Estimating Stocks of Soil Organic Carbon at Multiple Scales. (S05-thompson143411-Oral)

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Abstract:

Effective management policies that increase soil carbon storage require an estimate of uncertainty in measuring carbon at the beginning and end of a contract period. Uncertainty increases the risk that private or public carbon brokers take in buying and selling the commodities of carbon or soil management. Uncertainties in estimates of carbon distribution vary with the technique and the scale of the data used to make the estimate. Soil sampling designs vary with the purpose of sampling, e.g., to quantify differences among treatments that change carbon levels or to make unbiased predictions of carbon values at unsampled points to facilitate precision management. The choice of optimal spatial scales on which carbon contracts can be designed must balance the uncertainty of estimating soil carbon contents of managed soils against the costs of making such estimates. We describe a multistate project that compares intensive and extensive sampling designs to assess soil carbon stocks at multiple scales under a range of climate and management regimes.

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