



BEMEFA APFACA 

**SAMPLING PLAN BEMEFA
RESULTS 2013**



13/06/2014

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BA 2

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- Samples analyzed

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Introduction

- Global sampling plan
- Planning
- Samples analyzed



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BA Sampling plan 2013 - GLOBAL 4

Sampling plan 2013 - GLOBAL

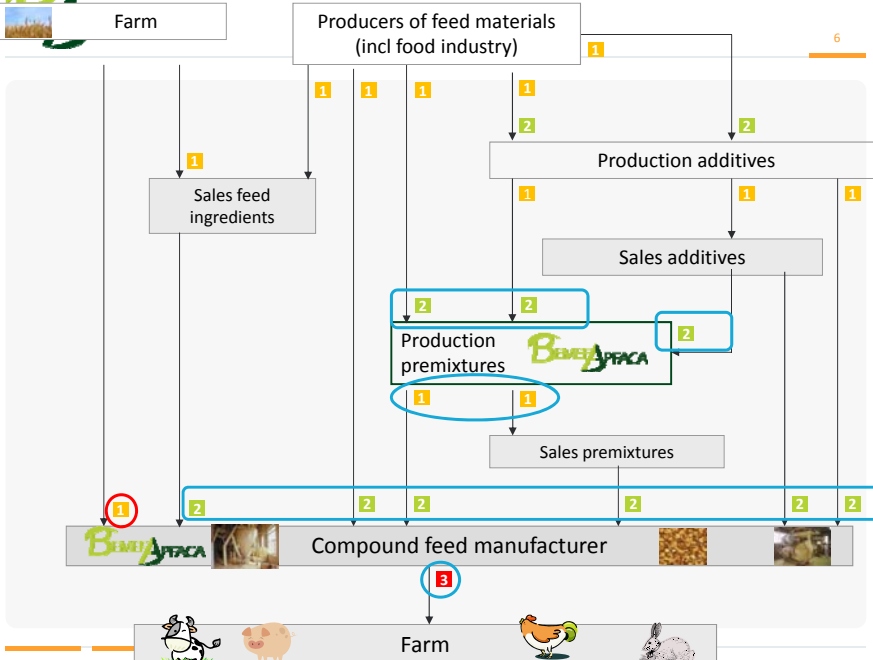
- **262** participants (production units)
cf. 2012: 266 participants
- **2085** analyses planned (at the start)
- **2043** analyses realized → **98%**
cf. 2012: 99%

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Sampling plan 2013 – OVERVIEW DIFFERENT LEVELS

- **LEVEL 1:** premixtures production 1
- **LEVEL 2:** purchase of source - certified 2
 - Additives (A)
 - Feed materials (FM)
 - Premixtures
 - Mineral feed (purchase)
- **LEVEL 3:** production compound feed 3
 - Compound feed production (CF)
 - Mineral feed production





Sampling overview 2013 – PLANNING

Analyse	NV 1		NV 2				NV 3 (bis)				TOTAL
	Premix	Additives	Feed materials	Premix	Mineral Feed (purchase)	TOTAL	Compound feed	Mineral feed (prod)	Compound feed (coccidio)	TOTAL	
4 heavy metals Hg, Pb)	59	22	59	21	1	103		143		143	305
5 heavy metals (As, Cd, Hg, Pb, F)			32			32					32
Aflatoxin B1			84			84					84
Ambrosia			22			22					22
Antibiotics			31			31					31
Hydrocyanic acid			52			52					52
Botanical impurities			22			22					22
Dioxins and dioxin- like PCBs (other matrices) - day + 3		66	72	21	1	160					160
Dioxins and dioxin- like PCBs (fats & oils) - day + 2			32			32					32
Melamine		11	35			46					46
Ergot			20			20					20
Mycotoxins			352			352	149			149	501
Insoluble impurities			12			12					12
PAHs			67			67					67
PCB 24h - other matrices		22	37	21	1	81					81
PCB – animal fats			32			32					32
Pesticides		22	261			283					283
Coccidiostatics residues								149		149	149
Salmonella			115			115	149			149	264
Fungi			39			39					39
TOTAL	59	143	1376	63	3	1585	298	143	149	590	2234

= 2085 analyses except level 3bis




Sampling overview 2013 – ANALYSES PERFORMED

	# analyses SCHEDULED				# analyses PERFORMED			
	LEV 1	LEV 2	LEV 3	TOTAL	LEV 1	LEV 2	LEV 3	TOTAL
4 heavy metals	59	103	143	305	59	102	143	304
5 heavy metals		32		32		31		31
aflatoxin B1		84		84		85		85
ambrosia		22		22		22		22
antibiotics		31		31		31		31
Hydrocyanic acid		52		52		51		51
Botanical impurities		22		22		22		22
Dioxins and dioxin- like PCBs		192		192		187		187
melamine		46		46		43		43
ergot		20		20		20		20
mycotoxins		352	149	501		335	148	483
insoluble impurities		12		12		8		8
PAHs		67		67		63		63
PCBs (non - dioxin like)		113		113		113		113
pesticides		283		283		278		278
salmonella		115	149	264		115	148	263
fungi		39		39		39		39
	59	1585	441	2085	59	1545	439	2043
								98,0%

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Results

- Level 1
- Level 2
- Level 3




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Results

- Level 1
- Level 2
- Level 3



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LEVEL 1 **OVERVIEW**

- Heavy metals

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LEVEL 1 **Heavy metals**


Analyses scheduled: 59 → analyses performed: **59**

- **ARSENIC**
 - ⚖ No standard for premixtures;
Standard complete feed: 2 ppm


No exceedance


Concentration Range (ppm)	Premixture (<4%) - production	Premixture (>4%) - production
< 2 ppm	30	11
2 - 5 ppm	10	1
5 - 10 ppm	3	2
> 10 ppm	2	10

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NIVEAU 1 **Heavy metals**


- **CADMIUM**
 -  *Standard premixtures: 15 ppm*
 - ✓ All results < 1 ppm
 - ✓ Premixture (< 4%) - production: max level: 0,81 ppm
 - ✓ Premixture (> 4%) - production: max level: 0,53 ppm


 *No exceedance*

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 Sampling plan 2013 – LEVEL 1 14

LEVEL 1 **Heavy metals**

- **MERCURY**
 -  *No standard for premixtures*
 - Standard complete feed : 0,1 ppm*
 - ✓ All results < 0,1 ppm
 - ✓ Premixture (< 4%) - production: max level: 0,06 ppm
 - ✓ Premixture (> 4%) - production: all results: < 0,05 ppm


 *No exceedance*

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 Sampling plan 2013 – LEVEL 1 15

LEVEL 1 Heavy metals

- **PLUMBUM**
 - ⚖ Standard premixtures: 200 ppm
 - ✓ premixture (< 4%) - production: all results < 35 ppm; max 33,6 ppm
 - ✓ premixture (> 4%) - production: all results < 20 ppm; max 19,9 ppm


 *No exceedance*

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Results

- Level 1
- Level 2
- Level 3



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 Sampling plan 2013– LEVEL 2 17

LEVEL 2
OVERVIEW

- **Additives - purchase**
 - Heavy metals
 - Dioxins & dioxin-like PCBs
 - PCBs
 - Melamine
 - Pesticides
- **Feed materials – purchase**
 - all parameters

- **Premixtures – purchase**
 - Heavy metals
 - Dioxins & dioxin-like PCBs
 - PCBs
- **Mineral feed – purchase**
 - Heavy metals
 - Dioxins & dioxin-like PCBs
 - PCBs

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LEVEL 2
OVERVIEW

- **Additives - purchase**
 - Heavy metals
 - Dioxins & dioxin-like PCBs
 - PCBs
 - Melamine
 - Pesticides
- **Feed materials – purchase**
 - all parameters

- **Premixtures – purchase**
 - Heavy metals
 - Dioxins & dioxin-like PCBs
 - PCBs
- **Mineral feed – purchase**
 - Heavy metals
 - Dioxins & dioxin-like PCBs
 - PCBs

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LEVEL 2 **Heavy metals**


FEED MATERIALS - purchase

4 heavy metals: Analyses scheduled: 49 → analyses performed : **57**
+ 10 extra monitoring rice

5 heavy metals : Analyses scheduled : 32 → analyses performed : **31**


As, Cd, Hg, Pb: 57 + 31 = 88 results
F: 31 results

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LEVEL 2 **Heavy metals**

• **ARSENIC**

 *Standard feed materials: 2 ppm –exceptions!*

Fish meal: 25 ppm
Phosphates : 10 ppm
Calcium carbonate : 15 ppm
Magnesium oxide : 20 ppm

 *No exceedance*

✓ 88 results → 77 ≤ 2,0 ppm
11 > 2,0 ppm:


- 2x **fish meal** (Scandinavisch); max 3,7 ppm
- 4x **phosphates**: max 4,5 ppm
- 5x **calcium carbonate / chalk**; max 6,6 ppm
- **Magnesium oxide**: all < 0,9 ppm

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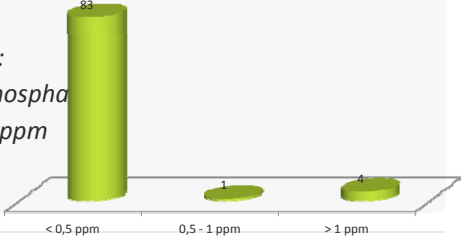
LEVEL 2
Heavy metals

- **CADMIUM**
 - ⚖ *standard feed materials :*
 - Vegetal origin: 1 ppm
 - Animal origin: 2 ppm
 - Mineral origin: 2 ppm – except phosphates: 10 ppm



No exceedance

- ✓ 88 results → 84 ≤ 1 ppm
4 > 1 ppm:
 - 4x Monocalcium phospho
2,08 → 2,86 ppm



Concentration Range	Number of Results
< 0,5 ppm	84
0,5 - 1 ppm	1
> 1 ppm	4


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LEVEL 2
Heavy metals

- **MERCURY**
 - ⚖ *standard feed materials : 0,1 ppm – exceptions!*
 - Fish and other water animals + products derived thereof : 0,5 ppm
 - Calcium carbonate : 0,3 ppm

- ✓ 88 results → alle results ≤ 0,1 ppm
max level = 0,07 ppm (fishmeal Scandinavian origin)



No exceedance

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LEVEL 2 Heavy metals

- **PLUMBUM**
 - ⚖️ *standard feed materials : 10 ppm – exceptions!*
 - green fodder : 30 ppm
 - phosphates: 15 ppm
 - Calcium(magnesium) carbonate : 20 ppm
 - Yeast: 5 ppm

 *No exceedance*


- ✓ 88 results → all results ≤ 10 ppm
max level = 5,9 ppm (calcium carbonate)

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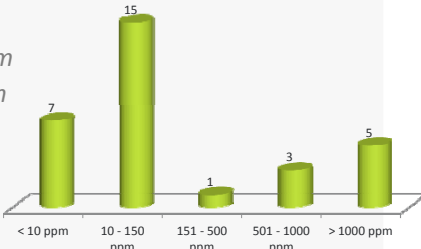
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LEVEL 2 Heavy metals

- **FLUOR**
 - ⚖️ *standard feed materials : 150 ppm*
 - Exceptions: e.g.
 - Animal origin: 500 ppm
 - Phosphates: 2000 ppm
 - Calciumcarbonaat : 350 ppm
 - Magnesium oxide : 600 ppm


 *No exceedance*

- ✓ 31 results → 22 ≤ 150 ppm
9 > 150 ppm:
 - 9x phosphates:
max 1160 ppm



Concentration Range (ppm)	Number of Results
< 10 ppm	7
10 - 150 ppm	15
151 - 500 ppm	1
501 - 1000 ppm	3
> 1000 ppm	5

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LEVEL 2 **Heavy metals**

PREMIXTURES + MINERAL FEED - purchase


4 heavy metals: Analyses scheduled: 22 → analyses performed: **21**


- ✓ Premixtures non-BE producer: 3
- ✓ Premixtures BE producer : 17
- ✓ Mineral feed: 1

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LEVEL 2 **Heavy metals**

- **ARSENIC**
 -  *No standard premixtures; standard complete feedingstuffs : 2 ppm*
 - Mineral feed: 12 ppm*
 - ✓ 20 resultats premixtures → 17 ≤ 5 ppm
3 5-10 ppm
 - ✓ 1 result mineral feed < 2 ppm (1,8 ppm)
- **CADMIUM**
 - Standard premixtures: 15 ppm*
 - Standard mineral feed: 5 ppm (except in case ≥ 7% fosfor)*
 - ✓ 20 results premixtures → 4 ≤ 0,1 ppm
16 0,1-1 ppm
 - ✓ 1 result mineral feed < 0,5 ppm (0,19 ppm)

 *No exceedance*


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LEVEL 2

Heavy metals


- **MERCURY**

 No standard premixtures; standard complete feedingstuffs: 0,1 ppm
Mineral feed: 0,2 ppm

 - ✓ 20 results premixtures < 0,05 ppm
 - ✓ 1 result mineral feed < 0,05 ppm

- **PLUMBUM**

Standard premixtures: 200 ppm
Standard mineral feed: 15 ppm

 *No exceedance*

 - ✓ 20 results premixtures → 15 ≤ 5 ppm
 - 3 5-10 ppm
 - 2 > 10 ppm
 - ✓ 1 result mineral feed < 2 ppm (1,2 ppm)

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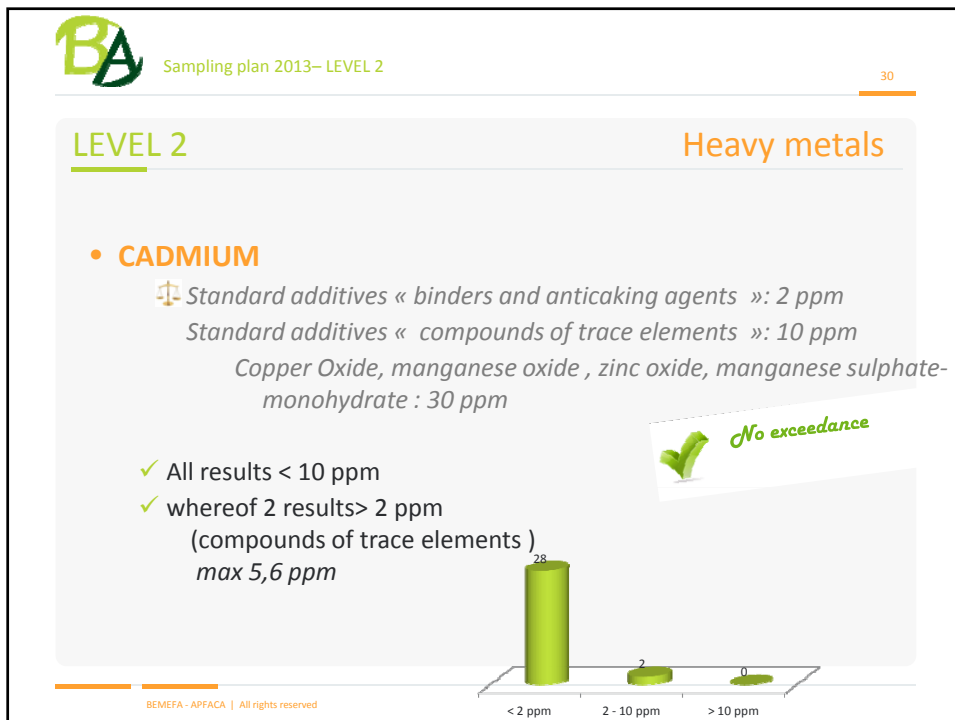
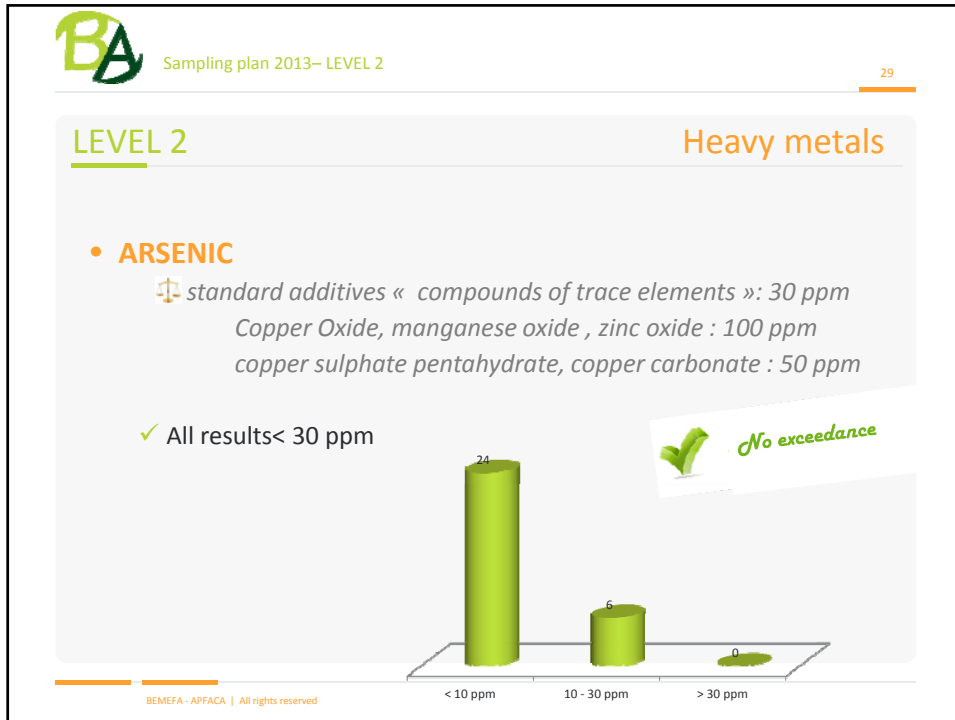
LEVEL 2

Heavy metals

ADDITIVES - purchase

4 heavy metals: Analyses scheduled: 22 → analyses performed : **30**
 binders and trace elements
Incl. 6 extra monitoring zinc oxide zinc sulfate

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LEVEL 2 Heavy metals

- **PLUMBUM**
 -  *No standard additives*
 - Standard feed materials and compound feed: 0,1 ppm*


- ✓ 29 results < 0,1 ppm
- ✓ 1 result > 0,1 ppm (bentonite 0,26 ppm)

 *No exceedance*


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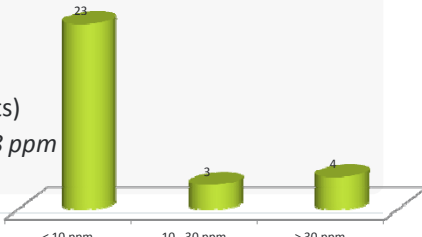
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LEVEL 2 Heavy metals

- **PLUMBUM**
 -  *standard additives « binders and anticaking agents »: 30 ppm*
 - clinoptilotite (volcanic origin) : 60 ppm*
 - standard additives « compounds of trace elements»: 100 ppm*
 - zinc oxide: 400 ppm*
 - manganese oxide, iron carbonate, copper carbonate: 200 ppm*


- ✓ 26 results < 30 ppm
- ✓ 4 results > 30 ppm (compounds of trace elements)
 - 1x manganese sulphate : 30,8 ppm
 - 3x zinc oxide: max 202 ppm

 *No exceedance*



Category	Count
< 10 ppm	23
10 - 30 ppm	3
> 30 ppm	4

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LEVEL 2
OVERVIEW

- **Additives - purchase**
 - Heavy metals
 - **Dioxins & dioxin-like PCBs**
 - PCBs
 - Melamine
 - Pesticides
- **Feed materials – purchase**
 - **all parameters**

- **Premixtures – purchase**
 - Heavy metals
 - **Dioxins & dioxin-like PCBs**
 - PCBs
- **Mineral feed – purchase**
 - Heavy metals
 - **Dioxins & dioxin-like PCBs**
 - PCBs

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LEVEL 2
Dioxines & dioxin-like PCBs

Dioxins & dioxin-like PCBs: Analyses scheduled: 192 → analyses performed: **190**
Incl. 3 extra monitoring vitamine E

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LEVEL 2 Dioxins & dioxin-like PCBs

FEED MATERIALS - purchase

- **DIOXINS**
 - ✓ 94 results < 0,5 ng/kg
 - ✓ 5 results > 0,5 ng/kg:
 - 5x fish oil (1,03 → 1,48 ng/kg)

No exceedance

* (ng WHO-PCCD/F-TEQ/kg)	Action threshold *	Standard *
Vegetable feed material	0,5	0,75
Vegetable oil and by-products	0,5	0,75
Mineral feed materials	0,5	0,75
Animal fat	0,75	1,5
Other animal products (land animals)	0,5	0,75
Fish oil	4	5
Fish and other by-products	0,75	1,25
Fishproteins, hydrolysed (>20% fat)	1,25	1,75

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LEVEL 2 Dioxins & dioxin-like PCBs

- **DIOXIN-LIKE PCB's**
 - ✓ 92 results < 0,35 ng/kg
 - ✓ 7 results > 0,35 ng/kg:
 - 1x blended fats (animal origin) : 0,36 ng/kg
 - 1x ox fat: 0,38 ng/kg
 - 5x fish oil: 2,32 → 3,56 ng/kg

No exceedance

* (ng WHO-PCCD/F-TEQ/kg)	Action threshold *	Standard *
Vegetable feed material	0,35	
Vegetable oil and by-products	0,5	
Mineral feed materials	0,35	
Animal fat	0,75	
Other animal products (land animals)	0,35	
Fish oil	11	
Fish and other by-products	2	
Fishproteins, hydrolysed (>20% fat)	5	

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LEVEL 2 Dioxins & dioxin-like PCBs

SUM DIOXINS & DIOXIN-LIKE PCBs

- ✓ 94 results < 1 ng/kg
- ✓ 5 results > 1 ng/kg:
 - 5x fish oil: 3,57 → 5,02 ng/kg

* (ng WHO-PCCD/F-TEQ/kg)	Action threshold *	Standard *
Vegetable feed material		1,25
Vegetable oil and by-products		1,5
Mineral feed materials		1
Animal fat		2
Other animal products (land animals)		1,25
Fish oil		20
Fish and other by-products		4
Fishproteins, hydrolysed (>20% fat)		9



No exceedance

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LEVEL 2 Dioxins & dioxin-like PCBs

PREMIXTURES & MINERAL FEED - purchase

DIOXINS


- ✓ All 22 results < 0,5 ng/kg
- ✓ max level 0,187 ng/kg:
 - premixture < 4% - purchase BE producer

* (ng WHO-PCCD/F-TEQ/kg)	Action threshold *	Standard *
Premixtures	0,5	1
Mineral feed -> compound feed		0,75



No exceedance


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 Sampling plan 2013– LEVEL 2 39


LEVEL 2 **Dioxins & dioxin-like PCBs**

- **DIOXIN-LIKE PCBs**
 - ✓ All 22 results < 0,35 ng/kg
 - ✓ max level 0,203 ng/kg:
premixture < 4% -
purchase BE producer

	Action threshold	Standard
* (ng WHO-PCCD/F-TEQ/kg)	*	*
Premixtures	0,35	
Mineral feed -> compound feed	0,5	

 *No exceedance*


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 Sampling plan 2013– LEVEL 2 40

LEVEL 2 **Dioxins & dioxin-like PCBs**

- **SUM DIOXINS & DIOXIN-LIKE PCBs**
 - ✓ All 22 results < 1,5 ng/kg
 - ✓ max level 0,31 ng/kg:
premixture < 4% -
purchase BE producer

	Action threshold	Standard
* (ng WHO-PCCD/F-TEQ/kg)	*	*
Premixtures		1,5
Mineral feed -> compound feed		1,5

 *No exceedance*

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LEVEL 2 Dioxins & dioxin-like PCBs

ADDITIVES - purchase

- **DIOXINS**
 - ✓ 68 resultats < 0,5 ng/kg
 - ✓ 1 result > 0,5 ng/kg:
 - 0,667 - MF 0,131 = 0,536 ng/kg > 0,5 ng/kg:
 - **exceedance threshold dioxins**
 - sepiolite** : binder (==> standard 0,75 ng/kg → conformity standard)
 - Dioxin-like PCBs: conformity action treshold;
 - sum: conformity standard

* (ng WHO-PCCD/F-TEQ/kg)	Action threshold *	Standard *
"Binders" and "Anticaking agents"	0,5	0,75
"Compounds of trace elements"	0,5	1

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LEVEL 2 Dioxins & dioxin-like PCBs

- **DIOXIN-LIKE PCBs**
 - ✓ All 69 results < 0,35 ng/kg
 - ✓ max level 0,158 ng/kg :
tocopherol extracts nat. origin (E306)

* (ng WHO-PCCD/F-TEQ/kg)	Action threshold *	Standard *
"Binders" and "Anticaking agents"	0,5	
"Compounds of trace elements"	0,35	


No exceedance

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 Sampling plan 2013– LEVEL 2 43


LEVEL 2 **Dioxins & dioxin-like PCBs**

- **SUM DIOXINS & DIOXIN- LIKE PCBs**
 - ✓ All 69 results < 1,5 ng/kg
 - ✓ Max. level 0,757 ng/kg :
sepiolite (cf. supra– exceedance action treshold dioxins)

 *No exceedance*

* (ng WHO-PCCD/F-TEQ/kg)	Action treshold *	Standard *
“Binders” and “Anticaking agents”		1,5
“Compounds of trace elements”		1,5


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 Sampling plan 2013– LEVEL 2 44

LEVEL 2 **OVERVIEW**

- **Additives - purchase**
 - Heavy metals
 - Dioxins & dioxin-like PCBs
 - **PCBs**
 - Melamine
 - Pesticides
- **Feed materials – purchase**
 - **all parameters**
- **Premixtures – purchase**
 - Heavy metals
 - Dioxins & dioxin-like PCBs
 - **PCBs**
- **Mineral feed – purchase**
 - Heavy metals
 - Dioxins & dioxin-like PCBs
 - **PCBs**

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LEVEL 2 **PCBs**

PCBs: Analyses scheduled: 113 → analyses performed: 113

Feed materials: 67
Premixtures & mineral feed: 22
Additives: 24


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 Sampling plan 2013– LEVEL 2 46

LEVEL 2 **PCBs**

FEED MATERIALS - purchase

- **Sum non-dioxin-like PCBs**
 - ✓ 58 results < 10 ng/g
 - whereof 54 < LOD
 - ✓ 9 results > 10 ng/g:
 - 9x fish oil (21,6 → 44,4 ng/g)



No exceedance

	standard (ppb = ng/g)
Vegetable feed material	10
Vegetable oil and by-products	10
Mineral feed materials	10
Animal fat	10
Other animal products (land animals)	175
Fish oil	30
Fish and other by-products	50

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LEVEL 2 PCBs

PREMIXTURES & MINERAL FEED - purchase

- **Sum non-dioxin-like PCBs**

- ✓ 22 results < 10 ng/g
 - whereof 20 < LOD
 - Max level 5 ng/g (premixture (< 4 %) – purchase from Belgian producer)

	Standard (ppb = ng/g)
Premixtures	10
Mineral feed -> compound feed	10

No exceedance

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LEVEL 2 PCBs

ADDITIVES- purchase


- **Sum non-dioxin-like PCBs**

- ✓ 23 results < 10 ng/g (< LOD)
- ✓ 1 result < 36 ng/g:
 - " emulsifier " (no standard)

	Standard (ppb = ng/g)
"Binders" and "Anticaking agents"	10
"Compounds of trace elements"	10

No exceedance


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 Sampling plan 2013– LEVEL 2 49

LEVEL 2 **OVERVIEW**

- **Additives - purchase**
 - Heavy metals
 - Dioxins & dioxin-like PCBs
 - PCBs
 - **Melamine**
 - Pesticides
- **Feed materials – purchase**
 - **all parameters**
- **Premixtures – purchase**
 - Heavy metals
 - Dioxins & dioxin-like PCBs
 - PCBs
- **Mineral feed – purchase**
 - Heavy metals
 - Dioxins & dioxin-like PCBs
 - PCBs

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LEVEL 2 **Melamine**


PCBs: Analyses scheduled : 46 → Analyses performed : 43

FEED MATERIALS - purchase


ADDITIVES - purchase

 *Standard animal feed (except additives): 2,5 ppm*

✓ All 43 results < 1 ppm

 *No exceedance*


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 Sampling plan 2013– LEVEL 2 51

LEVEL 2
OVERVIEW

- **Additives - purchase**
 - Heavy metals
 - Dioxins & dioxin-like PCBs
 - PCBs
 - Melamine
 - Pesticides
- **Feed materials – purchase**
 - all parameters
- **Premixtures – purchase**
 - Heavy metals
 - Dioxins & dioxin-like PCBs
 - PCBs
- **Mineral feed – purchase**
 - Heavy metals
 - Dioxins & dioxin-like PCBs
 - PCBs

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LEVEL 2
Pesticides

Pesticides: Analyses scheduled: 283 → analyses performed: 278
Incl. extra monitoring pirimiphosmethyl in soybeans / soya hulls

Feed materials: 256
Additives: 22

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LEVEL 2

FEED MATERIALS - purchase


- **Pesticides**
 - ⚖ *extensive uncertainty of measurement 50 %*
 - ➔ *MRL exceeded of the level detected /2 > MRL*


✓ 256 samples:

- In **142** samples: **no pesticide residue** found
- In **114** samples: **at least 1 pesticide residue** found
 - ❖ Number of residues found in 1 sample : **1 → > 8**
 - ❖ In the 114 samples: **65 different pesticide residues** have been found

Pesticides

Bereikbaar via deze [link](#)

 **EU Pesticides database**



Geen overschrijding

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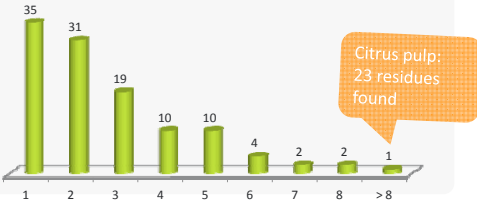
LEVEL 2

✓ 256 samples:

- In **114** samples: **at least 1 pesticide residue** found
 - ❖ Number of residues detected in 1 sample: **1 → > 8**

Pesticides

Number of samples containing X residues



Number of residues (X)	Number of samples
1	35
2	31
3	19
4	10
5	10
6	4
7	2
8	2
>8	1


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LEVEL 2 Pesticides

FEED MATERIALS - purchase

- **Pesticides**
 - ⚖ Extensive uncertainty of measurement 50 %
 → MRL exceeded if the level detected/2 > MRL
- ✓ 22 samples:
 - In **14** samples: **no pesticide residue** found
 - In **8** samples: **at least 1 pesticide residue** found
 - ❖ Number of residues found in 1 sample : **1 → 5**
 - ❖ In the 8 samples : **11 different pesticide residues** have been found

 *No exceedance*

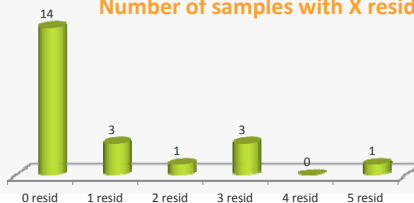
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LEVEL 2 Pesticides

- ✓ 22 samples:
 - In **14** samples: **no pesticide residue** found
 - In **8** samples: **at least 1 pesticide residue** found
 - ❖ Number of residues found in 1 sample: **1 → 5**
 - ❖ In the 8 samples : **11 different pesticide residues** have been found
 - ❖ All 8 ‘other sensory additives’

Number of samples with X residues




Number of residues (X)	Number of samples
0 resid	14
1 resid	3
2 resid	1
3 resid	3
4 resid	0
5 resid	1

Overview residues found

pyraclostrobin (3x)
pyraclostrobin (3x)
pyraclostrobin (3x)
chlorpyrifos-ethyl (2x)
piperonyl-butoxyde (2x)
bifenthrin (1x)
cypermethrin (1x)
malathion (1x)
methidathion (1x)
pirimifos-methyl (1x)
propargite (1x)


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 Sampling plan 2013– LEVEL 2 59

LEVEL 2
OVERVIEW

- **Additives - purchase**
 - Heavy metals
 - Dioxins & dioxin-like PCBs
 - PCBs
 - Melamine
 - Pesticides
- **Fede materials – purchase**
 - all parameters
- **Premixtures – purchase**
 - Heavy metals
 - Dioxins & dioxin-like PCBs
 - PCBs
- **Mineral feed – purchase**
 - Heavy metals
 - Dioxins & dioxin-like PCBs
 - PCBs

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 Sampling plan 2013– LEVEL 2 60

LEVEL 2
PAHs


FEED MATERIALS - purchase

PAHs: Analyses scheduled : 67 → analyses performed : 63

GMP BT-01:


Product	Action treshold (BaPEq µg/kg)	Rejection limit (BaPEq µg/kg)
Fats	15	50
Feed materials or side streams- to be transformed (humidity > 16%)	15	50
Feed materials or side streams- to be transformed (dry process)	15	50
Other feed materials or side streams- to be transformed	50	

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LEVEL 2 PAHs

- **PAHs**
 - ✓ 63 results → $61 \leq 15 \mu\text{g}/\text{kg}$
 - 2 > $15 \mu\text{g}/\text{kg}$:
 - 1x **citrus pulp**: $18 - 7,2 \text{ (MF)} = 10,8 \mu\text{g}/\text{kg}$
 - 1x **lucerne**: $20 - 8 \text{ (MF)} = 12 \mu\text{g}/\text{kg}$

 *No exceedance*

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 Sampling plan 2013– LEVEL 2 62

LEVEL 2 Mycotoxins

FEED MATERIALS - purchase

Mycotoxins: Analyses scheduled: 352 → analyses performed: **344**
Incl. extra monitoring mycotoxins maize South-East Europe

Aflatoxin B1: Analyses scheduled: : 84 → analyses performed : **85**

*REMARK: Mycotoxin-analysis includes also aflatoxin analysis B1
 → 344 + 85 = 429 results aflatoxin available*

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LEVEL 2 **Mycotoxins**

- AFLATOXIN B1**
 - Standard feed materials: 20 ppb
 - ✓ 429 results → 425 ≤ 20 ppb
 - 4 > 20 ppb: **exceedance**

2x **Copra expeller** :
 26,3 ppb (20,1 ppb after deduction measurement error)
 36,5 ppb (28,2 ppb after deduction measurement error)
 1x **Copra meal** : 28 ppb (21,6 after deduction measurement error)
 1x **Palm kernel expeller** : 48,2 ppb (37,7 ppb after deduction measurement error)

Concentration Range (ppb)	Number of Results
< 1 ppb	403
1 - 5 ppb	17
5 - 20 ppb	5
> 20 ppb	4

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LEVEL 2 **Mycotoxins**

- DON (deoxynivalenol)**
 - Recommendation 2006/576 → guidance value:
 cereals and cereal products : 8.000 ppb
 maize by-products : 12.000 ppb
 - ✓ 344 results → all < 8.000 ppb

Oat hulls Germany (5.556 ppb)

✓ No exceedance

Concentration Range (ppb)	Number of Results
< 187,5 ppb	168
187,5 - 1000 ppb	133
1000 - 5000 ppb	42
> 5000 ppb	1

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LEVEL 2 **Mycotoxins**

- **OTA (ochratoxine A)**
 - ⚖ Recommendation 2006/576 → guidance value:
cereals and cereal products : 250 ppb
 - ✓ 344 results → all < 250 ppb

No exceedance

Concentration Range	Number of Samples
< 1,5 ppb	307
1,5 - 20 ppb	36
> 50 ppb	1 (Maisglutenfeed Belgium, 52 ppb)

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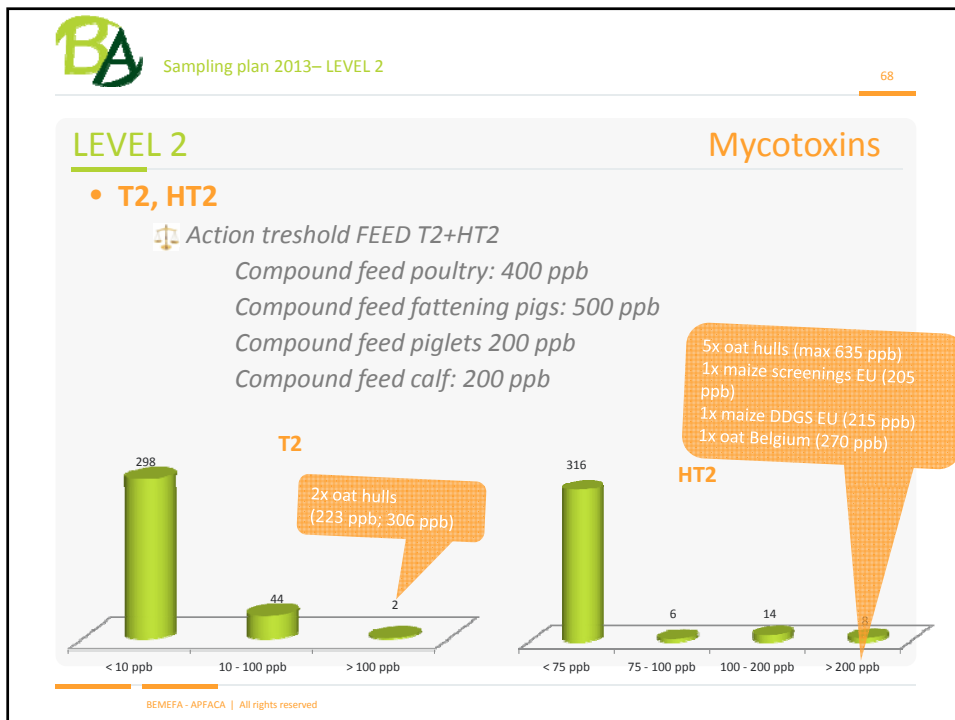
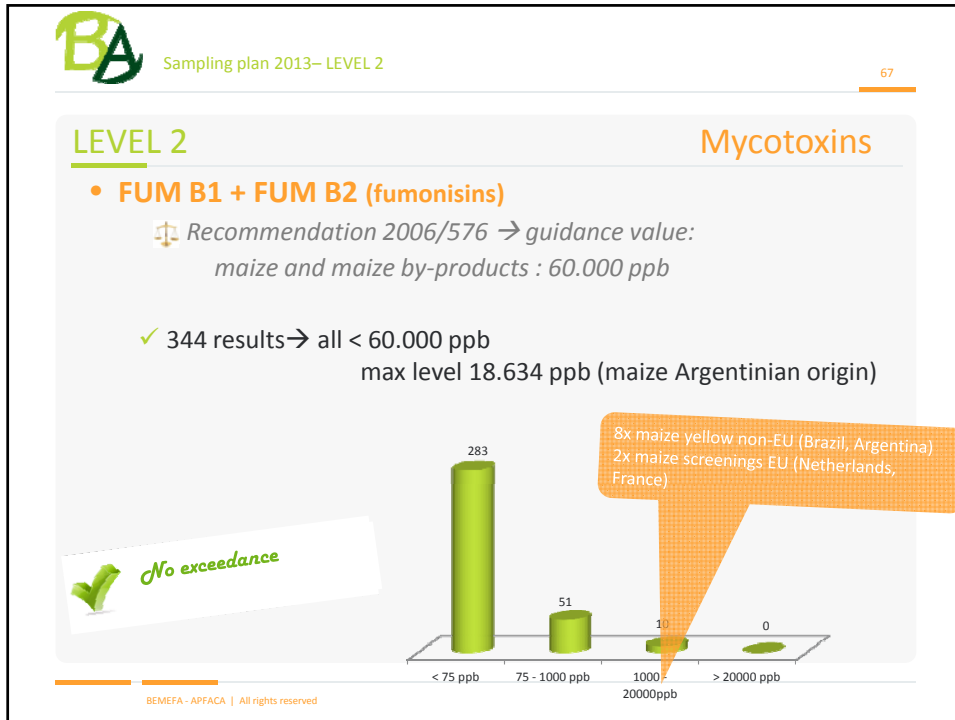
LEVEL 2 **Mycotoxins**

- **ZEA (zearalenon)**
 - ⚖ Recommendation 2006/576 → guidance value:
cereals and cereal products : 2.000 ppb
maize by-products : 3.000 ppb
 - ✓ 344 results → all < 2.000 ppb

No exceedance

Concentration Range	Number of Samples
< 75 ppb	291
75 - 500 ppb	49
500 - 2000 ppb	4
> 2000 ppb	0

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LEVEL 2 Ergot

FEED MATERIALS - purchase

Ergot: Analyses scheduled : 20 → Analyses performed : **20**
Rye + triticale

Standard: feed materials and compound feed containing unground grains : 0,10% (m/m)

✓ 20 results → all < 0,1%

No exceedance

Category	Number of Samples
< 0,01%	12
0,01 - 0,1%	8
> 0,10%	0

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LEVEL 2 Ambrosia

FEED MATERIALS - purchase


Ambrosia: Analyses scheduled : 22 → Analyses performed : **22**

Standard:
feed materials 0,005% (m/m) --> 50 mg/kg
millet and sorghum, indirect feeding: 0,020%

✓ 22 results → all < 0,005%

No exceedance


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LEVEL 2 **Botanical impurities**

FEED MATERIALS - purchase


Botanical impurities :
Analyses scheduled : 22 → Analyses performed : 22
Linseed meal (5) + Linseed expeller EU (17)

 **Standard:**

- beech, unpeeled seeds; Chinese mustard; Ethiopian mustard; Indian mustard; jatropa; Brown mustard; Zwarte mosterd : presence in animal feed allowed only if presence = unquantifiable
- *Crotalaria* spp. 100 ppm
- *Datura* sp. 1000 ppm
- seeds and husks, by-products R.c., C.t., A.p. 10 ppm

✓ 22 results → absence everywhere  *No exceedance*

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LEVEL 2 **Hydrocyanic acid**

FEED MATERIALS - purchase

Hydrocyanic acid: Analyses scheduled: 52 → Analyses performed : 51
incl. 10 extra monitoring Hydrocyanic acid in sorghum, linseed, linseed expeller, linseed feed

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LEVEL 2 Hydrocyanic acid

- **Hydrocyanic acid**
 - Standard: feed materials: 50 ppm
 - linseed 250 ppm
 - linseedcake (expeller, meal): 350 ppm
 - cassava products and almondcakes : 100 ppm

No exceedance

✓ 51 resultaten:

- Alle sorghum < 50 ppm
- Lijnzaadschilfer, -voer: allen < 350 ppm behalve 1 resultaat (conform mits aftrek meetfout)
- Lijnzaad: allen < 250 ppm

Concentration Range (ppm)	Number of Samples
< 5 ppm	4
5 - 125 ppm	10
125 - 250 ppm	29
250 - 350 ppm	7
> 350 ppm	1

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NIVEAU 2 Salmonella

FEED MATERIALS - purchase

Salmonella: Analyses scheduled : 115 → analyses performed : **115**

- Standard: absence/ 25g

✓ 115 results → 3x Salmonella

- 2x toasted soybeans (*S. Rissen* and *S. Tennessee*)
- 1x rapeseed feed (*S. Llandof*)

→ action light: feed materials and compound feed:

- research origin + measures
- research supplier/ producer
- warning

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LEVEL 2 **Insoluble impurities**

FEED MATERIALS - purchase

Insoluble impurities: Analyses scheduled: 12 → analyses performed: **8**
Ox fat

⚖ *Standard: 0,15%*

✓ All results < 0,10%

✓ *No exceedance*

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LEVEL 2 **Fungi**

FEED MATERIALS - purchase

Fungi: Analyses scheduled: 39 → analyses performed: **39**

⚖ *GMP BT-01 action treshold:*
Feed materials: 100.000 CFU/g

✓ **1x exceedance action treshold**

2x spelt:

- 140.000 - 51.000 (MF)
- = 89.000 CFU/G
- 190.000 - 69.000 (MF)
- = 121.000 CFU/G

exceedance action treshold

CFU/g Range	Number of Exceedances
<100 CFU/g	10
100 - 999 CFU/g	9
1.000 - 9.999 CFU/g	10
10.000 - 100.000 CFU/g	2
>100.000 CFU/g	2

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LEVEL 2

FEED MATERIALS - purchase

Antibiotics

Antibiotics: scheduled: 31 → performed: **31**
wheat DDGS, maize DDGS, dried yeast (by-products of bio-ethanol production), vinasses ((by-products of bio-ethanol production)

	Norm (ppb)	resultaten (ppb)
virginamycine	afwezig	< 25
decoquinate	400	< 100
semduramycine	250	< 62,5
salinomycine	700	< 175
monensin	1250	< 312,5
halofuginone	30	< 15
lasalocid	1250	< 312,5
nicarbazin	1250	< 312,5
rovenidine	700	< 175
diclazuril	10	< 2,5
maduramycine	50	< 12,5
^a narasin	700	< 12,5

No exceedance

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Results

- Level 1
- Level 2
- **Level 3**

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LEVEL 3 **OVERVIEW**

- **Compound feed** – production
 - Mycotoxins
 - Salmonella

- **Mineral feed** – production
 - Heavy metals

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LEVEL 3 **Mycotoxins**

COMPOUND FEED - Production

Mycotoxins: Analyses scheduled: 149 → analyses performed: **148**
Objective: 1/3 of the samples (dairy cattle feed)

Sample distribution - mycotoxins in compound feed

Feed Type	Count	Percentage
Parc feed	22	15%
Dairy cattle feed	47	32%
Beef cattle feed	23	16%
Beef cattle feed: calves	19	13%
Poultry feed	17	11%
Other compound feed	20	13%


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LEVEL 3
Mycotoxins

- AFLATOXIN B1**
 - Standard complementary feed and complete feedingstuffs: 10 ppb*
Diary caws, calves, dairy sheep , lambs, dairy goats, baby goat, piglets, young poultry: 5 ppb
beef, sheep, goat, porc, poultry: 20 ppb (except the exceptions mentioned above)

✓ 148 results → all < 2,5 ppb (LOD)




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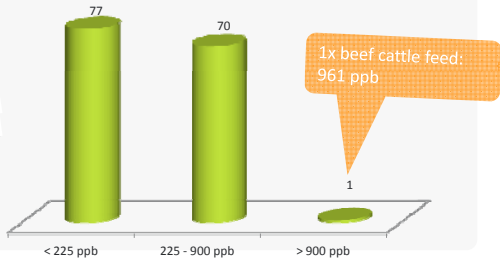
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LEVEL 3
Mycotoxins

- DON (deoxynivalenol)**
 - Recommendation 2006/576 → guidance values*
complementary feed and complete feedingstuffs : 5.000 ppb
porc: 900 ppb
calves, lamb, baby goat: 2.000 ppb

✓ 148 results






Category	Count
< 225 ppb	77
225 - 900 ppb	70
> 900 ppb	1

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LEVEL 3 Mycotoxins

- **OTA (ochratoxine A)**
 - ⚖ Recommendation 2006/576 → guidance values complementary feed and complete feedingstuffs :
 - porc: 50 ppb
 - poultry: 100 ppb
 - ✓ 148 results → all < 12,5 ppb




No exceedance

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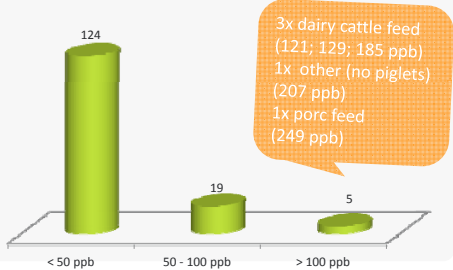
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LEVEL 3 Mycotoxins

- **ZEA (zearalenon)**
 - ⚖ Recommendation 2006/576 → guidance values complementary feed and complete feedingstuffs :
 - piglet, gilts: 100 ppb
 - sow, fattening pigs: 250 ppb
 - calves, dairy cattle, sheep, goat: 500 ppb
 - ✓ 148 results → 5 > 100 ppb



No exceedance



Concentration Range	Number of Samples
< 50 ppb	124
50 - 100 ppb	19
> 100 ppb	5

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LEVEL 3
Mycotoxins

- FUM B1 + FUM B2 (fumonisin)**
 - Recommendation 2006/576 → guidance values complementary feed and complete feedingstuffs :*
 - porc, horse: 5.000 ppb
 - poultry, calve, lamb, baby goat: 20.000 ppb
 - adult ruminant: 50.000 ppb

✓ 148 results → alle < 5.000 ppb

No exceedance

Range	Count
< 75 ppb	137
75 - 500 ppb	9
> 500 ppb	2

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LEVEL 3
Mycotoxins

- T2, HT2**
 - Action treshold FEED T2+HT2*
 - Compound feed poultry: 400 ppb
 - Compound feed fattening pig: 500 ppb
 - Compound feed piglet: 200 ppb
 - Compound feed calve: 200 ppb

✓ 148 results

- T2: all < 20 ppb
- HT2: 147 < 75 ppb
- 1 > 75 ppb: other compound feed (92 ppb)

No exceedance

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LEVEL 3 **Salmonella**

COMPOUND FEED - Production

Salmonella: Analyses scheduled : 149 → analyses performed : **148**
Objective: 50% poultry feed, 30 % pig feed, 20% beef cattle (dairy cattle, beef cattle, calves)

Distribution samples - Salmonella in compound feed

✓ 148 results
→ **absence everywhere**

No exceedance

Category	Count	Percentage
Porc feed	47	32%
Dairy cattle feed	12	8%
Beef cattle feed	6	4%
Beef cattle feed: calves	10	7%
Poultry feed	62	42%
Other compound feed	11	7%

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LEVEL 3 **Heavy metals**


MINERAL FEED - Production

4 heavy metals: Analyses scheduled: 143 → analyses performed : **143**


- **ARSENIC**
 - ⚖ Standard mineral feed : 12 ppm
 - ✓ Alle results ≤ 10 ppm
- **CADMIUM**
 - ⚖ Standard mineral feed : 5 ppm (depends on the phosphorus level)
 - ✓ 143 results
 - 141 results < 5 ppm
 - 2 results > 5 ppm: conformity after deduction measurement error


No exceedance


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LEVEL 3 **Heavy metals**

- **MERCURY**
 -  *Standard mineral feed: 0,2 ppm*
 - ✓ All results ≤ 0,2 ppm

- **PLUMBUM**
 -  *Standard mineral feed : 15 ppm*
 - ✓ All results ≤ 15 ppm

 *No exceedance*

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Thank you for your attention!

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