iFAST: The International Forum on Advanced Environmental Sciences and Technology

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8 p.m. CDT; 9 p.m. EDT; 1 a.m. GMT (May 20); 9 a.m. Beijing (May 20)

Wednesday, May 19, 2021

Steve Lindow

University of California, Berkeley

https://plantandmicrobiology.berkeley.edu/profile/lindow

Steve Lindow is a professor of plant pathology at the University of California, Berkeley. His lab studies aspects of epiphytic bacteria that live on healthy plants' surfaces, emphasizing bacteria active in ice nucleation, causing frost damage to plants and plant pathogenic bacteria that inhabit plant surfaces before infection. Lindow is a member of the National Academy of Sciences and a Fellow of the American Academy of Microbiology and of the American Association for the Advancement of Science. He was awarded a Procter and Gamble Award from the American Society for Microbiology and an Award of Distinction from the American Phytopathological Society. He is a senior editor for the *ISME Journal*, co-editor-in-chief of *Annual Review of Phytopathology* and is on the editorial board for several microbiology journals, including *mBio*, *Applied and Environmental Microbiology* and *Environmental Microbiology.*

Understanding microbial life on leaves

The surface of leaves and other aerial plant parts support large microbial communities that can include plant pathogens as well as many beneficial microbes. Some epiphytic members have large global impacts, such as those capable of catalyzing ice nucleation, and thus important in precipitation processes as well as causing frost damage to important agricultural crops. While leaf surfaces are an inhospitable habitat for microbes, providing relatively few nutrients and subject to frequent drying and exposure to ultraviolet radiation, epiphytes have evolved a number of important traits such as the production of plant hormones and biosurfactants that modify their local microhabitats to facilitate their growth and survival. While the colonization of leaves involves a variety of processes operative at small spatial scales, the identity of those microbes that colonize a plant is dictated by immigration processes that are operative over much larger spatial scales. Airborne microbial communities are strongly dictated by the abundance and identity of local vegetation which, in turn, drive processes of assembly of microbial communities on leaves. Agroecological practices thus can be manipulated to avoid deleterious leaf colonists while facilitating the establishment of beneficial microbes.

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Organizing Committee Chair: Jizhong Zhou (University of Oklahoma, USA; https://www.ou.edu/ieg)
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