

Simulating soil organic carbon change in oilseed cropping systems in North Dakota

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An important driver for the use of renewable fuels is reduction in greenhouse gas (GHG) emissions. The amount of greenhouse gas emissions achieved determines the crops or other biomass sources that can be used to meet the U.S. renewable fuels standard.

Soil organic carbon (SOC) change is a key measure for calculating GHG emission from cropping systems. The EPIC model was used to simulate soil organic carbon changes for growing canola or rapeseed for use as a biofuel in rotation with spring wheat.



Field research data were used in adjusting the model and to measure how well the model was able to predict soil organic carbon changes. The results showed soil organic carbon would increase if rapeseed was grown in rotation with wheat on all soil types within Ward County, North Dakota.

These results indicate that GHG emissions might be reduced in growing rapeseed for biofuel use.

The results are useful to researchers, biofuel industry, and regulators in determining the net GHG impacts of using rapeseed for fuel production and whether rapeseed may be used a feedstock in producing biofuels that meet the U.S. renewable fuels standard.

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