

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

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url: <https://engineering.purdue.edu/biomasswq>

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 national-facilitation project will quantify the impacts of biofeedstock production on hydrology, erosion and water quality in Midwest and Southeast USA.

Goals and Objectives

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, we will complete the following objectives to accomplish these goals:

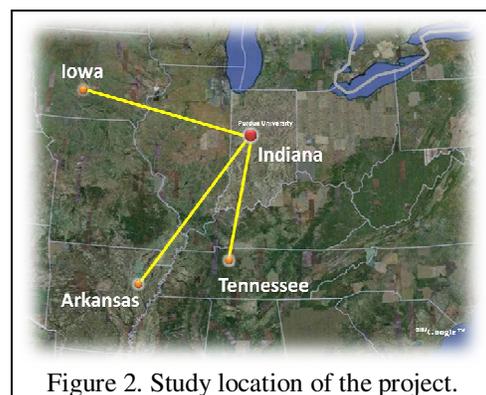
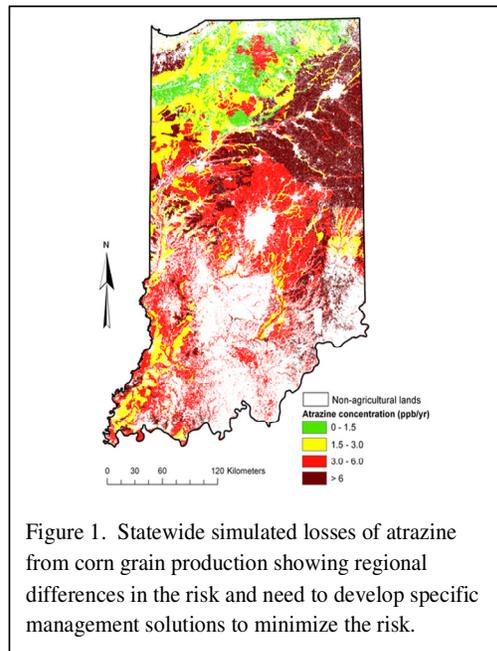
- Develop/modify a decision support tool (National Pesticide Agricultural Risk Assessment or NAPRA) to facilitate local hydrologic/water quality analyses of biofeedstock production.
- Evaluate the impacts of various biofeedstock production strategies on hydrology and water quality as a function of various regional biofeedstock production strategies.
- Engage various stakeholders, such as state and federal agencies, university researchers, watershed management groups, graduate and undergraduate students through various outreach activities designed to promote integrated water management and protection while meeting biofeedstock demand.

The Approach

- Modify the GLEAMS model to quantify impacts of biofeedstock production scenarios on hydrology/water quality, including above ground residue removal, corn silage production, and second generation of biofuel crops (switchgrass, miscanthus, hybrid poplar, etc.).
- Investigate the effects of various land management scenarios to mitigate potential negative effects of biofeedstock production options.
- Update the NAPRA decision support interface and soil database with improved user functions such as downloadable options for graphic and tabular results.
- Create training materials to demonstrate the effectiveness of the NAPRA decision support system.
- Engage multidisciplinary and multi-regional participants in workshop activities and evaluate the effectiveness of the decision support tool based on users' interaction.
- Develop a web site to archive information related to impact of biofuel production on hydrology and water quality.

Collaborators

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