

Special Issue

Phosphorus Utilization and Management in Agricultural Soil Systems

Message from the Guest Editors

Phosphorus (P) underpins global food systems by ensuring soil fertility, maximizing crop yields, and supporting farmer livelihoods and ultimately food security. Historical P fertilization plays an important role in ensuring crop yield, but low P use efficacy (PUE) usually results in overuse of P fertilizer. This leads to chronic high-cost inputs and has adverse impacts on the environment. This issue focuses on improving P use efficiency and sustainability as well as mitigating P losses across agricultural systems. It aims to bridge fundamental soil processes with practical management strategies to optimize the P cycle. We highlight innovations such as carbon sources, enhanced-efficiency P fertilizers, biostimulants, bio-inoculants that improve plant P acquisition, breeding crops for higher PUE, and soil amendments to safeguard against P leaching and runoff losses. We welcome interdisciplinary contributions (e.g., soil science, agronomy, plant physiology, environmental engineering) on novel approaches for P management. Studies on economic and policy dimensions, life-cycle assessments, and reviews are also encouraged. All article types are invited.

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