

## Special Issue

# Harnessing Microbial Mechanisms for Synergistic Nitrogen and Carbon Management in Agricultural Soils

### Message from the Guest Editor

The urgent need to mitigate climate change and enhance agricultural sustainability has refocused attention on soil microbiomes. Historically, nitrogen and carbon cycles have been managed separately, yet microbial communities intrinsically link these cycles through processes like nitrification, denitrification, and carbon sequestration. This Special Issue aims to advance our understanding of these synergistic microbial mechanisms to develop integrated soil management strategies that reduce greenhouse gas emissions, improve nutrient use efficiency, and build soil health. We seek contributions exploring innovative approaches at the intersection of microbiology, agronomy, and ecology. Topics of interest include the following:

- Engineering or steering rhizosphere and bulk soil microbiomes for dual nutrient and carbon benefits.
- Multi-omics insights into microbial consortia regulating C–N interactions.
- Field-scale applications of microbial inoculants, organic amendments, or cropping systems that optimize these synergies.
- Modeling microbial processes to predict soil C–N dynamics under climate variability.

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### Guest Editor

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### Deadline for manuscript submissions

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## Agriculture

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### Message from the Editor-in-Chief

*Agriculture* (ISSN 2077-0472) is an international, scholarly and scientific open access journal publishing peer-reviewed research papers, review articles, communications and short notes that reflect the breadth and interdisciplinarity of agriculture.

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### Editor-in-Chief

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