June 29 2021

To the Editorial Board of *Agrosystems Geosciences & Environment*:

On behalf of all co-authors, herewith I am submitting a manuscript entitled “Winter Cover Cropping Effects on Soil Water Storage Vary by Site: Field Measurements and a Proposed Causal Model” to be considered for publication in *Agrosystems Geosciences & Environment*.

This manuscript contains new information on the effects of winter cover cropping in maize and soybean systems in Iowa USA, a state located in one of the most agriculturally productive regions in the world. We performed this study to address a lack of data concerning the long-term effects of cover cropping on soil water storage and to generate knowledge to support assessments and modelling of cover crop’s potential to increase productive capacity, adaptive abilities, and environmental sustainability. Our study offers several innovative aspects:

Soil sampling from long-term (10+ years) cover crop experiments

Sampling from multiple sites across Iowa

Sampling at a 10-18 cm soil depth which may be more relevant than shallow sampling when considering crop water needs

First graphical model of proposed causal links between cover crops and soil water storage

This unique dataset allowed us to demonstrate the large amount of variability in how soils respond to winter cover cropping. Our analysis indicated that above-ground cover crop biomass is a poor predictor for the magnitude of soil water storage changes with cover cropping. We propose measuring below-ground biomass as an area of future focus, and support this with a graphical analysis of a causal diagram.

Given the implications of soil water storage on agriculture and the environment we believe this contribution is a very relevant to your journal.

Sincerely,

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 Virginia Nichols

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