

**Title** Lower mycotoxin levels in Bt maize grain  
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### Abstract

Mycotoxins produced by *Fusarium* spp. during plant cultivation induce severe diseases in animal and humans. In 2007 a European Union regulation set maximum concentrations of mycotoxins in maize and derivatives of 4000 ppb for fumonisins B<sub>1</sub> and B<sub>2</sub>, 1750 ppb for deoxynivalenol, and 350 ppb for zearalenone. To assess the safety of French maize food, investigations are currently being carried out by the national Biological Risk Monitoring network. Here, 84 plots were cropped with the Bt maize MON 810 and its isogenic non-Bt counterpart in 2005 and 2006 in Southwestern France. Mycotoxin levels were measured in grain at harvest. Fumonisins B<sub>1</sub> and B<sub>2</sub>, deoxynivalenol, and zearalenone were analysed by liquid chromatography-mass spectrometry. The data were analysed statistically using non-parametric tests for mycotoxins and analysis of variance for weather variables. As the climate was homogenous inside the experimental area, the transgenic event introduced into the maize was the only key parameter which differed between Bt and non-Bt maize plots. Our results show that Bt maize decreased concentrations of fumonisins by 90% and zearalenone by 50%, whereas the concentration of deoxynivalenol was slightly increased. Those findings suggest a competition among *Fusarium* species that produce fumonisins or trichothecenes. According to the European regulation, 93% of the Bt maize crops can be sold, compared with only 45% for non-Bt maize plots. Our results thus show that Bt maize improved food safety by greatly reducing mycotoxin levels in field crops in Southwestern France.

<http://www.springerlink.com/content/kxk5227610062432/fulltext.pdf>