
Schetter Farms
Brighton, Illinois

In 2012 a farm site near Brighton, Illinois was selected to establish a series of plots to determine the performance characteristics of a novel energy crop with dual, triple and quad-purposed value. Tropical maize is proving to be a valuable crop under a variety of specific management strategies, thus, producing marketable grain for the row crop farmer, high quality feed for the livestock producer, plant sugars for refinement into food or transportation fuels, and high tonnage of harvestable and combustible biomass for furnace fuel.

The site collaborators, Daniel, August and Adlai Schetter arrived at an immediate on-farm need that translated into displacing high cost propane as a heating fuel—and using tropical maize as a practical, sustainable furnace fuel feedstock material that can be grown on their farm. After 2 years of working with project staff from the University of Illinois Crop Physiology Department to learn more about the crop from establishment, selection and evaluation of several varieties of tropical maize through to harvest, the Schetter family knew they were on to something big...and tall.

With support from University of Illinois Extension, the Schetters began considering their

ENERGY WATCH

During the winter heating season of 2014, rural propane prices in Illinois, delivered to the farm, reached nearly $6 per gallon. Price volatility triggered by an extended cold period across the US resulted in propane inventories running nearly 45 percent lower than those of 2013. The average residential propane price hovered at $3.48 per gallon, $1.16 per gallon higher than last year during the same time period (Feb. 24, 2014). Residential heating oil prices averaged $4.24 per gallon, only a slight increase over 2013.

US DOE / Energy Information Administration
biodiesel and ethanol conversion options and determined that direct combustion with a new biomass-fueled heating system could provide an immediate savings versus purchasing traditional fuels for heating their farm shop. The Schetter family elected to purchase a biomass furnace designed as a water-jacketed unit to circulate heated water where needed. In December 2013, they began operating their tropical maize fueled furnace. The heating system continues to operate, being fine-tuned and fueled by Adlai Schetter as a farm-scale renewable energy project with funding provided by the Dudley Smith Initiative, University of Illinois College of ACES.

Schetter Farm Case Study/Outcomes:

- Continue to monitor the performance of the tropical maize bale-burning furnace system.
- Improve furnace operational efficiencies with a multiple fuel feedstock strategy and matching fuel to regional availability.
- Develop a farm specific plan to optimize net return from tropical maize as either furnace fuel or animal feed.
- Develop a support network with other operators of small to mid-sized renewable biofuel furnace systems in Illinois.
- Provide cover crop trials to address crop residue removal affecting soil and water quality.
- Use current site for tours, field days and other educational outreach activities.

Why biomass?
Energy supply and use is a national priority and a major policy focus in the United States. Driving this is the need to reduce reliance on foreign oil, create clean energy jobs, increase our overall energy efficiency and address climate change. Biomass energy, harvested from road-sides, forests and farms, provides an important source of renewable, sustainable energy for the United States.