

# NEWS *from* NEOGEN

FOR THE MILLING, GRAIN  
AND ETHANOL INDUSTRIES

NEOGEN CORPORATION  
a Leader in Food Safety Solutions

## Controlling mycotoxins

Neogen chats with Harold Tilstra, DVM

Land O'Lakes Purina Feed, LLC



**Neogen:** What mycotoxin concerns are you seeing in the 2010 corn crop?

**Dr. Tilstra:** The only reports of mycotoxins for the 2010 crop I have seen are from the maps that were sent out by Neogen (as of early October). There is some question about 2010 crops being harvested in areas that flooded during the September heavy rainfalls, but I have not seen

mycotoxin laboratory test results on flood-damaged grain to date. FDA does consider crops harvested from flooded fields (grain submerged) to be "adulterated" and those grains should not be used for food.

**Neogen:** Does the 2009 corn crop carry-over quality present any added issues?

**Dr. Tilstra:** I wouldn't call it "added issues". It is a matter of continuing to be vigilant in monitoring product quality and using SOPs that include avoidance of contaminated product and testing for presence of detectable mycotoxins.

**Neogen:** Can you describe some of the elements of a sound mycotoxin control program?

**Dr. Tilstra:** Let's call it mycotoxin avoidance and let's look at it from the animal feed perspective. The first step is to buy product from known suppliers that provide information on the nutritional profile and any available information on mycotoxin levels in the product. Once the product arrives, use approved quick tests to check the product for mycotoxins and provide storage facilities that protect the product from conditions favorable to mold growth like exposure to moisture, insects, extreme heat, etc. Use outside laboratories to confirm your quick test results. And, keep samples of the

product (preferably in a freezer) for follow-up laboratory testing if that should be required later.

**Neogen:** What impact do mycotoxins have in DDGS (dried distillers grains with solubles) quality?

**Dr. Tilstra:** The DDGS could have good physical and nutritional characteristics and still be "contaminated" with mycotoxins. Mycotoxins have troublesome levels that vary depending on the mycotoxin and the species consuming it. For example; vomitoxin (DON) seems to have very little effect on feedlot cattle at levels that would cause pigs to show feed refusal and other symptoms such as vomiting. Aflatoxin is closely regulated by the FDA with restrictions on interstate shipment and/or blending of contaminated product.

**Neogen:** With higher feed costs of grain this year how should DDGS be used in feed rations?

**Dr. Tilstra:** DDGS is a valuable source of energy and protein for ruminants and a source of energy, protein, and phosphorus for monogastrics. When the price of DDGS is less than the price of corn (on a per ton basis) it will be economically advantageous to include DDGS in the diets of commercial production animals in most cases.

**Neogen:** What do you look for in mycotoxins testing programs?

**Dr. Tilstra:** For on site, quick test kits, they should be user-friendly and give results based on a practical sampling and sample preparation method. They should be quick; quick enough to not contribute to serious backlog of transport vehicles waiting to unload product. They should be dependable; producing results that are verifiable by outside laboratories. And, they should be approved by regulatory authorities to be used on the product being tested.

**Neogen:** Can you describe how the ethanol industry handled the challenging year last year and what worked and what didn't?

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**Dr. Tilstra:** Vomitoxin was a challenge in last year's corn crop. Many ethanol plants implemented more aggressive testing strategies on the incoming corn. In some cases ethanol plants purchased corn from different areas in order to manage the vomitoxin level. In much of the industry trade, the DDGS from different areas was characterized as to its vomitoxin level and was sold into the end market that could make use of it. One apparent result was that we saw quite a few pig producers move away from using DDGS in their pig diets until they were confident that the DDGS they were obtaining was not a problem. What didn't work was to ignore the issue.

**Neogen:** What do you foresee for future limits of mycotoxins in DDGS and how does the expanding export markets affect monitoring at the plant level?

**Dr. Tilstra:** I don't pretend to know what regulations may be in the future for mycotoxin levels in DDGS. The current regulations and guidelines provide good guidance on what levels can be tolerated. There is and will be more push-back from the feed market for accurate information from DDGS suppliers. The export market is a very important customer for DDGS and the export market is rais-

ing the bar on quality expectations. All of this supports the ethanol production facility incorporating SOPs that cover the incoming grain and the outgoing DDGS in a way that minimizes the possibility of producing DDGS that is contaminated with mycotoxins.

*DR. HAROLD TILSTRA is National Co-Products Technical Service leader for DDGS Marketing, Land O' Lakes Purina Feed, LLC. He is a 1975 graduate of the College of Veterinary Medicine, University of Minnesota. He was in private, primarily food animal, veterinary practice in southwestern Minnesota and a founding board member of Cornerstone Cooperative and the first Board Chairman of Agri-Energy, LLC, ethanol plant in Luverne, MN. He joined Land O' Lakes Feed in 1998.*

*Dr. Tilstra's current position with Land O' Lakes Purina Feed LLC includes supervising several swine sales consultants, organizing swine feed sales training events, and coordinating technical support for distillers grains utilization and marketing. He represents Land O' Lakes, Inc, as a delegate to the US Grains Council and a director on the Distillers Grains Technology Council. Dr. Tilstra is chairman of the American Association of Swine Veterinarians Nutrition Committee.*



## **Reveal® SQ and AccuScan® provide semi-quantitative results quickly, with ease**

Neogen's GIPSA-approved Reveal SQ tests for Aflatoxin, DON and Fumonisin are the easiest and quickest semi-quantitative test available for these natural toxins. In a format similar to a home pregnancy test, all a tester has to do is immerse a test strip into a sample after a simple extraction.

In only 5 minutes, the Reveal SQ assays can return semi-quantitative sample test results using Neogen's Reveal AccuScan III lateral flow test reader:

- Aflatoxin: less than 10 ppb, 10 to 20 ppb, or greater than 20 ppb
- DON: less than 0.5 ppm, 0.5 to 1 ppm, 1 to 2 ppm, or greater than 2 ppm
- Fumonisin: less than 1 ppm, 1 to 2 ppm, 2 to 4 ppm, or greater than 4 ppm

To complement its expanding line of simple test strips and devices, and greatly simplify accurate record keeping, Neogen offers the Reveal AccuScan III system.

The AccuScan III system consists of a lateral flow test reader combined with a personal data assistant (PDA), and intuitive data management computer software. AccuScan III provides an easier user interface, rapid test reading times, self-calibrations, and a robust unit housing.

For more information on Reveal SQ and the AccuScan III system, contact your Neogen representative.



### **Consistency.**

AccuScan III's digital reading eliminates subjectivity from sample to sample, and technician to technician.

### **Permanence.**

By recording the sample ID, digital image of the results, time and date, AccuScan III eliminates manual recording, and provides easy reporting and permanent, traceable results.

### **Simple PC interface.**

AccuScan III's test results can be exported as digital pictures, and to Microsoft Excel for powerful and permanent reporting, and tracking and trend analysis.

### **Intuitive operation.**

AccuScan III's personal data assistant platform minimizes training needs, and its small and lightweight design allows for easy transportation between locations.

### **Flexibility.**

AccuScan III is designed for use with all of Neogen's lateral flow products, including tests for pathogens, mycotoxins, food allergens, dairy antibiotics, GMOs, and ruminant by-products.

### **Dependability.**

AccuScan III is from Neogen, a proven leader in food safety innovation that has been in business since 1982. We take pride in our unequaled, 24-hour customer service.

# Corn Harvest Overview

The 2010 corn harvest is nearly complete and well ahead of most years—especially the cold, late, wet harvest of 2009.

The differences between the last two corn crops are quite dramatic in a number of ways.

This year's crop was planted early and got off to a great start with ample moisture. The majority of the corn-belt experienced above average heat units and timely rains which brought much enthusiasm for a bumper crop.

Hopes for another record-high yielding corn crop were hurt by the hot and dry August. Near drought conditions hit Texas, the southern Mississippi River and parts of the Ohio River Valley where yields were cut and aflatoxin levels became an issue. The harvest started early and has progressed rapidly with mild and dry weather in September and October.

By late October, most of the corn crop is “in the bin”— 68 percent of all acres are in, according to USDA reports on Oct. 19, versus only 39 percent harvested over a five year average.

Current estimates of U.S. corn production have been reduced 4 percent from the September forecast and down 3 percent from 2009 production. USDA forecasts total corn production in 2010 of 12.7

billion bushels compared to 13.1 billion bushels in 2009. Generally reports of average test weights and lower mold growth have been submitted by grain elevators.

Last year's outbreak of DON (vomitoxin) was a major factor in corn quality. This year's corn harvest has less mycotoxin concerns, but pockets of aflatoxin and fumonisin need to be monitored. Our advice to grain and feed customers is to remain vigilant on testing as carryover grain from 2009 will find its way into the supply chain this year.

Neogen prepares a map outlining mycotoxin reports (see below) to provide reference points on the crop quality. Providing useful information to our customers is part of our service commitment to help them improve their food and animal feed quality.

We appreciate your feedback on ways we can be of help or improve our products and services. Please call any of our sales team members at **800/234-5333** or email Sales Director Pat Frasco at **pfrasco@neogen.com**.

*Have a safe and successful harvest.*

## Aflatoxin and Fumonisin Report



*Current map represents corn crop areas with confirmed mycotoxin levels as of October 20, 2010*

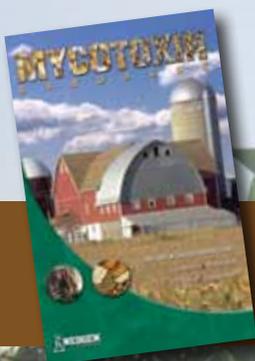
### Confirmed levels of aflatoxin in new corn crop

Texas: 20–100 ppb  
Louisiana: > 20 ppb  
Mississippi: > 45 ppb  
Illinois: > 40 ppb  
Missouri: > 20 ppb  
Georgia: up to 100 ppb  
Tennessee: > 40 ppb  
Kentucky: up to 45 ppb  
Virginia: up to 80 ppb  
Oklahoma: > 20 ppb  
Kansas: > 20 ppb

### Confirmed levels of fumonisin in new corn crop

Texas: up to 20 ppm  
Oklahoma: > 10 ppm  
Georgia: > 5 ppm  
North Carolina: up to 10 ppm  
Arizona: 6 ppm

*Please note prior year's corn crop may contain higher mycotoxin levels.*



Neogen compiles mycotoxin reports from numerous third party sources and develops a map showing key areas impacted by aflatoxin, fumonisin and DON in grains. A current sample map like the one above is available at no cost or obligation, as well as our Mycotoxin Handbook. Note: outbreak areas are continuously updated from various sources and subject to variability. Please contact us to receive regular updates as close and convenient as your inbox: **800/234-5333** or **foodsafety@neogen.com**.

# NEWS *notes*

## Neogen again named to *Forbes'* list of best small companies



Neogen was named in *Forbes'* list of Best Small Companies in America for the ninth time in 11 years in October.

To qualify for *Forbes'* list of the best small companies, candidates had to be publicly traded for at least a year, have annual revenue of between \$5 million and \$1 billion, and have a stock price no lower than \$5 a share. The rank-

ings are based on earnings growth, sales growth and return on equity in the past 12 months and over five years.

In September, Neogen announced that revenues for the first quarter of FY 2011, which ended Aug. 31, marked the 70<sup>th</sup> consecutive profitable quarter from operations for the company, and was the 74<sup>th</sup> of the past 79 quarters when it reported revenue increases as compared with the previous year. Neogen's first quarter revenues, net income, and earnings per share all represented quarterly records for the 28-year-old company.

The list was posted on *Forbes'* Web site, [www.forbes.com](http://www.forbes.com), on Oct. 20 and published in its Nov. 8 edition.

## LINKS *for further reading*

### Agriculture.com Article: **Fall Harvest Roundup**

[http://www.agriculture.com/news/crops/fall-harvest-roundup\\_2-ar11439](http://www.agriculture.com/news/crops/fall-harvest-roundup_2-ar11439)

### Agriculture.com Article: **Winter of extremes forecast for U.S.**

[http://www.agriculture.com/news/crops/noaa-or-winter-of-extremes-in-ste-f-us\\_2-ar11654](http://www.agriculture.com/news/crops/noaa-or-winter-of-extremes-in-ste-f-us_2-ar11654)

### FDA Aflatoxin Action Levels

[http://www.grainnet.com/pdf/aflatoxin\\_vomitoxin\\_fumonisin.pdf](http://www.grainnet.com/pdf/aflatoxin_vomitoxin_fumonisin.pdf)

### U.S. Drought Monitor

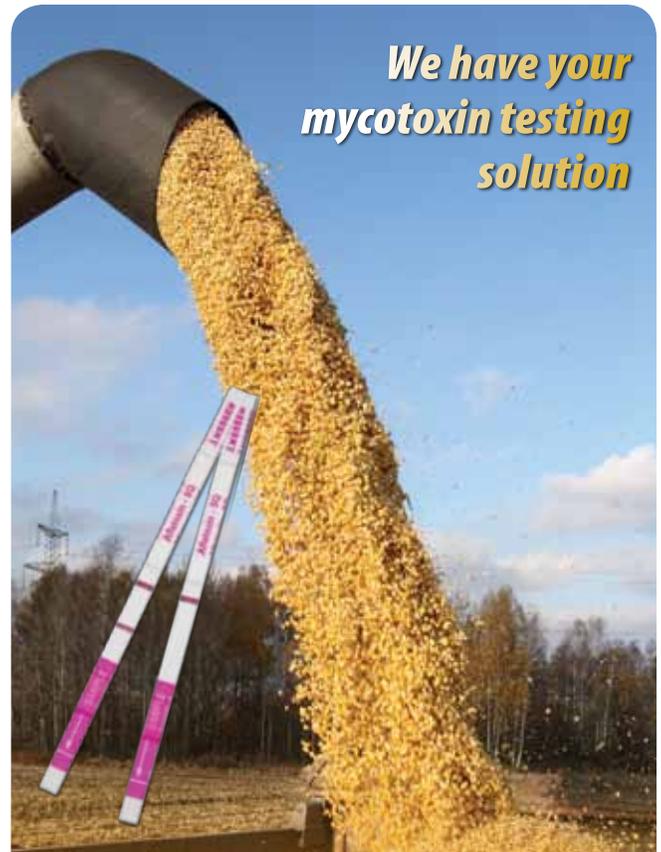
<http://drought.unl.edu/dm/monitor.html>



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**We have your  
mycotoxin testing  
solution**



Neogen offers an array of mycotoxin test kits to detect aflatoxin, deoxynivalenol (DON), fumonisin, ochratoxin, T-2/HT-2 toxins, and zearalenone. Each provides results in minutes, and requires only a minimal amount of training and equipment.

Call us for more information on our test kits, and our free Mycotoxin Handbook: **800/234-5333**

## GRAINS OF TRUTH

*"To be yourself in a world that is constantly trying to make you something else is the greatest accomplishment."*

—Ralph Waldo Emerson

*"I feel that the greatest reward for doing is the opportunity to do more."*

—Dr. Jonas Salk

Stop by and visit us at the National Grain & Feed Association Trade Show on Dec. 5–7 in Indianapolis. You can find us at booth number 615. For more information, and for a complete list of trade shows where you can meet us, visit [www.neogen.com/tradeshows.html](http://www.neogen.com/tradeshows.html).