Special Issue

Advancing Weed Biology Through Innovation and Technology for Sustainable Agriculture

Message from the Guest Editor

Weed biology plays a fundamental role in designing effective, sustainable weed management strategies. With recent technological progress, biological insights are now complemented by innovations in artificial intelligence and precision agriculture. This Special Issue aims to explore the intersection of weed biology and sustainable management approaches. It seeks to highlight how biological understanding, combined with advanced tools, can address current challenges such as herbicide resistance, climate variability, and the shift towards non-chemical management. We invite research focused on molecular and physiological weed traits, stress tolerance, competitive dynamics, and population biology. Additionally, studies leveraging deep learning models for weed identification and classification present new opportunities for enhancing precision agriculture. We encourage submissions of original research, reviews, and short communications covering topics in weed physiology, population dynamics, stress adaptation, and AI-powered weed detection. Contributions that integrate weed biology with remote sensing, machine learning, and innovative non-chemical approaches are also welcome.

Guest Editor

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