



Phytobiomes: A New Vision for Agriculture

Name

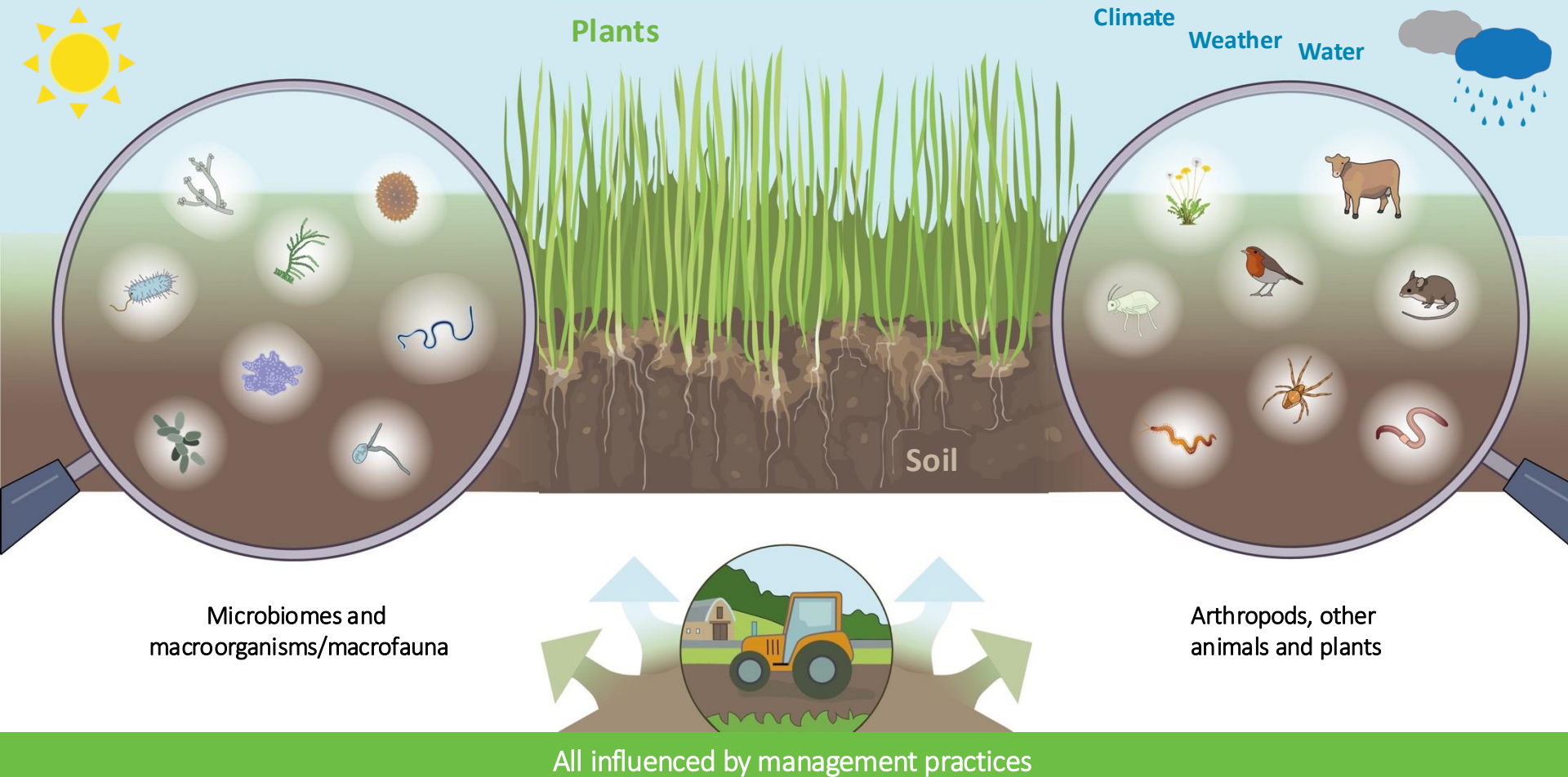
Date

Conference & City Country



- Nonprofit, precompetitive research consortium
- Industry, Academia, and Government
- 8 countries
- Coordinating a paradigm shift in agricultural research and production

Phylobiomes: Complex Systems of Plant-based Agriculture



Examples of Phytobiomes



Crop Field

A wide-angle photograph of a vast, golden-brown field of mature grain crops, likely wheat or corn, under a clear blue sky. A yellow combine harvester is visible in the distance on the left side of the field.



Pasture

A photograph of a lush green pasture with several black and white cows grazing. The sky is bright blue with scattered white clouds.



Vegetable Garden

A photograph of a rooftop vegetable garden. Numerous raised beds filled with black plastic mulch contain rows of green leafy vegetables. In the background, a city skyline with several buildings is visible under a clear sky.



Forest

A photograph of a forest with many birch trees. The trees have white bark and some are showing yellow and orange autumn foliage. The ground is covered with fallen leaves.



Vertical Farm


A photograph of a vertical farm. Multiple levels of white hydroponic channels are stacked vertically, each containing rows of green leafy plants growing in a controlled environment.

Holy Grail for Phytobiomics



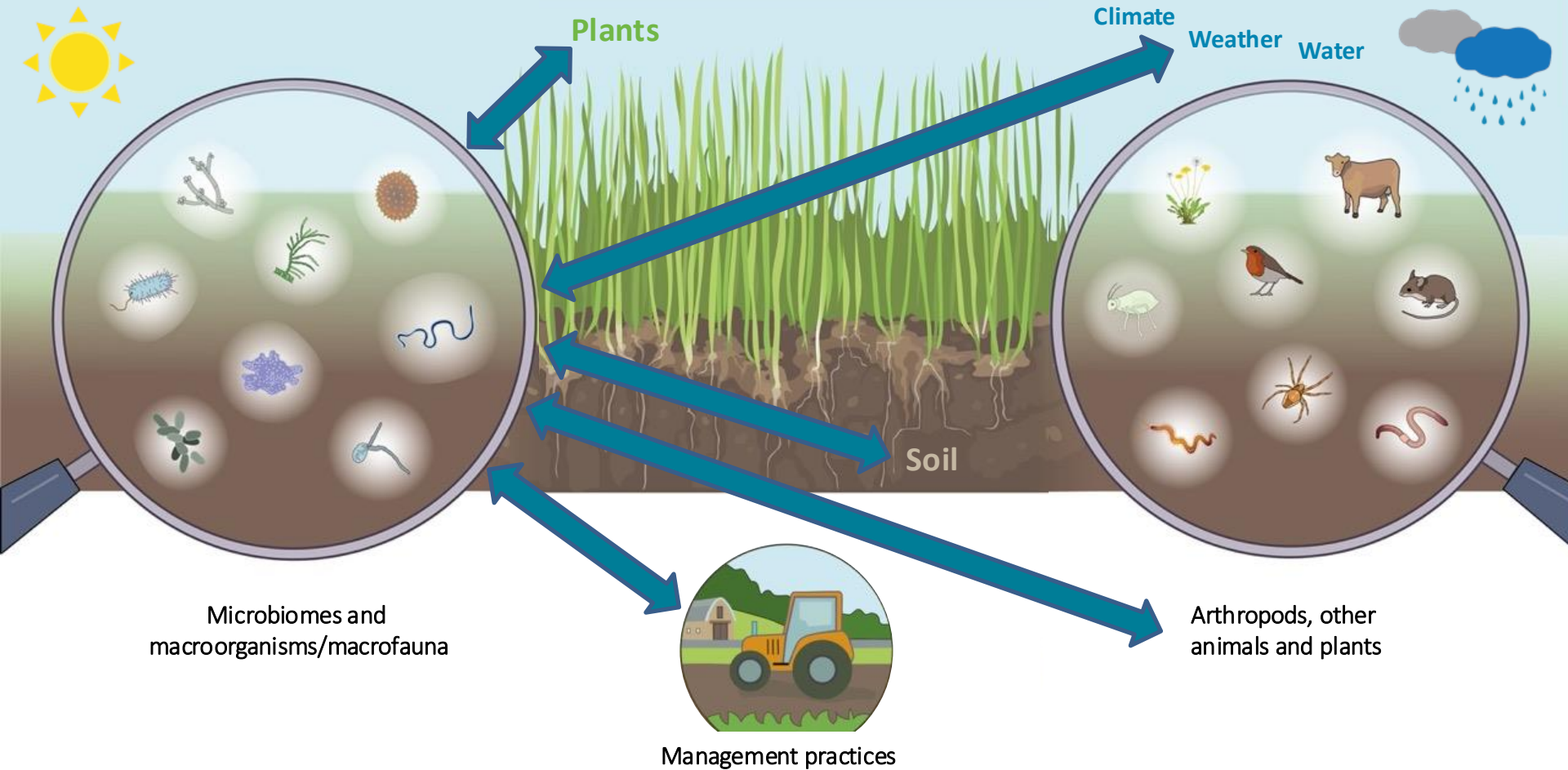
To understand, predict, and control emergent phenotypes within specific phytobiomes for the sustainable production of food, feed, and fiber.

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.

Phylobiomes: Major Research Gaps



Research Priorities



Phyto-biomes-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

Major Efforts



Projects that Link Components Within the Entire PhytoBiomes Network



Sequence-based Classification System for Microbes



Microbiome Standards – International Microbiome & Multi’omics Standards Alliance



Facilitate Regulatory Compliance



Coordination of Microbial Collections and Networks: Public & Private



Establish Linkages with Human and Animal Health & Nutrition

Identify gaps and research needs; coordinate efforts on specific topics



Microbiomes



Regulatory



Animal Microbiomes

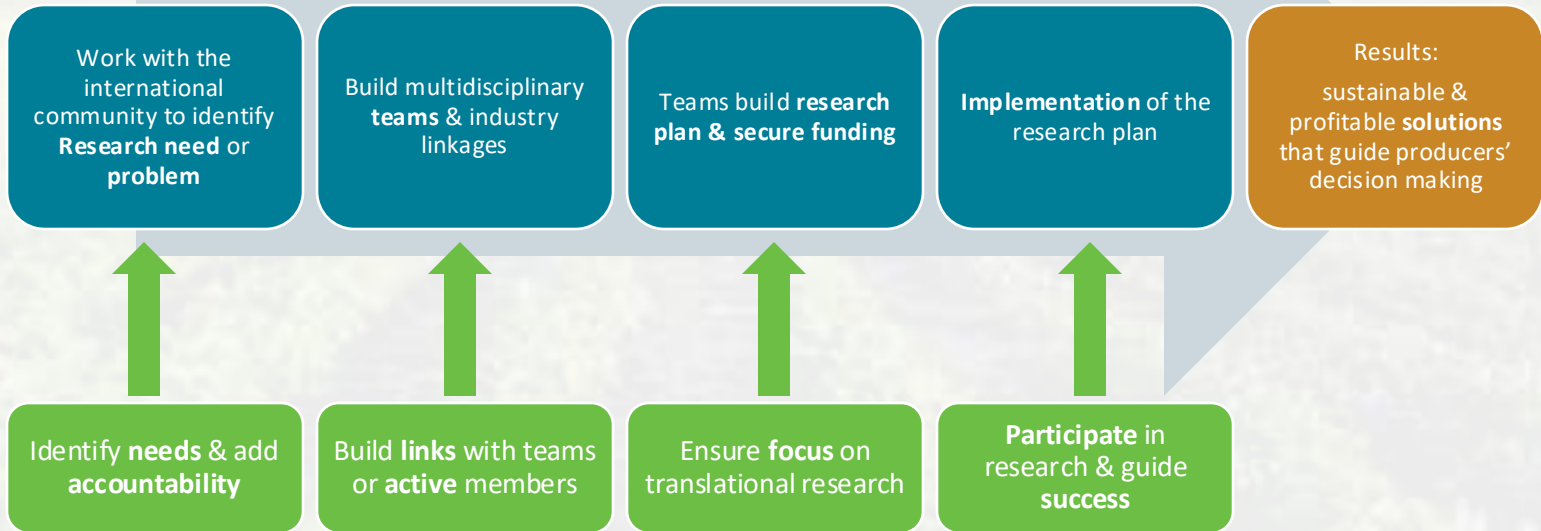


Controlled Environment Agriculture



Soil Health

Translating Research Outcomes into Results



Industry Sponsor Participation



Phytobiomes Alliance Sponsors





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