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Special Issue Reprint

Harnessing of Soil Microbiome for Sustainable Agriculture

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This Reprint provides an inclusive exploration of the soil microbiome—the complex community of bacteria, fungi, protozoa, and archaea—and its indispensable role in modern biological science. As the global agricultural sector faces the dual challenges of climate change and food insecurity, understanding the biological engines beneath our feet is more critical than ever.

The research in this collection emphasizes the transition from traditional chemical dependency toward biological integration. Key topics include the development and application of microbial inoculants, biofertilizers, and biopesticides, which serve as sustainable alternatives to synthetic inputs. By examining the potential of diverse microbial communities, these studies illustrate enhanced nutrient cycling, improved plant resilience, and effective integrated pest management strategies. By synthesizing cutting-edge research in microbial biotechnology and soil health, this Reprint offers a roadmap for increasing crop yields while safeguarding ecosystem stability. It serves as an essential resource for researchers, policymakers, and practitioners dedicated to fostering a resilient and sustainable future for global agriculture.

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