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”
2:00 – 2:30 pm  Coffee Break and Questions

2:30 – 4:30 pm  Food safety & GHP/GAP certification (Lewis)
    • 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
    • Dinner speaker: Merle Jensen, Ph.D.

SUNDAY January 8, 2017 – Lettuce

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
    • 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
    • Set-points and setup
    • Monitoring methods
    • System maintenance

11:30 – 12:30 pm  Lunch & Discussion

12:30 – 1:30 pm  Propagation - Greenhouse
    • Substrate choices and starting materials
    • Seeds and seeding
    • Germination conditions
    • Scheduling

1:30 – 3:00 pm  Growing - Greenhouse
    • Nutrition
    • Spacing and layout
    • Crop maintenance and monitoring
    • Harvesting

3:00 – 3:45 pm  IPM, Disease, and deficiencies – CEAC Classroom
    • Common pests and treatment procedures
    • Diseases common to production
• 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)

8:00 pm  End Program