

**Workshop 1****General abstract:****Expanding indicator qualities of nematodes to identify sustainable soil health.**

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Soil health fragility from intensive land use practices and the value of nematodes as a bioindicator of changes in soil ecosystems as influenced by production and nematode management practices are well established. Healthy soil requires balanced biological, physiochemical, nutritional, structural, and water holding components. Despite the advances in basic and applied aspects of soil health components and nematode management, achieving and sustaining healthy soil remains challenging. In part, this is due to lack of simultaneous integration of the different components of soil health and the desired ecosystem services of improved soil structure, physiochemistry, water holding capacity and nutrient cycling, suppressing harmful while increasing beneficial organisms, and crop yield that they generate. Aligning the desired ecosystem services is challenging. For example, the biological component, which drives the soil food web (SFW) and nutrient cycling, includes both harmful and beneficial nematodes as central players in the same environment. Under these circumstances, sorting out ecosystem services with conflicting trajectories is difficult, as is aligning all of the desirable ecosystem services. This workshop will provide an overview of the soil health components and the role of the SFW therein. This will be followed by two interactive modules that use nematodes as indicators to demonstrate how to separate effects of agricultural practices on the desired ecosystem services, leading to sustainable and steady-state of soil health conditions simultaneously. The first module will use changes in population dynamics of harmful nematodes and the second module beneficial ones as indicators. Attendants are expected to bring computers and they will be provided with data used for the demonstration. The broad impact will be improved use of nematodes as an indicator to translate basic and complex biophysiochemical information into integrated practical application, leading to improved long-term environmental, economic and quality of life needs.

**Keywords:** Decision-making - Ecosystem services - Nutrient cycling.