CORN EAR ROT MANAGEMENT

Grain and Silage Sampling and Mycotoxin Testing

If corn ear rots were a problem in the field, it is important to test harvested grain for mycotoxins. Obtaining a representative sample for mycotoxin testing is critical for accurate results. It’s also important to know that testing methods vary in accuracy.
Sampling Requirements
The accuracy of a mycotoxin test result largely depends on the quality of the grain or silage sample. The United States Department of Agriculture (USDA) Grain Inspection Handbook (www.gipsa.usda.gov/fgis/public_handbooks.aspx) and the Canadian Grain Commission (www.grainscanada.gc.ca) recommend specific sampling methods to ensure that samples accurately represent the grain population and silage mass. Sample collection methods vary depending on whether the sample is collected from the field (combine), a grain truck, a shipping container, feed bunks or storage bins, or at the elevator or point of sale.

What does a representative sample consist of?
Although sampling methods vary, the size of the representative sample is consistent. According to the USDA Grain Inspection Handbook, a representative sample is at least 4.4 pounds, and preferably 5 pounds (2-2.5 kg). In many cases, several subsamples will be taken and then combined into a single composite sample (Figure 1).

It is recommended that each subsample for the composite sample be at least 4.4 pounds (2 kg). Combine these subsamples to make a single composite sample. Mix the composite sample thoroughly, and then take a final 5-pound (2.5 kg) sample from the composite for further testing.

When sampling grain, gather the subsamples several different times from a moving stream of grain while the grain is being loaded or unloaded. However, sample probes are commonly used for stationary loads of grain. Silage subsamples should be removed from both vertical and horizontal facing areas of the silage mass.

Don’t Rely on Appearance Alone
There are several technologies for testing mycotoxin concentrations in corn grain and silage. Never rely solely on visual methods such as the black light test (Figure 2). Visual test results can be inconsistent, so always test samples using recommended methods, or send them to professional laboratories.

Companies that sell mycotoxin detection equipment and test kits include:
Charm Sciences, Inc.
www.charm.com/products/test-and-kits/mycotoxin-tests/
EnviroLogix
www.envirologix.com
Neogen Corporation
foodsafety.neogen.com/en/mycotoxins
R-Biopharm AG
https://food.r-biopharm.com/analytes/mycotoxins/
Romer Labs
www.romerlabs.com/us/products/mycotoxins
VICAM
vicam.com/products
Professional Laboratories
Local laboratories and grain inspection services may test individual corn samples for mycotoxins. Below is an incomplete list of select grain testing providers. Check with your local Extension office for a more complete list of grain testing facilities in your area. For a list of labs in Ontario, visit www.omafra.gov.on.ca. Costs and sample submission procedures vary by provider:

- **Barrow-Agee Laboratories (Memphis, Tennessee)**
  www.barrows.com
- **Breathitt Veterinary Center (Hopkinsville, Kentucky)**
  https://breathitt.murraystate.edu/
- **Cumberland Valley Analytical Services (Hagerstown, Maryland; Batavia, New York; Zumbrota, Minnesota)**
  www.foragelab.com
- **Dairy One (Ithaca, New York)**
  www.dairyone.com
- **Dairyland Laboratories (Arcadia, Wisconsin)**
  www.dairylandlabs.net
- **EMSL Analytical, Inc. (Baton Rouge, Louisiana, plus locations in Florida, Georgia, North Carolina, and Texas)**
  https://emsl.com
- **Eurofins Central Analytical Laboratory (Forsyth, Georgia; New Orleans, Louisiana)**
  www.eurofinsus.com/food
- **Fort Worth Grain Exchange (Fort Worth, Texas)**
  817-626-8213
- **Holmes Laboratory, Inc. (Millersburg, Ohio)**
  www.holmeslab.com
- **Indiana Animal Disease Diagnostic Laboratory (ADDL) at Purdue University (West Lafayette, Indiana)**
  www.addl.purdue.edu
- **Indiana Crop Improvement Association (Lafayette, Indiana)**
  www.indianacrop.org
- **Kansas Grain Inspection Service (Topeka, Kansas)**
  https://kansasgrain.com/
- **Midwest Laboratories (Omaha, Nebraska)**
  https://midwestlabs.com/
- **Midsouth Grain Inspection Services (Memphis, Tennesse; Stoneville, Mississippi; Little Rock, Arkansas)**
  http://drec.msstate.edu/content/midsouth-grain-inspection-services
- **Minnesota Valley Testing Laboratories, Inc. (New Ulm, Minnesota)**
  www.mvtl.com
- **Quanta Lab (Selma, Texas)**
  quantalab.com
- **Romer Labs (Union, Missouri)**
  www.romerlabs.com
- **Trilogy Analytical Laboratory, Inc. (Washington, Missouri)**
  www.trilogylab.com
- **University of Kentucky Veterinary Diagnostic Lab (Lexington, Kentucky)**
  www.vdl.uky.edu
- **Waters Agricultural Laboratories, Inc. (Owensboro, Kentucky)**
  https://watersag.com/service/mycotoxin aflatoxin-detection/
- **Waypoint Analytical (Leola, Pennsylvania)**
  www.waypointanalytical.com/Contact
  (supportpa@waypointanalytical.com)

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Find crop disease resources at CropProtectionNetwork.org.

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Acknowledgements
Funding for this project was provided by the United States Department of Agriculture National Institute for Food and Agriculture (USDA-NIFA) project Integrated Management Strategies for Aspergillus and Fusarium Ear Rots of Corn. NIFA Award Number: 2013-68004-20359. We also thank the Grain Farmers of Ontario for support.

Design and production by Iowa State University Extension and Outreach Natural Resources Communications Unit.

United States Department of Agriculture
National Institute for Food and Agriculture

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