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Streptomyces* spp. on wheat reduce disease impact and deoxynivalenol accumulation caused by *F. graminearum

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Fusarium Head Blight causes important losses to wheat production due to reduced productivity and contamination with trichothecenes, in particular deoxynivalenol (DON). The disease is caused by different *Fusarium* species, among which the most significant and widespread worldwide is *F. graminearum*. Effective biocontrol against FHB shall limit both the disease incidence as well as DON accumulation in grains. *Streptomyces* spp. can act as endophytes of the wheat plant. Moreover, they produce a wide range of secondary metabolites that can hinder specifically toxin production by the fungus and/or limit the growth of the fungus. Our previous work identified some strains effective against the disease and toxin accumulation in controlled conditions. The aim of the work was to assess the efficacy of three strains of *Streptomyces* spp. to limit disease and DON accumulation in the field (using two types of treatment: seed coating and spike inoculation). The field trial, carried out in 2021, exploited artificial inoculation of the pathogen to obtain a high level of infection and toxin accumulation. The disease and the DON content were compared to the untreated control on a durum wheat and a spring wheat cultivar. In both cultivars, the three streptomycetes showed the ability to reduce disease and DON accumulation. Higher efficacy of the strains was observed in spring wheat (DON reduction >60%) compared to durum wheat (DON reduction >40%). The three *Streptomyces* strains under scrutiny showed promising results under field conditions. Future research will focus on the mechanism of action of the strains.

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