

# STATE OF ART AND TECHNICAL ADVANCES ON WHITE MOLD BIOCONTROL<sup>1</sup>

(Estado da arte e avanços para o biocontrole do mofo branco)

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The rapid soil infestation by root pathogens is a consequence of intensive farming with annual crops, such as common bean, soybean, cotton, and many vegetables. Highly infested fields result from pathogen ability to survive in soil and lack of resistant genotypes, with the subsequent severe occurrence of diseases, such as white mold (*Sclerotinia sclerotiorum*). White mold is also favored by mild temperatures and high soil moisture, and its causal agent survives for several years in the soil through resistance structures (sclerotia). Isolated control measures are not efficient to manage the disease when compared to integrated management programs. The integrated management of white mold emphasizes the elimination or reduction of the sclerotia burden in soil, and includes the adoption of biological control measures with antagonistic fungi and bacteria. In practice, biocontrol is the main component responsible for the decay of *S. sclerotiorum* sclerotia in soil. Biocontrol can be potentially achieved with conservation agriculture management favoring endemic antagonists, nevertheless, many research programs have explored the huge diversity of antagonists, aiming the release of biofungicides for protection and plant growth promotion. Beyond the traditional search for native, efficient isolates for biocontrol, it is also possible to use previously selected strains as progenitors in the genetic breeding of antagonists, regarding enhanced biocontrol capacity and productivity gains. The selection of antagonists may also be assisted by biochemical or molecular markers, such as cell-wall degrading enzymes and genes linked to biocontrol efficiency. Current biofungicides may decrease in 70% of the sclerotia bank in soil in a single cropping season, with improved benefits when adopted along with other strategies such as mulching and chemical control. The different possibilities for innovation in biocontrol suggest an optimistic scenario in the near future, with new standards on biocontrol efficiency.

**Key words:** *Sclerotinia sclerotiorum*, *Trichoderma* spp., soil borne pathogens, disease integrated management, epidemiology.

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