MycoMan
Harvest bulletin

SPAIN
Maize 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 maize in their diet) and which product should be used to decrease possible negative effects of contamination on animal performance and health.

Sampling

54 Total number of samples

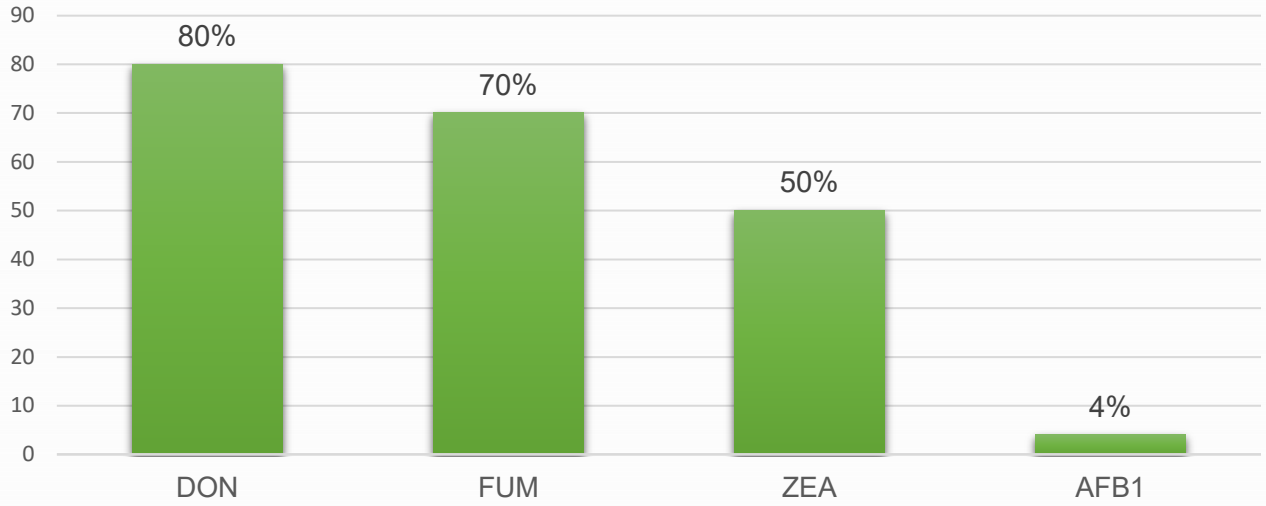
Collected directly from farms and animal feed production sites, before storage

Analyzed by Enzyme-Linked Immunosorbent Assay (ELISA) in INZAR lab, Spain

Screening for 4 mycotoxins:
aflatoxin B1 (AFB1), zearalenone (ZEA), deoxynivalenol (DON) and FUM (includes fumonisin B1 and fumonisin B2)

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

Mycotoxin occurrence in newly harvested maize, Spain 2020



Key outcome

80% Samples contaminated with **Deoxynivalenol**

- **Highest sample: 507 µg/kg**
- **Average [ ]: 235 µg/kg**

Low risk for all animal species

70% Samples contaminated with **Fumonisins**

- **Highest sample: 3980 µg/kg**
- **Average [ ]: 1247 µg/kg**

Medium risk for all sensitive animal species such as horses and pigs

50% Samples contaminated with **Zearalenone**

- **Highest sample: 593 µg/kg**
- **Average [ ]: 72 µg/kg**

Low level of contamination

Aflatoxin B_1 was observed only in 4% of the samples however, its level (4 µg/kg in average from positive samples) may present low to moderate risk for dairy cows, sheep and goat.

Non-detection levels were based on the limits of quantification (LOQ) of the test method for each mycotoxin: AfB1 <1 µg/kg; ZEN <5 µg/kg; DON <18.5 µg/kg and FUM <222 µg/kg

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The full picture

Maize contamination levels and risk assessment, Spain, 2020

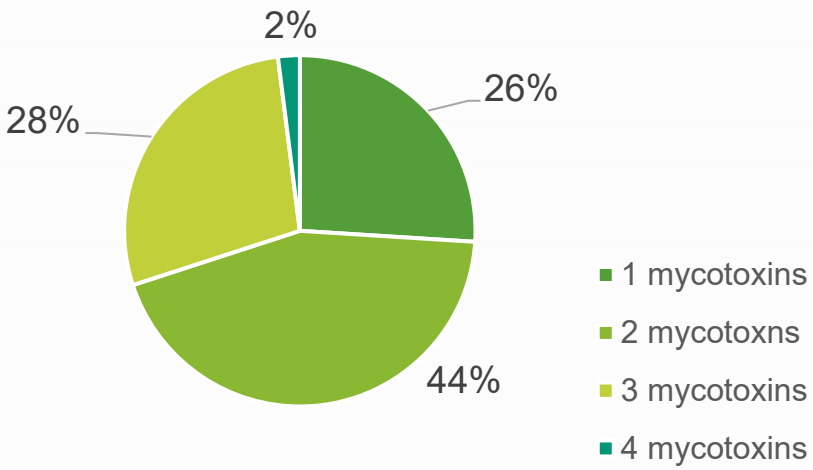
Parameters	DON	FUM	ZEA	AFB_1
Number of tested samples	54	54	54	54
% of positive samples	80	70	50	4
Average concentration of positive samples [µg/kg]	235	1247	72	4
Maximum concentration [µg/kg]	507	3980	593	6

Low risk
Medium risk
High risk

Risk of synergies

We found that 98% of samples were contaminated with mycotoxins. 76% of samples were contaminated with 2 to 4 mycotoxins at the same time. We also need to take into account possible synergism or additive effect of mycotoxins (DON and ZEA, DON and AFB_1, for example). Multiple mycotoxins contamination in low to medium levels may have negative effect on health, reproduction and performance of animals.

Average number of mycotoxins per sample



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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 low climatic risk of maize contamination with DON and FUM was highlighted while high agronomic risk for FUM was forecasted. So, as predicted, level of wheat contamination with DON is low and medium for FUM.

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 maize crop in Spain should not automatically be considered safe for inclusion in finished feed rations for all animal species.

The mycotoxin occurrence level in maize was high – 98% of samples were contaminated, 76% - with 2 to 4 mycotoxins at the same time – multiple mycotoxin contamination. 80% of maize samples were contaminated with DON, 70% - with FUM, 50% - with ZEA.

Levels of DON and ZEA were low and present a low risk for the animal health and performance. The average levels of FUM found may present an average risk for sensitive animals such as horses and pigs. Level of AFB1 may present low to moderate risk for dairy cows.

Considering the mycotoxin levels detected and the likelihood of multiple mycotoxins (detected in 76% of samples), there is a greater probability of observing negative effects of the mycotoxicosis when maize is used in levels above 50% of the ration.

Based on the results of this survey conducted by Adisseo, the 2020 maize crop in Spain is of variable quality and should not automatically be considered safe for inclusion in finished feed rations for all animal species.

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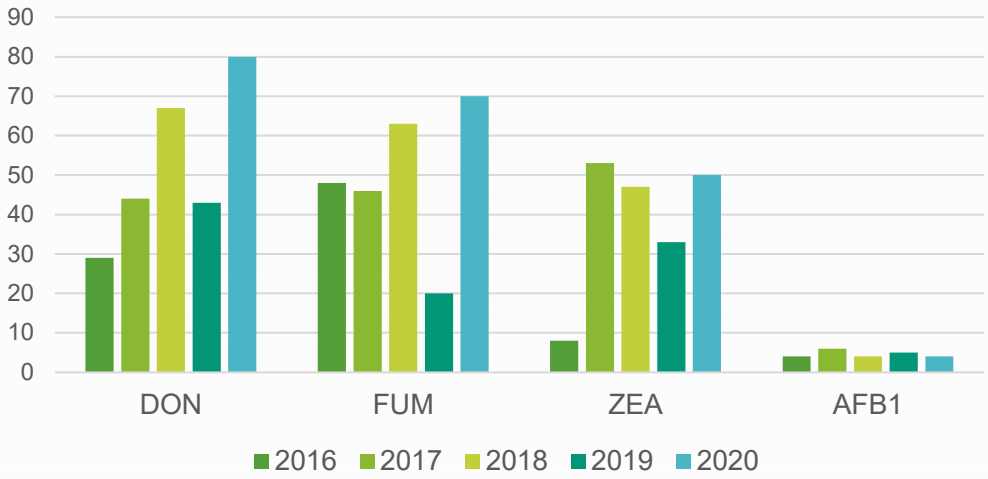
Multi-year risk

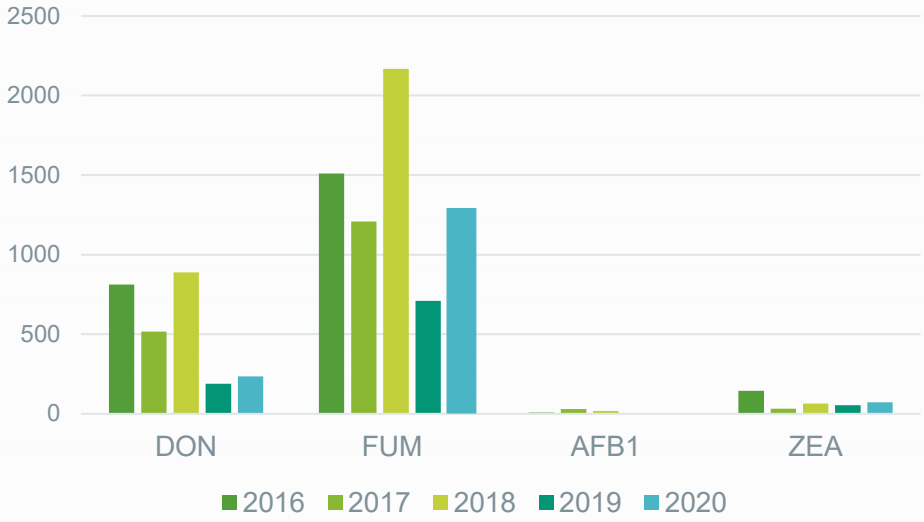
Mycotoxin occurrence in maize in Spain in 2016-2020



- The occurrence of DON and FUM in 2020 was highest for the last 5 years
- In contrast ZEA maize contamination in 2020 was highest for the last 3 years.
- AFB1 occurrence was quite similar during last years.

- The average concentration of DON in maize in 2020 was one of the lowest in the last 5 years, but this level still represents low risk for all animal species.
- Average FUM level this year was 1247 µg / kg, above the level of previous years
- The average concentration of AFB1 in maize in 2020 was one of the lowest in the last 5 years, but this level still represents low to medium risk for dairy cows.
- Average ZEA level this year was the highest for last 4 years

Average of positive sample (µg/kg)



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