Integrated Analysis of Soil Carbon Sequestration Enhancement Methods. (S07-post114554-Oral)

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Abstract:

Terrestrial C sequestration can remove significant amounts of CO2 from the atmosphere. To be effective, terrestrial C sequestration must not only increase C accumulation in vegetation and soil but also reduce the release of greenhouse gases to the atmosphere. The methods must be environmentally beneficial and economically attractive so that they may be readily adopted. Improved agricultural methods can reduce atmospheric CO2 concentration through a variety of mechanisms. We outline an example integrated analysis to evaluate each component required for an assessment of C sequestration using reduced tillage in combination with increased cropping intensity and increased rotation complexity. Our approach includes 7 components: 1) Identify promising technologies, 2) Understand controls on basic mechanisms at site scale, 3) Perform sensitivity analysis over range of applicable conditions, 4) Include a full C and greenhouse gas accounting, 5) Evaluate environmental impacts, 6) Perform an economic analysis including rate of adoption, cost trade offs and 7) Complete the integrated assessment. We will provide new information and indicate significant areas of uncertainty for each component.

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