# The Role Of Non-Labile Fractions in C Sequestration. (S05-morris114456-Oral)

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## Abstract:

Mitigation for the effects of elevated CO2 on global change can be achieved through use of terrestrial C sinks. Our research focuses on soil C fractions and evaluates the role of these pools in C sequestration. Sites with agriculture, native and afforested deciduous and coniferous forests on the same soil type were studied. Silt loam and sandy textured soils in Ohio, and sandy loam textured soil in Canada were analyzed for SOC pool dynamics. Long-term incubations showed differences in CO2 accumulations with less than 7% of soil C in active fractions for A horizons. The resistant fractions represented approximately 50% of SOC across sites. The age of these fractions, from 14C dating, ranged from 38 to 368 yrs. These pools represent long-term storage for sequestered atmospheric C and should be included in global change models and decision-making. Further research is necessary as CO2 curves developed suggest simple first-order models developed using agricultural soils may not provide adequate representation of forest soil C turnover due to additional system complexity such as more diverse litter inputs. These pool sizes are necessary to understand the impacts of global change.

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