Northern New York Agricultural Development Program News

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Grass and Willow Bioenergy Crop Research Underway in Northern NY

Northern New York -- As the nation prepares to celebrate the first National Bioenergy Day on October 17, researchers funded by the Northern New York Agricultural Development Program are continuing their study of willow and grass crops as alternative energy sources for agricultural producers in New York's six northernmost counties.

Cornell University Crop and Soil Sciences Professor Dr. Jerry Cherney is evaluating the potential for a closed-loop, regional renewable energy system that makes marginal farmland productive, creates local jobs, lowers greenhouse gas emissions, and helps reduce dependency on fossil fuels.

Since 2006, Cherney has developed and conducted on-farm research in response to the farmer-driven Northern New York Agricultural Development Program interest in producing bioenergy with grasses harvested from regional farmland that is not otherwise productive.

"A closed-loop system that would supply the Northern New York region with a homegrown heating resource created from grasses produced, processed into pellets or briquettes, and marketed locally would greatly reduce the use of non-renewable fuel sources, would lower greenhouse gas emissions, help farms reduce energy costs, improve soil health, maintain open spaces, and generate rural jobs," Cherney says.

"The goal is to determine a process for identifying which mulch-type hay is appropriate for all scales of biomass combustion and/or which types would be better used for light industrial and industrial heating applications," Cherney adds.

Cherney is specifically focused on three species with high yield potential and on the impact of soil type, soil moisture and fertility management on the yield and composition of switchgrass, reedcanarygrass and tall fescue as bioenergy feedstocks.

The end use of the harvested grasses impacts how the crops' potential is evaluated. For example, Cherney says, mixed-species stands may not work very well for ethanol production that requires uniform feedstock but would work fine for heating combustion use.

In a separate project, Cornell Associate Professor of Horticulture Larry Smart is establishing a shrub willow trial at the Cornell Willsboro Research Farm in Willsboro, NY,

to evaluate varieties and to test new methods for more sustainable site conversion and crop establishment in typical NNY fields.

“Shrub willow bioenergy crops have the potential to produce high yields on marginal soils in Northern New York with a minimal need for amendments or pesticides,” Smart says. “The Northern New York Agricultural Development Program funding allows us to include Northern New York in a multi-state (PA, MI, WV, western NY) bioenergy network that has been established with USDA support.”

Data from the Willsboro willow variety yield trials with 24 genotypes and from willow variety trials in Jefferson County at Belleville-Henderson Central School and Celtic Energy Farms, Cape Vincent; in St. Lawrence County at Potsdam; and in Lewis County near Constableville will advance Smart’s willow breeding program. Two of these trials are paired with switchgrass evaluation research plots. The trials have additional funding from the New York Farm Viability Institute.

How-to factsheets and a grass biomass combustion manual will be developed as part of the NNYADP projects. Learn more about Northern New York bioenergy crop research with links to Cherney’s Grass Bioenergy website and Smart’s Willowpedia on the NNYADP website at www.nnyagdev.org/index.php/bio-energy.

The Northern New York Agricultural Development Program provides farmers in Clinton, Essex, Franklin, Jefferson, Lewis and St. Lawrence counties with on-farm research, technical assistance and outreach resources. -30-

Photos: Left: Cornell Ph.D. student Eric Fabio surveys the newly-planted willow yield trial established with NNYADP funding at the Willsboro Research Farm in Willsboro, NY; right: Young willow growing in the newly established variety trial established with NNYADP funding at the Willsboro Research Farm in Willsboro, NY; photos by Lauren Frazier.