

Special Issue

Next-Generation Pesticide Application Technologies: Precision, Safety and Environmental Sustainability

Message from the Guest Editors

Pesticide application plays a critical role in controlling plant pests and ensuring high yields and quality products. However, improper pesticide use leads to significant challenges, including pesticide resistance, environmental contamination, and concerns over pesticide residues. As global research efforts advance, innovative pesticide application technologies are emerging to enhance efficiency, minimize negative impacts, and promote sustainable practices in agriculture and forestry. This Special Issue will focus on environmentally friendly intelligent pesticide application technologies and computer simulations that improve target identification, optimize deposition, and mitigate unintended exposure. Technologies shaping the future of sustainable pesticide use include precision spraying, variable-rate application, electrostatic spraying, inline mixing, and advanced droplet control. Furthermore, this issue will address broader pesticide application techniques such as dusting, fumigation, pest baiting, seed treatment, and pesticide injection methods. In addition to technological advancements, the environmental and human health aspects of pesticide applications will be examined.

Guest Editors

Dr. Eric Mozzanini

Dr. Mohammad Ali

Dr. Hongyoung Jeon

Dr. Marco Grella

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Agronomy
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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