

Impact of Biofeedstock Production on Hydrology/Water Quality in Midwest and Southeast USA

Indrajeet Chaubey¹, Bernard Engel¹, Patrick Murphy¹, Dharmendra Saraswat²

¹ Department of Agricultural & Biological Engineering, Purdue University

² University of Arkansas

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The production of biofeedstocks for biofuels is likely to impact the hydrology and water quality of watersheds. Communities potentially impacted are increasingly concerned, and at present, little is known regarding the magnitude of impacts of biofeedstock production on hydrology and water quality. This USDA-CSREES funded project to Purdue University will quantify impacts of biofeedstock production on hydrology and water quality.

This project will answer the following questions (among others): What are the unintended environmental consequences of increased corn production to meet biofuel demands? What are the environmental impacts of various second generation biofeedstock production systems to meet cellulosic ethanol demands? Would the management of cropping systems involving corn silage meet cellulosic ethanol demands with minimal environmental impact? What are the broad-scale water quality implications of energy crops, such as switchgrass, grown for bioenergy production on highly erodible soils? This project will develop multi-regional agricultural land management practices that can be implemented to mitigate potential negative environmental impacts associated with biofeedstock production while meeting the biofuel production demand. Specifically, this project will develop a decision support tool to facilitate local hydrologic/water quality analysis of biofeedstock production; use the tool to evaluate the environmental impacts of various biofeedstock production strategies. The project will evaluate regional differences in alternative biofeedstock production and associated hydrologic/water quality impacts. A training program, including the Web tool and workshops, will be disseminated to local, state and federal agencies, watershed groups, researchers and others to aid their decisions related to biofuel crops and water quality.

This three year project is led by Dr. Indrajeet Chaubey at Purdue University. The project collaborators include researchers from Purdue University, University of Arkansas and the Oak Ridge National Laboratory. The study watersheds are located in Indiana, Iowa, Tennessee and Arkansas.

Project Website: <https://engineering.purdue.edu/biomasswq/index.html>