Phytobiomes:
A New Vision for Agriculture

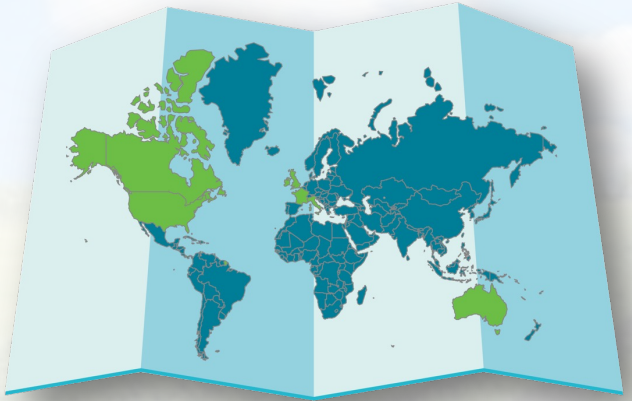
PHYTOBIOMES ALLIANCE

Name

Date

Conference & City Country

International Alliance for Phytobiomes Research

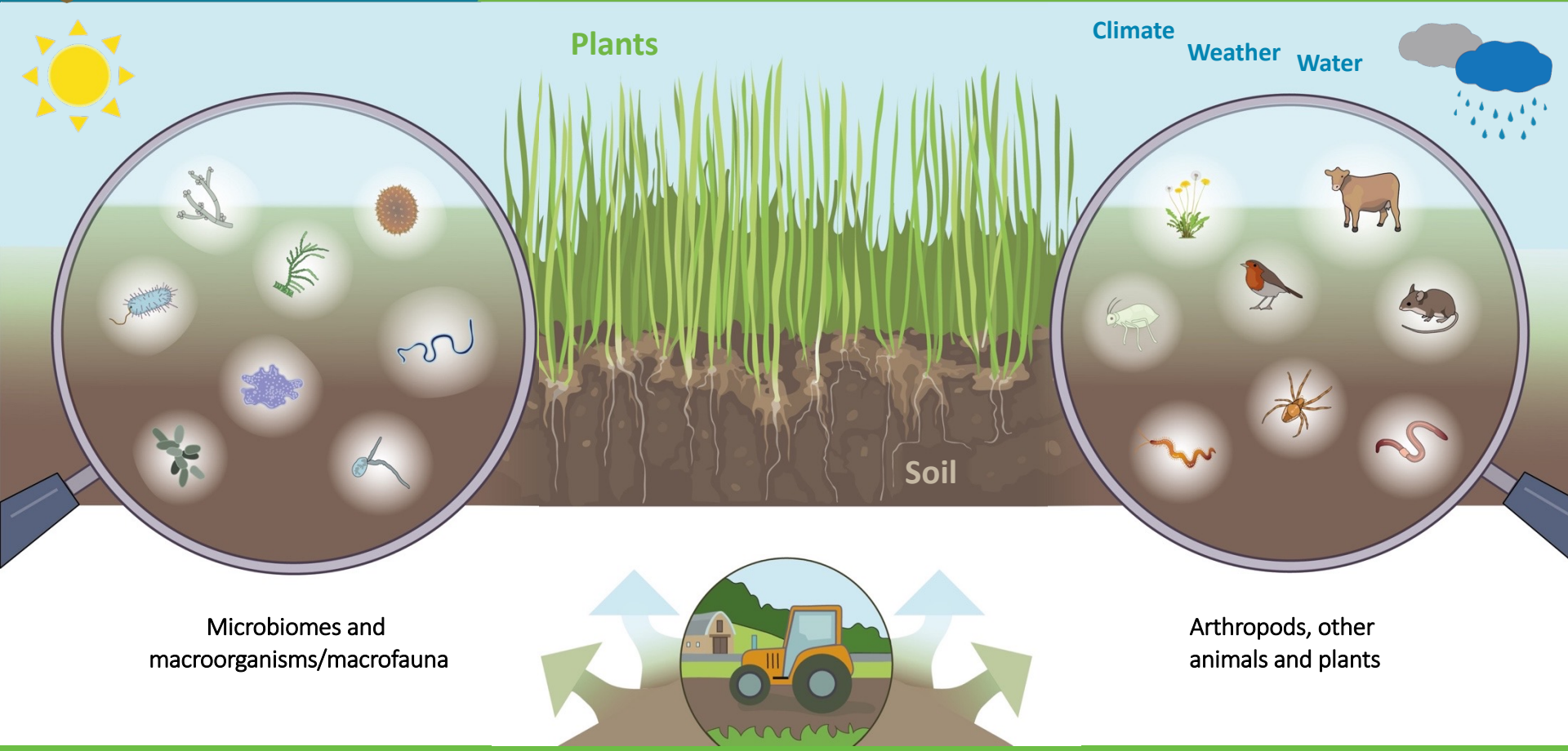


- Nonprofit, precompetitive research consortium
- Industry, academia, and government
- Paradigm shift in agricultural research & production

Vision: By 2050, all farmers have the ability to use predictive and prescriptive analytics based on geophysical and biological conditions for determining the best combination of plants, management practices, and inputs for a specific site in any given year.

Strategy: Identify gaps in research, tools, and technologies and develop projects to address them.

Phytobiomes: Complex Systems of Plant-based Agriculture

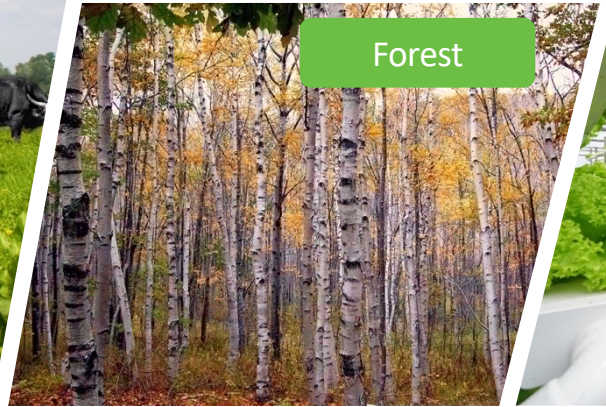


Microbiomes and macroorganisms/macrofauna

Arthropods, other animals and plants

All influenced by management practices

Examples of Phytobiomes



Holy Grail for Phytobiomics

To understand, predict, and control emergent phenotypes within specific phytobiomes for the sustainable production of food, feed, and fiber.

Phytobiomes Alliance Vision

By 2050, all farmers have the ability to use predictive and prescriptive analytics based on geophysical and biological conditions for determining the best combination of plants, management practices, and inputs for a specific site in a given year.

Research Priorities

- Phytobiomes-knowledge generation
- Standards and protocols & capacity building for application
- Regulatory framework
- Data generation, management & modeling
- Multi-disciplinary capacity building
- Precision, digital and AI Ag integration

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Efforts: Linking Components Across Phytobiomes System

Increased engagement in Europe: *Microbes 4 Climate* and *MICRObiome Biobanking Enabler*

Phytopathology article: *From Microbes to Microbiomes: Applications for Plant Health and Sustainable Agriculture*

Phytopathology article: *Genotypic & Phenotypic Analyses Show Ralstonia solanacearum Cool Virulence is a Quantitative Trait Not Restricted to "Race 3 Biovar 2"*

Secured US NSF grant to Coordinate Microbial Collections and Networks: Public & Private

Novel Microbiome Technologies to Increase Profitability for Australian Horticulture

Establish Linkages and Commonalities between Plant and Animal Health & Nutrition

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Phytobiomes Alliance Working Groups

Identify gaps and research needs; coordinate efforts on specific topics

- Microbiomes
- Regulatory
- Animal Microbiomes
- Controlled Environment Agriculture
- Soil Health

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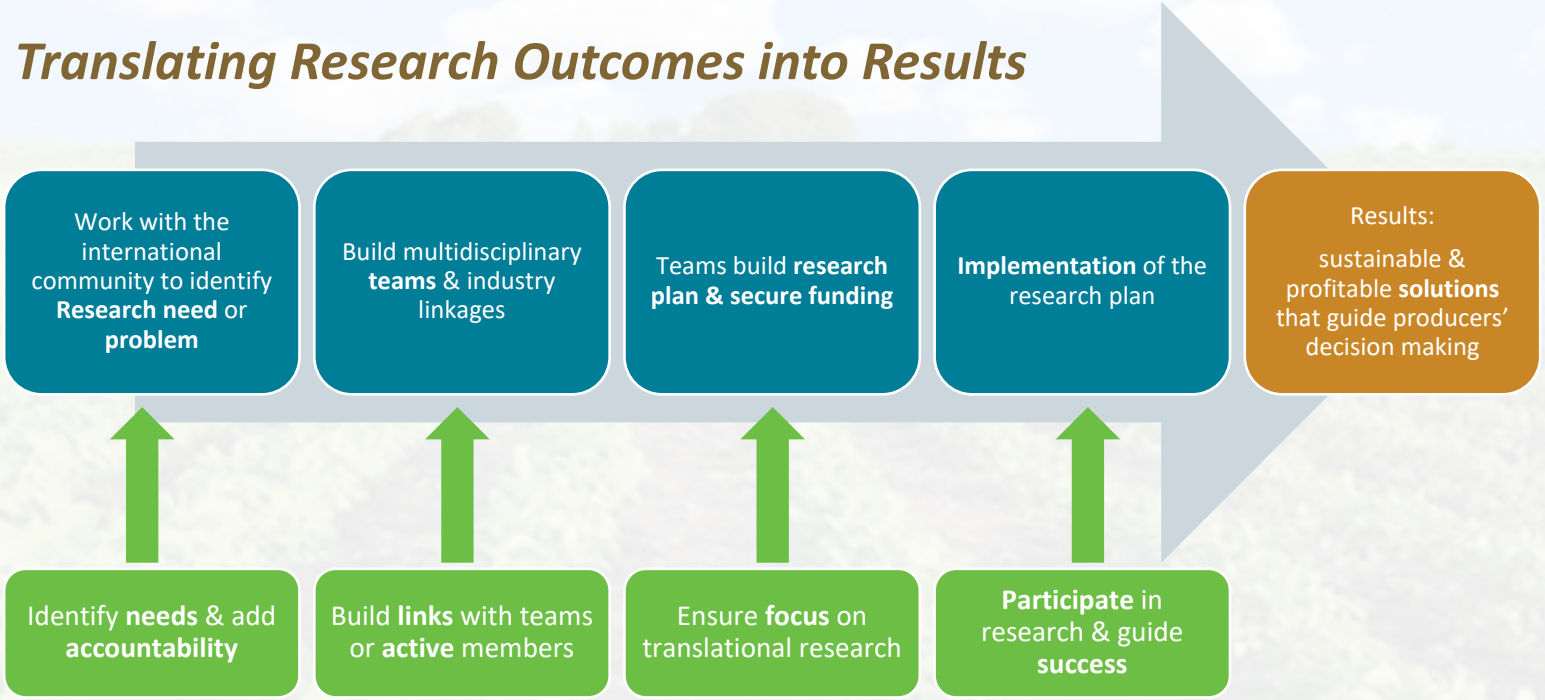
The Alliance in Action

Translating Research Outcomes into Results



Industry Sponsor Participation

Phytobiomes Alliance Sponsors

INTERNATIONAL PHYTOBIOMES CONFERENCE 2026

3-5 NOV 2026 | NIAGARA-ON-THE-LAKE, ONTARIO, CANADA

www.phytobiomesconference.org

- Registration is open: https://phytobiomesconference.org/registration/
- Important Dates:
  - ~~28 AUG: Abstract deadline~~
  - ~~04 SEP: Early Bird registration ends~~
  - 16 OCT: Poster abstract deadline
  - 29 OCT: Registration Closes
- Lodging: Queen's Landing Hotel https://tinyurl.com/mv3v6mm5

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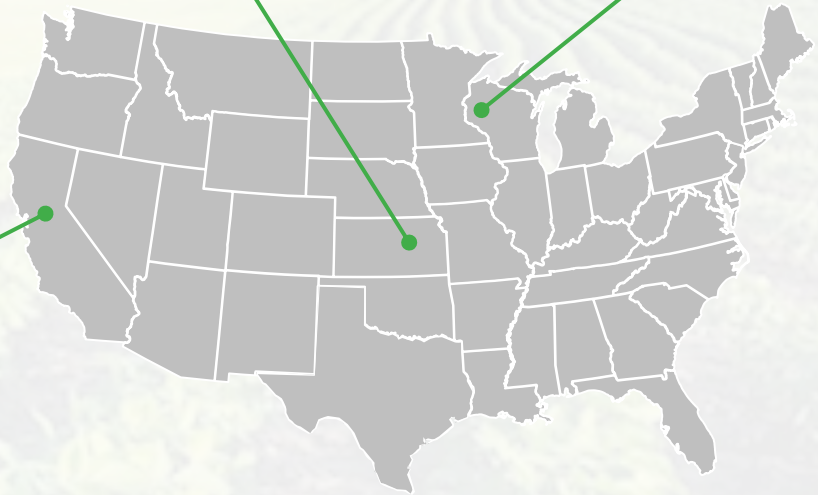

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