

## Symposium: Rhizosphere communities and plant health

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### Nematode assemblages as indicators for plant health

Soil nematode assemblages include representatives that obtain food from higher and lower plants, bacteria, fungi, or from other soil organisms. Feeding on higher plants may be considered detrimental if the plants have economic or aesthetic value; it may be beneficial if the plants are considered undesirable. Generally, a preponderance of herbivores in the nematode assemblage is an indicator that recent soil management has diminished functional diversity. Together with other soil organisms, nematodes perform important ecosystem services in healthy and productive soils; they enhance mineral cycling, transport bacteria and fungi to untapped resources, enhance microbial turnover, provide resources to other organisms, and regulate opportunistic species. Absent continued input of mineral fertilizers, a healthy and productive soil requires an active soil food web to provide resources for plants and to regulate populations of root herbivores. Nematodes participate in activities at most functional levels in well-structured soil food webs. Consequently, analysis of the nematode fauna indicates the extent to which important ecosystem services are being performed by nematodes and by their functional counterparts in other groups of soil organisms. The management challenge is to enhance the diversity and abundance of beneficial soil organisms so that the ecosystem services are in concordance with the needs of healthy plants.