## Effect of Tillage and Carbon Input Levels on Carbon Dynamics over the Long-Term. (S03hooker122224-Poster)

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## Abstract:

It has been well established that tillage and harvest management regimes can influence SOC in agricultural ecosystems, but longterm experiments under continuous management treatments are rare. Such experiments are essential for exploring processes whose results accrue slowly in soils. We are investigating soil carbon dynamics in a corn field, established in 1968 at the UConn Research Farm. The plots have been under no-till or conventional till management, with silage corn (no residue) or grain corn (shoot residue), with three replicates. These plots are unique to long-term (>20 year) agricultural experiments because both tillage differences and differential C input practices are in place. Conventional tillage had enhanced decomposition of labile carbon residues, which resulted in a decreased proportion of C4-C retained in the whole soil (more negative d13C) and a decreased %C compared with notill. The silage treatment also resulted in a decreased proportion of C4-C contributing to soil C, and decreased %C compared with the grain treatment. We currently are evaluating the treatment-specific fates of corn-derived C and relic forest-derived C in size and density-defined fractions.

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