Living Energy Farm Newsletter

January-February 2012

Tool Sharpening Workshop Kicks off the 2012 Season

Our tool sharpening workshop was fun for all ages.

We were excited to begin the 2012 workshop season on Saturday, January 23rd with a course on the use and maintenance of old-time hand tools, with a focus on sharpening knives and saws. Many participants brought in tools that needed sharpening, and walked away with a usable tool and the knowledge of how to keep it that way.

Living Energy Farm is pleased to be expanding our curriculum of workshops this year. With the exception of the all-day intensives, which include fruit tree propagation and oxen training, each of our workshops will be held at LEF in the afternoon following a Saturday morning work party. On these half day workshops, the work day will begin at 9AM and the workshop at 1PM. Lunch will be provided at noon. All half day workshops are free of charge.

Upcoming workshops include:

- Orchard Design for Self-Sufficiency, February 25
- Low Budget Green Building, March 17
- Garden Fertility and Planning, March 24
- Fruit Grafting and Propagation, April 7 (all day intensive)
- Oxen Training, May 26 (all day intensive)
- Weed Control Using Organic Methods, June 16
- Cooking with the Sun, July 14
- Seed Saving, August 25

Workshop dates are subject to change, so watch for an e-mail announcement or contact us if you plan to attend. If you plan to attend one of our all-day intensives, please register with Sara at sara.m.tansey@gmail.com, or 843-694-8896. The cost is $50 and includes lunch.

Designing a Fossil-Fuel-Free Home

Thanks to the generosity of our supporters and last year's seed harvest, Living Energy Farm has secured over $40,000 and thousands of dollars worth of donated materials to go towards building our first residence. (We have a long way to go to create a zero fossil fuel farm, so please keep us in mind for donations of building materials, farm materials, and funds.) We are now in the design stage of our home, which has proven to be a much more complicated process than designing a conventional home.

One example of this complexity is considerations of climate control in the placement of the bedrooms. For winter heating, the house will incorporate both passive and active solar, with a wood stove back-up for long cloudy spells. Passive solar means capturing sunlight in the winter

using many south-facing windows, combined with super-insulated north, east, and west facing walls. For more effective passive solar, we want to design such that there is southern exposure for as many bedrooms as possible. But we also want bedrooms to have access to the living room for those few weeks out of the year when the wood stove will be needed.

To further complicate things is the need for cross-ventilation. To make it through the heat of a Virginia summer without air conditioning or fans makes it necessary to design for natural cross-ventilation in every room, meaning at least two walls need to have windows to the outside. This makes the classic "dorm style," which is simple, space efficient and often used in co-housing, impractical in our case.

One design we are considering is what we call the "turtle" layout, which has three or four bedrooms adjoining the main living room on one side, two of which stick out like the arms of a turtle, allowing for cross ventilation and access to the wood stove. This design adds complexity to the framing and roof layout, however, which adds to the expense. Another design we might use is what we are calling the "motel" design, which lines up the rooms side by side without a hallway (access would be from a covered walkway on the north side that is open to the outdoors). This design would provide excellent cross ventilation and solar gain, but would not allow all the rooms to be heated by a single wood stove. The final room layout for our first residence is yet to be decided.

We have found from the beginning that designing a life without fossil fuels means an opportunity to rethink very basic assumptions about how we live. We need to consider a multitude of factors in everything we design. We'll keep you updated through our newsletters and workshops as we encounter more of these fascinating dilemmas.

Cooking With Wood and the Sun

While cooking without fossil fuels is probably not our most difficult technical challenge, it may have been our most immediate. People want to eat, multiple times a day, and cold food loses its charm pretty quickly. When we arrived on the land, the abundance of firewood the loggers left behind made wood cookers an obvious first choice. We built a simple rocket stove using a large tin can and a pair of shears. It took ten minutes to build and has served us well, and we are now at work building the next generation wood cooker.

Cooking with wood has many advantages, which explains why it is so popular around the world. The fuel is free and often widely available, it produces heat immediately, and can be done at any time of the day or night. Its main drawbacks are deforestation caused by fuel consumption and-more immediate in our case- pollution. Millions of women worldwide suffer eyesight damage from cooking over smoky fires.

Solar cookers use no fuel but the sun and produce no pollution. Their obvious drawback is that they only work while the sun is shining. Also, sunlight is a diffuse source of energy compared

to wood, so the actual BTUs available are usually quite small, meaning longer cooking times

Living Energy Farm's parabolic solar cooker, which uses a simple two chain adjustment mechanism.

Parabolic solar cookers look like satellite dishes and operate on the same principle; they reflect all light which reaches their surface into a single focal point. In fact, one of the more popular ways of building parabolic solar cookers is by converting an old satellite dish. The focal point of a parabolic solar collector is extremely hot. When we took ours for a test run, we looked for the focal point with a stick, and were amused to find it when the stick burst into flames. Parabolic cookers have the advantage of producing heat very quickly, so they are well suited for frying or warming up small to medium amounts of liquid. But the focal point is not very large, so the reflector has to be adjusted often if a long cooking time is required. Also, if the reflector needs to be adjusted to a steep angle (as in wintertime), the focal point hits the side of the pot, meaning food needs to be stirred often for even heating. Because the pot or pan is exposed to the elements and not insulated, cooking times can be slow on extremely cold or windy days.

Solar ovens work by reflecting sunlight into a cooking chamber, which is painted black and well insulated. Because the area that is heated is larger, they take longer to bring to temperature than a parabolic cooker, but can be used to bake or cook large volumes of food. They also provide a more even heating than a parabolic cooker and are better suited for windy conditions. They are also more suited for longer cooking times, and can be used for sterilizing or canning as well as boiling or baking. They are more complicated to build than a parabolic cooker, and ours is still under construction.

A solar oven at Sandhill Farm in winter.

Solar cookers are touted by many as a replacement for cooking over wood fires in the global south. While there are certainly more BTUs available for cooking closer to the equator, solar cookers can be hugely useful in more northern places as well. Our parabolic cooker has been our preferred mode for cooking lunches on sunny days all through the winter. The real reason solar cookers are not more than a novelty in the developed world is not lack of sunlight, it is convenience. No one can claim solar cookers to be as convenient as a propane stove. But when cooking one large meal for a group instead of several small meals, solar cookers are well suited. This only shows once again that cooperation is our most important technology.

Living Energy Farm is a project to build a demonstration farm, community, and education center in Louisa county that uses no fossil fuels. For more information see our website www.livingenergyfarm.org, or contact us at livingenergyfarm@gmail.com or 434 409 6006. Donations are tax deductible.