

Schedule is Subject to Change

January 2017 UA/CEAC Intensive Hydroponic Greenhouse Crop Production Course

1951 East Roger Road, Tucson, AZ 85719

<http://ceac.arizona.edu/> 520-626-9566

EMPHASIS ON LETTUCE: Instructor – Myles Lewis, MS

Course materials: Flash drive with PowerPoint presentations
Folder with handouts, loupe & supplies

FRIDAY January 6, 2017 – Lettuce

- 3:00 – 5:00 pm Check in at the CEAC – CEAC Classroom
- 5:00 – 6:00 pm Introduction to the lettuce intensive
- Tours of lettuce production systems / Pros & cons
- 6:00 – 8:00 pm Light Dinner
- Continue Introduction
 - Discussion of student interests
 - Common Questions

SATURDAY January 7, 2017 – Combined Tomato & Lettuce

- 8:00 – 8:30 am Questions and Coffee (optional)
- 8:30 – 10:30 am Greenhouse Basics (Tollefson)
- Greenhouse site selection (Chapter 11)
 - Greenhouse designs & materials (Chapter 12)
 - Environmental control – including sizing heaters & fans (Chapter 13)
 - A bit about greening the greenhouse (Chapter 14)
- 10:30 – 11:00 am Coffee Break
- 11:00 – 12:00 pm Round table discussion with greenhouse engineers
Includes professors of Agricultural & Biosystems Engineering Department at The University of Arizona and CEAC / CAC personnel (as available):
- Will include Gene Giacomelli, Ph.D. and Murat Kacira, Ph.D.
- 12:00 – 1:00 pm Lunch provided & *Round table continues* – CEAC Classroom
- 1:00 – 2:00 pm Environmental control requirements (Tollefson & Lewis)
- Set-points (both tomato & lettuce)
 - How the environment effects the plants and vice versa
 - Real-time monitoring – CEAC/tomatoes live
 - Deciphering your greenhouse – “Virtual Grower”

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| 2:00 – 2:30 pm | Coffee Break and Questions |
| 2:30 – 4:30 pm | Food safety & GHP/GAP certification (Lewis) <ul style="list-style-type: none">• Safe production & handling procedures |
| 4:30 – 5:45 pm | Organic Hydroponic Production (Tollefson) |
| 5:45 – 8:00 pm | Dinner provided by CEAC for attendees of BOTH groups <ul style="list-style-type: none">• Dinner speaker: Merle Jensen, Ph.D. |

SUNDAY January 8, 2017 – Lettuce

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| 8:00 – 8:30 am | Questions and Coffee |
| 8:30 – 10:00 am | Greenhouse basics and system options for lettuce and herbs – CEAC Classroom & Greenhouse <ul style="list-style-type: none">• Greenhouse site selection• Designs & materials of structure• Types of growing systems – advantages & disadvantages |
| 10:00 – 11:30 am | Environmental control & system maintenance and monitoring – CEAC Classroom & Greenhouse <ul style="list-style-type: none">• Set-points and setup• Monitoring methods• System maintenance |
| 11:30 – 12:30 pm | Lunch & Discussion |
| 12:30 – 1:30 pm | Propagation - Greenhouse <ul style="list-style-type: none">• Substrate choices and starting materials• Seeds and seeding• Germination conditions• Scheduling |
| 1:30 – 3:00 pm | Growing - Greenhouse <ul style="list-style-type: none">• Nutrition• Spacing and layout• Crop maintenance and monitoring• Harvesting |
| 3:00 – 3:45 pm | IPM, Disease, and deficiencies – CEAC Classroom <ul style="list-style-type: none">• Common pests and treatment procedures• Diseases common to production |

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- Nutrient deficiencies
- 3:45 – 4:30 pm Post-harvest & Food safety – Greenhouse and CEAC Classroom
- Post-harvest procedures
 - Packaging, storage, and shipment
 - Food safety procedures
- 4:30 – 5:30 pm Certifications & GHP / GAP – CEAC Classroom
- GHP / GAP
 - Certified Naturally Grown, Organic, and other labels
 - Audits, check-ups, and maintenance of certifications
- 5:30 – 6:00 pm Questions & Wrap-up
- 6:00 – 8:00 pm Optional – Continued Discussion over Pizza

MONDAY January 9, 2017 – Lettuce

- 8:00 – 8:30 am Questions and Coffee
- 8:30 – 10:30 am Economics of production – CEAC Classroom
- Materials costs and consumption
 - Operating costs
 - Financials
- 10:30 – 10:45 am Coffee Break
- 10:45 – 12:30 pm Business Plans, Marketing, and sales – CEAC Classroom
- Business planning
 - Marketing
 - Customers and selling
- 12:30 – 1:30 pm Lunch and discussion – CEAC Classroom
- 1:30 – 3:00 pm Indoor Lettuce Production – Tour
- 3:00 – 3:15 pm Coffee Break
- 3:15 – 5:00 pm Case Studies – Discussion
- 5:00 – 5:30 pm Questions – Close Program
- 5:30 – 8:00 pm Continue Discussion & Clean-up (Optional)
- 8:00pm End Program