



## Editorial

## Soil &amp; Tillage Research Editorial



Dear readers, authors, reviewers, and editorial advisory board members of Soil & Tillage Research,

Soil & Tillage Research was launched in 1980 as an association between the International Soil Tillage Research Organisation (ISTRO) and Elsevier. Soil & Tillage Research publishes research aimed at developing soil management for food and fibre production that minimizes environmental impacts and maximises soil ecosystem services. Specifically, the journal examines the physical, chemical and biological interactions and changes to soil caused by soil management, tillage, field traffic, and environmental impacts. While the general purpose of Soil & Tillage Research is unchanged, its nature has evolved with global change processes that include increasing demands on plant growth for food and fibre provision, environmental needs (e.g. climate change mitigation and adaptation, altered physical as well as biogeochemical processes and functions, water regulation including groundwater recharge, flood control and drought resilience, biodiversity promotion), engineering and technical developments (e.g. machinery characteristics and their interaction with soil properties and affected resilience), precision agriculture, tillage systems, automation, and the use of real-time measured data in decision making. Thus, Soil & Tillage Research is a premium journal for publishing research findings towards solving these major challenges.

The launch article (Van Ouwerkerk & Marten, 1980) highlighted that while submitted papers may be based on local or regional studies, they should be of international interest. As an international journal, this need remains current, i.e. papers need to demonstrate why the results presented are of relevance beyond the location of the study. There is a need to demonstrate or link to underlying mechanisms with the prospect of simulation, to ensure that articles published in our journal help to advance understanding of processes. In all cases, statistical analysis must be rigorous. Contributions in which models are developed or used to enhance process understanding and support soil management decisions are welcome.

Having emphasised the ethos and direction of Soil & Tillage Research, it is important to note that soil is a four-dimensional medium and that responses to management occur across scales from the molecular to the landscape and from seconds to millennia. Soil structure, including the important features of aggregation and distribution of pore space, are critical to how soil responds to management and environmental stresses. Consequently, manuscripts submitted for publication should deliver more than report the status of a single soil at one time or depth. The use of long-term experiments and on-farm studies can be useful provided they support causality or a trajectory of any change and have the prospect of being generalised to other soil types or environments.

On-going technological development allows soil scientists, engineers, agronomists and land users to obtain soil information from aerial observation by satellites, aircraft and drones and from a variety of in situ and machine mounted sensors. The information provided from such equipment may quantify changes of soil properties and functions that are relevant to soil management particularly when combined with pedometric techniques or soil-crop and hydrological models. Soil & Tillage Research will accept manuscript submissions in these areas, including methodological development, provided they have utility for soil management.

While it is clear that Soil & Tillage Research has evolved since its launch more than 40 years ago, the core of its scope remains unchanged and highly relevant to the global challenges of sustainable soil management and food production with application from individual farms to the continental scale. The editors of Soil & Tillage Research invite manuscript submissions that fit within the parameters set out in the aims and scope of the journal and reinforced in this editorial. The goal of Soil & Tillage Research remains to continue to publish leading research linked to soil management.

## Reference

Van Ouwerkerk, C., Marten, A.A. 1980. Launching the new international journal "Soil & Tillage Research". *Soil Tillage Res.* 1, 1–6.

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