A Hydraulic Soil Coring System For Soil Carbon-Root Studies. (A03-prior115956-Poster)

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Abstract:

Reliable sampling of belowground components is an essential aspect of agroecosystems research. Factors such as difficult soil conditions (e.g., hardpans, rocky or wet conditions), restricted access, and remote sites can often limit adequate sampling in the field. The objective was to design and construct a soil coring system for rapid sampling under field conditions which minimized the above limitations. Cores were extracted using a custom-made telescoping device assisted by a modified commercial hydraulic post driver mounted to the front of a small tractor. The tractor hydraulic system was used to power both the post driver and the telescoping device. Custom driving heads for the soil core tubes were constructed for insertion into the upper end of core tubes for collecting large soil cores (24.5 cm diameter x 0.6 m deep) or small soil cores (3.8 cm diameter x 1.0 m deep). As many as 24 small cores per hour or 14 large cores per hour could be collected with this system. The coring system has been successfully used in soil types varying from sandy to heavy clay.

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