Novel Design Facilitates Measurement of Belowground Biomass Accumulation

Grasslands occupy approximately 40% of earth’s ice-free land area. Soils under grasslands store large quantities of carbon, benefitting society by reducing carbon dioxide in the atmosphere and slowing the pace of climate change.

Accumulation of soil carbon occurs gradually and is nearly impossible to measure accurately during the two- to three-year time span of many field research studies. This is a substantial barrier to rapid progress in identifying management practices favoring soil carbon accumulation. A technique capable of indirectly assessing the impact of management practices through shorter-term measurements of soil carbon accumulation would be valuable.

In a newly published Agronomy Journal article, researchers describe the design of an ingrowth core device that can be used to measure root-rhizome accumulation rate in perennial grasslands. The design accommodates coarse roots and rhizomes and can achieve meaningful results in 100-day deployment periods.

The ingrowth core device can be used to assess root-rhizome mass accumulation in a wide range of perennial grassland species and under numerous management practices, facilitating short-term measurement of a factor that is likely related to long-term accumulation of soil C.


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