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Corn farmers: Be wary of mycotoxin infections

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Testing has revealed dangerous levels of mycotoxins on corn in the western and central Corn Belt. Now, officials say, that's putting a renewed emphasis on testing for the toxins that can be potentially fatal when fed to livestock.

Corn samples from points around eastern Iowa, northern Illinois and Wisconsin are showing up positive for vomitoxin, a type of mycotoxin that can cause kidney and liver damage as well as nervous system failure and death in infected cattle and hogs. The threshold for this particular toxin is 2 parts per million.

Mycotoxins like vomitoxin can really put farmers and grain elevator operators in a pinch. If testing at the elevator reveals threshold-plus levels of the toxins, the grain is typically refused. At that point, the farmer's options are either storing and blending the grain with uninfected corn to lessen the toxin levels, or if levels are low enough, the grain can still be fed.

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However, if grain is not tested at the elevator and makes it to a delivery point, either at a processor or export terminal, mycotoxin-positive grain could be turned down, leaving the owner -- typically the elevator at that point -- with no sale.

"For grain buyers, it's important because not everybody is testing for it yet. So, then it gets down to the Gulf [of Mexico] and it gets rejected. Then, the elevators lose," says Linsey Moffit, quality assurance specialist with Eastern Iowa Grain Inspection in Davenport, Iowa. "As an issue for livestock producers, we don't want them feeding it to their animals."

Specifically with vomitoxin, the age and size of infected animal goes a long way in determining how damaging the toxin can be, according to Moffit.

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"The severity mycotoxin poisoning ranges from feed refusal, vomiting and weight loss to liver and kidney damage, nervous system failure and death," she says. "Younger animals have a lot lower threshold."

Typically, finishing beef cattle can withstand more mycotoxin than younger animals and nursing cows and sows, Moffit adds.

How do you know if you should be testing?

Different mycotoxins -- of which there are up to 500 that can affect crops -- thrive under different conditions. Aflatoxin, for example, does well during a drought. In this instance with vomitoxin, the cool, wet summer combined with hail in some areas this summer have registered vomitoxin levels "way out of range," Moffit says.

"So many people got hit by the hail damage. It opened up the stalks to let moisture in there, and once you have the moisture plus stress, that's when the mycotoxins flourish," she says. "Growth of these toxins is often associated with the climate conditions."

If you are testing and finding toxin levels below the threshold for acceptance by grain elevators or processors, that doesn't necessarily mean you'll end up having higher levels. The fungi occur naturally in soils, and only when plants are exposed by adverse weather conditions are they vulnerable to wider mycotoxin infection.

"If conditions are perfect, then they shouldn't have the mold. Even in a great year, there can still be some amount in the soil. There's always a chance you're going to see some molds in there," Moffit says.

Common testing methods

The most widely used testing methods are immunoassay test, one that measures the concentration of toxins in the grain. There are other "quick test kits" that use similar methods, but can be less reliable, Moffit says. Immunoassay tests give exact toxin amounts, while "strip tests" more commonly used at grain elevators can sometimes yield inconsistent results.

"Strip tests tell you if you're over or under the threshold," Moffit adds.

"Immunoassay tests will give you the exact amount. Basically, we take a ground-up portion of a grain sample and combine it with certain reagents." The method then indicates the amount of toxin present through light reflection.

"We are concerned about this years crop. We have run numerous tests that have confirmed the presence of mycotoxins," she says. "What we want is to warn producers of the effects of mycotoxins in their feeds, and for those producers to be proactive, not reactive."

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