



## Introduction to AgBiome®

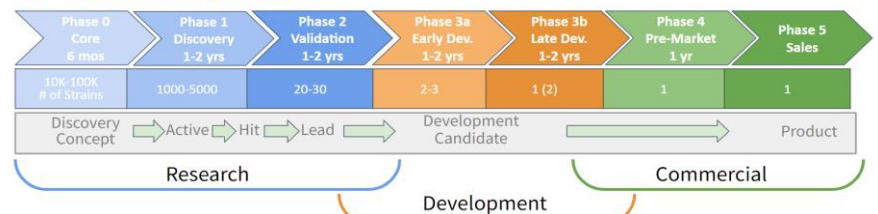


## Genesis™ Technology Platform

## ABSTRACT

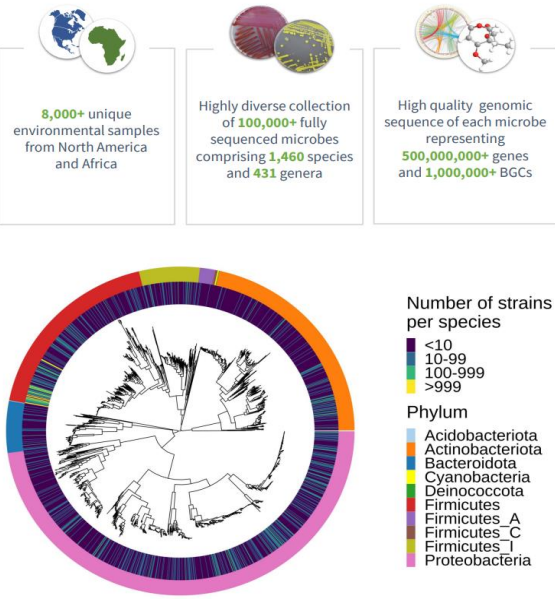
Beneficial microorganisms with antimicrobial activity have been used for a long time in the management of plant pathogens. The most common approach to finding beneficial microbes (microorganisms with activity against plant pathogens) consists of isolating microorganisms from samples collected from diverse environments, selecting antagonistic strains through empirical screening, studying modes of action and stabilization through the formulation of selected microbial isolates. At AgBiome, our mission is to partner with the microbial world for human benefit and discover unique microbes with activity against major agricultural pests including plant diseases, insects, weeds, and nematodes. We have built a core collection of over 100,000 fully sequenced microbes from diverse environments and employ both the microbes and their sequences in the discovery of new biological products for disease and pest control. Using proprietary genomic tools, we are able to rapidly identify efficacious microbes from diverse genetic backgrounds and then iterate using genomically related microbes to identify those with efficacy rivaling the leading synthetic chemistries. The formulated microbial-based pesticides that can effectively control major plant pathogens may result not only in alternative management strategies but also in a reduction of the risk to develop fungicide resistance.

## Microbial Screening Phases

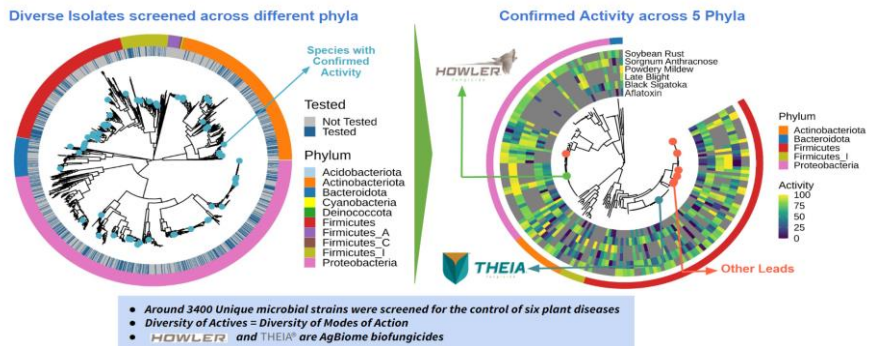


**Active:** a sample that produces a response or signal above a determined threshold in a single assay or screen; **Hit:** confirmed active within the same assay or screen; **Lead:** a hit that maintains activity throughout the screening paradigm. Quality leads should show activity on commercially viable targets that is comparable to a benchmark, at reasonable dose rates; **Development Candidate:** lead from Phase 2 that is selected for progression into development by the project team in consultation with Development and Commercial

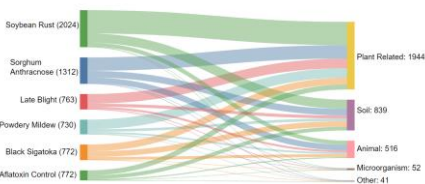
## Culture collection: 100,000+ sequenced strains with broad and deep phylogenetic diversity



## Discovery for Broad Spectrum Disease Control



## Environments from where bacteria screened were isolated



Diseases	Hosts	Total screened	Confirmed Active	Hit rate (%)
Soybean Rust ( <i>Phakopsora pachyrhizi</i> )	Soybean	2024	69	3.4
Black Sigatoka ( <i>Mycosporella fijiensis</i> )	Musa (banana & Plantain)	814	44	5.4
Late blight ( <i>Phytophthora infestans</i> )	Tomato, Potato	832	42	5.0
Powdery Mildew ( <i>Podosphaera xanthii</i> )	Cucurbit, grapes,	768	40	5.2
Sorghum anthracnose ( <i>Colletotrichum sublineare</i> )	Sorghum	1416	63	4.4
Alfalfa Control ( <i>Aphanizomenon flos-aquae</i> )	Maize	533	16	3.0

## Validated lab-based assays predict field performance

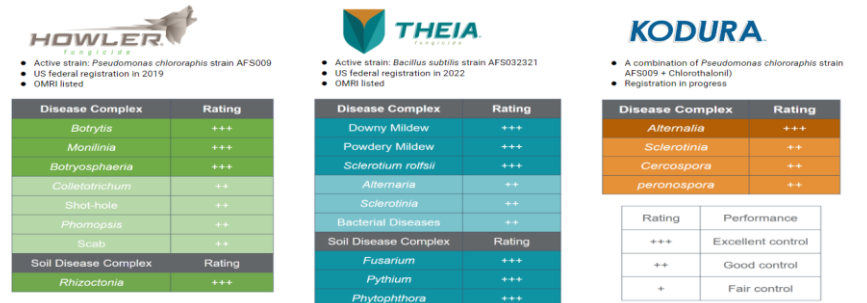
Variables	Initial screen (detached-leaf)	Confirmation Test	Greenhouse (Florida)	Field (Alabama)
Confirmation Test	0.75***	...	...	...
Greenhouse (Florida)	0.71*	0.71*	...	...
Field (Alabama)	0.98***	0.97***	0.79*	...
Field (Florida)	0.90**	0.93**	0.85*	0.87**

\*, \*\*, and \*\*\* = significant at  $P < 0.05$ ,  $0.01$ , and  $0.001$ , respectively

Twizeyimana et al. 2023. *Frontiers in Plant Science*, Volume 14 - 2023 | <https://doi.org/10.3389/fpls.2023.1082616>

Laboratory assays are predictive of performance in greenhouse and the field evaluations

## Enhanced efficacy of AgBiome biofungicides on some crop diseases/pathogens



• Microorganisms with high diversity and known genomic information are accessible for screening programs – This results in identification of a diverse set of active microbes that deliver multiple modes of action.  
• Our platform produces the Biological product pipelines in all major indication areas including fungicides, insecticides, nematocides, herbicides and biostimulants, etc.