

GREENHOUSE CROP PRODUCTION & ENGINEERING DESIGN SHORT COURSE

MARCH 11, MORNING

8:15 – 8:30 am Welcome and Introductions by Dr. Murat Kacira
10:00 am Exhibitor Gallery Opens for Attendees

FUNDAMENTALS OF HYDROPONICS & CONTROLLED ENVIRONMENT AGRICULTURE (CEA)

8:30 – 9:15 am **Greenhouse Design - Structures, Glazing & Cooling**
Dr. Gene Giacomelli – Professor, Biosystems Engineering, The University of Arizona

9:15 – 10:00 am **Hydroponics, Medium Composition & Delivery Systems**
Myles Lewis – Owner, Arizona Vegetable Company & Instructor, CEAC Intensive Workshop

10:00 – 10:45 am **Managing Plant Nutrition for Crop Production Optimization**
Dr. Stacy Tollefson – Professor of Practice, Biosystems Engineering, The Univ. of Arizona

10:45 – 11:30 pm **What Happened to my Plant?**
Karin Tiff – Consultant, Greenhouse Vegetable Consultants, LLC.

11:30 – 11:45 am 5 Minute Presentations from this year’s Sponsors

11:45 - 12:45 pm Lunch Provided & Networking Opportunity in Exhibit

MARCH 11, AFTERNOON

ESSENTIALS OF CROP PRODUCTION IN COMMERCIAL SETTINGS

12:45 – 1:30 pm **Integrated Pest Management (IPM) – Common Insects & Mites**
Dr. Stacy Tollefson – Professor of Practice, Biosystems Engineering, The Univ. of Arizona

1:30 – 2:15 pm **Integrated Pest Management (IPM) – Best Use Practices with Biopesticides**
Debbie Palumbo-Sanders – Technical Services Specialist, BioWorks

2:15 – 3:00 pm Discussion of Previous Lectures, Q&A

3:00 – 3:15 pm 3, 5 Minute Exhibitor Presentations

3:15 – 3:45 pm Coffee Break, Visit Exhibit

3:45 – 4:15 pm **Biotech: Tissue Culture Procedures & its Value added to the CEA Market**
Dr. Hope Jones – Founder & CEO, Emergent Cannabis Sciences

4:15 – 4:45 pm **Developments in Seed Varieties**
Gretchen Raymond – Managing Director, Rijk Zwaan USA & Canada
Harry Burman – M.Sc., Lettuce/Leafy Crop Specialist – Rijk Zwaan USA & Canada

4:45 – 5:15 pm Discussion of Previous Lectures

6:00 – 7:30pm Welcome Reception – Fueled by appetizers & cash bar
6:30 pm CEAC Mission Award

MARCH 12, MORNING

7am Breakfast provided

ENGINEERING CONSIDERATIONS & OPTIMAL SYSTEMS DESIGN AND MANAGEMENT

7:55 – 8:00 am Welcome & Announcements

8:00 – 8:45 am **Monitoring Your Greenhouse Environment: Simple Tools to Technology Trends**
Dr. Murat Kacira – Professor, Biosystems Engineering, The University of Arizona

8:45 – 9:30 am **Control Systems Design for Decision Support Management**
Dr. David Story – Management Systems Consultant, Ridder HortiMax – North America

9:30 – 9:50 am Discussion of Previous Lectures – Q&A

9:50 – 10:05 am 3, 5-minute Exhibitor presentations

10:05 – 10:30 am Coffee Break, Visit Exhibit

10:30 – 11:15 am **Open the pod bay doors, HAL**
Darryn Keiller – CEO, AutoGrow

11:15 – 12:00 pm **Engineering Your Greenhouse Structure for Energy Optimization**
Dr. Gene Giacomelli – Professor, Biosystems Engineering, The University of Arizona

12:00 – 12:20 pm Discussion of Previous Lectures – Q&A

12:20 – 1:20 pm Lunch Provided

MARCH 12, AFTERNOON

INNOVATIVE CEA SYTEMS & VALUE-ADDED CROPS

1:20 – 2:05 pm **Completing the Circle: The Compelling Concept of Connecting Mushroom Farms with Plant Factories**
Chris Bailey – Vice President, Gourmet Mushrooms, Inc., Sebastopol, CA, USA

2:05 – 2:50 pm **Co-Producing Mushrooms in CEA for Boosted CO₂**
Dr. Barry Pryor – Professor, School of Plant Sciences, The University of Arizona

2:50 – 3:10 pm Discussion of Previous Lectures – Q&A

3:10 – 3:25 pm 3, 5-minute Exhibitor presentations

3:25 – 3:45 Coffee Break, Visit Exhibit

3:45 – 4:30 pm **Critical Factors in Production of Greenhouse Veggies**
Dr. Merle Jensen – Professor Emeritus, School of Plant Sciences, The University of Arizona

4:30 – 5:15 pm **Packing & Marketing your Products for Success**
Dr. Merle Jensen – Professor Emeritus, School of Plant Sciences, The University of Arizona

5:15 – 5:35 pm Discussion of Previous Lectures – Q&A

Dinner – On Your Own

MARCH 13, MORNING

7am Breakfast provided

MODERN CEA TECHNOLOGY

7:55 – 8:00 am Welcome & Announcements

8:00 – 8:45 am **Sunlight and Supplemental Lighting Applications for CEA**
Dr. Neil Mattson – Associate Professor, School of Integrative Plant Science, Cornell University

8:45 – 9:30 am **Wholesum Harvest Growing Experience - Mexico and US Grown Tomatoes**
Jose Edgardo Torres – Head Grower, Wholesum Farms AZ

9:30 – 9:50 am Discussion of Previous Lectures - Q&A

9:50 – 10:05 am 3, 5-minute Exhibitor presentations

10:05 – 10:30 am Break, Visit your Exhibitors

10:30 – 11:15 am **Water Quality & Considerations for Recycling Nutrient Solutions**
Dr. Neil Mattson – Associate Professor, School of Integrative Plant Science, Cornell University

11:15 – 12:00 am **Sole Source Electric Lighting for Controlled Environment Crop Production**
Dr. Fei Jia – Technical Solutions Manager, Heliospectra

12:00 – 12:20 pm Discussion of Previous Lectures, Q&A

12:20 – 1:15 pm Lunch Provided

MARCH 13, AFTERNOON

THE EVOLVING CEA MARKET

1:15 – 2:00 pm **Food Safety Principles & Government Regulations**
Dr. Margarethe Cooper – Victor P. Smith Endowed Chair in Food Safety, University of Arizona

2:00 – 2:45pm **Working with Wholesale Distribution**
Kristen Osgood – Regenerative Strategy Manager, Stern Produce

2:45 – 3:05 pm Discussion of Previous Lecture – Q&A

3:05 – 3:20 pm 3, 5 Minute Exhibitor presentation

3:20 – 3:45 pm Coffee Break, Visit Exhibit

3:45 – 4:15 pm **Locally Grown Market Opportunities**
Chaz Shelton – Co-Founder, Merchant’s Garden

4:15 – 5:30 pm **Elements for a Successful Urban Ag Start-up**
Jenn Frymark – Chief Greenhouse Officer, Gotham Greens

5:30 – 5:50 pm Discussion of Previous Lecture – Q&A

Dinner – On Your Own

4:30 pm - Exhibit break-down begins

MARCH 14, ALL DAY!

7am Breakfast provided

Hands on workshops at CEAC:

8:00 Depart hotel for CEAC [Bus provided or Drive self]
[1951 E. Roger Road Tucson, AZ 86719]
8:30 – 10:00 am ROUND 1
10:00 – 11:30 am ROUND 2
11:30 – 1:00 pm Lunch in the CEAC Classroom & Yard
1:00 – 2:30 pm ROUND 3
2:45 – 4:00 pm ROUND 4
4:00 – 5:00pm Additional Q&A Round – Return to any stations you'd like for additional Q&A
5:00 Return to Hotel

Titles of Workshops:

High Wire Tomato Maintenance
Building Fertigation Systems
Nutrient Film Technique based Leafy Greens Production
Deep Water Culture based Lettuce Production
Sensors & Controls with Vertical Farm Tour
Specialty Mushroom Production
Strawberry Production

**Please see the back of this workbook for workshop offerings.
Mark down your selections if you haven't yet!**

MARCH 15

COMMERCIAL GH TOUR

8am – 2pm Touring Commercial Greenhouse of Southern AZ
Wholesum Harvest – Amado, Arizona
<https://wh.farm/>

