Corn Growers – Don't Let Aflatoxin Ruin Your 2010 Corn Harvest

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Corn harvest will soon begin in the upper Mississippi delta region, and I want to warn farmers to take precautions to minimize aflatoxin contamination of their grain. Farmers in this region have not had serious problems with aflatoxin since 1998; there have been a few isolated problems but not region wide. Unfortunately, problems with aflatoxin contaminated corn may develop this year because drought and earworm injury were greater this year that in recent years, and damage to corn by these especially in combination can enhance the development of the mold on corn kernels that produces aflatoxin. All corn farmers even those that irrigated their crop and sprayed for earworm or planted varieties with resistance to earworm should take some precautions to avoid problems with aflatoxin.

Here is the situation. The problem occurs when a mold named Aspergillus flavus feeds on the starch inside corn kernels and produces aflatoxin. This mold gains access to the starch through openings in the kernel hull due to drought caused stress cracks and injury due to ear worm feeding. I don't know the reason this mold produces aflatoxin as it feeds, but it does. Aflatoxin will be produced as long as the mold feeds and more will be produced when the mold grows rapidly.

Aflatoxin is a poison to humans and animals, and the U. S. Food and Drug Administration designed methods to protect us and animals from contaminated corn and corn products. One of the methods designed by FDA to protect us is to prevent grain merchants from buying corn containing 20 parts per billion or more aflatoxin. This is good because it minimizes availability of aflatoxin contaminated products that we eat such as corn meal.

This mold can grow on corn kernels in the field and on corn kernels stored in a truck or grain tank. The mold prefers to grow on 18-20 percent moisture corn kernels at around 85° F. It grows slowly on 15 percent moisture corn and will not grow or grows very slowly on 13 percent moisture corn. To reduce growth of this mold and aflatoxin production on stored corn, farmers should dry freshly harvested corn to 15 percent moisture within 24 hours of harvest. Farmers should dry corn to 13 percent for long term storage to stop growth of the mold and aflatoxin production.

What should farmers do this year? I suggest they first harvest some dryland corn and have the grain tested for aflatoxin. If it is not contaminated with aflatoxin, then the irrigated corn will probably not be contaminated. If the dryland corn is contaminated, farmers should then harvest some irrigated corn and test it for aflatoxin. If the irrigated corn has no aflatoxin, farmers should first harvest and sell the healthy corn or store it in separate bins and then harvest the contaminated corn and store it separate from the healthy corn. Don't blend contaminated and toxin free corn in a truck or grain bin because this may result in contamination of the entire truck load or bin of corn.

What should farmers do in the future to avoid aflatoxin problems? I suggest they only plant corn in fields that can be irrigated and treat growing corn for earworm if necessary. They may also consider planting corn varieties resistant to earworm such as SmartStax, YieldGard VT Triple PRO, or YieldGard VT PRO.

Again, corn farmers should beware of this problem and always dry corn to 15 percent moisture within 24 hours of harvest. More information is available on the web at http://extension.missouri.edu/publications/DisplayPub.aspx?P=G4155.

Following these suggested procedures will give corn farmers a better chance of producing aflatoxin-free corn during 2010. For more information, you may call me at 573-379-5431 or visit the web at http://aes.missouri.edu/delta/croppest/aflacorn.stm.

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