

Alternative Greenhouse Heating Systems To Reduce Energy Costs for Season Extension Production

October 30, 2014

Madren Conference Center

240 Madren Center Dr.

Clemson, SC

8:30am – 4:00pm

The most common method of heating a greenhouse is with the use of fossil fuel- based energy sources such as electricity and propane. But with ever increasing costs, alternative heating methods based on renewable energy are now cost-effective and practical options for small-scale, season extension greenhouse and high tunnel production. Please join greenhouse energy experts David Thornton, Shawn Jadrnicek and Alex Pellett for this full-day workshop to learn about greenhouse energy efficiency strategies and how to reduce your greenhouse energy costs through the use of renewable energy-based heating and cooling strategies.

TOPICS:

The morning session will provide an introduction to greenhouse layout and design, including a hands-on session where attendees will learn how to calculate greenhouse heating demand based on factors such as greenhouse size, construction and geographic location. Following lunch, participants will learn about different conventional and alternative greenhouse heating systems and costs, and about specific systems in use at the Clemson Student Organic Farm. We will conclude with a tour of the nearby Clemson University Organic Farm and alternative greenhouse and high tunnel heating systems designed by farm manager Shawn Jadrnicek.

ABOUT THE INSTRUCTORS:

C. David Thornton is a biofuels expert and Composting Facilities Manager with the Recycling Program at Clemson University. He is in demand as an expert speaker on biofuels and on-farm energy systems at venues such as the Carolina Farm Stewardship Association Conference and the Organic Growers School. While at Clemson, David has managed research projects on production of biofuels from algae and biodiesel production. He also managed program to produce biofuel for campus fleet vehicles from waste oils, algal oils, and yeast oils as part of the campus initiative for Net Zero emissions. Before coming to Clemson, David managed the biodiesel production program for Piedmont Biofuels located in Pittsboro, NC.

Shawn Jadrnicek is manager of the Clemson University Student Organic Farm. Shawn is an expert in organic farming and in the use of permaculture design principles on the farm to maximize energy efficiency. Shawn has designed a novel “Bio-Integrated Season Extension” system for high tunnel vegetable production at the Clemson farm that reduces the amount of fossil fuel-based energy compared to conventional heating systems.

Alex Pellett: Alex is a graduate student in Plant and Environmental Sciences at Clemson with a minor in Biosystems Engineering. He has 2.5 years of experience working with Shawn Jadrnicek on development of alternative heating systems for the campus organic farm greenhouse and high tunnels. Before coming to Clemson, Alex served three years in the Peace Corps where he worked as an agroforestry consultant in Equador helping farmers establish profitable nurseries as a source of trees to stabilize the agricultural landscape.

REGISTRATION

The cost to participate is \$12 for SC Extension Agents and Personnel and \$35 for all other participants. Registration includes lunch at Seasons Restaurant. To register, please visit: ???

AGENDA:

- 8:30 – 9:00 Check-In (coffee and muffins available)
- 9:00 – 9:10 Welcome and introduction (*Geoff Zehnder*)
- 9:10 – 10:20 Planning, design and layout of an energy-efficient greenhouse (*Alex Pellett*)
- 10:20 – 10:30 Break
- 10:30 – Noon Calculating greenhouse heating demand based on individual needs: Hands-on exercise (*David Thornton*)
- 12:00- 12:45 Lunch (provided)
- 12:45 – 1:45 Types of alternative and conventional greenhouse heating systems and associated costs (*David Thornton*)
- 1:45 – 2:30 Alternative greenhouse heating systems at the Clemson Organic Farm: an overview (*Shawn Jadrnicek*)
- 2:30- 2:45 Travel to the nearby Clemson Student Organic Farm
- 2:45 – 3:45 Tour of the SOF greenhouses and high tunnels and demonstration of energy-efficient heating and cooling systems (*Shawn Jadrnicek*)