FEED

Qualitätssicherung. **Vom Landwirt bis zur Ladentheke.**

MONITORING-REPORT

Facts & figures on contaminants in feed

Edition 2019

POSTER

QS. Ihr Prüfsystem für Lebensmittel.

www.q-s.de

Understanding the QS feed monitoring

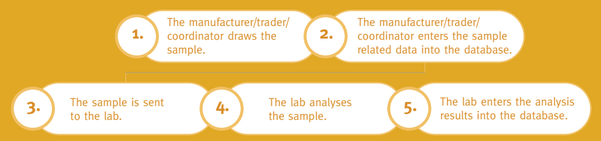
HIGH REQUIREMENTS PROFILE FOR LABORATORIES

Only laboratories with QS recognition may be commissioned with analysis within the scope of QS feed monitoring. For a laboratory to acquire recognition, it must have an accreditation in accordance with the standard EN ISO/IEC 17025 and must also be able to prove that participated in ring trials on the parameters prior to recognition. Furthermore, a laboratory must demonstrate that it masters the test methods prescribed by QS and provide a list with parameters and their detection limits, as well as measurement uncertainty for the area of feed. To retain QS recognition, all laboratories approved by QS are obliged to participate in the laboratory performance assessments organized or specified by QS. In addition they have to provide evidence of participation in ring trials for the parameters recognised by QS.

COMPETENCE FOR SAMPLING

Every company that produces or trades feed must participate in the Feed Monitoring. The feed companies can draw the required samples by themselves (except farmers). The cross-stage approach allows the supply chain to control itself. Every stage draws samples both when raw goods are received and when finished goods are shipped. Sampling in agriculture is organised by the coordinators. Samples in agricultural companies must always be drawn by third parties. Usually the auditors draw the feed samples during independent inspections. A fundamental rule is that only qualified persons are allowed to draw samples.

FROM THE SAMPLING TO THE DATABASE



RISK-ORIENTATED CONTROL PLANS

Within QS feed monitoring, there is a large number of different control plans which are specifically customised to each sector. The control plans are checked regularly and can be adapted, as soon as there is a need to react to current developments and occurrences in the market. The analysis results also flow into the preparation of control plans, of course. If products are conspicuous in a negative way, the inspection frequency is increased. If numerous examinations show a low risk, then the inspection frequency is decreased. ■

Obligation to report incidents to QS

- **Maximum level exceeded:** The batch must be blocked as the product is no longer marketable and may not be fed to animals. The scheme participant must also report the circumstances to the QS head office with the assistance of the paper of incident.
- **Action threshold exceeded:** If an action threshold is exceeded, the company must closely examine its processes to establish the causes and introduce measures, but the product may remain on the market. A report on the circumstances to QS is mandatory.
- **Guidance value exceeded:** If the QS guidance value, which is established for selected substances and certain animals (e.g. Aflatoxin B1 for dairy cattle) is exceeded, a restriction is imposed in the QS scheme: whereby although the product remains marketable, it may not be traded freely in all instances. The circumstances must be reported to the QS head office (paper of incident), which coordinates with the scheme participant on how to proceed further.
- **If there are positive findings** of salmonella, antibiotic active substances and animal components, the company must report the circumstances to QS (paper of incident). A differentiation of serovar, antibiotic active substance and animal species is necessary.
- **If the EU guidance value has been exceeded** for DON, ZEA or OTA, it is not mandatory to report to QS, but internal measures must be taken within the company to determine and document how the goods are handled.

Note: In addition to the obligation to report to QS, there are also obligations to report to the local feed monitoring authority.

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MONITORING-REPORT 2019

QS. Ihr Prüfsystem für Lebensmittel.

Compare the analysis results of your own feed

Almost 4 million individual analyses were evaluated for the Monitoring Report 2019 – nearly 490,000 analyses more compared to the previous year. We have updated facts and figures about contaminants of feed for you. The comparison with the Monitoring Report 2018 shows that particularly in the case of the **mycotoxins** ZEA (+16 %) and DON (+5 %), the number of exceedances increased.

In order to interpret the results correctly, the corresponding measured value ranges of each analysis' result are shown. They support you in relating the results to the limit values of various feed.

Data basis: Analysis results of QS feed monitoring from January 2008 to June 2019

Aflatoxin B1

Parameter	Number of analyses	Number of exceedances (max. level)	Feed/ raw material
Aflatoxin B1	**44,300**	**11 in total**	
	thereof at 4,272 (9.6 %) a value was detected	9	Maize
		1	Maize gluten
		1	Milk performance feed

Analysis results with values above LOD/LOQ

Feed	Result	Result	Result
Feed Material **3,556** analyses	**0-10 µg/kg** **3,389** analyses	**› 10-20 µg/kg** **158** analyses	**› 20 µg/kg** **9** analyses
Compound Feed **718** analyses	**0-5 µg/kg** **706** analyses	**› 5-10 µg/kg** **11** analyses	**› 10 µg/kg** **1** analysis

Deoxynivalenol (DON)

Parameter	Number of analyses	Number of exceedances (EU guidance value)	Feed/ raw material
DON	**54,948**	**78 in total**	
	thereof at 27,355 (49.8 %) a value was detected	23	Self-mixed feed for fattening pigs/sows/piglets
		18	Complete feed for fattening pigs
		14	Complete feed for sows
		8	Supplementary feed for sows/piglets/ fattening pigs
		6	Maize (plants)
		5	Piglet rearing feed
		2	Oats
		1	Wheat
		1	Maize gluten

Analysis results with values above LOD/LOQ

Feed	Result	Result	Result
Feed Material **17,596** analyses	**0-5 mg/kg** **17,394** analyses	**› 5-8 mg/kg** **126** analyses	**› 8 mg/kg** **76** analyses
Compound Feed **9,759** analyses	**0-0.9 mg/kg** **9,505** analyses	**› 0.9 mg/kg** **254** analyses	

Zearalenone (ZEA)

Parameter	Number of analyses	Number of exceedances (EU guidance value)	Feed/ raw material
ZEA	**50,904**	**36 in total**	
	thereof at 18,162 (35.7 %) a value was detected	9	Piglet rearing feed
		8	Maize (plants)
		5	Supplementary feed for for piglets/fattening pigs/sows
		5	Complete feed for sows/fattening pigs
		4	Self-mixed piglet/pig fattening feed
		2	Self-mixed cattle-fattening feed
		1	Triticale
		1	Distillery spent wash
		1	Supplementary feed for all species

Analysis results with values above LOD/LOQ

Feed	Result	Result	Result
Feed Material **9,966** analyses	**0-1 mg/kg** **9,781** analyses	**› 1-2 mg/kg** **110** analyses	**› 2 mg/kg** **75** analyses
Compound Feed **8,196** analyses	**0-0.1 mg/kg** **7,822** analyses	**› 0.1 mg/kg** **374** analyses	

Dioxins, dioxin-like PCBs (dl PCB) and non-dioxin-like PCBs (ndl PCB)

Parameter	Number of analyses	Number of exceedances (max. level)	Number of exceedances (action threshold)	Feed/ raw material
Dioxins + dl PCB	**85,409**	**12 in total**	**10 in total**	
Dioxins	**33,031** thereof at 30,312 (91.8 %) a value was detected	2	1	Fatty acids from chemical refining
		2	1	Fruit pulp
		2	0	Fish oil
		1	1	(Sugar) beet molassed pulp, (sugar) beet tops and tails
		1	0	Supplementary feed for all species
		0	1	Salts from fatty acids
		0	1	By-products of the milk-processing industry
		0	1	Mineral rich supplementary feed for cattle
		0	1	Calcareous marine algae
		0	1	Calcium carbonat
dl PCB	**32,230** thereof at 27,254 (84.6 %) a value was detected	–	1	(Sugar) beet molassed pulp
		–	1	Walnut expeller
Total dioxins and dl PCB	**20,148** thereof at 16,700 (82.9 %) a value was detected	1	–	Fatty acids from chemical refining
		1	–	Shrimps
		1	–	Fish oil
		1	–	Fruit pulp
ndl PCB	**28,591** thereof at 18,178 (63.6 %) a value was detected	**1 in total**		
		1	–	Blends of fatty acids

Analysis results with values above LOD/LOQ

Parameter	Result	Result	Result
Dioxins **30,312** analyses	**0-0.25 ng/kg** **28,396** analyses	**› 0.25-0.5 ng/kg** **1,535** analyses	**› 0.5 ng/kg** **381** analyses
dl PCB **27,254** analyses	**0-0.2 ng/kg** **26,097** analyses	**› 0.2-0.35 ng/kg** **563** analyses	**› 0.35 ng/kg** **594** analyses
Total Dioxins + dl PCB **16,700** analyses	**0-0.5 ng/kg** **15,913** analyses	**› 0.5-1.0 ng/kg** **413** analyses	**› 1.0 ng/kg** **374** analyses
ndl PCB **18,178** analyses	**0-5 µg/kg** **17,240** analyses	**› 5-10 µg/kg** **551** analyses	**› 10 µg/kg** **387** analyses

Salmonella

Parameter	Number of analyses	Number of positive findings	Feed/ raw material
Salmonella	**91,574**	**114 in total**	
	thereof 114 (0.1 %) were tested positive	24	Soya (bean) cake, hulls, extraction meal
		22	Various feed materials (i.a. fish meal, barley, wheat)
		17	Rapeseed seed, cake, meal
		15	Pig feed
		12	Dairy cattle feed, cattle feed
		11	Poultry feed
		8	Sunflower seed, cake, extraction meal
		5	Cocoa husks

Heavy metals

Parameter	Number of analyses	Number of exceedances (max. level)	Feed/ raw material
Heavy metals	**216,141**	**22 in total**	
Arsenic	**53,271** thereof at 17,238 (32.4 %) a value was detected	1	Supplementary feed for pigs
		1	Supplementary feed for fattening pigs
		1	Shrimps
		1	Yeast
Lead	**54,836** thereof at 24,229 (44.2 %) a value was detected	2	Calcium carbonate
		1	Complete feed for fattening pigs (up to 50 kg)
		1	Yeast
		1	Compunds of trace elements
Cadmium	**54,666** thereof at 35,126 (64.3 %) a value was detected	3	Permanent pasture products (fresh, silaged or dried)
		1	Cocoa husks
		1	Shrimps
		1	Supplementary feed for pigs
		1	Supplementary feed for all species
		1	Supplementary feed for dairy cattle
Mercury	**53,368** thereof at 4,454 (8.3 %) a value was detected	3	Yeast
		1	Supplementary feed for pigs
		1	Emulsifiers

Analysis results with values above LOD/LOQ

Parameter	Result	Result
Arsenic **17,238** analyses	**0-1 mg/kg** **13,662** analyses	**› 1 mg/kg** **3,576** analyses
Lead **24,229** analyses	**0-5 mg/kg** **23,318** analyses	**› 5 mg/kg** **911** analyses
Cadmium **35,126** analyses	**0-1 mg/kg** **34,512** analyses	**› 1 mg/kg** **614** analyses
Mercury **4,454** analyses	**0-0.05 mg/kg** **4,063** analyses	**› 0.05 mg/kg** **391** analyses