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Soil Fertility and Plant Nutrition for Sustainable Cropping Systems

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Sustainable food production faces significant challenges due to climate change, land degradation, and the scarcity of natural resources, thereby presenting a major obstacle for modern agriculture. Enhancing soil fertility and optimizing plant nutrition are crucial steps toward developing more sustainable farming systems that can meet increasing food demands while minimizing negative environmental consequences. While soil fertility deals with the availability and plant uptake of essential nutrients, soil health expands the concept so that it includes physical, chemical, and biological soil parameters and their feedback. Both soil fertility and soil quality (health) are directly related to and dependent on sustainable cropping practices, thus surpassing solely improving crop yields by including a focus on minimizing environmental impacts and accounting for long-term effects.

This Special Issue combines interdisciplinary perspectives on emerging concepts, technologies, and practices at the forefront of enhancing soil health, soil quality, nutrient cycling, and crop nutrition in diverse cropping systems. Topics included are as follows: Ecologically based nutrient management strategies; feedback between plant nutrition and other aspects of sustainable farming; biological nutrient acquisition and plant-microbe interactions; innovations in organic amendments, biofertilizers, and biofortification; novel fertilizer formulations and enhanced efficiency products; breeding for nutrient use efficiency and adaptations to nutrient limitations.



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