This project will provide new tools for agency personnel and agricultural producers to select land management practices that optimize the reductions of agricultural impacts to surface waters in a more cost-effective manner. An automated decision support module is being developed that will enable the user to collect field-specific data as input to a watershed model that evaluates the impact of implementing the management practices and returns the results to the user.

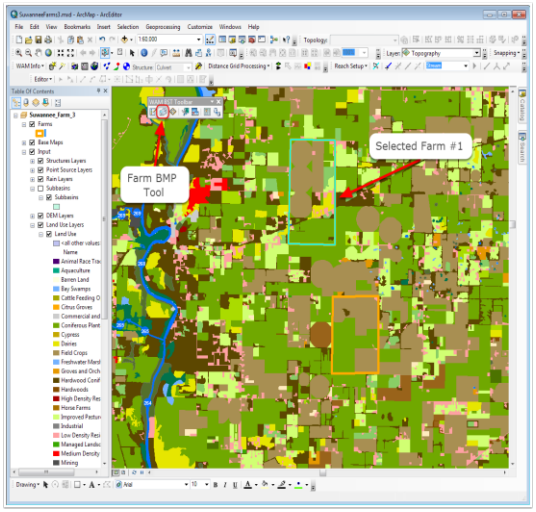
Developing a Decision Support Interface System for Selection and Implementation of Agricultural Best Management Practices in Florida

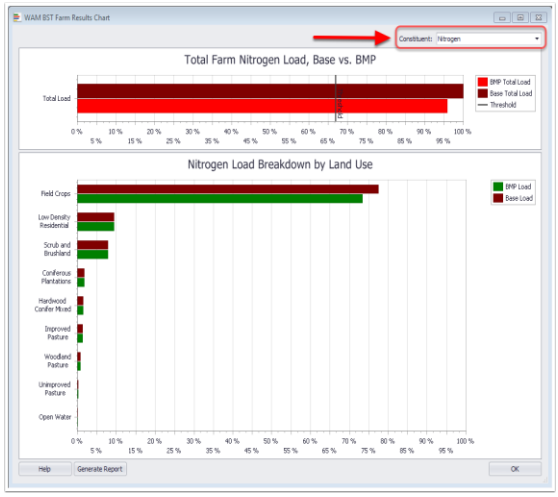
Who cares and why?

A number of surface waters in the state of Florida are impaired by various pollutants, including nutrients resulting from the application of agricultural fertilizers. Impairments must be addressed as mandated by the Clean Water Act. The Florida Department of Agriculture and Consumer Services (FDACS) is tasked with encouraging and assisting agricultural producers to implement land management plans designed to reduce their impacts to surface waters. In this project we are developing an automated computer module for use by agency personnel (including FDACS, and university extension agents) to assist agricultural producers in the selection of suites of management practices to reduce nutrient loadings to surface waters in Florida. The outcomes of this project will benefit agency field agents, producers and the citizens of Florida.

What has the project done so far?

The automated module is designed to interface with the WAM (Watershed Assessment Model) hydrologic watershed model. WAM simulates the impacts to surface waters of implementing various management practices. The user can select hypothetical suites of practices and models the potential reductions of nutrients to surface waters. Thus, WAM could be used to assist producers with selecting the most effective and cost efficient practices for reducing nutrient inputs to surface waters. In this project we are developing an add-on





module that will automate the process FDACS field agents use to assist producers with the management practices selection process. The data gathered using the module will be used as input to the WAM model, which will simulate nutrient reductions and return them to the user. To date we have worked extensively with our project collaborator, Soil and Water Engineering Technology, Inc., to develop a beta-version of the module and to modify the WAM model to receive input from the module. We have selected a three sub-watershed and collected a year of discharge and nutrient data for calibrating the model. Initial model runs have produced satisfactory results. The next step of the process is to interface the data collection module with WAM.

Impact Statement

When completed the module will have the potential to assist agency personnel (including FDACS field agents, university extension agents, and Natural Resource Conservation Service agents) in working with agricultural producers to encourage adoption of land management practices that can reduce their impacts to Florida surface waters. These management changes will have a positive impact on quality of Florida surface waters.

What research is needed?

Additional work is required to interface the management practices selection module with the WAM watershed model. When the interfaced system is fully functional it will be field tested with FDACS agents. Agents' comments will be incorporated into the model and it will then be tested with agricultural producers. Once the system is ready for dissemination, training workshops will be conducted for agents and producers.

Want to know more?

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Strategic Priority

Addresses NIFA Climate Change priority area and FAMU Natural Resource Conservation priority area

Additional links:

http://www.umes.edu/ard/Default.aspx?id=46285

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