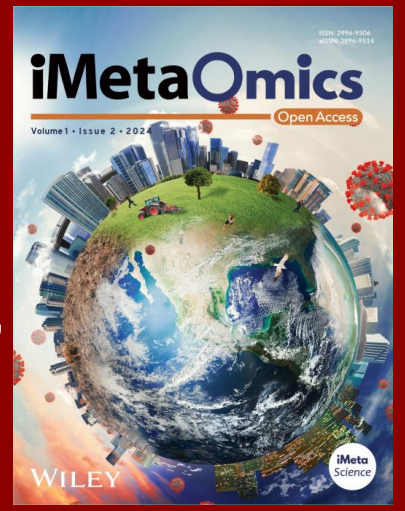
Role of soil microbes in enhancing crop heterosis.

Yao Wang[1] , Yong-Fu Tao[1] , Hong-Ru Wang[1] , Guo-Hua Du[1] ,
Qian-Si Chen[2] , Yong-Xin Liu[1] , Hong Lu[1]

[1]Shenzhen Branch, Guangdong Laboratory of Lingnan Modern Agriculture, Genome Analysis Laboratory of the Ministry of Agriculture and Rural Affairs, Agricultural Genomics Institute at Shenzhen, Chinese Academy of Agricultural Sciences, Shenzhen, China
[2]China Tobacco Gene Research Center, Zhengzhou Tobacco Research Institute of CNTC, Zhengzhou, China



Yao Wang, Yong-Fu Tao, Hong-Ru Wang, Guo-Hua Du, Qian-Si Chen, Yong-Xin Liu, Hong Lu. 2024. Role of soil microbes in enhancing crop heterosis. ***iMetaOmics*** 1: e20. https://doi.org/10.1002/imo2.20

Influence of Soil Microbes on Heterosis

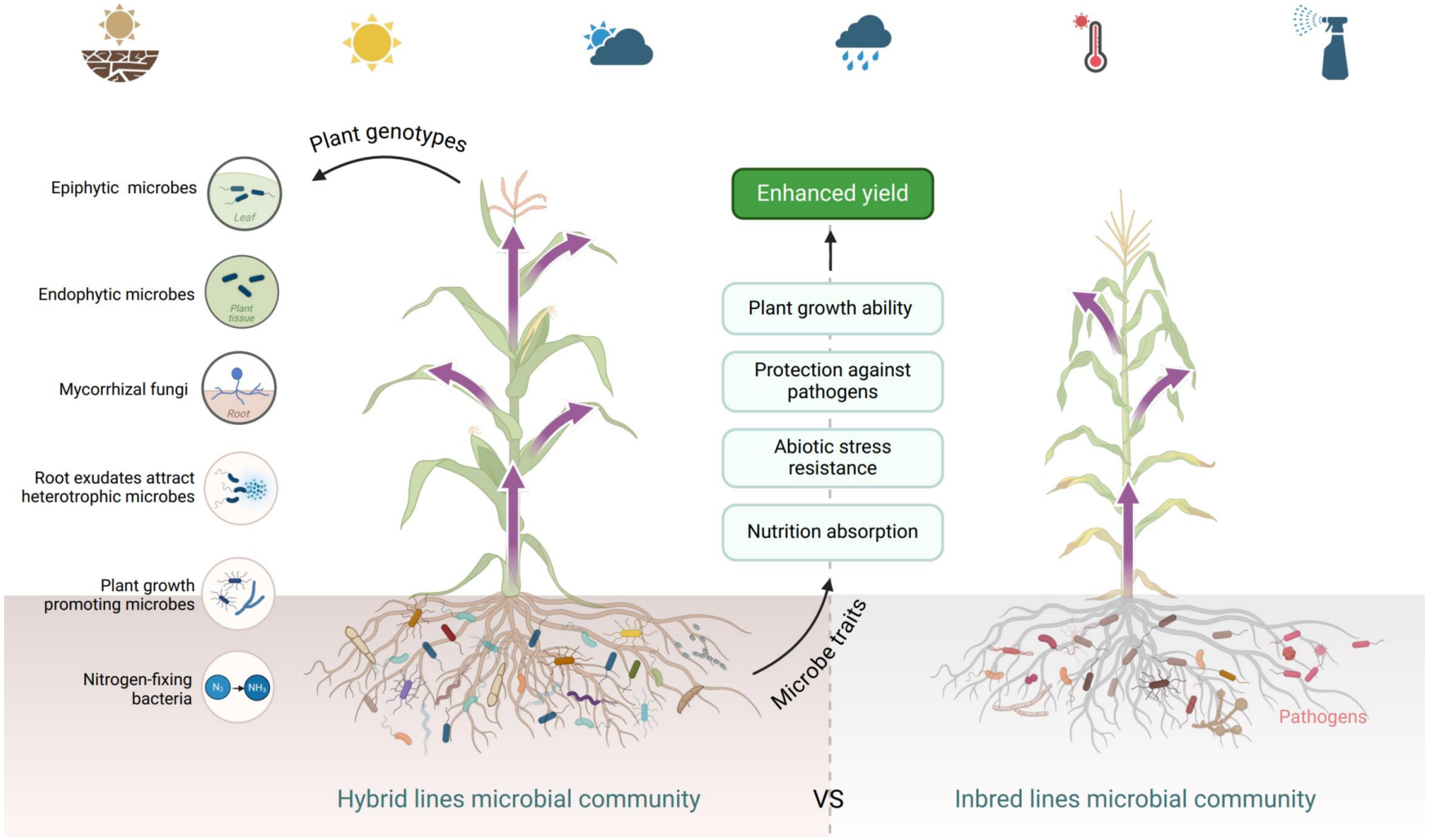


Figure 1. Comparison between the microbial communities associated with hybrid and inbred maize lines, emphasizing how host genotypes affect their associated microbial communities, which in turn affect the host's performance.

Methodological Advances In Heterosis Studies

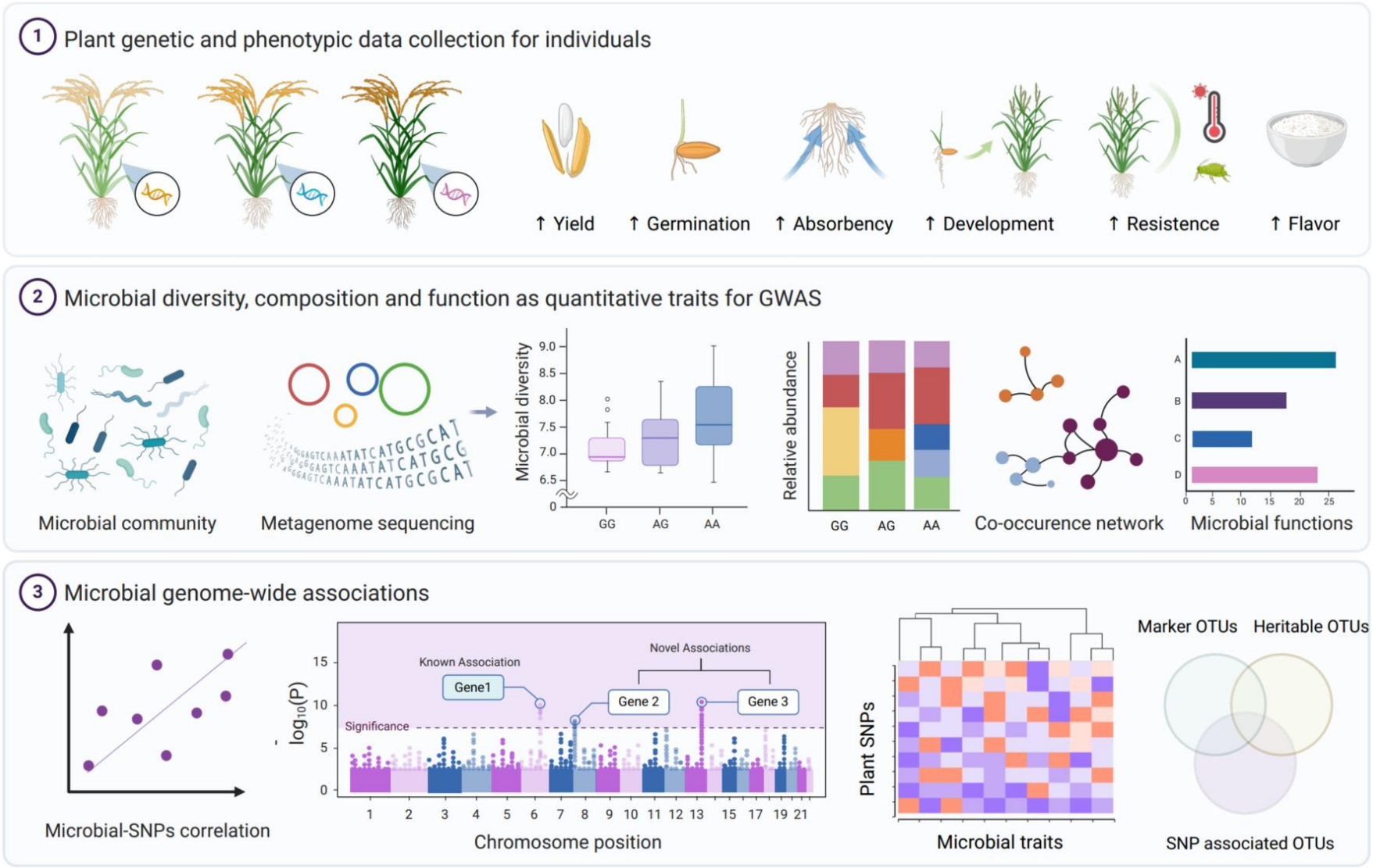


Figure 2. Integrated workflow of microbial genome-wide association studies (mGWAS) in plants.

Summary

- Plant genotypes impact the composition of associated microbial communities, with hybrids displaying distinct and beneficial microbial profiles compared to inbred lines.

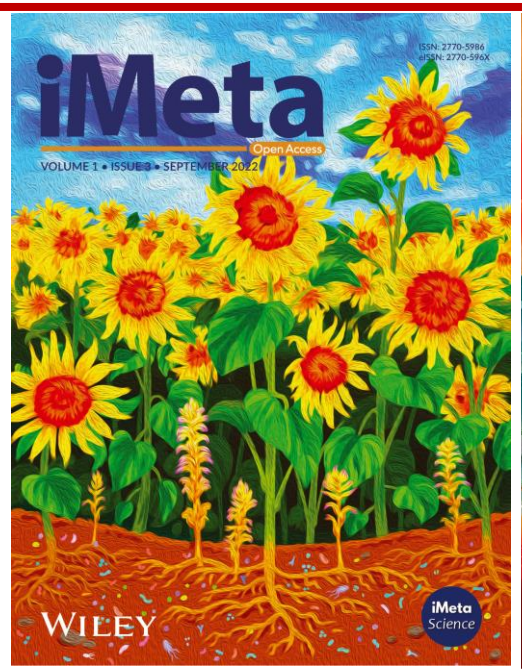
- Microbial ecosystems play a role in promoting heterosis in hybrid plants, influenced by the interactions between host genotypes and their microbial partners, as well as environmental conditions.

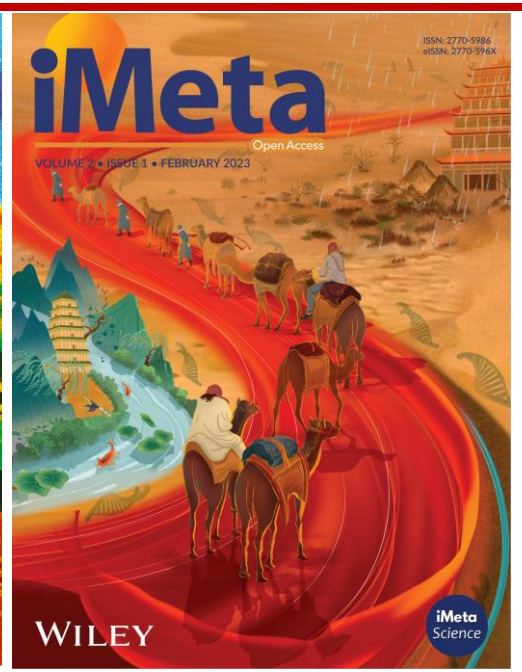
- Advanced genomic techniques like metagenomics and mGWAS reveal the genetic factors influencing plant-microbe interactions, offering insights for leveraging these relationships to enhance crop yields and sustainability.

Yao Wang, Yong-Fu Tao, Hong-Ru Wang, Guo-Hua Du, Qian-Si Chen, Yong-Xin Liu, Hong Lu. 2024. Role of soil microbes in enhancing crop heterosis. ***iMetaOmics*** 1: e20. https://doi.org/10.1002/imo2.20

iMeta: Integrated meta-omics to change the understanding of the biology and environment

WILEY





"***iMeta***" is a Wiley partner journal launched by iMeta Science Society in 2022, receiving its first impact factor (IF) of **23.7** in 2024, ranking 2/165 in the microbiology field. It aims to publish innovative and high-quality papers with broad and diverse audiences. Its scope is similar to *Nature Biotechnology, Nature Microbiology,* and *Cell Host & Microbe*. Its unique features include video abstract, bilingual publication, and social media dissemination, with more than 500,000 followers. It has published 200+ papers and been cited for 4000+ times, and has been indexed by **ESCI/WOS/JCR**, **PubMed**, **Google Scholar**, and **Scopus**.

"***iMetaOmics***" is a sister journal of "***iMeta***" launched in 2024, with a target IF>10, and its scope is similar to *Microbiome, ISME J, Nucleic Acids Research, Briefings in Bioinformatics, Bioinformatics,* etc. All contributes are welcome!

Society: http://www.imeta.science
Publisher: https://wileyonlinelibrary.com/journal/imeta
Submission: https://wiley.atyponrex.com/journal/IMT2
https://wiley.atyponrex.com/journal/IMO2

office@imeta.science
imetaomics@imeta.science

Promotion Video

iMetaScience

iMetaScience