

Special Issue

Sustainable Water Reuse in Agriculture: Advances in Contaminant Treatment and Management

Message from the Guest Editors

Despite the benefits of recycling wastewater for agricultural irrigation, the future expansion of irrigation with recycled wastewater faces many challenges. This includes optimally managing chemical (e.g., heavy metals, organic contaminants, and microplastics) and biological (e.g., pathogenic bacteria, antimicrobial resistance genes, and viruses) contaminants in wastewater and wastewater-irrigated soils to mitigate their risks in the agricultural environment. Current work addressing this key issue is carried out across research scales and stages in the wastewater recycling–application continuum. This includes studies from laboratory to pilot-scale that are focused on developing novel physicochemical wastewater treatment processes, such as adsorption, oxidation, and membrane filtration, as well as refining established treatment methods. Research on the post-application management of wastewater-borne contaminants through soil amendments (e.g., biochar, ash, and compost), irrigation strategies, and different crop characteristics to limit plant uptake of contaminants has also been conducted.

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Deadline for manuscript submissions

closed (20 June 2025)



Agriculture

an Open Access Journal
by MDPI

Impact Factor 3.6
CiteScore 6.3



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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.

Editor-in-Chief

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