Carbon Sequestration Following Manure or Fertilizer Application. (S06-eghball134752-Oral)

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Abstract:

Manure or compost application can increase carbon (C) sequestration in the soil since these organic sources contain significant amounts of C. Experiment was conducted from 1992 to 1996 to evaluate the effects of annual or biennial N- and P-based manure or composted manure application and fertilized and unfertilized checks. In two other experiments, site-specific cattle and swine manures were compared with uniform manure and fertilizer application from 1997 to 2000. About 25% of applied manure C and 36% of applied compost C remained in the 0- 15 cm soil after four years of application indicating greater C sequestration with composted than noncomposted manure. Soil C in the 15 to 30 cm soil was unaffected by the applied manure, compost, and fertilizer. Site-specific manure application resulted in greater C sequestration in the soil and reduced soil C variability. The entire corn residue C incorporated into the soil was emitted as CO2-C in the fertilized field strips. Carbon balance was positive in the manured strips while it was negative in the check strips. Manure application to soil can increase C sequestration and improve soil physical and chemical characteristics.

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