

Greenhouse Gas Emissions from Irrigated and Dryland Corn. (A05-ginting115450-Oral)

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Abstract:

Agriculture has been promoted as a means of greenhouse gas mitigation through soil-C sequestration. The objective of this study is to evaluate soil emission of CO₂, N₂O, and CH₄ in a no-till corn-soybean cropping sequence with or without irrigation. Three systems (irrigated continuous corn in Site 1, irrigated corn-soybean in Site 2, and dryland corn-soybean in Site 3) were started in May 2001. In each system, 6 sites having different soil properties were marked for weekly or biweekly soil-gas flux measurements. The CO₂-C emissions from 7 May 2001 to 1 May 2002 for the irrigated-corn (8.1 and 9.4 Mg/ha/yr in Sites 1 and 2, respectively) were higher than the dryland corn (5.4 Mg/ha/yr). Corn stover-C was lower than soil C emissions. The N₂O-N emission were 2.5, 4.0, 2.8 kg/ha/yr in Sites 1, 2, and 3, respectively. Soil CH₄-C emissions or uptake were close to zero. Soil C-sequestration potential of dryland corn was higher than the irrigated corn.

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