



Novel Auger System Provides Rapid Soil Carbon Estimates

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Skidmore College student Claire Wolgast collects soil samples with a traditional 1-inch push probe (left) and a novel drill-mounted auger system (right) to be analyzed for soil carbon concentration. Photos by Kelsey Jensen.

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Soil carbon sequestration is a critical component of climate-smart agriculture, but assessing soil carbon at the farm scale can be expensive and time consuming. While certain soil sampling tools offer potential cost savings through greater efficiency and ease of use, it remains unclear whether they yield equivalent soil carbon estimates.

Researchers compared two soil sampling methods, a standard push probe and a novel drill auger system that uses an auger bit attached to a handheld drill to collect soil into a box. They found that the difference in soil carbon estimates between the two methods is insignificant relative to the difference in carbon concentrations between points located 10 m apart. The drill auger also collects samples up to three times faster

than the push probe without compromising soil carbon estimates.

The findings have implications for researchers and practitioners interested in assessing soil carbon stocks and increasing the viability of climate-smart agriculture. Using appropriate field tools can save time and effort without sacrificing data quality. Lowering inventory costs is a critical step in demonstrating the feasibility of soil carbon sequestration as a component of climate-smart agriculture.

Adapted from

Jensen, K. H., Faehndrich, C. S., Colzani, E., McClure, M. L., & Covey, K. (2023). Rapid soil harvesting using a novel soil auger system for farm-scale soil carbon estimates. *Soil Science Society of America Journal*. <https://doi.org/10.1002/saj2.20603>

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