



22<sup>nd</sup> ANNUAL  
**Greenhouse Crop Production &  
Engineering Design Short Course**

**Wednesday, March 15<sup>th</sup>**


**Fundamentals of Hydroponics and Controlled Environment Agriculture (CEA)**

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|----------------|---|
| 8:00–8:45 AM   | Check-in for on-site participants<br><i>1951 E Roger Road, Tucson, AZ 85719</i>                 |
| 8:45–9:00 AM   | Welcome and Introductions<br><i>Dr. Murat Kacira, CEAC Director, University of Arizona</i>      |
| 9:00–9:45 AM   | CEA Overview<br><i>Dr. Merle Jensen, Professor Emeritus, University of Arizona</i>              |
| 9:45–10:00 AM  | Discussion and Q&A  |
| 10:00–10:45 AM | Managing Plant Nutrition for Crop Production<br><i>Dr. Triston Hooks, University of Arizona</i> |
| 10:45–11:00 AM | Discussion and Q&A  |
| 11:00–11:30 AM | Break & Exhibitor Networking  |
| 11:30–11:45 AM | Sponsor Presentations   |
| 11:45–12:30 PM | Integrated Pest Management<br><i>Speaker TBD</i>  |
| 12:30–12:45 PM | Discussion and Q&A  |
| 12:45–1:45 PM  | Lunch   |
| 1:45–2:00 PM   | Sponsor Presentations   |
| 2:00–2:45 PM   | Greenhouse Design<br><i>Dr. Gene Giacomelli, University of Arizona</i>                          |
| 2:45–3:00 PM   | Discussion and Q&A  |
| 3:00–4:30 PM   | CEAC Tour & Networking  |



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## **Thursday, March 16th**

### **Environmental Controls & Automation in CEA**

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|----------------|--|
| 9:00–9:45 AM   | Monitoring Greenhouse Environments<br><i>Dr. Murat Kacira, University of Arizona</i>                                   |
| 9:45–10:00 AM  | Discussion and Q&A   |
| 10:00–10:45 AM | Autonomous Greenhouses: Data- and Plant-Centric Environmental Controls<br><i>Dr. Kenneth Tran, CTO, Koidra</i>         |
| 10:45–11:00 AM | Discussion and Q&A   |
| 11:00–11:30 AM | Break & Exhibitor Networking   |
| 11:30–11:45 AM | Sponsor Presentations  |
| 11:45–12:30 PM | Water Quality and Treatment Alternatives<br><i>Dr. Paul Fisher, University of Florida</i>                              |
| 12:30–12:45 PM | Discussion and Q&A   |
| 12:45–1:45 PM  | Lunch  |
| 1:45–2:00 PM   | CEAC Mission Award   |
| 2:00–2:15 PM   | Sponsor Presentations  |
| 2:15–3:00 PM   | Fundamentals of Supplemental and Sole Source Lighting<br><i>Dr. Ricardo Hernandez, North Carolina State University</i> |
| 3:00–3:15 PM   | Discussion and Q&A   |
| 3:15–4:45 PM   | CEAC Tour & Networking   |



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## **Friday, March 17th**

### **Alternative Crops and Growing Methods in CEA**

9:00–9:45 AM	Beneficial Microbes <i>Dr. Rosa Raudales, University of Connecticut</i>
9:45–10:00 AM	Discussion and Q&A
10:00–10:45 AM	Strawberry Cultivation in CEA <i>Dr. Chieri Kubota, The Ohio State University</i>
10:45–11:00 AM	Discussion and Q&A
11:00–11:30 AM	Break & Exhibitor Networking
11:30–11:45 AM	Sponsor Presentations
11:45–12:30 PM	Culinary Herbs <i>Dr. Kellie Walters, University of Tennessee Knoxville</i>
12:30–12:45 PM	Discussion and Q&A
12:45–1:45 PM	Lunch
1:45–2:00 PM	Sponsor Presentations
2:00–2:45 PM	Mushroom Cultivation in CEA <i>Dr. Barry Pryor, University of Arizona</i>
2:45–3:00 PM	Discussion and Q&A
3:00–4:30 PM	CEAC Tour & Networking



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