Journal Special Sections

Predicting Soil Organic Carbon in Agroecosystems under Climate Change

by Tracy Hmielowski

Soil organic carbon is an important component of soil health in agroecosystems. It can affect crop yields and also serves as a carbon sink. However, changes in climate will likely alter soil organic carbon dynamics. Understanding this relationship between changes in climate and soil organic carbon is important for soil scientists, agronomists, crop breeders, and farmers.

An upcoming issue of the *Journal of Environmental Quality* (JEQ) will include a special section titled, “Prediction of Soil Organic Carbon in Agroecosystems under Climate Change.” Hero Gollany, Research Soil Scientist with the USDA-ARS, served as a guest editor for this collection of papers. Gollany, who first became interested in soil carbon while working on her master’s thesis, currently does research using models based on soil management and biogeochemical processes that influence nutrient cycling within the soil-water-plant-air continuum. Gollany responded to questions from CSA News magazine, which have been edited for length and clarity.

CSA News: What was the motivation for assembling this special section in JEQ?

Gollany: Our motivation came from the USDA Agricultural Research Service GRACEnet cross-location development and improvements in soil organic carbon estimates using process-based carbon models. Impacts of future changes in temperature and precipitation patterns on agricultural production are unknown, so there is a need to find the best agriculture management practices.