Water Retention of Peat Near Permanent Wilting Point

Laboratory methods for determining the soil hydraulic properties are often tested only for mineral soils. However, properties of peat and mineral soils are very different, in particular shrinkage and hydrophobicity of peat soils may cause experimental issues and measuring inaccuracies.

In the May–June issue of the Soil Science Society of America Journal, researchers reported a comparison of classical laboratory methods for the determination of water retention properties near permanent wilting point for variably degraded peat soil samples from different locations.

The team found that two different pressure apparatus, which generally rely on a good contact between peat soil sample and drainage medium to achieve equilibrium conditions, provide reliable data despite strong shrinkage. Furthermore, it is shown that the measurement principle of dew point potentiometer is prone to errors when using protocols based on previously dried samples. Observed long-lasting repellency effects caused huge systematic errors.

The study suggests that laboratory methods should be carefully tested for methodological issues when working with peat samples, and results are valuable for the evaluation of literature data on peat hydraulic properties. There is an increasing need for accurate peat soil hydraulic properties in order to understand hydrological dynamics in natural and managed peatlands since they control in large parts peatlands’ role as greenhouse gas emission hot spots.


doi:10.2134/csa2018.63.0908

Worth 1,000 Words

Each month, we highlight a photo demonstrating great techniques to illustrate research. This month, we thank Bozhi Wu for providing this photo of intercropping. This photo includes:

1. Visual interest of short chili plants offset by taller corn;
2. Sense of immensity of field with the long focus; and
3. Contrast of color and sense of place with mountains in the background


Don’t let those photo opp moments pass you by! Keep your camera, or cell phone, ready to capture the exciting visuals of your science! Consider entering our annual Photo Contest by 15 September! (www.acsmeetings.org/photo-contest).

doi:10.2134/csa2018.63.0909