

## **HOW TO COMBINE TWO INCOMPATIBLE WORLDS TOWARDS THE SUSTAINABILITY OF INTEGRATED DISEASE MANAGEMENT?**

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Biological control of plant disease although incompatible with chemical fungicides is proving its role in the improvement of plant protection. Acting through a hallmark of different modes of action and able to colonize plants, biocontrol agents provide both a complementary role in plant protection and a longer lasting benefit when compared to chemical fungicide. For both perennial and annual plants, biocontrol products are available for disease control and its adoption increases every year. Most of the biocontrol approaches compatible with fungicides rely on the hyperparasitic or induced resistance modes of action. A novel approach the synergistic activity between biocontrol and fungicide is proposed based on the niche recolonization. Although fungicide spray may reduce the abundance and diversity of the phylloplane microbiome, the spray of a biocontrol-based product, resulted in improved fumonisin management compared to the water control or two sprays of the fungicide. Therefore, biocontrol should be part of the integrated disease management and the timing of its delivery should be taken into account for maximum efficacy of both tools.

**Key words:** Bacillus; Trichoderma; biological control; fungal diseases; microbiome