Alltech®

Harvest Analysis | 2024

EUROPE

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TABLE OF CONTENTS

Meeting the mycotoxin challenge

We are delighted to once again present our Alltech European Harvest Analysis report, a vital resource for understanding the 2024 mycotoxin landscape in Europe.

Continuing concerns related to the weather's impact on crop quality are fuelling unprecedented interest in this year's report. This is reflected by the large volume of both grain and forage samples that have been arriving for testing at our Alltech 37+® laboratory in Dunboyne, Ireland.

As we learn more and more about mycotoxins, we are seeing the damaging effects their presence can have on animal health and performance. We are confident that the insights presented here will be of great value to countering some of these challenges and informing the most effective mycotoxin-control decisions for your business over the coming months.

Thank you for your continued commitment to understanding and addressing these challenges. Whether your goal is to produce the highest-quality feeds or to optimise the performance of your livestock operation, our Alltech team is ready to support you.

Yours sincerely,

Patrick Charlton

Patrick Charlton, vice president of Europe, Alltech

Continued collaboration with SGS

Alltech is again working with SGS, a world leader in mycotoxin testing services, to expand the reach of this year's European Harvest Analysis by collecting and analysing corn samples for Central-Southeast Europe. Combining these resources with findings from our Alltech 37+® mycotoxin analysis allows us to continue to deliver a robust assessment of the mycotoxin landscape right across the continent.

What are this year's **key insights?**

- A combination of heavy early-season rains and late-season drought **has created distinct challenges for crop producers in Central and Southeastern Europe**.
- **Aflatoxin levels in corn are once again a concern in Central and Southeastern Europe**, and dairy producers should be aware of this challenge.
- Similar to last year, barley shows the highest risk among the small grains, with **higher levels of type B trichothecenes** than we are seeing in wheat.
- Although emerging mycotoxins continue to be one of the most prevalent groups, **deoxynivalenol (DON) is creating the highest level of risk**.
- ***Penicillium* mycotoxins** are driving the majority of risk in grass silages, while the majority of the risk in corn silage the majority risk is due to elevated levels of **type B trichothecenes**.

The final mycotoxin risk will ultimately depend on the animal species and groups being fed, as well as the mycotoxin concentrations and combinations in the finished diet.

20
countries analysed across Europe

Sample date range: 03/07/2024 to 21/11/2024

>1,200
new crop samples tested in total between Alltech 37+® and SGS

6
Average number of mycotoxins per sample

Figure 1: 2024 Alltech® European Harvest Analysis key figures

A look around the regions

Western Europe

- Wheat and barley samples are generally low- to moderate-risk, although barley carries a higher risk compared to wheat.
- Emerging mycotoxins are the most commonly detected group in small grains, followed by type B trichothecenes and fumonisins.
- Type B trichothecenes, such as deoxynivalenol, as well as ergot alkaloids pose the greatest risk in small grains.
- Forages such as grass silage and corn silage are higher-risk, with average *Penicillium* toxin levels of 293 parts per billion (ppb).

Northwestern Europe

- Fumonisins are most prevalent in forages, but type B trichothecenes are driving most of the risk.
- Barley has a high mycotoxin risk, with the main risk contributors being type B trichothecenes and type A trichothecenes.
- Wheat also has a high mycotoxin risk, with type B trichothecenes being the most prevalent group.
- Straw is high-risk again this year, with average type B trichothecene levels of 1,928 ppb.
- The average risk equivalent quantity (REQ) for wheat and barley is high, and that risk is higher than in 2023.

Central and Southern Europe

- Corn silage is at higher risk, with the main risk coming from type B trichothecenes.
- Barley and wheat are of similar quality and present moderate mycotoxin risk.
- Corn in this region is of moderate risk. The most prevalent mycotoxins in corn are aflatoxins, fumonisins and ochratoxin A, while the most risk comes from aflatoxin B_1 and ochratoxin A.
- The average concentration of aflatoxin B_1 is 10.4 ppb, while a maximum concentration of 506 ppb was found in Hungarian corn.

Eastern Europe

- Type B trichothecenes and type A trichothecenes are the most prevalent and highest-risk mycotoxins in corn silage.
- Grass silage has a moderate mycotoxin risk, mainly driven by the other *Penicillium* mycotoxins.
- Corn from this region is high-risk due to the high prevalence of T-2/HT-2 toxins and deoxynivalenol.
- The average concentration of aflatoxin B_1 is 49 ppb, with a maximum concentration of 566 ppb found in Ukrainian corn, indicating a high risk.

Corn results

18/08/2024 to 21/11/2024
Sample date range

Highest-risk mycotoxins

- *Ochratoxin A*
- *Aflatoxin B_1*
- *T2-HT2 toxins*

2.9
Average tests per sample

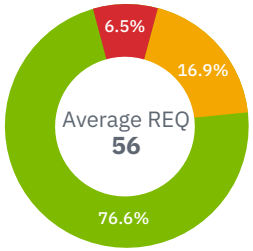
Occurrence (%) and average and maximum mycotoxin concentrations (ppb)

Mycotoxin group	Occurrence (%) (above LOQ)	Average (ppb)	Maximum (ppb)
Aflatoxins, total	80.8	13.3	566
Ochratoxins	39.5	39	1,417
Deoxynivalenol	11	183.6	1,766
T2-HT2 toxins	28.1	65.6	2,329
Fumonisins	54.5	599.4	6,990
Zearalenone	2	145.2	864

Figure 2: The multiple mycotoxin risk in corn samples. Analysed by SGS.

How will this impact species and animal groups?

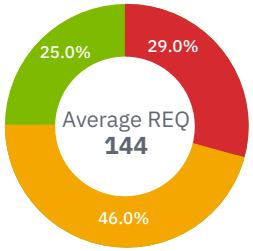
Dairy cows



Change in milk production, litres/ cow/day

Change in somatic cell count, %

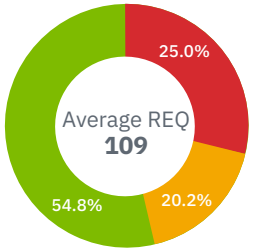
Grow/ finish pigs



Change in average daily gain, grams/day

Change in feed conversion rate, %

Broilers



Change in average daily gain, grams/day

Change in feed conversion rate, %

Percentage of samples at lower, moderate or higher risk for each species. **REQ:** A measurement of the cumulative impact of mycotoxins in reference to aflatoxin B_1.

Low Moderate High

Figure 3: Analysis of the REQ and performance effects of mycotoxin contamination of corn samples.

Barley results

03/07/2024 to 30/10/2024
Sample date range

Highest-risk mycotoxins

- Type B trichothecenes
- Type A trichothecenes
- Ergot alkaloids

6.8
Average mycotoxins per sample

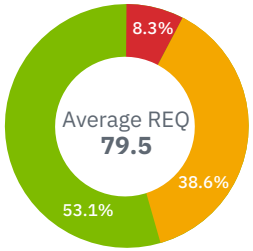
98%
Samples with 2 or more mycotoxins

Occurrence (%) and average and maximum mycotoxin concentrations (ppb)			
Mycotoxin group	**Occurrence (%)**	**Average (ppb)**	**Maximum (ppb)**
Emerging mycotoxins	94.7	262.6	2,847
Type B trichothecenes	81.1	347.2	13,178
Type A trichothecenes	75.8	31.9	266
Fumonisins	44.7	12.1	126
Ergot toxins	13.6	45.4	2,768
Zearalenone	11.4	4.6	240
Fusaric acid	8.3	0.8	30
Other *Penicillium* mycotoxins	6.8	1.5	164
Other *Aspergillus* mycotoxins	5.3	0.2	6

Figure 4: The multiple mycotoxin risk in barley samples. Analysed by Alltech 37+®

How will this impact species and animal groups?

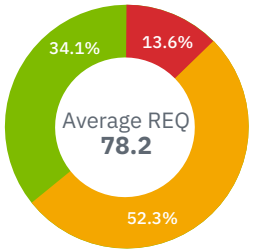
Dairy cows



Change in milk production, litres/ cow/day

Change in somatic cell count, %

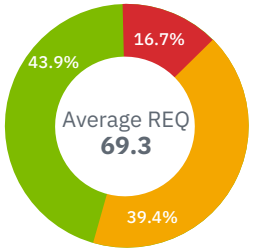
Grow/ finish pigs



Change in average daily gain, grams/day

Change in feed conversion rate, %

Broilers



Change in average daily gain, grams/day

Change in feed conversion rate, %

Percentage of samples at lower, moderate or higher risk for each species. **REQ:** A measurement of the cumulative impact of mycotoxins in reference to aflatoxin B_1.

Low Moderate High

Figure 5: Analysis of the REQ and performance effects of mycotoxin contamination of barley samples.

Wheat results

08/08/2024 to 29/10/2024
Sample date range

Highest-risk mycotoxins
- Type B trichothecenes
- Type A trichothecenes

7.6
Average mycotoxins per sample

99%
Samples with two or more mycotoxins

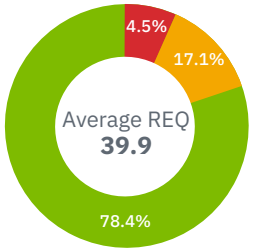
Occurrence (%) and average and maximum mycotoxin concentrations (ppb)

Mycotoxin group	Occurrence (%)	Average (ppb)	Maximum (ppb)
Type B trichothecenes	91.9	237.9	2,383
Emerging mycotoxins	90.1	107.9	3,114
Fumonisins	78.4	20.3	82
Type A trichothecenes	63.1	11.7	93
Zearalenone	21.6	3.5	172
Ergot toxins	17.1	14.7	933
Fusaric acid	14.4	1.2	40
Other *Penicillium* mycotoxins	7.2	2.1	206
Ochratoxin/Citrinin	2.7	2.7	279

Figure 6: The multiple mycotoxin risk in wheat samples. Analysed by Alltech 37+®

How will this impact species and animal groups?

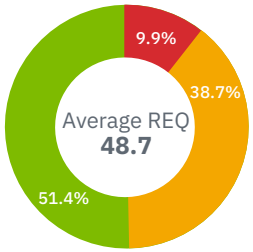
Dairy cows



Change in milk production, litres/ cow/day

Change in somatic cell count, %

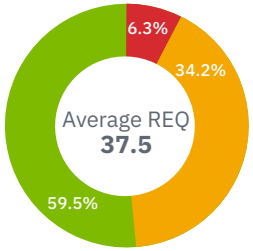
Grow/ finish pigs



Change in average daily gain, grams/day

Change in feed conversion rate, %

Broilers



Change in average daily gain, grams/day

Change in feed conversion rate, %

Percentage of samples at lower, moderate or higher risk for each species. **REQ:** A measurement of the cumulative impact of mycotoxins in reference to aflatoxin B_1.

Low Moderate High

Figure 7: Analysis of the REQ and performance effects of mycotoxin contamination of wheat samples.

Forage results
Grass silage, corn silage and straw

01/08/2024 to 31/10/2024
Sample date range

Highest-risk mycotoxins
- Other *Penicillium* mycotoxins
- Type B trichothecenes

3.7
Average mycotoxins per sample

78%
Samples with two or more mycotoxins

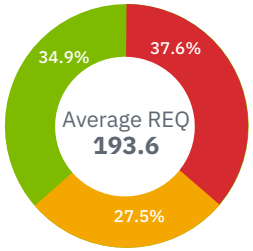
Occurrence (%) and average and maximum mycotoxin concentrations (ppb)

Mycotoxin group	Occurrence (%)	Average (ppb)	Maximum (ppb)
Type B trichothecenes	73.2	748.9	9,446
Emerging mycotoxins	43.6	168.1	5,900
Fumonisins	42.3	17.8	288
Other *Penicillium* mycotoxins	40.3	165	2,090
Fusaric acid	20.8	45.9	2,021
Type A trichothecenes	19.5	8	160
Zearalenone	6.7	9.8	545
Ergot toxins	2.7	2.3	255
Other *Aspergillus* mycotoxins	2.0	0.1	7

Figure 8: The multiple mycotoxin risk in forage samples. Analysed by Alltech 37+®

How will this impact species and animal groups?

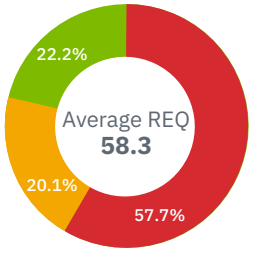
Dairy cows



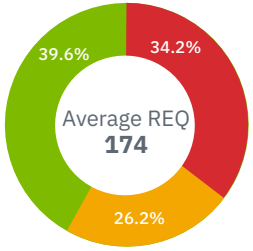
Change in milk production, litres/ cow/day

Change in somatic cell count, %

Calf/Heifer



Beef cattle



Percentage of samples at lower, moderate or higher risk for each species. **REQ:** A measurement of the cumulative impact of mycotoxins in reference to aflatoxin B_1.

Low Moderate High

Figure 9: Analysis of the REQ and performance effects of mycotoxin contamination of forage samples.

A proven program from Alltech® Mycotoxin Management

Alltech believes that effective mycotoxin management is about seeing the whole challenge, from the farm to the feed mill and from risk assessment to feed management. To effectively manage the inevitability of feed mycotoxin contamination, it is crucial to understand the level of mycotoxin challenge so that the right steps can be taken to mitigate any adverse effects on animal performance, production efficiency and food safety.

Learn more about **Alltech® Mycotoxin Management,** our services and solutions, and the latest information on the threat of mycotoxins at **knowmycotoxins.com.**

01	02	03	04	05
Risk **education**	Risk **identification**	Risk **quantification**	Risk **mitigation**	Risk **evaluation**
Harvest analysis programs	Alltech 37+®	Mycotoxin Management Portal	Mycosorb® family of mycotoxin adsorbents	Mycotoxin technical team
Podcasts and media	Alltech RAPIREAD®	Alltech PROTECT™ (REQ)		On-farm support
knowmycotoxins.com		Alltech DIET™ Estimator		Feed mill services

The mycotoxin testing methods used across both the Alltech 37+® and SGS laboratories will differ and utilise separate limits of quantification (LOQ). The mycotoxin occurrence numbers in corn reported on page 6 are based on a higher LOQ than the barley and wheat data on pages 8 and 10.

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