Estimating soil C sequestration with agricultural BMPs. (S05-paustian162216-Oral)

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Abstract:

CSTORE is a model designed to predict and assess changes in soil C due to changes in agricultural management practices, for application at field or project levels. The model is a simplified multi-compartment residue and soil organic matter decomposition model based on the structure the Century model. Climate and soils data can be specified from state and county pop-up menus or can be input directly for a specific location. Recent and projected crop rotations, tillage operations and yield levels can be input directly or specified from state and county default menus. The model is programmed with an Access database interface and requires no previous training to run the model. The model was tested using data from long-term experiments at four locations in the Corn Belt and four in the Great Plains. Using a single parameterization for all sites, the model preformed well in predicting C stock changes with changes in tillage management and crop rotations, across different soil types and climate zones. Deviations between observed and predicted changes in soil C as a function of management can be ascribed to both observational uncertainty and model error.

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