GREENHOUSE CROP PRODUCTION & ENGINEERING DESIGN SHORT COURSE

MARCH 11, MORNING
8:15 – 8:30 am Welcome and Introductions
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 – 11:00 am 5 Minute Presentations from this year’s Sponsors
11:15 – 12:15 pm Lunch Provided & Networking Opportunity in Exhibit

MARCH 11, AFTERNOON
ESSENTIALS OF CROP PRODUCTION IN COMMERCIAL SETTINGS
12:30 – 1:15 pm Integrated Pest Management (IPM) – Common Insects & Mites
   Dr. Stacy Tollefson – Professor of Practice, Biosystems Engineering, The Univ. of Arizona
1:15 – 2:00 pm What Happened to my Plant?
   Karin Tiff – Consultant, Greenhouse Vegetable Consultants, LLC.
2:00 – 2:45 pm Integrated Pest Management (IPM) – Best Use Practices with Biopesticides
   Debbie Palumbo-Sanders – Technical Services Specialist, BioWorks
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 Biotech: Tissue Culture Procedures & its Value added to the CEA Market
   Dr. Hope Jones – Founder & CEO, Emergent Cannabis Sciences
4:45 – 5:30 pm Developments in Seed Varieties
   Rijk Zwaan USA Inc.
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, 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 TBA  
TBA

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 Systems & Value-Added Crops**

1:20 – 2:05 pm The Future of Automation of Specialty Mushroom Production  
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 – 2:10 pm  Discussion of Previous Lecture – Q&A

2:10 – 2:55 pm  Working with Wholesale Distribution
  Kristen Osgood – Regenerative Strategy Manager, Stern Produce

2:55 – 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 – 5:00 pm  Additional Round
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  Touring Commercial Greenhouse of Southern AZ  
Wholesum Harvest – Amado, Arizona  
https://wh.farm/