Energy Beet Research: Cooperative Research Could Result in Alternative Crop for Ethanol

Patriot BioEnergy LLC is collaborating with private sector partners BetaSeed Corporation of Shakopee, Minnesota, Lage y Cia` S.A. of Montevideo, Uruguay, and Hapy of Milan, Italy; and researchers at the University of Kentucky Center for Applied Energy Research, as well as the City of Williamsburg and Whitley County Fiscal Court to demonstrate the viability of hybrid sugar beets, or ‘energy beets’ as an energy crop.

Director for the state’s biofuels program, Tim Hughes plows the plot at the UKCAER for the energy beets.

These beets have been genetically engineered to yield a biomass energy crop that ultimately can produce ethanol. The ‘energy beet’ is a non-edible biomass crop that moves beyond the use of corn for ethanol and is considered an advanced biomass crop for energy production. The by-products can be used as a livestock feed supplement.

This beet was grown in Pennsylvania by BetaSeed, Fall/Winter 2010 through March 2011.

Sugar beets are used in Europe for ethanol and sugar production, but not this specific variety. This variety is fairly specific to the United States, due to plant disease and other environmental factors. This hybrid of sugar beets has been grown in Alabama, Florida, Minnesota, California, Idaho, and Pennsylvania throughout the year (spring and fall), but not commercially.
There is a ‘winter beet’ program that is being developed, by BetaSeed, for energy crop production and which Patriot BioEnergy is working with them going forward.

The project underway at UK CAER and in Whitley County is evaluating:
- the growth of the ‘energy beets’ as a winter crop;
- different types of soil types and;
- various methods of fertilization.

Of specific interest is what impact organic seed inoculate versus chemical fertilizers have on the energy beet crop as well as the growth of the crop during winter.

Organic seed inoculate used to cover beet seeds before planting.

The expectations for the project are to determine whether only one spring crop should be planted or whether it will be possible to plant both spring and fall crops of energy beets, thereby maximizing the amount produced per acre and soil requirements needed.

Evaluation of the use of organic seed inoculate versus chemical fertilizer will provide data on whether seed inoculate can be applied to the ‘energy beet’ seed as is currently applied to corn, soybean, wheat and other agricultural seeds to boost yields per acre at reduced fertilizer cost.

According to New Energy and Fuel, the beets produce twice as much ethanol per acre as corn and require about 40 percent less water per gallon of ethanol produced. Using beets instead of corn also avoids the controversy of using a food product for fuel. With Kentucky’s former tobacco fields now lying fallow, this crop might be a good source of revenue for the farmer, while providing the beginnings of future energy security.
Planting Day: (from Left) Mark Dunavent (CAER), Greg Copley (CAER), Roger Ford (Patriot BioEnergy LLC), and Chris Musgrave (Whitley County Collaborator).

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