Control of Aflatoxins by Improving Drought Tolerance in Corn. (C01-xu163330-Poster)

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Abstract:

Aflatoxin is a chronic problem in Texas and the southern states. It is particularly serious in drought susceptible hybrids under dry and hot environments. Drought tolerant corn had less grain molds under drought stress. Based on thses observations, we believe that lack of specific adaptation of corn hybrids to southern environments is a key reason for the high incidence of aflatoxins in this region, and genetic improvement of drought tolerance can reduce the aflatoxins. In this study, commercial and experimental hybrids were grown at Corpus Christi, TX in 1999-2002 in a test with 9 replications, 8-meter long single-row plot with 0.76-meter row spacing. Artificial inoculation of aflatoxin-producing fungus was performed at the late milk to early dough stages of maturity (21 days following mid-silk). The fungus-infected kernels were spread onto the soil surface in each plot to increase aerial spore concentrations. The results indicated that drought tolerant corn had low aflatoxin. Breeding for drought tolerance is a promising approach to reduce aflatoxin contamination and yield loss from drought stress.

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