# Long Term Changes in Soil Carbon and Nitrogen due to Cultivation in Illinois. (S06-omonode205453-Poster)

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## Abstract:

Limited data are available to assess long-term changes in soil carbon (C) and total nitrogen (N) of subsoils and artificially drained landscapes, where mineralization of soil N can contribute to water quality problems. We used historical and current data to study changes in soil organic C and total N in surface and subsurface soils in central Illinois, where corn/soybean production and subsurface drainage are predominant. Well described fields sampled in the early 1900s and 1950s were resampled in 2001 and 2002, focusing on tile drained Mollisols. Composite samples were taken at 0-20, 20-35, 35-50, and 50-100 cm and analyzed for organic C and total N. Changes in organic C and total N following initial cultivation varied with location and period of cultivation. In addition to the initial changes, organic C and total N declined by 22-44 and 26-41% respectively, during the subsequent 100 yrs following initial cultivation. However, a gain of >19% in total N was observed in the 50-100 cm depth during the 100 yr period. Loss of organic C and total N from the entire profile ranged between 24-42 and 9-25% respectively, between 1900 and 2000. These data may assist in mass balance analyses.

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## Presentation Information:

Presentation Date: Monday, November 11, 2002
Presentation Time: 9:30-11:30 am
Poster Board Number: 1326

**Keywords:**
Soil carbon, Soil nitrogen, Steady state, Carbon sequestration