

GREENHOUSE CROP PRODUCTION & ENGINEERING DESIGN SHORT COURSE

MARCH 11, MORNING

10:00 am Exhibitor Gallery Opens for Attendees

FUNDAMENTALS OF HYDROPONICS & CONTROLLED ENVIRONMENT AGRICULTURE (CEA)

8:30 – 9:15 am **Title**
Dr. Merle Jensen – Professor Emeritus, School of Plant Sciences, 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 **Integrated Pest Management (IPM) - Common Insects & Mites**
Dr. Stacy Tollefson – Professor of Practice, Ag & Biosystems Engineering, The Univ. of Arizona

10:45 – 11:45 pm Lunch Provided & Networking Opportunity in Exhibit

MARCH 11, AFTERNOON

ESSENTIALS OF CROP PRODUCTION IN COMMERCIAL SETTINGS

11:45 – 11:50 pm Welcome and Introductions

11:40 – 12:05 pm 5 Minute Presentations from this year's Sponsors

12:05 – 1:00 pm **Critical Factors for Growing Under Cover**
Dr. Merle Jensen – Professor Emeritus, School of Plant Sciences, The University of Arizona

1:00 – 1:45 pm **Managing Plant Nutrition for Crop Production Optimization**
Dr. Stacy Tollefson – Professor of Practice, Ag & Biosystems Engineering, The Univ. of Arizona

1:45 – 2:30 pm **IPM: What to Know When Preparing for Battle**
Karin Tiff – Greenhouse Vegetable Consultants

2:45 – 3:15 pm Discussion of Previous Lectures, Q&A

3:15 – 3:30 pm 3, 5 Minute Exhibitor Presentations

3:30 – 4:00 pm Coffee Break, Visit Exhibit

4:00 – 4:45 pm **[Growing] Media of the future for optimal CEA production**
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4:45 – 5:30 pm **Developments in Seed Varieties**
Johnny's Seeds Rep

5:30 – 5:50 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, Ag & 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 **Water Quality & Considerations for Recycling Nutrient Solutions**
Darren Kelley
- 11:15 – 12:00 pm **Engineering Your Greenhouse Structure for Energy Optimization**
Dr. Gene Giacomelli – Professor, Ag & 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

VALUE-ADDED CROPS

- 1:20 – 2:05 pm **Smart Agriculture for Smart Cities: How data and scenario analysis could take vertical farming**
Need Speaker
- 2:05 – 2:50 pm **Strawberry topic**
Ian Justice
- 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 **Co-Producing Mushrooms in CEA for Boosted CO₂**
Dr. Barry Pryor – Professor, School of Plant Sciences, The University of Arizona
- 4:30 – 5:15 pm **Mushroom topic #2**
Mushroom speaker #2
- 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**
Neil Mattson

8:45 – 9:30 am **Vertical Farming topic**
Nate Story

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 **Airflow and Uniformity Considerations**
Dr. Murat Kacira – Professor, Ag & Biosystems Engineering, The University of Arizona

11:15 – 12:00 am **Sole Source Electric Lighting for Controlled Environment Crop Production**
Jeff Gia/Hannah from 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**
Channah Rock

2:00 – 2:10 pm Discussion of Previous Lecture – Q&A

2:10 – 2:55pm **Title**
Hope Jones

2:55 – 3:05 pm Discussion of Previous Lecture – Q&A

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

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

3:45 – 4:15 pm **Title**
Chaz Shelton

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 – 10:15 am ROUND 1
10:15 – 12:00 pm ROUND 2
12:00 – 1:00 pm Lunch in the CEAC Classroom & Yard
1:00 – 2:45 pm ROUND 3
2:45 – 4:00 pm Additional Round
4:00 – 5:00pm Visit the Aquaponics Greenhouse [Bus provided]
5:30 Return to Hotel

**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 New Location
[New Location](#)