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PII: S0168-9452(17)30540-X
DOI: https://doi.org/10.1016/j.plantsci.2017.11.012
Reference: PSL 9708

To appear in: *Plant Science*

Received date: 15-6-2017
Revised date: 31-10-2017
Accepted date: 20-11-2017

Please cite this article as: Sharifah Farhana Syed Ab Rahman, Eugenie Singh, Corné M.J.Pieterse, Peer M.Schenk, Emerging Microbial Biocontrol Strategies for Plant Pathogens, Plant Science https://doi.org/10.1016/j.plantsci.2017.11.012

# Emerging Microbial Biocontrol Strategies for Plant Pathogens

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**Highlights**

• Food Security is at risk by an increasing world population and a growing number of crop pathogens

• Biological control options emerge as promising alternatives to assist crops to fight pathogens

• Microbial biocontrol success is inconsistent and depends on a number of environmental, ecological and genetic factors

• This review focusses on plant defense pathways and how biocontrol microbes and plant-associated microbiomes can more consistently assist in this process

• Emerging strategies include long-term plant colonization of biocontrol microbes, microbiome engineering and breeding of microbe-optimized crops.

## Abstract

To address food security, agricultural yields must increase to match the growing human population in the near future. There is now a strong push to develop low-input and more sustainable agricultural practices that include alternatives to chemicals for controlling pests and diseases, a major factor of heavy losses in agricultural production. Based on the adverse