Phytobiomes and the International Alliance for Phytobiomes Research

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From Simple to Complex

Traditional Sciences

- Reductionism
- World is linear – understanding parts individually
  - Soils
  - Plant genetics
  - Microbiomes or
  - Weather and environment

Real World Situation

- Complex system, non-linear organization
- Governed by multiple nonlinear interactions and multiple environmental variables

We need a global approach to elucidate, quantify, model, and potentially reverse engineer biological processes & mechanisms for their geophysical context

Decipher Phytobiomes

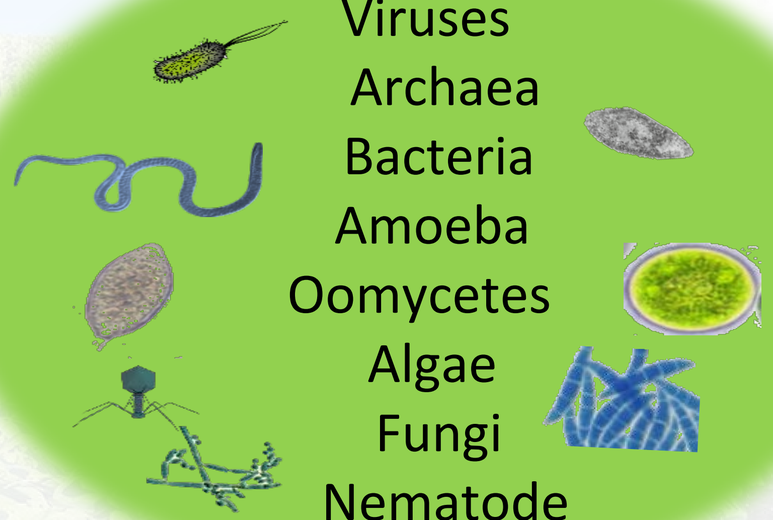
Phytobiomes: A Complex System

Crop plants, their environment, and their associated micro- and macro-organisms.

Climate

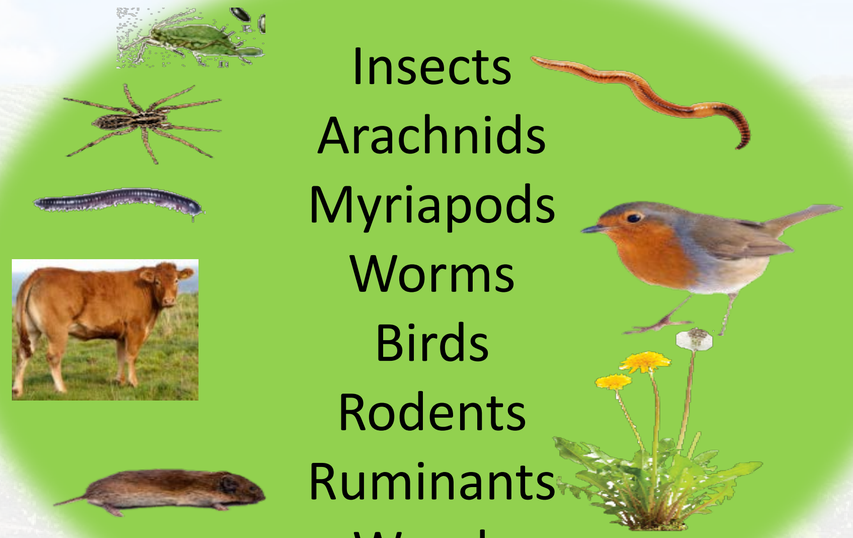
Plants

Micro- and Macroorganisms



Viruses
Archaea
Bacteria
Amoeba
Oomycetes
Algae
Fungi
Nematode

Arthropods, Other Animals and Plants



Insects
Arachnids
Myriapods
Worms
Birds
Rodents
Ruminants
Weeds

“Biome” - Site specific environment

Associated organisms

PHYTOBIOMES ALLIANCE

The International Alliance for Phytobiomes Research

Who We Are

An international, nonprofit alliance of industry, academic, and governmental partners

PHYTOBIOMES ALLIANCE

BAYER
Science For A Better Life

MONSANTO

THE CLIMATE CORPORATION

Eversole Associates
Enabling Science & Technology

indigo

INRA
SCIENCE & IMPACT

IRD
Institut de Recherche pour le Développement
FRANCE

PennState
College of Agricultural Sciences

THE SAMUEL ROBERTS NOBLE FOUNDATION

NewLeaf SYMBIOTICS

APS
Healthy Plants • Healthy World

BioConsortia

Structure

- **Board of directors establishes overall vision**
- **Scientific Coordinating Committee sets priorities and strategic plans**
- **Topical working groups implement strategic plans**

Vision

All farmers have the ability to use predictive and prescriptive analytics to choose the best combination of crop/variety, management practices, and inputs for a specific field in a given year taking into consideration all **physical** (climate, soil…) and **biological** conditions (microbes, pests, disease, weeds, animals….).

Alliance Mission

Establish a science and technology foundation for site-specific, phytobiome-based enhancement of sustainable food, feed, and fiber production.

Strategy and Implementation

- Focus on pre-competitive science to empower growth and profitability
- Identify research, resource, and technology gaps (e.g., model development)
- Facilitate linkages within and between industry and academia
- Identify scientific leaders for priority areas
- Work to secure project funding for academic units and the Alliance
- Coordinate and manage projects to address gaps
- Link with existing initiatives and efforts

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Fundamental Research Priorities

- Determine the universal, common, and environment-specific trends in phytobiome composition and the key drivers of microbiome composition and development
- Ascertain the mechanisms by which distinct phytobiome components interact
- Determine the genetic linkages that connect phytobiome components
- Identify how multitrophic interactions modulate host phenotypes
- Detect the full range of impacts of phytobiome components on plant health
- Determine the multidirectional feedbacks that influence phytobiome components

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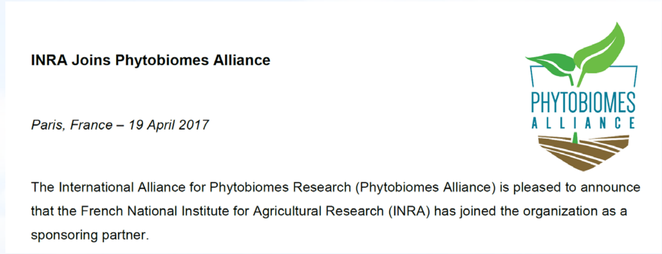
Join us

Scientific Coordinating Committee

- ✓ Alliance sponsors
- ✓ Project leaders



INRA Joins Phytobiomes Alliance

Paris, France – 19 April 2017

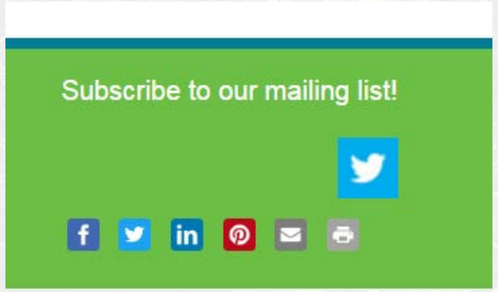
The International Alliance for Phytobiomes Research (Phytobiomes Alliance) is pleased to announce that the French National Institute for Agricultural Research (INRA) has joined the organization as a sponsoring partner.

Alliance working groups

- ✓ Overall topical leader
- ✓ Involved in projects aimed at filling gaps in knowledge, resources, or tools

Subscribe to Mailing List

- ✓ www.phytobiomesalliance.org



For More Information:

www.phytobiomesalliance.org

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