <b>10:00 AM:</b><br>10:00-10:10 AM | Gather, Refreshment, Introduction<br>Sign-in and Pre-test  |
| 10:10-10:20 AM                     | Dr. Kevin Folta, <b>Welcome and Overview.</b>  |
| 10:20-10:45 AM                     | Dr. Oscar E. Liburd, <b>What We Have Accomplished in Twospotted Spider Mite Management and Where We Are Going with the Technology</b>            |
| 10:45-11:10 AM                     | Dr. Guodong (David) Liu, <b>How Much Water Can We Save for Potato Production by Using Center Pivot Irrigation?</b>                               |
| 11:10-12:00 AM                     | Dr. Dewayne L Ingram ( <i>University of Kentucky</i> ), <b>Carbon Footprint and Ecosystem Services During the Life Cycle of Landscape Plants</b> |
| <b><u>12:00-1:00PM</u></b>         | <b><u>Lunch break</u></b>  |
| 1:00-1:50 PM                       | Dr. Annette Wszelaki ( <i>University of Tennessee</i> ), <b>Extending Your Growing Season with High Tunnels and Biodegradable Mulches</b>        |
| 1:50-2:40PM                        | Dr. Kelly T. Morgan, <b>Use of Soil and Tissue Testing for Sustainable Crop Nutrient Programs</b>  |
| 2:40-3:00PM                        | Post-test and survey   |
| 3:00PM                             | Adjourn  |

**For local site hosts:**

3:00-4:00 PM      Mail the Sign-in sheet, pre- and post-test, and survey to David Liu at 1253 Fifield Hall,  
PO Box 110690, Gainesville, FL 32611-0690

## **Proposers:**

### **Dr. Guodong (David) Liu**

#### **(Primary Contact)**

Assistant Professor and Crop Nutrition  
Specialist

Horticultural Sciences Department  
1229 Fifield Hall, P.O. Box 110690  
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University of Florida  
Gainesville, FL 32611  
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[weeddr@ufl.edu](mailto:weeddr@ufl.edu)

### **Dr. Frederick Fishel**

Professor  
Agronomy Department  
Director  
UF/IFAS Pesticide Information Office  
Bldg. 164, P.O. Box 110710

### **Dr. Kelly Morgan**

Associate Professor  
Soil and Water Science Department  
Southwest Florida Research and Education  
Center  
2685 State Road 29 North  
Immokalee, Florida 34142  
(239) 658-3413  
[conserv@ufl.edu](mailto:conserv@ufl.edu)

## **Available FDACS CEUs**

|  |                |
|--|----------------|
| Private Applicator and Ag Pest Control | 3              |
| Aerial application                     | 3              |
| Ag Row Crop Pest Control               | 3              |
| Demonstration and Research             | 3              |
| Soil and Greenhouse Fumigation         | 3              |
| Ag Tree Crop Pest Control              | 3              |
| <b>Total</b>                           | <b>Up to 3</b> |

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- Related publications such as EDIS (25):**
- 14 Spotted Wing Drosophila: Pest Management Recommendations for Southeastern Blueberries (<http://edis.ifas.ufl.edu/in998>)
- 15 Integrated Strategies for Controlling Flower Thrips in Southern Highbush Blueberries (<https://edis.ifas.ufl.edu/in637>)
- 16 Insect Pests of Grapes in Florida (<https://edis.ifas.ufl.edu/in527>)
- 17 Fertigation Nutrient Sources and Application Considerations for Citrus(<https://edis.ifas.ufl.edu/ch185>)
- 18 How to Reduce Clogging Problems in Fertigation (<http://edis.ifas.ufl.edu/hs1202>)
- 19 How to Convert Liquid Fertilizer into Dry Fertilizer in Fertigation for Commercial Vegetable and Fruit Crop Production (<https://edis.ifas.ufl.edu/hs1200>)
- 20 Life Cycle Assessment to Study the Carbon Footprint of System Components for Colorado Blue Spruce Field Production and Use
- 21 Carbon Footprint and Related Production Costs of System Components of a Field-Grown *Cercis canadensis* L. ‘Forest Pansy’ Using Life Cycle Assessment
- 22 Life Cycle Assessment: Implications for the Green Industry
- 23 Carbon Footprint and Production Costs Associated with Varying the Intensity of Production Practices During Field-grown Shrub Production
- 24 Impact of soil moisture and temperature on potato production using seepage and center pivot irrigation
- 25 Life cycle assessment of a field-grown red maple tree to estimate its carbon footprint components (<http://link.springer.com/article/10.1007/s11367-012-0398-7#page-1>)
- 26 Life Cycle Assessment Used to Determine Potential Midpoint Environment Impact Factors and Water Footprint of Field-grown Tree Production Inputs and Processes (<http://journal.ashspublications.org/content/140/1/102.short>)
- 27 Evaluation of degradable spun-melt 100% polylactic acid nonwovens mulch materials in a greenhouse environment (<http://www.jeffjournal.org/papers/Volume8/V8I4%287%29%20L.%20Wadsworth.pdf>)
- 28 Lettuce Yield and Quality When Grown in High Tunnel and Open-Field Production Systems Under Three Diverse Climates (<http://horttech.ashspublications.org/content/22/5/659.short>)

- 29 Influence of High Tunnel Production and Planting Date on Yield, Growth, and Early Blight  
Development on Organically Grown Heirloom and Hybrid Tomato
- 30 High Tunnel Strawberry Production in Tennessee
- 31 Nutrient Management of Vegetable and Agronomic Row Crops Handbook  
(<https://edis.ifas.ufl.edu/ss639>)
- 32 Effect of Fertilizer Phosphorus Rate on Tomato and Green Bean Yield and Growth in High pH Sandy  
Soils of South Florida (<https://edis.ifas.ufl.edu/ss611>)
- 33 A Web-Based Irrigation Scheduling Model to Improve Water Use Efficiency and Reduce Nutrient  
Leaching for Florida Citrus (<https://edis.ifas.ufl.edu/ss499>)
- 34 IFAS Guidance for Huanglongbing (Greening) Management (<https://edis.ifas.ufl.edu/hs1165>)
- 35 Comparison of Soil Test Extractants for Available Soil Phosphorus in High pH Sandy Soils of South  
Florida (<https://edis.ifas.ufl.edu/ss613>)
- 36 What is 4R nutrient stewardship? (<https://edis.ifas.ufl.edu/hs1264>)
- 37 An Introduction to Biochars and Their Uses in Agriculture (<https://edis.ifas.ufl.edu/ss585>)
- 38 Extraction of Soil Nutrients Using Mehlich-3 Reagent for Acid-Mineral Soils of  
Florida (<https://edis.ifas.ufl.edu/ss620>)
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## Speakers' Presentation Description and Bio-Sketch

**Title:** Carbon footprint and ecosystem services during the life cycle of landscape plants

**Specialist:** Dewayne Ingram, Ph.D. (University of Kentucky)

### **Presentation Description:**

Horticultural crop producers and marketers are seeking increasingly sustainable practices. A sustainable system is often described as being environmentally, economically, and socially sustainable. With a maturing nursery industry, economic sustainability is important and the industry has traditionally sought ways to minimize environmental impact of production. Social sustainability is revealed by purchases by the consumer. Understanding the environmental impact of production system protocols could allow managers to make informed decisions to increase efficiency, reduce potentially negative impacts, and reduce the associated variable costs. Understanding the ecosystem services of landscape plants could provide information to help market these products to increasingly environmentally-conscious consumers.

### **Speaker's Bio-sketch:**

**Dr. Dewayne L. Ingram** is a Professor of Horticulture at the University of Kentucky with extension, research, and teaching responsibilities in sustainable production systems with an emphasis in nursery crops. He teaches Nursery and Floriculture Crop Production. Dr. Ingram obtained his Ph.D. in Plant and Soil Science from the University of Tennessee in 1977. He was a Professor of Environmental Horticulture (Nursery Crops) at the University of Florida from 1977-1990 and was the Chair of the Horticulture Department at the University of Kentucky from 1990 to 2009. Dr. Ingram is a Fellow and Past President of the American Society for Horticultural Science. He has also received the Nursery Extension Award from the American Nursery and Landscape Association in 1988 and the Porter Henegar Award for Outstanding Research from the Southern Nursery Association in 1986.

**Title:** Extending your Growing Season with High Tunnels and Biodegradable Mulches

**Specialist:** Annette Wszelaki, Ph.D. (University of Tennessee)

### **Presentation Description:**

Season extension techniques, such as high tunnels and mulches, can enhance the yield and quality of fruits and vegetables, protect crops from climatic extremes, help in transitioning from conventional to organic production, provide a source of locally grown food year-round, and increase economic sustainability for many fruit and vegetable growers. However, the use of polyethylene plastic raises concern about the environmental sustainability of these highly productive cropping systems. Biodegradable mulches have been available for decades, but have not yet taken hold in the market. We will talk about new developments in biodegradable mulches and making the most of high tunnel space.

### **Speaker's Bio-sketch:**

**Dr. Annette Wszelaki** is an Associate Professor and the Vegetable Extension Specialist at the University of Tennessee. She has statewide responsibilities for developing a comprehensive educational program in

commercial vegetable production. The main focuses of her Extension program include production and variety recommendations, diversifying production, developing alternative crops, organic and sustainable production, crop sensory and nutrition evaluations, season extension, and postharvest handling. The goal of her program is to help growers reduce their off-farm inputs and increase farm profits.

**Title:** What We Have Accomplished in Twospotted Spider Mite Management and Where We Are Going with the Technology

**Specialist:** Oscar E. Liburd, Ph.D. (University of Florida/IFAS)

**Presentation Description:**

(1) A review of the types of damage that mites inflict on strawberry plants. (2) Traditional strategies that are used for monitoring and managing mites in strawberry fields. (3) New technology and tactics that his lab are investigating for managing mites. (4) Benefits of adopting these new tactics for mite management in strawberry production.

**Speaker's Bio-sketch:**

**Dr. Oscar E. Liburd**, Professor and Small Fruits and Pest Management Specialist at the University of Florida. He received his Ph.D. from the University of Rhode Island and Post-Doctoral training at Michigan State University. He has 17 years' experience working as a faculty member and has spent the last 15 years at the University of Florida. His research has focused on developing new technology for monitoring arthropod pests in agricultural systems and investigating alternatives to toxic pesticides for management of key insect pests and mites. Dr. Liburd has also done a substantial amount of research on developing pest management programs in organic agriculture focusing on intercropping and crop diversification to improve natural biological control in fruit and vegetable cropping systems. He has published more than 150 scientific papers and is currently an Associate Editor for the Florida Entomologist. Dr. Liburd has trained more than 35 graduate students and several Post-Doctoral Research Associates. He has won numerous awards for his scholarship including the recent Distinguished Achievement Award for Horticultural Entomology (2013) from ESA southeastern branch, Excellence in IPM awarded from the Entomological Society of America, and Entomologist of the year (2008) from the Florida Entomologist. Dr. Liburd has also travelled to several countries including China, Pakistan, Nigeria Senegal, Kenya and many Caribbean Islands to talk about reducing pesticide use in agricultural cropping systems.

**Title:** Use of soil and Tissue Testing for Sustainable Crop Nutrient Programs

**Specialist:** Kelly Morgan, Ph.D. (University of Florida/IFAS)

**Presentation Description:**

Soil and tissue testing has long been recognized as an Agricultural Best Management Practice for the improvement of nutrient use efficiency. Management of nutrients in Florida's sandy soils is particularly difficult with leaching from excessive irrigation and rainfall. The University of Florida has recently changed its nutrient recommendations from a Mehlich 1 based index to an index based on Mehlich 3 results. The use of these improved index values should lead to greatly improved nutrient management for



a wider range of soil conditions. Additionally, use of commercial lab tissue tests for perennial crops and sap testing for short term crops have improved and will be discussed.

**Speaker's Bio-sketch:**

**Dr. Kelly T. Morgan**, professor of crop irrigation and nutrient management at the University of Florida, received his graduate degrees from the University of Florida in Soil and Water Science and Agricultural Engineering Departments. Dr. Morgan has worked with the Institute of Food and Agricultural Sciences, University of Florida for 26 years specializing in improving water and nutrient use efficiency in the sandy soils of central and south Florida. The impact of N and P movement and transformation at a field scale on water quality is of primary concern in the region. Studies to assess nutrient application rates and timing, irrigation management, and use of controlled released fertilizers and irrigation management computer applications have been implemented to increase nutrient use efficiency and minimize nutrient loss to the environment. Dr. Morgan currently leads the Florida Best Agricultural Management Practices extension program and the Florida Automated Weather Network. He has published over 65 peer reviewed journal papers, 10 book chapters, and nearly 200 other publications.

**Title:** How Much Water Can We Save for Potato Production by Using Center Pivot Irrigation?

**Specialist:** Guodong David Liu, Ph.D. (University of Florida/IFAS)

**Presentation Description:**

Florida is one of 14 states predicted to face “high risk” water shortage by year 2050. In Central Florida alone, we have to find an additional  $200 \times 10^6$  gal/day to meet the needs by 2030. That requires conservation in agriculture because crop production is a major water consumer. Seepage irrigation is the basic irrigation approach for potato production in Florida and uses 32” to 38” irrigation water per growing season. Based on our research data, we have found that there is a great potential to save irrigation water if we convert seepage to center pivot irrigation. Using a more efficient irrigation approach will help Floridians alleviate water shortage problems.

**Speaker's Bio-sketch:**

**Dr. G. David Liu** is a state extension specialist responsible for nutrient eco-management of vegetable and fruit crops. David obtained his Ph.D. in Plant Nutrition, M.S. in Plant Physiology and Biochemistry, and B.S. in Agronomy. His academic interests include improving nutrient and water use efficiencies for commercial crop production. He works closely with state and county faculty and growers to enhance the sustainability of agriculture and environment as a component of best management practices (BMPs).

## IFAS IST/CEU Day – February 24, 2016

### *New Technology for Commercial Crop Production (IV) (IST#: 31110/FDACS Program ID: 20920)*

|   | Host Site               | Phone Number | Building Name                                      | Location  | FDACS CEU providers               | Email Address  |
|---|-------------------------|--------------|--|---|-----------------------------------|--|
| 1 | UF Campus               | 352-273-4814 | 1306 Fifield Hall                                  | 2550 Hull Rd., Gainesville, FL 32611                            | David Liu/F. Fishel/ K. Morgan    | <a href="mailto:guodong@ufl.edu">guodong@ufl.edu</a> ;<br><a href="mailto:weeddr@ufl.edu">weeddr@ufl.edu</a> ;<br><a href="mailto:conserv@ufl.edu">conserv@ufl.edu</a> |
| 2 | Citra PSREU             | 352-591-2678 | Frank Stronach Plant Science Center                | 2556 West Highway 318, Citra, Florida 32113                     | Mark Kann/Staci Sanders           | <a href="mailto:mkann@ufl.edu">mkann@ufl.edu</a> ;<br><a href="mailto:stacis@ufl.edu">stacis@ufl.edu</a>   |
| 3 | Indian River Co. Ext,   | 772-766-5586 | Indian River County Annex Building                 | 1028 20 <sup>th</sup> Place, Suite D, Vero Beach, FL. 32960     | Christine Kelly-Begazo            | <a href="mailto:ckellybe@ufl.edu">ckellybe@ufl.edu</a>   |
| 4 | Miami-Dade Co. Ext.     | 305 248 3311 | Auditorium, UF/IFAS Miami-Dade County Extension    | 18710 SW 288 <sup>th</sup> Street, Homestead 33030              | Qingren Wang                      | <a href="mailto:qrwang@ufl.edu">qrwang@ufl.edu</a>   |
| 5 | MREC                    | 407-814-6162 | Administration #4022                               | 2725 S. Binion Rd. Apopka FL 32703                              | Katherine S. Houben               | <a href="mailto:kshouben@ufl.edu">kshouben@ufl.edu</a>   |
| 6 | Palm Beach Co. Ext.     | 561-233-1718 | the Clayton Hutcheson Ag Complex in Exhibit Hall A | 559 N Military Trail (Exhibit Hall A) West Palm Beach, FL 33415 | Miller, Christian F.              | <a href="mailto:cfmiller@ufl.edu">cfmiller@ufl.edu</a>   |
| 7 | Palmetto, FL            | 941-722-4524 | Aalberg Room                                       | 1303 17 <sup>th</sup> St. West Palmetto FL 34221                | Crystal Snodgrass, Veronica Henry | <a href="mailto:Crys21@ufl.edu">Crys21@ufl.edu</a>   |
| 8 | SWFREC                  | 239-658-3462 | SWREC main auditorium                              | 2685 SR 29 North, Immokalee, FL 34142                           | Gene McAvoy/Julie A. Carson       | <a href="mailto:gmcavoy@ufl.edu">gmcavoy@ufl.edu</a> ;<br><a href="mailto:carsonj@ufl.edu">carsonj@ufl.edu</a>   |
| 9 | Sumter & Pasco Counties | 352-569-6862 | Suite 2  | 7620 State Road 471, Suite 2; Bushnell, FL 33513                | Camille E. Esmel McAvoy           | <a href="mailto:cami13@ufl.edu">cami13@ufl.edu</a>   |