



Integrated Mycotoxin Monitoring Program





The Neogen advantage

Neogen offers GIPSA-approved mycotoxin test kits to detect aflatoxin, deoxynivalenol (DON), fumonisin, ochratoxin, T-2/HT-2 and zearalenone. The test kits provide results in minutes, and require only a minimal amount of training and equipment.

Reveal® Q+ MAX

The Reveal Q+ MAX products are quantitative lateral flow tests that utilize an aqueous extraction procedure.

- Simple common aqueous extraction for toxins
- Easy-to-use lateral flow format
- Rapid and accurate quantitative testing
- Utilizes a portable reader with data management software

Reveal Q+

The Reveal Q+ products are quantitative lateral flow tests that provide precise parts per million (ppm) or parts per billion (ppb) levels of toxins in as little as 3 minutes following sample preparation.

- Easy-to-use lateral flow format
- Rapid and accurate quantitative testing
- Utilizes a portable reader with data management software
- Broad range of validated and approved commodities

Reveal for Aflatoxin

The Reveal for Aflatoxin test is a single-step, qualitative lateral flow test designed to provide visual screening results at 20 parts per billion (ppb) level.

- Easy-to-use lateral flow format
- Visual assay — no reader required
- Rapid 3 minute assay

Veratox®

The Veratox products are competitive direct ELISA that provide a quantitative analysis of toxins.

- Cost-effective microwell format — ideal for batch testing
- Utilizes a microwell reader
- Fast, accurate, and easy to use
- Gold standard in mycotoxin testing
- Broad range of validated and approved commodities

Agri-Screen®

The Agri-Screen products are competitive direct ELISA that provide a visual screening result against a known control.

- Easy-to-use microwell format
- Visual assay — no reader required
- Screens at various levels
- Broad range of validated and approved commodities

NeoColumn™

The NeoColumn products are immunoaffinity columns that efficiently clean and concentrate the toxins prior to analysis.

- Narrow and wide bore formats
- Proven accuracy compared to HPLC
- State-of-the-art beaded gel bed for maximum consistency of performance
- Unique leak-proof stopper with “wings” for easy removal



More than just great products

Full service laboratory • HPLC confirmations
Commodity validations • Customized service

Neogen backs up our industry-leading product line with one of the industry's largest and most capable support structures. Our technical service staff is highly trained to assist our customers with all questions on product usage and applications.

We're especially proud of our industry-first webcam support service, LabLive. With LabLive, it's like having one of our technical service technicians right on site with you. We're able to see what you're doing and show you possible solutions. Our laboratory services include HPLC confirmations and commodity validations, both of which can be customized to your needs.



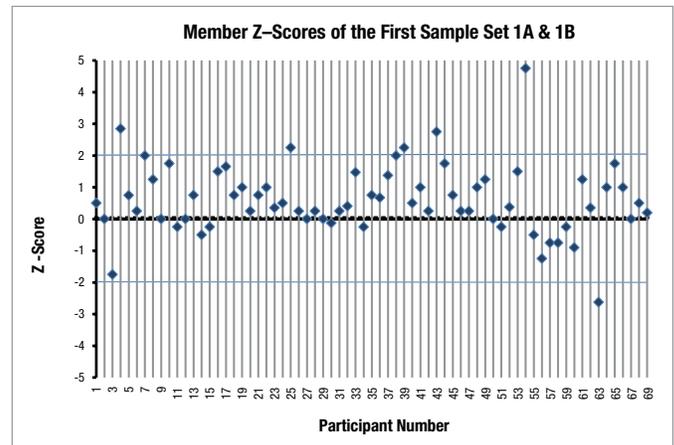
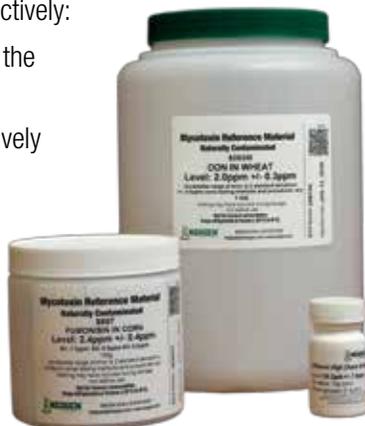
Proficiency program

- Available for various toxins
- Receive four samples each quarter
- Reports returned to facility and/or corporate
- Out-of-specification locations are contacted immediately to identify and rectify issues
- Meets verification requirements for auditors and FSMA

Company A DON Check Sample Program										
Chart #	Participant	Participant Name	Location	Sample 1a	Sample 1g	Average	Std Dev	RSD	Z-score	Test Kit
1	D0099	Company A	Quincy, ID	1.0	1.1	1.1	0.1	95	0.3	DON 2/3
2	D0101	Company A	Detroit, MI	0.8	0.8	0.8	0.0	0.0	-1.0	DON 5/5
3	D0104	Company A	Lansing, MI	1.2	1.1	1.2	1.0	6.1	0.8	DON 5/5
4	D0094	Company A	Cleveland, OH	1.6	1.5	1.6	0.1	8.2	2.8	Competitor Kit
5	D0023	Company A	Montreal, QB	1.3	1.3	1.3	0.0	0.0	1.5	DON 5/5
6	D0017	Company A	Vancouver, BC	0.8	0.9	0.9	0.0	0.0	-0.5	DON 2/3
7	D0123	Company A	Ames, IA	1.2	1.2	1.2	0.0	0.0	0.9	Competitor Kit

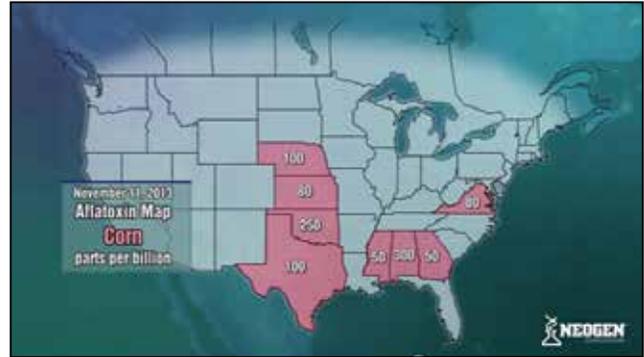
Mycotoxin reference material (MRM)

- Available for various toxins at different levels
- Ensure your lab is testing effectively:
 - › Is the technician running the test properly?
 - › Is the test working effectively at required ranges?
 - › Is the reader and equipment working properly?



Education and training

Neogen provides a world-class, standardized training program and the latest industry news.



Monday mycotoxin reports are uploaded during the growing and harvest seasons. Visit and subscribe to Neogen's YouTube channel at www.youtube.com/neogencorp

ISSUE 2013-1
NEWS from NEOGEN
Preventing mycotoxins in stored grain
 By Paul Frasco
 Neogen Corporation - Sales director, milling and grain

Harvest in corn and soybean seeds is over an end of the fields and stored, but this doesn't mean it's time to drop out grain when it comes to mycotoxins.

It's been a tough year for producers throughout the U.S., who have been plagued by drought and outbreaks of the mycotoxin aflatoxin in some areas. Farmers in other areas of the world, such as Europe, also have faced tough growing seasons and outbreaks of other toxins, such as deoxynivalenol (DON). Given this, good management practices and a solid testing plan are crucial to protect stored grains from proliferation of the toxin-producing molds and its associated mycotoxins.

Prevention of these toxins is crucial as they can have severe impacts on human and animal health as well as cause significant economic losses for producers and processors.

Proper drying and aeration

Storing grain at the proper moisture is key to preventing the growth of molds. Fungicides, which produce DON, and *Aspergillus* fungi, which cause aflatoxin, are major risk molds. The critical number to remember here is 14 percent, meaning grain that is stored at 14 percent or less moisture will help minimize mold growth and toxin production.

The proper storage of grain is the best way to prevent fungal growth and thereby toxin production, according to the *Corn and Sorghum Storage Characteristics of the United States* (USDA). In order to obtain the best results, grain should be dried as soon as possible post harvest.

Additionally, the correct amount of aeration is needed to maintain grain temperature during storage. This also will help maintain good ventilation to prevent high humidity, which contributes to the growth of molds. Reduce excess chaff and foreign material prior to putting grain in the bin.

Be sure to check storage facilities for proper seals and for leaks. Excess water entering the storage unit or facility can increase the chance that mold growth and therefore toxin production will occur.

Storage grain

The risk of toxins are even higher in grain damaged by drought, for example. Unlike undamaged grain, it will not store through spring and into summer and should be shipped to market as soon as possible. Grain that is damaged is more susceptible to "fungi invasion", according to FAS.

Least control in grain storage also is crucial as they not only damage the grain, but the additional moisture from their presence can promote fungal growth, FAS notes.

Testing and grain

Grain in storage should be regularly tested for the presence of toxins. To get the most accurate results, it is crucial to obtain a representative sample of the grain. This can be difficult in large containers but using the right number of probes from each container can help mitigate that difficulty.

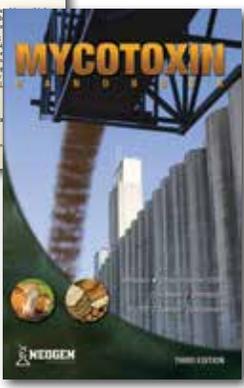
Neogen offers a comprehensive line of quick and accurate tools for several major toxins of concern, including aflatoxin and DON. The "Aflatoxin" Qc line provides precise results in just minutes when paired with Neogen's AccuScan® Pro reader.

Grain also should be tested for toxins when purchasing grain, as storage conditions are unknown. Again, obtaining representative samples cannot be overemphasized. It is important to note the U.S. Food and Drug Administration (FDA) allowed the blending of grain containing less than 100 parts per billion (ppb) of aflatoxin with higher quality, "clean" grain to obtain that total yield. In this grain, proper sampling even distribution of aflatoxin-positive grain is key to get the blended grain was allowed to be grain.

FOR THE MILLING, GRAIN AND FEEDING INDUSTRIES
 NEOGEN CORPORATION
 a Leader in Food Safety Solutions

Special webinars address topics relevant to specific industries. Visit www.neogen.com to view a current schedule.

Our informative newsletters report food safety issues affecting the industry, and our mycotoxin handbook is an invaluable resource. Contact us to receive mailings free of charge. You can also follow Neogen on Facebook, www.facebook.com/NeogenCorp, and Twitter, www.twitter.com/NeogenCorp.



620 Leshler Place • Lansing, MI 48912
 800-234-5333 (USA/Canada) • 517-372-9200
foodsafety@neogen.com • www.neogen.com

