

EVALUATION OF THE POTENTIAL OF HYBRID WILLOW AS A SUSTAINABLE BIOMASS ENERGY ALTERNATIVE CROP IN NORTHERN AND WEST-CENTRAL MINNESOTA

Diomides Zamora^{a,*}, Dean Current^b, and Mike Demchik^c

^aUniversity of Minnesota Extension

^bUniversity of Minnesota - Center for Integrated Natural Resources and Agricultural Management

^cUniversity of Wisconsin - Stevens Point

Renewable sources of energy are becoming more important in Minnesota as the state is striving towards energy independence from fossil fuels. Woody biomass offers an important option for the production of biomass for energy particularly by the landowners in Minnesota. Short-rotation Woody Crops (SWRC), such as willow, provide both economic and ecological benefits, including erosion control, wildlife habitat enhancement, and carbon sequestration. This presentation will present the initial findings of our research on the potential of hybrid willow from New York as a sustainable biomass energy alternative crop in northern and western Minnesota. The willow varieties under investigation are *Salix discolor*, *Salix sachalinensis*, *Salix miyabeana*, and *Salix dasyclados*. Initial results showed that these varieties could survive in Minnesota despite harsher environmental growing conditions compared to New York. Survival and biomass production of these willow varieties were measured in 2007. Measurement will also be made in 2008. Survival of these varieties ranges from 74 to 91 percent. Initial results also showed that biomass production of each of the varieties is comparable with those plantings in New York and in southern Minnesota. Further, growth performance of willow varieties was found to be comparable to that of native willows in Minnesota. Results of this collective demonstration research will provide us guidance as to whether hybrid willows could be adopted in Minnesota as an alternative source of renewable energy while improving ecological sustainability and productivity.

KEY WORDS: hybrid willow, survival rate, biomass production

*Corresponding author: 322 Laurel St., Suite 21, Brainerd, MN 56401; Phone: (218) 828-2332;
Email: zamor015@umn.edu