

Soil Mechanics and Soil Management Publications

Selected Recent Publications

- Arrázola-Vásquez E., Larsbo M., Capowiez Y., Taylor A., Sandin M., Iseskog D. & Keller T. 2022. Earthworm burrowing modes and rates depend on earthworm species and soil mechanical resistance. *Applied Soil Ecology*, 178, 104568.
- Colombi T., Chakrawal A., Hermann A.M. 2022. Carbon supply–consumption balance in plant roots: effects of carbon use efficiency and root anatomical plasticity. *New Phytologist*, 233, 1542-1547.
- Keller T., Sandin M., Colombi T., Horn R. & Or D. 2019. Historical increase in agricultural machinery weights enhanced soil stress levels and adversely affected soil functioning. *Soil & Tillage Research*, 194, 104293.
- Sjulgård H., Colombi T., Keller T. 2022. Spatiotemporal patterns of crop diversity reveal potential for diversification in Swedish agriculture. *Agriculture, Ecosystems and Environment*, 336, 108046.
- Sjulgård H., Iseskog D., Kirchgessner N., Bengough A.G., Keller T. & Colombi T. 2021. Reversible and irreversible root phenotypic plasticity under fluctuating soil physical conditions. *Environmental and Experimental Botany*, 188, 104494.
- Williams H., Colombi T. & Keller T. 2020. The influence of soil management on soil health: an on-farm study in southern Sweden. *Geoderma*, 360, 114010.

More Recent Publications

2022:

- Arrázola-Vásquez E., Larsbo M., Capowiez Y., Taylor A., Sandin M., Iseskog D. & Keller T. 2022. Earthworm burrowing modes and rates depend on earthworm species and soil mechanical resistance. *Applied Soil Ecology*, 178, 104568.
- Bahrami M., Naderi-Boldaji M., Ghanbarian D. & Keller T. 2022. Simulation of soil stress under plate sinkage loading: A comparison of finite element and discrete element methods. *Soil & Tillage Research*, 223, 105463.
- Barbosa L.A.P., Gerke K.M., Munkholm L.J., Keller T., Gerke H.H. 2022. Discrete element modeling of aggregate shape and internal structure

- effects on Weibull distribution of tensile strength. *Soil & Tillage Research*, 219, 105341.
- Bösch Y., Jones C.M., Finlay R., Karlsson M., Larsbo M., Keller T. & Hallin S. 2022. Minimizing tillage modifies fungal denitrifier communities, increases denitrification rates and enhances the genetic potential for fungal, relative to bacterial, denitrification. *Soil Biology and Biochemistry*, 170, 108718.
- Büchi L., Walder F., Banerjee S., Colombi T., van der Heijden M.G.A., Keller T., Charles R. & Six J. 2022. Pedoclimatic factors and management determine soil organic carbon and aggregation in farmer fields at a regional scale. *Geoderma*, 409, 115632.
- Cavaliere-Polizeli K.M.V., Marcolino F.C., Tormena C.A., Keller T., Moraes A.D. 2022. Soil structural quality and relationships with root properties in single and integrated farming systems. *Frontiers in Environmental Science*, 10, 901302.
- Colombi T., Chakrawal A., Hermann A.M. 2022. Carbon supply–consumption balance in plant roots: effects of carbon use efficiency and root anatomical plasticity. *New Phytologist*, 233, 1542-1547.
- de Souza L.C., de Lima H.V., Rodrigues S., Torres L.C. & Kern D.C., 2022. Anthropogenic soil Eexperiment in Brazil Amazon: Changes in soil physical properties by organic residues. *Communications in Soil Science and Plant Analysis*, 53, 533-543.
- Ding Z., Munkholm L.J., ten Damme L. & Lamandé M. 2022. Vertical and horizontal soil stresses beneath a modern combine harvester: Measurements and modelling. *Land Degradation and Development*, 33, 892-903.
- Hosseinpour-Ashenaabad R., Keller T., Larsbo M. & Hallett P.D. 2022. Dual-platform micromechanical characterization of soils: Oscillation shear rheometry and spherical indentation. *Soil & Tillage Research*, 223, 105467.
- Fukumasu J., Jarvis N., Koestel J., Kätterer T. & Larsbo M. 2022. Relations between soil organic carbon content and the pore size distribution for an arable topsoil with large variations in soil properties. *European Journal of Soil Science*, 73, e13212.
- Keller T. & Or D. 2022. Farm vehicles approaching weights of sauropods exceed safe mechanical limits for soil functioning. *Proceedings of the National Academy of Sciences of the United States of America*, 119, e2117699119.
- Liu H., Colombi T., Jäck O., Keller T., Weih M. 2022. Effects of soil compaction on grain yield of wheat depend on weather conditions. *Science of the Total Environment*, 807, 150763.
- Liu H., Colombi T., Jäck O., Westerbergh A. & Weih M. 2022. Linking wheat nitrogen use to root traits: Shallow and thin embryonic roots enhance uptake but reduce conversion efficiency of nitrogen. *Field Crops Research*, 285, 108603.

- MacLaren C., Mead A., van Balen D., Claessens L., Etana A., de Haan J., Haagsma W., Jäck O., Keller T., Labuschagne J., Myrbeck Å., Necpalova M., Nziguheba G., Six J., Strauss J., Swanepoel P.A., Thierfelder C., Topp C., Tshuma F., Verstegen H., Walker R., Watson C., Wesselink M. & Storkey J. 2022. Long-term evidence for ecological intensification as a pathway to sustainable agriculture. *Nature Sustainability*, 5, 770-779.
- Parvin N., Coucheney E., Gren I.-M., Andersson H., Elofsson K., Jarvis N. & Keller T. 2022. On the relationships between the size of agricultural machinery, soil quality and net revenues for farmers and society. *Soil Security*, 6, 100044.
- Romero-Ruiz A., Linde N., Baron, L., Breitenstein D., Keller T. & Or D. 2021. Lasting effects of soil compaction on soil water regime confirmed by geoelectrical monitoring. *Water Resources Research*, 58, e2021WR030696.
- Sjulgård H., Colombi T., Keller T. 2022. Spatiotemporal patterns of crop diversity reveal potential for diversification in Swedish agriculture. *Agriculture, Ecosystems and Environment*, 336, 108046.
- ten Damme L., Jing S., Montcalm A.M., Jepson M., Andersen M.M. & Hansen E.M. 2022. Proper management of irrigation and nitrogen-application increases crop N-uptake efficiency and reduces nitrate leaching. *Acta Agriculturae Scandinavica Section B: Soil and Plant Science*, 72, 913-922.

2021:

- Bölscher T., Koestel J., Etana A., Ulén B., Berglund K. & Larsbo M. 2021. Changes in pore networks and readily dispersible soil following structure liming of clay soils. *Geoderma*, 390, 114948.
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- Colombi T., Kirchgessner N., Iseskog D., Alexandersson S., Larsbo M. & Keller T. 2021. A time-lapse imaging platform for quantification of soil crack development due to simulated root water uptake. *Soil & Tillage Research*, 205, 104769.
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- Hirte J., Walder F., Hess J., Büchi L., Colombi T., van der Heijden M.G. & Mayer J. 2021. Enhanced root carbon allocation through organic farming is restricted to topsoils. *Science of the Total Environment*, 755, 143551.
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- Koestel J., Fukumasu J., Garland G., Larsbo M. & Nimblad Svensson D. 2021. Approaches to delineate aggregates in intact soil using X-ray imaging. *Geoderma*, 402, 115360.
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- Longepierre M., Widmer F., Keller T., Weisskopf P., Colombi T., Six J. & Hartmann M. 2021. Limited resilience of the soil microbiome to mechanical compaction within four growing seasons of agricultural management. *ISME Communications*, 1, 44.
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- Parvin N., Sandin M. & Larsbo M. 2021. Seedbed consolidation and surface sealing for soils of different texture and soil organic carbon contents. *Soil & Tillage Research*, 206, 104849.
- Romero-Ruiz A., Linde N., Baron L., Solazzi S.G., Keller T. & Or D. 2021. Seismic signatures reveal persistence of soil compaction. *Vadose Zone Journal*, 20, e20140.
- Sjulgård H., Iseskog D., Kirchgessner N., Bengough A.G., Keller T. & Colombi T. 2021. Reversible and irreversible root phenotypic plasticity under fluctuating soil physical conditions. *Environmental and Experimental Botany*, 188, 104494.
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- Weber L.L., Cavaliere-Polizeli K.M.V., Zimmermann G.G., Filho O.G., Tormena C.A., Keller T. & Jasper S.P. 2021. Impact of self-propelled sprayer traffic on Ferralsol physical properties in southern Brazil. *Journal of Soil Science and Plant Nutrition*, <https://doi.org/10.1007/s42729-021-00581-2>.
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2020:

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- Barbosa L.A.P., Keller T. & de Oliveira Ferraz A.C. 2020. Scale effect of aggregate rupture: Using the relationship between friability and fractal dimension to parameterise discrete element models. *Powder Technology*, 375, 327-336.
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Büchi L., Georges F., Walder F., Banerjee S., Keller T., Six J., van der Heijden M.G.A. & Charles R. 2019. Potential of indicators to unveil the hidden side of cropping system classification: Differences and similarities in cropping practices between conventional, no-till and organic systems. *European Journal of Agronomy*, 109, 125920.

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Colombi T., Hermann A.M., Vallenback P. & Keller T. 2019. Cortical cell diameter is key to energy costs of root growth in wheat. *Plant Physiology*, 180, 2049-2060.

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- Obour P.B., Keller T., Jensen J.L., Edwards G., Lamandé M., Watts C.W., Sørensen C.G. & Munkholm L.J. 2019. Soil water contents for tillage: a comparison of approaches and consequences for the number of workable days. *Soil & Tillage Research*, 195, 104384.
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- Romero-Ruiz A., Linde N., Keller T. & Or D. 2018. A review of geophysical methods for soil structure characterization. *Reviews of Geophysics*, 56, 672-697.
- Sandin M., Piikki K., Jarvis N. & Larsbo M. 2018. Consolidation and surface sealing of nine harrowed Swedish soils. *Soil & Tillage Research*, 181, 82-92.
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2017:

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