Science Societies

President’s pick: SSSA research April 2026

By Aaron Lee M. Daigh

March 26, 2026



Each month, SSSA President Aaron Daigh picks one or two articles among the SSSA journals that represent some of the most exciting, creative, and innovative research in the field of soil science. Check out his picks for this month!

Exciting new research is shared every day among the scientific community in our journals. SSSA is the sole publisher of the *Soil Science Society of America Journal* and *Vadose Zone Journal*, and co-publisher of the *Journal of Environmental Quality* and *Agricultural & Environmental Letters* with CSSA and ASA.

Each month, I will pick one or two articles among our journals that represent some of the most exciting, creative, and innovative research in our field of soil science. This month, I have chosen the following two articles from the *Soil Science Society of America Journal*. Congratulations to the authors and thank you for sharing your excellent work!

A case study demonstrating the impact of tire inflation pressure and soil management practices on stress and compaction in agricultural soils

Soil compaction remains one of the most persistent threats to soil function in mechanized agriculture. The authors combine measured tire inflation pressures with field-measured stress distributions at multiple depths to evaluate how wheel configuration and soil management history influence vertical stress distribution and subsoil compaction risk. Lower tire inflation pressure substantially reduced stress in

the upper profile, yet stresses at depth remained governed by total wheel load and soil structural condition. This case study provides field-based evidence for determining when reduced tire pressure meaningfully mitigates compaction and when deeper horizons remain vulnerable.

Authors: Olatunbosun Ayetan, Adam W. Gillespie, Richard J. Heck, Alex Barrie, Ian McDonald, and Lars J. Munkholm

Journal: *Soil Science Society of America Journal*

Article link: https://doi.org/10.1002/saj2.70200

Simple and effective remediation strategies of Martian perchlorates

The authors address remediation of perchlorate, one of the most consequential constraints to using Martian regolith for food production. Using a Mars regolith simulant spiked with magnesium perchlorate, they evaluated thermal decomposition, aqueous leaching with distillation, and biological reduction as remediation strategies. Thermal treatment effectively eliminated perchlorate, repeated leaching removed perchlorate from the simulant while distillation recovered perchlorate-free water, and microbial reduction achieved measurable but incomplete removal that improved after directed evolution of the microbial community. This study offers experimentally grounded insight into perchlorate mitigation strategies relevant to extraterrestrial agriculture.

Authors: Harrison R. Coker, Aenghus C. Denvir, and Julie A. Howe

Journal: *Soil Science Society of America Journal*

Article link: https://doi.org/10.1002/saj2.70201

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