PHYTOBIOMES
A ROADMAP FOR RESEARCH AND TRANSLATION

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ABSTRACT
The Phytobiomes Roadmap Offers a New Vision for Agriculture

Maximize sustainable food, feed and fiber production through the knowledge of phytobiomes.

- Phytobiomes consist of plants, their environment, and their associated communities of organisms.
- Interactions within phytobiomes are dynamic and complex. They have profound effects on soil, plant and agroecosystem health.
- Knowledge of the network of interactions among diverse organisms, the soil, and the climate can be translated into new tools for agroecosystem management.
- Using an integrated, systems-level understanding of phytobiomes will enable us to sustainably and profitably produce sufficient crops to meet global demands while minimizing negative impacts on the environment.

Strategic funding and public-private partnerships are needed to support critical research and infrastructure for developing phytobiome-based management approaches.

Funding and support is needed for…

- Fundamental studies of phytobiome components, interactions, dynamics, and function
- Integrated systems models for phytobiome analysis and prediction
- Practical phytobiome-based crop management strategies
- Collaborative platforms for open global communication among growers, researchers, industry, agricultural advisors, and consumers
- A phytobiome workforce capable of integrating knowledge across disciplinary boundaries

Integrating knowledge of phytobiomes with next-generation technologies will lead to…

- improved resilience of cropping systems to water, nutrient limitations, and plant pests
- increased integration of biologicals into crop management
- enhanced rehabilitation of marginal and degraded lands
- minimized impacts of crop production on the environment
- maximized productivity and profitability of sustainable food, feed and fiber production

Share in this new vision and support critical research and infrastructure for Phytobiomes.
SPEAKER BIOGRAPHY

Gwyn Beattie
Professor & Robert Earle Buchanan
Distinguished Professor of Bacteriology for Research and Nomenclature
Iowa State University, USA
Co-Leader, Phytobiomes initiative

Gwyn Beattie is a microbiologist whose research explores the genomics and ecology of plant-associated microbes. Her work aims to better understand the factors driving successful plant colonization and the many impacts that microbes have on plant health. Current projects in her laboratory focus on the influence of bacterial and fungal communities on plant water use efficiency and the molecular mechanisms enabling bacterial pathogens to use light and environmental stress signals to colonize leaves or to adapt to life in the plant vascular system.

Gwyn is a member of the American Society for Microbiology and of the American Phytopathological Society. She is future chair of the APS Public Policy Board and co-leader of this initiative in Phytobiomes. www.plantpath.iastate.edu/people/gwyn-beattie

MODERATOR BIOGRAPHY

Kelly Eversole
President, Eversole Associates
Executive Director, IWGSC
Co-Leader, Phytobiomes initiative

Kellye Eversole has been a science and technology consultant since 1991 and a leader in agricultural genomics since 1994. She has 10 years’ experience in the US Senate and 2 years as the head of a Federal study commission. She has led several U.S. and international animal, Plant, and microbial genome sequencing projects (maize, cow, pig, chicken, and sheep). Currently, she is leading the international effort to sequence the genome of bread wheat as Executive Director and Chairman of the Board of the International Wheat Genome Sequencing Consortium (IWGSC).

Kellye also serves as the Executive Director of the Specialty Crop Regulatory Assistance initiative and as the Chief Science and Technology Officer of IE-Strategic Crop Services. She is a member of the American Phytopathological Society Public Policy Board and co-leader of this initiative in Phytobiomes. www.eversoleassociates.com