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GUIDANCE LEVELS FOR ZEARALENONE IN SUGAR BEET FEED PRODUCTS: NEED FOR A WORKABLE AND FAIR APPROACH

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Background: Zearalenone and Sugar Beets

- Occurrence of mycotoxins was mainly observed in feed materials from maize and other cereals.
- Sugar beet products were not susceptible to formation of mycotoxins until few years ago.
- Sugar beet campaign 2018/2019: positive zearalenone findings in sugar beet pulp and pellets were reported in Germany.

CEFS launched a comprehensive monitoring on European Level to get a better overview of the spread of zearalenone contamination.



Causes: Zearalenone and Sugar Beet

- Zearalenone formation is primarily caused due to climatic conditions during the growing season.
- 2018/2019 campaign was characterized by extreme heat, water shortage and stress due to drought.
- Climate change is likely to influence the formation of zearalenone in sugar beets and therefore our products could be more strongly affected in the future.
- No possibility to influence zearalenone occurrence in feed.
- The formation of zearalenone can not be visually identified in sugar beets.

Findings of zearalenone in feed material from sugar beet are caused and affected by environmental conditions and are associated with exceptional, regionally different weather conditions.

Applicable Guidance Levels

- The Commission's Recommendation 2006/576/EC sets guidance levels for different mycotoxins in animal feed.
- Discussions around the introduction of guidance levels for sugar beet feed materials:
 - Which levels should apply?
 - Is there a scientific justifications on the proposed levels?
- CEFS believes that there is a need to set separate guidance levels for sugar beet feed materials in the framework of the Commission's recommendation on mycotoxins to ensure more legal certainty.
- Guidance levels for sugar beet animal feed products **must be workable and fair.**

CEFS believes that the guidance level of 0.5 mg/kg which is currently discussed, is not workable, fair, and much too low.

CEFS monitoring results

Campaign 2019/2020 ZEA data

- **587 different samples**
- Products:
 - Pressed Beet Pulp
 - Dried Beet Pulp (molassed / unmolassed)
 - Pellets (molassed/ unmolassed)
- **41 samples were detected over the discussed level of 0.5 ppm:**
 - 19/41 were detected with a value over 1 ppm
 - 11/41 were detected with a value over 1.5 ppm
 - 6/41 were detected with a value over 2 ppm
 - 24 were Pressed Beet Pulp samples while the rest Dried Beet Pulp (molassed) samples

Campaign 2020/2021 ZEA data

- **659 different samples**
- Products:
 - Pressed Beet Pulp
 - Dried Beet Pulp (molassed / unmolassed)
 - Pellets (molassed / unmolassed)
- **36 samples were detected over the proposed level of 0.5 ppm:**
 - 20/36 were detected with a value over 1 ppm
 - 7/36 were detected with a value over 1.5 ppm
 - 2/36 were detected with a value over 2 ppm
 - 50% of samples Pressed Beet Pulp and 50% Pellets

Different methods used: HPLC-MS/MS after IAC, LC-MS/MS, ELISA

Feeding Recommendations

- The guidance level for sugar beet feed materials should be set according to the same principles as those for maize and cereals.
- Feeding recommendations for sugar beet feed materials do not differ significantly from those for maize and cereals.
- The guidance level under discussion for zearalenone in sugar beet products is unjustified.

Considering that feeding recommendations for maize and other cereals have higher proportion on animal feed than sugar beet, a comparable guidance level should be set.

Animal species	Feed material	% in compound feed
Dairy cows	Dried beet pulp	40
	Sugar beet, dried	15
	Maize	50
	Rye, wheat	40
Beef cattle	Dried beet pulp	Without limitation
	Sugar beet, dried	25 –30
	Wheat	Without limitation
	Maize	Without limitation
Fattening pig	Dried beet pulp	5 – 10
	Sugar beet, dried	25 – 30
	Wheat	Without limitation
	Maize	60 - Without limitation

Source: Steinhöfel/Hoffmann, Futtermittelspezifische Restriktionen, 2018

Scientific Justification

The existing guidance levels for products intended for animal feeding are based on EFSA assessments:

- In 2017, EFSA was able to establish “No observed adverse effect levels” for various animal species in its scientific opinion.
- For cattle, EFSA could not establish “No Observed Adverse Effect Levels” or “Lowest Observed Adverse Effect Levels”
- For pigs (piglets), which are the most sensitive species, the risk for chronic adverse health effects was determined by EFSA as very low.

**As sugar beet feed materials are mainly fed to pigs and cattle,
a lower guidance level for them than for maize or cereals is unjustified.**

Maximum levels for complete feed conflict with the principle of guidance levels

- Setting of guidance levels in animal feed could have a high binding effect on users.
- A relatively low guidance level could create restrictions of use in practice.
- In CEFS point of view:
 - Higher levels than the guidance one for zearalenone in animal feed products should not lead to marketing restrictions or bans.
 - The user could be able to take the potential contamination into account in the context of feeding.
- Maximum levels for complete feed could possibly force producers not to accept any exceedance of guidance levels in feed materials used in the production of complete feed.

CEFS believes that in case of maximum levels establishment for complete feed production, allowance should be granted for mixing feed materials with a higher level of mycotoxins than the guidance.

Conclusions:

- A lower guidance level for feed materials from sugar beets than for maize products or other cereal products is not justified.
- Because of similar feeding recommendations for sugar beet feed products and maize a guidance level of 2 mg/kg for feed materials from sugar beet is appropriate.
- A long-term monitoring on European level would be needed to take into account year-to-year variation, regional variation and climate change.
- Maximum levels for complete feed generally conflict with the principle of guidance levels for feed materials. A particular problem is the ban of mixing or diluting animal feed that exceeds the maximum levels.





Thank you!

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