Science Societies

Soil archives ripe for researching long-term changes

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Soil sample collection at the Northern Great Plains Field Station, Mandan, ND, 1918. Photo by Albert B. Frank.

Archived soil samples provide a snapshot of soil properties at the time and place they were collected, allowing researchers to revisit past conditions and assess change over time. This information is key to assessing the sustainability of land management practices—however, the use of soil archives for research purposes is poorly understood.

A recent review published in the *Soil Science Society of America Journal* found an accelerating use of soil archives for research since 1980, peaking at 59 publications between 2016 and 2020. Soil archive age across the compilation ranged from 5 to 160 years with a mean of 48 years.

The most common use of soil archives included investigations of soil organic matter change in cropland in developed countries. Significant land use and geographical gaps exist when it comes to understanding long-term soil change worldwide. Major gaps in knowledge happened to be in regions where soil resource use is projected to intensify in the coming decades.

The authors recommend increased coordination among researchers coupled with enduring investments in the curation and retention of soil archives to preserve this useful long-term resource.

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Bergh, E.L., Calderon, F.J., Clemensen, A.K., Durso, L., Eberly, J.O., Halvorson, J.J., Jin, V.L., Margenot, A.J., Stewart, C.E., Pelt, S.V., & Liebig, M.A. (2022). Time in a bottle:

Use of soil archives for understanding long-term soil change. *Soil Science Society of America Journal*. **https://doi.org/10.1002/saj2.20372**

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