

Special Issue

Agroecological Transitions: Integrating Soil–Pesticide– Microbe Interactions for Sustainable System Transformation

Message from the Guest Editors

Agroecological transitions are becoming increasingly dependent on understanding the complex interactions at the soil–pesticide–microbe interface. In the past, pesticide fate, soil ecology, and microbial functioning were studied separately, but the intensification of agriculture, together with growing concerns about environmental degradation and soil health decline, has highlighted the need for integrative approaches that evaluate how pesticides influence soil processes and long-term sustainability. This Special Issue aims to showcase interdisciplinary research exploring how pesticides—synthetic or biological—affect soil ecological functioning, microbial diversity, and ecosystem services. We are seeking contributions which provide mechanistic, conceptual, or applied insights into how soil–pesticide–microbe interactions can support agroecological transitions and guide the development of resilient and sustainable agricultural systems. We welcome submissions that address microbial degradation pathways, pesticide–microbe interactions, multi-trophic dynamics, soil health indicators, and biogeochemical responses under diverse management regimes.

Guest Editors

Dr. Romina Aylén Verdenelli

Instituto Multidisciplinario de Biología Vegetal (IMBIV-CONICET-UNC),
Instituto de Ciencia y Tecnología de los Alimentos (FCEFN-UNC),
Córdoba, Argentina

Dr. José Manuel Meriles

Instituto Multidisciplinario de Biología Vegetal (IMBIV-CONICET-UNC),
Córdoba 5000, Argentina

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Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
agronomy@mdpi.com

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Editor-in-Chief

Prof. Dr. Leslie A. Weston

Gulbali Centre for Agriculture, Water and Environment Research,
Charles Sturt University, Wagga Wagga, NSW 2678, Australia

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