



NEW ENGLAND FARM ENERGY CONFERENCE

March 15-16, 2010

Radisson Conference Center, Manchester, NH

Please join us for this two day event that will include concurrent workshop tracks, one geared toward Oilseed Production, and another focused on Greenhouse Energy Efficiency and Conservation. The goal of the conference is to provide farmers with effective on-farm energy practices that are suitable for New England. Presentations will combine practical farmer experiences with the most current research results from area Universities.

Keynote Address

Mike Morris from the ATTRA / National Center for Appropriate Technology will kick off the conference to address practical ways to audit energy usage on your farm. How do you match the right renewable resource for your farm? It's speed dating for farm energy! Mike Morris leads the farm energy team at ATTRA, and cooks up many other projects at the National Center for Appropriate Technology. He has recently been conducting energy training for Extension agents in the South (described at www.entap.org), researching the cost and effectiveness of farm energy audits, and conducting "Energy Alternatives" workshops for farmers and rural communities in Montana, California, North Carolina, and other parts of the country. Mike holds a Ph.D. in Philosophy from the University of Pittsburgh, and has taught at colleges and universities in Michigan, Montana, Ohio, Pennsylvania, and Wisconsin, specializing in ethics, technology, and the environment.

2010 Conference Sponsors

Many thanks to our sponsors for their generous support and contributions!

A special thank you to U.S. Senator Patrick Leahy and the U.S. Department of Energy for their generous support for ongoing renewable energy research and education in New England.



The Risk Management Agency (RMA) Provides, sound risk management solutions for farmers. More information is available at: www.rma.usda.gov



University of Vermont Extension and U.S. Department of Agriculture, cooperating, offer education and employment to everyone without regard to race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or familial status.

Oilseed Production Track

Day 1

10:30 am-12:00 pm– Best Agronomic Management for Canola and Sunflower Crops

Hans Kandel, North Dakota State Agronomist, has vast experience with oilseed production practices that enhance overall yield and quality of these crops. Hans will discuss variety selection, growth and development, dry down rates, harvest timing, and storage of these crops. Hans will also discuss organic farming methods that have proven successful in North Dakota.

1:15 pm-2:45 pm – Oilseed Production Results in New England

Heather Darby, UVM Extension, and **Masoud Hashemi**, University of Massachusetts, Amherst, will highlight current agronomic research results on oilseed crops. This will include information on variety trials as well as fertility and weed control treatments. Heather will also present results from an oilseed meal dairy feeding trial and oilseed meal as a fertility source.

Nell Campbell, Carbon Dynamics Inc., [city], VT, will give an update on her work evaluating the carbon footprint of local on-farm fuel facilities. Nell has been investigating the inputs and outputs from these local systems and how they are impacting overall greenhouse gas emissions.

3:15 pm - 4:45 pm - Innovative Systems for Harvesting and Pressing Oilseeds

Roger Rainville, Borderview Farm, Alburgh, VT and his family operate a premier research and biofuel facility. Roger will discuss a cheap and effective design for creating your own “sunflower pans” for your combine. In addition, Roger will discuss comparisons with extruding oilseeds with German and Chinese presses. Lastly, Roger will talk about his experiences pelletizing oilseed meal and other feedstocks.

Mark Mordasky, Rainbow View Farm, Orwell, VT. The Mordasky’s raise field crops for livestock operations with the goal of producing enough fuel to operate their farm and custom cropping operation. Mark has recently set-up a tandem press extruding system for their soybeans. Mark will describe their integrated system that recycled farm equipment to build an on-farm fuel system.

Doug Schaufler, Penn State Engineer, manages the research farm and has been operating an oilseed press and filtering system which provides oil for the vegetable oil-fueled equipment at the farm. Doug will discuss pressing canola, camelina, sunflower, and saltwater mallow.

Day 2

8:30 am - 10:00 am – Oil Quality and Safety for Farm Fuel Facilities

Chris Callahan, Callahan Engineering, Cambridge, NY. Chris is a consulting engineer and his firm focuses on small-scale, sustainable power. Chris will help you set-up an efficient and safe fuel system on your farm. He will describe appropriate safety measures that need to be taken to protect yourself, staff, and your farm. Standard operating procedure protocols will be discussed and distributed.

John Williamson, State Line Biofuels, Bennington, VT. John has converted his dairy to a successful biofuel operation. He grows a variety of oilseed crops including sunflowers and canola. He will talk about his farm fuel facility and how the design reflects practical and safe production of biofuels.

Ralph Turner, Laughing Stock Farm, Freeport, ME. Ralph and his wife own and operate an organic vegetable operation. Ralph is also an engineer and has over 20 years of work with energy production technologies. He will discuss his experience in extracting oil from seed and pre-treating crude seed oils. Ralph will discuss removal of phosphatides from crude seed oils or “degumming” prior to fuel production. Lastly, he will share information on physical properties of seed oils and oilseed processing.

10:30 am - 12:00 PM – Oilseed Handling and Storage

A farmer panel will discuss various means of handling, drying and storing oilseeds. **John Williamson**, State Line Biofuels (VT), will describe his solar power grain drying system. **Dorn Cox** of Tuckaway Farm (NH) and **Luke Mahoney** of Brookford Farm (NH), will discuss small scale grain storage systems that are effective and inexpensive means to store grain. Paul Boivin, Vermont Golden Harvest Biofuels (VT), has vast experience with bin drying systems for various crops and will provide an overview of drying oilseed crops.

1:15 pm - 2:45 pm – Operating Farm Equipment on Bio-based Oil and Fuels

Doug Schaufler, Penn State Engineer, will show results from several Penn State experiments designed to evaluate the performance of bio-based oils and fuels in farm equipment. He will describe how Penn State has integrated bio-based hydraulic fluids in all the farm tractors and equipment. Doug will also describe their biodiesel experiment where biodiesel blends and B100 were tested in New Holland tractors and efficiency and performance was evaluated. In addition, Doug will talk about their newest project with machines operated on straight vegetable oil (SVO). Systems from a German manufacturer were installed on two types of tractors. Both machines are closing in on 1,000 operational hours on SVO and have given them much needed experience in the operation of SVO vehicles in varying weather conditions.

3:15 pm - 4:45 pm – Community Based Fuel Systems

Dorn Cox, Tuckaway Farm, Lee, NH, will describe the Great Bay Grain Cooperative and Green Start, farmer-driven cooperatives being developed in the seacoast area of New Hampshire. A group of farmers are working collaboratively to create sustainable farming systems that include self sufficiency in feed and fuel. Listen to their experiences as the group builds their model systems.

Dave and Christine Freeman will introduce the Hilltown Farmers Biodiesel Cooperative project. Listen to their work of growing, harvesting and pressing oil seed crops for biodiesel processing. Through a new project they are working with area farmers to demonstrate that Massachusetts farmers can produce biodiesel fuel locally, affordably, and sustainably in quantities relative to the needs of New England-size farms. The group will describe their current progress to meet their end goals of fuel and feed stability.

Greenhouse Energy Track

Day 1

10:30 am - 12:00 noon - Principles of Energy Conservation in Greenhouses

Learn more about **Chris Callahan's** work with the University of Vermont Extension to provide analysis and design on renewable energy systems for greenhouse growers.

David Marchant, River Berry Farm, Fairfax, VT, and his wife J grow 50 acres of wholesale organic vegetables and raise vegetable transplants, greenhouse tomatoes and ornamentals in about 10,000 sq feet of greenhouses. David will describe a variety of energy conservation measures they use in the greenhouses, including insulation of kneewalls, use of hot water bottom heat for seedling tray production, passive ventilation with ridge vents, tightening up louvers, and supplementing propane use with a wood pellet furnace.

1:15 pm - 2:45 pm - Growing Winter Greens with Just Solar Energy

Joe Buley, Screamin' Ridge Farm, Montpelier, VT, has been growing vegetables and herbs year-round in well-designed passive solar greenhouses for the past five years. Learn how he gets by with no supplemental energy, relying only on solar gain and thermal mass retention with the use of raised beds and interior row covers.

Bruce Fulford, City Soil and Greenhouse Company, Boston, MA, runs an environmental firm that specializes in compost technology on farms, with industry, and communities. Learn how he has designed several greenhouse composting projects to produce energy and carbon dioxide for plant growth.

3:15 pm - 4:30 pm - Making the Most of Wood Heat in Greenhouses

Glenn Cook, Cider Hill Farm, Amesbury, MA, will describe his experience with outdoor wood boilers for greenhouse heat. Glenn and his wife Karen grow fruits and vegetables on 45 acres, and 15,000 sq ft of greenhouses. They have been leaders in the adoption of renewable energy systems, from wind turbines to solar power. Recently they installed 2 outdoor wood boilers to provide heat for the greenhouses. Glenn will describe this system, its pros, cons, costs, and payback.

New England is well known for its abundant timber resources. Many producers are interested in using this abundant resource to heat their greenhouses. **Sarah Smith**, Forestry Industry Specialist, UNH Cooperative Extension, will talk about sourcing wood materials, such as logs and chips, and describe the different programs that are available.

Day 2

8:30 pm - 10:00 pm - Our Experience with Renewable Energy for Greenhouses

Mike Collins and Rebecca Nixon, Old Athens Farm, Westminster, VT, focus on early season greenhouse crops, primarily tomatoes and cucumbers. Over the years they have been dedicated to making the farm as sustainable as possible. They heat their three greenhouses with wood as well as waste vegetable oil gleaned from local sources. They also burn

propane in the starter house but this year the farm is planning to install a large solar hot water system to supplement that heat source.

Vern Grubinger, University of Vermont Extension Vegetable and Berry Specialist, will take you on a tour of Renewable Heating Systems in Greenhouses. Vern has been working with greenhouse growers seeking to adopt alternative energy for heat. He will show examples from the region and discuss the pros and cons.

10:30 pm - 12:00 noon - Overview of Solar Photovoltaic and Hot Water Systems

Mike Morris, NCAT/ATTRA, will give an overview on the use of solar photovoltaics and hot water systems for heating greenhouses. He will discuss the pros, cons, and feasibility of such systems.

John Bartok, University of Connecticut agricultural engineer and professor emeritus, is known as the "guru of greenhouse engineering." Hear his experiences with geothermal heat for greenhouses.

1:15 pm - 2:45 pm - Waste Vegetable Oil for Winter Greenhouse Growing

Ralph Turner, Laughing Stock Farm, Freeport, ME, and his wife own and operate an organic vegetable operation. Ralph is also an engineer with over 20 years of experience working on energy production technologies. He will discuss his experiences using waste vegetable oil as a greenhouse heat source.

Jeremy Barker-Plotkin, Simple Gifts Farm, Amherst, MA,, manages 15 acres of vegetables for a 400 member CSA. Jeremy has heated a 30 by 72 ft greenhouse with waste vegetable oil (from restaurants and a waste oil supplier) for the past three years. The greenhouse is used for winter greens production, spring transplant production, and hot season crops in the summer. He will describe the challenges he has faced--in hopes that others could avoid them--and some of the solutions he's figured out for using waste oil.

3:15 pm - 4:45 pm - Overview of Shell Corn for Greenhouse Heat

Corn is a renewable heat source that can be grown and used in New England more cheaply than fossil fuels, using available and proven technology. **Andrew Cavanagh**, University of Massachusetts Extension Specialist, will describe his group's work with producers to develop viable solutions for using corn as a heat source.

Rich Adams, Ravenwold Farm, Florence, MA, grows bedding plants and vegetable starts as well as about 30 acres of vegetables and sweet corn. Rich will share his experiences in installing and maintaining a 160,000 btu corn furnace using a specialized Corn-Trol thermostat.

Gideon Porth, Atlas Farm, South Deerfield, MA, and his wife grow a wide diversity of certified organic vegetables, herbs, and flowers. Gideon will present his experience installing and running a corn-fueled hydronic heating system that provides root zone heat for his greenhouse tomatoes.

New England Farm Energy Conference Schedule at a Glance

| Monday, March 15 | Track 1: Oilseeds | Track 2: Greenhouse |
|-----------------------|---|---|
| 9:00 am | Keynote: Assessing On-Farm Energy Options | |
| 10:30 am - 12:00 noon | Best Agronomic Management for Canola & Sunflower Crops | Principles of Energy Conservation in Greenhouses |
| 12:15 pm - 1:00 pm | Lunch | |
| 1:15 pm - 2:45 pm | Oilseed Production Results in New England | Growing Winter Green withutst Solar Energy |
| 3:15 pm - 4:45 pm | Innovative Systems for Harvesting and Pressing Oilseeds | Making the Most of Wood Heat in Greenhouses |
| Tuesday, March 16 | | |
| 8:30 am - 10:00 am | Oil Quality and Safety for Farm Fuel Facilities | Our Experiences with Renewable Energy for Greenhouses |
| 10:30 am - 12:00 noon | Oilseed Handling and Storage | Overview of Solar Photovolatics and Hot Water Systems |
| 12:15 pm - 1:00 pm | Lunch | |
| 1:15 pm - 2:45 pm | Operating Farm Equipment on Bio-Based Oil and Fuel | Waste Vegetable Oil for Winter Greenhouse Growing |
| 3:15 pm - 4:45 pm | Community Based Fuel Systems | Overview of Shell Corn for Greenhouse Heat |

Driving Directions:

From White River Jct, VT: Take I-89 south. Take the exit onto I-93 S toward Manchester/Boston (toll road). Continue onto I-293 S (toll road). Take exit 6 for Amoskeag St toward Goffstown Rd (partial toll road) Keep right at the fork to continue toward Amoskeag St., Slight right at Amoskeag St (signs for US-3/Canal St/FLM St). Continue onto W Salmon St. Turn right at Elm St Radisson Hotel Manchester will be on your right.

From Southern NH: Take Frederick E Everett Turnpike North (partial toll rd). Merge onto I-293 N (toll road). Take the exit toward Granite St/Granite St Bridge (toll road). Turn right at Granite St/Granite St Bridge Continue to follow Granite St. Turn left at Elm St Radisson Hotel Manchester will be on the left.

New England Farm Energy Conference: Registration Form

Name 1: _____ Farm/Business Name: _____

Name 2: _____ Telephone: _____

Address: _____ E-mail: _____

City: _____ State: _____ Zip: _____

Registration fees include lunch.

A block of rooms have been reserved at the Radisson (603-625-1000)for conference goers at the rate of \$109/ double room, mention University of Vermont Extension Program for the reduced rate.

| | # People | Monday 15th | Tuesday 16th | TOTAL |
|--|----------|-------------|--------------|-------|
| Registration Fee \$25 per person per day | _____ | _____ | _____ | _____ |

Please make checks payable to UVM Extension

Please Mail Registration by March 10, 2010 to:

University of Vermont Extension
278 South Main St., Suite 2
St. Albans, VT 05478

If you have QUESTIONS or would like to REGISTER by phone or email,

PHONE: (802) 524-6501 EMAIL: heather.darby@uvm.edu

** If you require accommodations to participate in this program, please let our office know by March 10th so we may assist you.*