



MYCOTOXIN MANAGEMENT IS NOT A BETTING GAME IT'S A MATTER OF EXPERTISE



MycoMan Harvest bulletin



POLAND Wheat 2020

Mycotoxin contamination in newly harvested grain is a very important parameter to consider. That grain is used to feed the animals for the whole year, until the next harvest. As the saying goes, “knowing the enemy is half the battle won.” In turn, if we know the level of contamination, we can think about the best use of the wheat: to which animal species it can be fed (avoiding the more sensitive species in cases of high contamination or decreasing the level of wheat in their diet) and which MycoMan Program product should be used to decrease possible negative effects of contamination on animal performance and health.



Sampling



Total number of samples



Collected directly from farms and animal feed production sites, before storage



Analyzed by liquid chromatography tandem mass spectrometry (LC MS/MS) in ECCA laboratory, Belgium



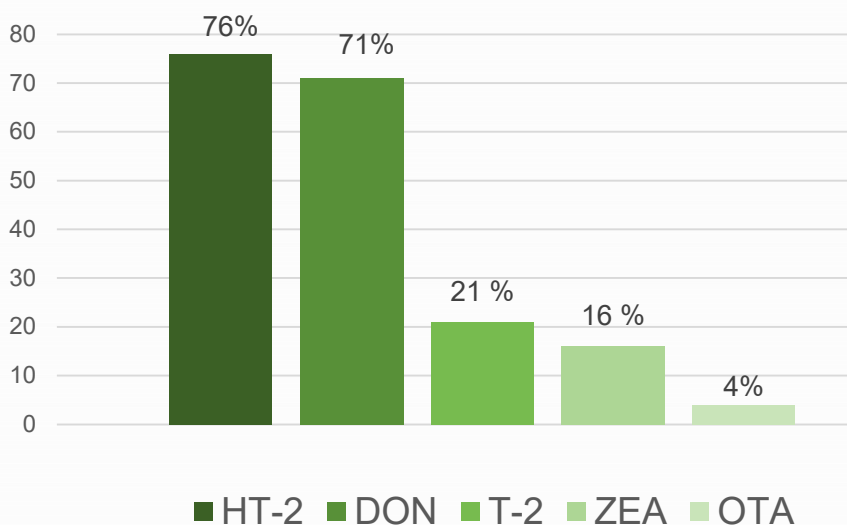
Screening for 16 mycotoxins: fumonisin B1 (FB1), fumonisin B2 (FB2), aflatoxin B1 (AFB1), aflatoxin B2 (AFB2), aflatoxin G1 (AFG1), aflatoxin G2 (AFG2), zearalenone (ZEA), alfa-zearalenol (AZE), beta-zearalenol (BZEA), deoxynivalenol (DON), 15-acetyldeoxynivalenol (15ADON), 3-acetyldeoxynivalenol (3ADON), nivalenol (NIV), ochratoxin A (OTA), HT-2 toxin (HT-2), T-2 toxin (T-2).



MYCOTOXIN MANAGEMENT IS NOT A BETTING GAME IT'S A MATTER OF EXPERTISE



Mycotoxin occurrence in newly harvested wheat, Poland, 2020



Key outcome

76%

Samples contaminated with **HT-2 toxin**

+ Highest sample: **78 µg/kg**

◆ Average []: **25 µg/kg**



Not a high concentration, but when other trichothecenes like T-2 toxins are present, this level can pose a low to medium risk, especially if fed to swine, a very sensitive species

71%

Samples contaminated with **Deoxynivalenol**

+ Highest sample: **9800 µg/kg**

◆ Average []: **1102 µg/kg**



If the level of wheat inclusion to the diet is 50% - this contamination can present medium risk to sensitive animals species as piglets, for example

21%

Samples contaminated with **T-2 toxin**

+ Highest sample: **55 µg/kg**

◆ Average []: **10 µg/kg**



Low average contamination but when combined with HT-2 toxin, the two mycotoxins can pose a low to medium risk to sensitive species like piglets, sows, boars and poultry.

16%

Samples contaminated with **Zearalenone**

+ Highest sample: **170 µg/kg**

◆ Average []: **48 µg/kg**



Low level of contamination

Non-detection levels were based on the limits of quantification (LOQ) of the test method for each mycotoxin: AFB1, AFB2, AFG1, AFG2 <0,5 µg/kg; ZEA, AZEA, BZEA <10 µg/kg; DON, 15ADON, 3ADON <75 µg/kg; FB1 <125 µg/kg; FB2 <50 µg/kg; OTA <1 µg/kg; T-2, HT-2 < 4 µg/kg, NIV <200 µg/kg.



MYCOTOXIN MANAGEMENT IS NOT A BETTING GAME IT'S A MATTER OF EXPERTISE



The full picture

Wheat contamination levels and risk assessment, Poland, 2020

Parameter	HT-2	DON	T-2	ZEA	OTA
Number of samples tested	110	110	110	110	110
% positive samples	76	71	21	16	4
Average concentration in positive samples (µg/kg)	25	1102	10	48	10
Maximum concentration (µg/kg)	78	9800	55	170	23

Low risk
Medium risk
High risk



OTA occurrence was low, at just 4%, and the average contamination level was likewise low (10 µg/kg) but, in combination with other mycotoxins, this level could be associated with a low to medium risk. The maximum concentration of OTA recovered was 23 µg/kg, which is low-risk for all species.

DON Contamination

> 900 µg/kg

> 1000 µg/kg

> 5000 µg/kg

Samples proportion

21%

14%

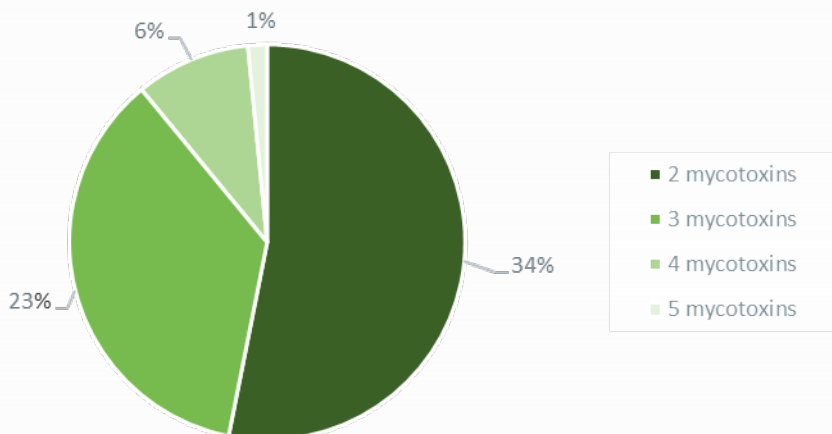
2%



Risk of synergies

Mycotoxins were detected in 88% of the samples. 63% of the samples were contaminated with two to four mycotoxins at the same time – multiple mycotoxin contamination (Fig. 3.). The possible synergism of mycotoxins (DON and T-2 toxin, for example) also needs to be taken into account. Multiple mycotoxins at low to medium levels can have negative effects on animal health, reproduction and performance.

Average number of mycotoxins per sample





MYCOTOXIN MANAGEMENT IS NOT A BETTING GAME IT'S A MATTER OF EXPERTISE



MycoMan Predict

MycoMan Predict has been developed by Adisseo in partnership with Syngenta, a world-wide leader in plant solutions. Thanks to a predictive equation, the mycotoxin contamination of an area can be forecasted before a crop is harvested. The predictive equation is based on two factors: the climatic and the agronomic circumstances in a particular region during the current year.



Accurate results

Using MycoMan Predict for Poland, the medium to high risk of wheat contamination with DON was highlighted. So, as predicted, level of wheat contamination with DON is medium- high.

MycoMan Predict results are shared through a newsletter reserved to our customers and business partners. Interested? Send an email to margaux.lecolinet@adisseo.com



The word of our expert

Julia Dvorska

Global Scientific & Technical Manager
For Mycotoxin Management

Based on the results of this survey, the 2020 wheat crop in Poland should not automatically be considered safe for inclusion in finished feed rations for all animal species.

Special attention should be paid to the medium-high average concentration of DON (1102 $\mu\text{g}/\text{kg}$), which was found in 71% of the samples with maximum concentration 9800 $\mu\text{g}/\text{kg}$. Average HT-2 and T-2 toxins level according to our risk assessment table present low-medium risk to sensitive animals as poultry, piglets, sows and boars. Levels of ZEA and OTA are low and present low risk for the animal health and performance.

Taking into account present mycotoxins and their levels, wheat should be used in levels not higher than 50% to the ration to avoid negative effect in animals and not to exceed the recommendation level for DON in EU for sensitive animals like pigs, calves etc.

The results of new harvested wheat analysis conducted in 2020 by Adisseo in Poland concludes that this year's harvest is of concerning quality in terms of mycotoxin contamination. Also, Mycotoxin Management product supplementation to animal feeds is an effective strategy to prevent negative effect of mycotoxins on animal health and performance.

