



Cor1-2011 - 2011 Grain Corn Ear Mould and Vomitoxin Survey

CROP ADVANCES

Field Crop Reports

Volume 8 — February 2, 2012

Field Crops Team, Agriculture Development Branch
Ministry of Agriculture, Food and Rural Affairs
In partnership with
Ontario Soil and Crop Improvement Association
And other Agricultural Organizations and Businesses

<http://www.ontariosoilcrop.org/cropadvances.htm>



2011 Grain Corn Ear Mould and Vomitoxin Survey

Purpose:

Considerable concern developed in the late summer pertaining to the potential for ear moulds in the 2011 corn crop and the mycotoxins associated with these moulds. These mycotoxins, particularly the vomitoxin (DON) can be disruptive when fed to livestock, especially hogs. As a result and to increase our understanding of the situation, OMAFRA Field Crop Staff conducted a survey of Ontario corn fields.

Methods:

OMAFRA Field Crop Staff surveyed 99 corn fields from across the province between September 26 and October 3 to assess ear mould incidence and mycotoxin levels. In each of the corn fields surveyed, 4 sites within each field were selected and 5 consecutive ears were hand harvested. The 20 ears collected from each field were immediately dried and shelled. The resultant grain sample was thoroughly mixed and sub-samples were sent to Agri-Food Labs in Guelph for vomitoxin (DON) analysis.

Results:

Of the 99 samples taken 75 of them recorded a DON level of less than 2.0 PPM; 12 were in the 2 to 4 PPM range; and 12 recorded DON levels greater than 4 PPM. The accompanying map shows the geographic distribution of the sampled fields and the DON level at each location.

The incidence of Gibberella ear mould (and DON in the harvested grain) was quite widespread across the province in 2011. However, there were clearly areas of Ontario that would produce high quality corn with low DON levels. The map did provide OMAFRA, producers and industry an early warning of potential areas where growers needed to be particularly diligent in assessing mould and vomitoxin concentrations at harvest (see Figure 1).

Summary:

The incidence of Gibberella ear mould (and DON in the harvested grain) was widespread though out the province and as expected DON levels varied within regions from low to high even for fields in close proximity to each other.

It is important to note that this survey cannot capture all the factors that may influence the mould or vomitoxin in a given field. Hybrid differences, planting date effects, previous crops, residue/tillage, localized weather patterns and insect or bird damage may all impact the level of mould in a given field and can explain why fields in close proximity have different mould development.

The survey provided OMAFRA the opportunity to advise producers with on-farm storage that they may need to segregate crop by DON levels to allow them to more easily match market demands as well as encourage producers to scout fields prior to harvest and rate the fields, hybrids and planting dates for the presence of ear mould and vomitoxin.

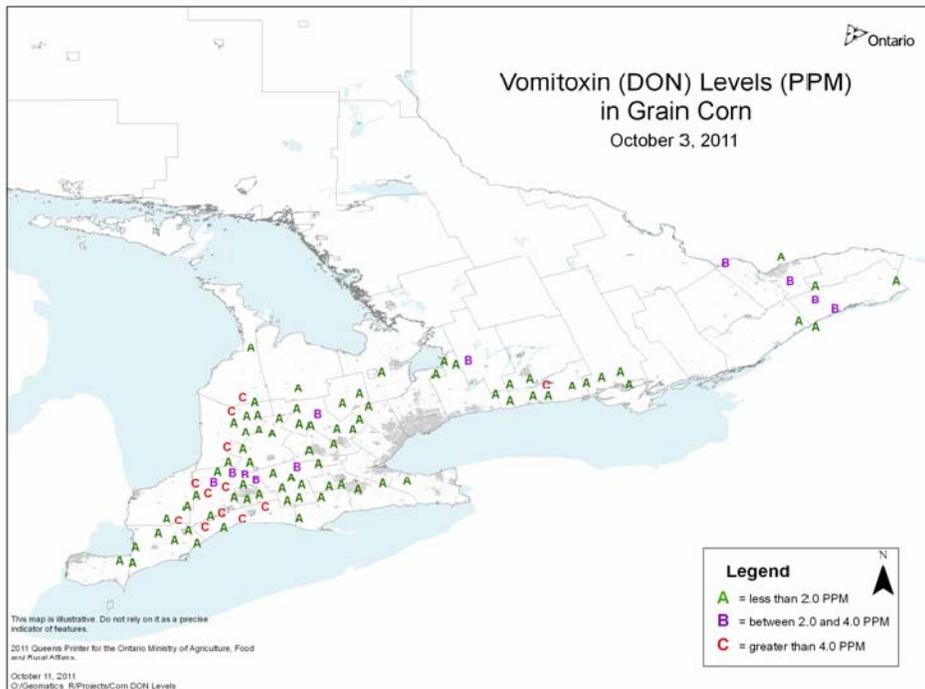


Figure 1 - 2011 Vomitoxin (DON) Levels (PPM) in Ontario Grain Corn

To verify the presence of mycotoxins prior to harvest it was recommended that at least 10 ears (2 locations in the field x 5 consecutive ears) be hand-shelled, thoroughly mixed and sent to a lab for testing. Additional sampling could also occur once harvest began by collecting samples at the combine from several locations in the field and having the sample analyzed by an approved lab. Being proactive and identifying problem fields allowed for screens, cylinder and concave settings, and fans on combines to be set and adjusted at harvest to create as clean a sample as possible, including the exclusion of smaller tip kernels if possible.

Next Steps:

OMAFRA in conjunction with the Grain Farmers of Ontario and the University of Guelph Ridgetown Campus review the ear mould and mycotoxin potential annually and will continue to do so in 2012.

Acknowledgements:

Appreciation is extended to the Grain Farmers of Ontario and Agri-food Laboratories for their support of the survey and analysis as well as to OMAFRA students/technicians for sample collection and processing. In addition we would like to our colleagues at the University of Guelph Ridgetown Campus. A special thanks to the producers involved in the survey for access and permission to sample their fields, Thank-You!

Project Contacts:

Greg Stewart, OMAFRA, greg.stewart1@ontario.ca
Albert Tenuta, OMAFRA, albert.tenuta@ontario.ca