**Session Proposal**

# Session Title

Rhizobiont for high nutrient use efficiency

# Session Organizers

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# Session Description

The symposium will provide a platform for critical discussion on improving nutrient use efficiency in agricultural systems, the biological mechanisms that govern plant-microbe synergies to enhance nutrient acquisition, and innovative strategies for optimizing these processes. Practical approaches for harnessing the "Rhizobiont", i.e., an integrated system consisting of plants, roots, rhizosphere, hypersphere, and their associated microbes, system to achieve sustainable crop productivity will be extensively shared among experts and stakeholders. An integrated framework that combines plant genetic potential, microbiome engineering, and precision management technologies, with emphasis on developing solutions that are both ecologically sound and economically viable, will be outlined during the symposium. The event will also create networking opportunities for early-career researchers and established scientists in agronomy and microbiome studies.

# Relevance

This session is highly relevant to the congress’s theme of Soil fertility and plant Nutrition as it targets improve soil fertility and plant nutrition by considering the whole system of plant, roots, rhizosphere, hypersphere, and their associated microbes and improve their biological potential.

# Format

Oral presentations, panel discussions, workshops.

# Proposed Speakers

1. Marcel van der Heijden, University of Zurich, contribution (a leading multidisciplinary researcher active in disciplines such as mycorrhizal ecology, ecology, agriculture, biodiversity, molecular ecology, plant microbiome research, plant sciences, plant nutrition, soil sciences, sustainability and environmental protection)
2. John Klironomos, American University of Sharjah, contribution (a leading expert on understanding the causes and consequences of plant and fungal diversity in terrestrial ecosystems)
3. Matthias C. Rillig, Freie Universität Berlin, contribution (a leading expert on soil fungi (arbuscular mycorrhizal, saprobic, and parasitic), biodiversity, global change (including microplastic), and the application of ecological principles to soil)
4. Chengcai Chu, South China Agricultural University, contribution (a leading expert on dissecting molecular mechanisms of nutrient sensing and utilization, the interplay among different nutrients, and also their impact on nutrient use efficiency (NUE) of plants using rice as a model system)
5. Yang Bai, Peking University, contribution (a leading expert on the function and mechanism of plant-microbiome interactions)