## **Dynamics of C Storage in No-Till Spring Crop Rotations. (S03-bell133758-Poster)**

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## Abstract:

In response to rising levels of atmospheric greenhouse gases, adoption of no-till (NT) and continuous cropping could reduce CO2 emissions from agricultural soils by retaining SOM. Our research objective was to assess C storage in soils under NT as influenced by cropping system. Four crop rotations were used: winter wheatfallow serving as a control; NT spring wheat-chemical fallow; continuous NT spring wheat; and NT spring wheat-spring barley. In an incubation study using 14C-labeled wheat straw, we traced the decomposition of added residue, and then determined the effect of adding non-labeled straw on the mineralization of residual 14C. Peak emission of 14C-CO2 occurred on day 5 and leveled off by day 17. On days 17 and 27 all samples were stirred and non-labeled straw added to select samples. Non-labeled straw addition resulted in a flush of 14C-CO2 not seen in the stirred-only controls. This apparent priming effect suggests C inputs have a greater effect on mineralization of residual 14C compared to disturbance. Results of this study will aid growers and scientists in developing strategies to improve soil quality, reduce CO2 emissions and establish carbon credits.

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