

Southeast Clean Energy Resource Team's Badgersett Research Farm Tour Summary Amherst, MN, October 31, 2007 4:00-6:00pm

Location: Badgersett Research Farm is somewhat off the beaten path, and even today's navigation and mapping software usually fails when trying to locate 18606 Deer Road. Please do use the map below, or download and print our higher quality PDF [Road Map](http://www.badgersett.com/graphics/roadmap.pdf) at: <http://www.badgersett.com/graphics/roadmap.pdf>

Special thanks to SE CERTs Outreach Coordinator Susan Waughtal for creating the meeting summary.

On a brisk Halloween evening, members of the SE CERTS steering committee met in Canton, MN, to tour Badgersett Farm. Present were: Larry, Anne (in disguise as Ginger from Gilligan's Island), Nick, Sig, Roger, Susan and Roger Nelson (Susan's spouse.)

First, farmer/researcher Phil Rutter treated us to samples of his just-harvested hybrid chestnuts. The (raw) nuts were delicious! One could easily bite through the soft shell and remove the nut. Phil has been growing the chestnuts for over 25 years and has achieved a blight-resistant, drought-, flood-, and cold- tolerant variety. The trees grow quickly (a 30-foot tree with an 8-inch diameter trunk had been cut back to the ground just 8 years earlier) and have a very strong, dense wood. He fertilizes with hog manure, but uses absolutely no chemicals of any sort. We noticed a few raptor kites in the branches of the trees to deter birds who like to feast on the nuts.

We walked a bit through the orchard - which was carpeted with large, burr-like, prickly husks. Badgersett farm is 160 acres, planted with 50,000 hazelnuts, 30,000 chestnuts, and fewer butternuts and hickories which are just now coming into production.

Next, we headed to the large, earth-bermed solar-powered greenhouse. Unfortunately, the photovoltaic panels had been struck by lightning the previous week, so the greenhouse was operating on stored power. (This led to concern about how much power the crockpot of scalloped potatoes and the crockpot of chili required. We discovered that huge efficiency advances have been made between old and new models of crockpots!) In the greenhouse nursery, thousands of plants are started in "tubules" for sale and the harvested nuts are sorted and stored.

Phil also shared photos of some of the extraordinary and unprecedented results of his experiments and research: Ordinarily chestnut trees have very insignificant, primitive reproductive parts. Some of the new hybrids have produced a range of small, exotic flowers!

We feasted on a potluck supper, featuring not one, but two, delicious dueling homemade apple pies and Sig's fabulous homemade bread. Sincere thanks to Phil and Meg and "Ella Enchanted" for inviting us and being such gracious hosts.

Below is the CERTS website "success story," with more details. Also note the Badgersett website <http://www.badgersett.com/nuts/ordernuts.html> where you can order fresh chestnuts and hazelnuts to eat...or, they would make great holiday gifts!

Badgersett Farm (case study for <http://www.certs-se.org>)

There are two things that set Badgersett farm apart from every other farm in the region.

First of all, the farm is totally off the grid, and has been since Phil Rutter purchased the land in 1978 and

constructed the solar-powered greenhouse. (The utility company finally concluded that the farm does not ever intend to connect to the grid and removed the unused power pole this summer.)

Secondly, Badgersett Farm is a center of serious research – “research beyond the cutting edge in genetics,” Rutter proudly clarifies. For the past 20 years, Phil has been developing the concept of “woody agriculture” and hybridizing several species of woody plants. The woody plants he is developing are nuts: Hazelnuts, Chestnuts, Hickory Nuts and Butternuts.

In Phil’s Woody Agriculture system, permanent stands of woody plants are grown in place of annual crops. Each year the nuts are harvested for food. Periodically (every 5-10 years) the wood is harvested for biomass. Because the roots are well established, the plants will grow back quickly and produce a new crop of nuts the following year.

The advantages to this system of farming are many. There is no tilling, greatly reducing soil erosion and energy consumption. The plants are both drought and flood tolerant. The woody agriculture method increases crop diversity, increases the biodiversity of the fields, and provides wildlife habitat. The plant hybrids are disease resistant, avoiding pesticides. Because woody plants are three times more efficient at capturing solar energy and turning into wood or seeds, large scale plantings sequester carbon and could help reduce global warming.

Rutter purposely chose to focus first on Chestnuts and Hazelnuts because there are already existing markets for the nuts, allowing farmers to more easily transition to woody agriculture crops and for these crops to become mainstream. Rutter believes it is possible for these crops to play a major role in agriculture as quickly as soybeans were adopted.

At one time, chestnut trees were prevalent in the eastern U.S. and chestnuts were a mainstay of people’s diets. Phil has been crossing blight-resistant specimens of American chestnuts with Chinese, Japanese, European, and Seguin varieties to develop a strain that is resistant to the blight that wiped out American chestnut forests. This hybrid variety produces nuts a bit smaller than the European variety, with a thinner, easier-to crack shell and more intense flavor. The fast-growing wood is strong, light and rot-resistant. Phil states, “This is why Africa needs chestnuts — and they provide branches for fire, animal fodder, tannic acid for curing leather, protein-rich, nutritious nuts for food and oil, all without cutting down the trees.”

Phil has also been growing 3 species of hazelnuts --European (a small tree), American and Beaked (both bushes.) His favorite hybrid is a mix of native Iowa and Wisconsin bushes with the European a variety producing a cold-hardy, blight-resistant bush with nuts 2-3 times larger than the American hazelnuts. Hazelnut oil is chemically identical to olive oil, and rich in heart-healthy fats. The potential for commercial use is tremendous—Phil states anything that can be done with soybeans can be done with hazelnuts.

At this point, the potential commercial success for woody agriculture based on chestnuts and hazelnuts is just that—potential. There aren’t yet any commercial-scale plantings of woody agriculture. The next step is to make the plants available to farmers, and Rutter is now doing that, his solar greenhouse working to capacity as a nursery!

For more technical information about Badgersett Farm’s research, visit their website:

www.badgersettfarm.com. You can also order these amazing chestnuts and hazelnuts to eat!

<http://www.badgersett.com/nuts/ordernuts.html>. Try out some of the recipes posted on the website, many developed by Phil and his wife, Meg.