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1995 Ear Rot and Mycotoxin Survey

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Task Force

1995 Ear Rot and Mycotoxin Survey

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The 1995 pre-harvest survey of ear rots and mycotoxins in Indiana corn was completed. As in past years, two samples of five ears were collected by the Indiana Statistics Service from each of their field plots located around the state and sent to Purdue University for evaluation of ear rots and mycotoxins. Due to the late planting of the crop this year, we collected samples at or near the time of harvest. We examined 314 samples from 167 corn fields for a total of 1570 ears. Each ear was individually examined for ear rots. The incidence and severity of the following ear rots were determined: *Fusarium* ear rot (*Fusarium moniliforme*), *Gibberella* ear rot (*Gibberella zeae*), *Aspergillus* ear rot (*Aspergillus flavus*), *Diplodia* ear rot (*Diplodia zeae*), and minor ear rots (*Trichoderma* sp., *Alternaria* sp., *Penicillium* sp., etc.).

Data from the survey support field observations made during the season of widespread occurrence of *Fusarium* ear rot. Over 90 percent of the survey samples were positive for *Fusarium* ear rot. This level is statistically comparable to the 1989 and 1993 surveys which recorded 89.9 percent and 88.6 percent, respectively. This year's disease severity levels were low. We attribute the lower severity to the continued dry weather throughout this harvest season. In the surveys from previous years, samples having disease severity of 10 percent or greater were tested for mycotoxins. This year, samples with severity ratings of 3 to 10 percent were also included. Fumonisin were found in all 18 samples tested, ranging in concentrations from 0.25 ppm to 14 ppm.

This is the first year since the ear rot survey began in 1989 that we have not detected *Gibberella* ear rot by visual inspection. However,

our mycotoxin data indicate that the *Gibberella* ear rot mold was present in some of the ear samples. Two of the ear samples visually scored as *Fusarium* ear rot and tested for mycotoxin had fumonisin, the mycotoxin associated with *Fusarium* ear rot, and vomitoxin (2 ppm and 3 ppm), indicating that both molds were causing the ear rot. The less amount of *Gibberella* ear rot is likely due to the hot, dry weather this summer.

We observed *Aspergillus* ear rot earlier this fall in southwest Indiana. The disease incidence was low in the fields and confined to fields with sandy soils. No samples with *Aspergillus* ear rot were found in this year's ear rot survey.

Conclusions

The data from this year's survey are a good indicator of the post-harvest grain quality. Our data suggest that Indiana grain quality is good. The survey suggests that the levels of fumonisin in corn should not be unusually high. However, the widespread occurrence of *Fusarium* ear rot suggest that isolated fields will have significant amounts of disease and the mycotoxin. Earlier this fall, horse owners and handlers were advised of the potential for fumonisin in this year's corn.

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