

Mycokey

Integrated and innovative key actions for mycotoxin management in the food and feed chain

Lay summaries

Knowledge transfer to stakeholders



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Impact of FUNGI CO-OCCURRENCE on Mycotoxin Contamination in MAIZE During the Growing Season



ISSUE

Few studies exist on co-occurring fungi and resulting multi-mycotoxin contamination in maize during the growing season. Therefore, a field trial was organized with artificial inoculation of maize ears at silk emergence with *Aspergillus flavus*, *Fusarium verticillioides* and *F. graminearum*. These fungi are able to produce, respectively, aflatoxins (AFs), fumonisins (FBs), and deoxynivalenol (DON).



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APPROACH

In a commercial maize crop, on a FAO class 700 hybrid, ear artificial inoculation/co-inoculation was conducted following 7 different treatments with *A. flavus*, *F. verticillioides* and *F. graminearum* alone or in all possible combinations. The trial was managed in two consecutive years (2016 and 2017) in Piacenza, northern Italy.



OUTCOMES

Diverse mycotoxins can be often detected in agricultural products coming from the same field due to climate change influence on fungi interaction.

The results obtained contribute to the understanding of fungal dynamics in the case of co-occurrence and its impact on mycotoxin co-occurrence.

Impact of FUNGI CO-OCCURRENCE On Mycotoxin Contamination in Maize

Fungal interaction resulted to play a crucial role for both fungal incidence and mycotoxins contamination, with a strong impact of weather conditions. AFB₁ was stimulated by *F. graminearum* co-occurrence with *A. flavus*. The co-occurrence of *A. flavus* significantly reduced both FB and DON production.

