



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

Indrajeet Chaubey (1), Bernard Engel (1), Mark Thomas (1), Cibin Raj (1), and Dharmendra Saraswat (2)

(1) Purdue University, Agricultural and Biological Engineering, West Lafayette, United States (ichaubey@purdue.edu), (2) University of Arkansas, Biological and Agricultural Engineering, Little Rock, AR, USA

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. We have initiated a national facilitation project to answer the following questions: 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 presentation will discuss development of 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, we will discuss how watershed scale modeling can be utilized to evaluate the environmental impacts of various biofeedstock production strategies. We will also discuss regional differences in alternative biofeedstock production and associated hydrologic/water quality impacts.