

A NATIONAL ASSESSMENT OF CURRENT AND FUTURE STATE OF TECHNOLOGY FOR WOODY CROPS IN MEETING MANDATED BIOFUEL REQUIREMENTS

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Efforts are under way to assess the potential contribution of woody crops in meeting mandated cellulosic and advanced biofuel requirements of the recently passed Energy Independence and Security Act of 2007 (EISA). EISA requires the use of 21 billion gallons of cellulosic and other advanced biofuels by 2022. The cellulosic feedstocks required to produce these biofuels can come from a wide variety of cropland and forest land sources and because EISA specifies use rather than production, imports can also be used to satisfy the mandate. The impact of EISA on U.S. agriculture and forestry will very much depend on the relative proportions of cropland- and forest land-derived feedstock and the extent to which imports are used to meet the mandate. This paper examines the potential contribution of short-rotation woody crops in meeting the EISA mandate. The paper provides an assessment of the current state of the technology for producing woody crops, realistic scenarios of technological change that may impact production technology in 2022, and results of a spatial analysis that show areas of the country where woody crops are most likely to be economically competitive. Included in these results are likely changes in land use (e.g., what land uses are most likely to be displaced) and associated impacts on sustainability and greenhouse gas emissions. The paper is national in scope and thus relies on geographic information system techniques to summarize results.

KEY WORDS: woody crops, short-rotation, economics, productivity, spatial analysis, land use change

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