

Findings prove *Miscanthus x giganteus* has great potential as an alternative energy source

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Findings prove *Miscanthus x giganteus* has great potential as an alternative energy source. Credit: Photo by Tom Voigt, University of Illinois

Concerns about the worldwide energy supply and national, environmental and economic security have resulted in a search for alternative energy sources. A new University of Illinois study shows *Miscanthus x giganteus* (*M. x giganteus*) is a strong contender in the race to find the next source of ethanol if appropriate growing conditions are identified.

M. x giganteus is a bioenergy crop that can be grown to produce ethanol. The study investigated the establishment success, plant growth and dry biomass yield of the grass. Tom Voigt, lead scientist and associate professor in the U of I Department of [Crop Sciences](#), said the overall goal is to promote biomass yield per acre for [ethanol production](#) using the fewest inputs with no environmental damage.

Researchers compared establishment and growth rates, and biomass yield at four locations over the past three years to identify regions best suited for the grass. Data was collected at sites in Urbana, Ill.; Lexington, Ky.; Mead, Neb.; and Adelphia, N.J. The study is part of the Department of Energy-funded North Central Sun Grant [Feedstock](#) Partnership Project.

The growing conditions were adequate at each location in different years. However, late planting and extreme [winter temperatures](#) during 2008 affected establishment rates at the Illinois site. Lower yields occurred at the New Jersey site in 2010, which could be attributed to the site's sandy soils and warm, dry weather conditions in that year.

"For the most part, we found that *Miscanthus* responds to sites in which water is adequately available," Voigt said. "The combination of [warm temperatures](#) and adequate precipitation spread throughout the growing season creates ideal growing conditions."

Voigt said the study increased researcher's understanding of how different environments impact *M. x giganteus* growth, development and biomass yield. In addition, they discovered positive environmental impacts.

[Nitrogen fertilizer](#) had no significant effects on the grass's biomass yield in season two or three at any site. *M. x giganteus* also promotes erosion control as the perennial forms a large mass of roots underground.

"We are trying to develop a recipe for management practices that can be used by farmers interested in growing the grass," Voigt said. "We want bioenergy crops to find their way into more marginal settings where ground is less easy to work with. Miscanthus can work where food crops can't."

Voigt said the results of the study are positive and prove that energy crops have great potential as [alternative energy sources](#).

More information: This study, "Miscanthus x giganteus Productivity: The Effects of Management in Different Environments" was published in *GCB BIOENERGY* Volume 3, Issue 6, December 2011.

Provided by University of Illinois at Urbana-Champaign

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