

iFAST: The International Forum on Advanced Environmental Sciences and Technology

A series of distinguished seminars by eminent scientists

8 a.m. CST, 9 a.m. EST, Wednesday, Dec. 10, 2025

2 p.m. GMT, 10 p.m. China, Wednesday, Dec. 10, 2025



G.A. KOWALCHUK

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George Kowalchuk is chair of the Ecology and Biodiversity research group at Utrecht University. He obtained his Ph.D. from Yale University, and after short post-docs at Yale and the University of Amsterdam, he moved to the Department of Microbial Ecology at The Netherlands Institute of Ecology. In 2005, he was named professor of Plant-Microbe Interactions by special appointment at the Free University of Amsterdam. In 2013, he moved to his current position, where his group focuses on the development, maintenance and functioning of biodiversity, as determined by ecological processes and interactions with atmosphere, water and soil. His own multifaceted research program is centered around environmental and rhizosphere microbiology in the context of global change. His research within the field of microbial ecology chiefly focuses on rhizosphere ecology and determining the impacts of environmental change drivers on belowground biodiversity and community function. Kowalchuk is Vici grant laureate from the Dutch Science Foundation, and recipient of a lifetime achievement award from the International Society of Microbial Ecology. He is a founding editor and co-editor-in-chief of *The ISME Journal*, serving in the position from 2007-2018, and served as editor-in-chief of the *Molecular Microbial Ecology Manual* from 2004-2010. He sits on numerous editorial boards and has been recognized as a Highly Cited Researcher by the Web of Science Group, Clarivate Analytics. He has recently been appointed as the director of the Institute of Environmental Biology of Utrecht University, a position that will take effect as of Jan. 1, 2026.

Ecological guidelines for harnessing the rhizosphere microbiome

Abstract Soil-borne microbes carry out a range of useful functions, and harnessing such functions holds promise for sustainable solutions in agriculture and restoration efforts. However, desired microbial activities as examined in the laboratory often fail to be realized in the field. In order to steer microbial activities, one has to consider the rules that determine microbial interactions at scales relevant to the microbes themselves: in other words, one has to start thinking like a microbe. I will examine a range of ecological principles as applied to the functionality of the rhizosphere microbiome, and how these need to be considered in the development of more sustainable agronomic practices that rely on the plant microbiome. I take a plant holobiont perspective in which the plant phenotype is generated by the joint expression of plant and microbiome genes. I will argue that advances in understanding plant-microbe interactions for the first time put us in a position to consider microbiome-inclusive approaches in plant breeding and agricultural management.



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Zoom webinar ID: 934 8142 2012 (zoom.us/j/93481422012)

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