Evaluation Report

proficiency test

DLA 34/2019

GMO-Screening II (qualitative):

5 Samples with positive/negative amounts of GMO-Potato Amflora (EH92-527-1), GMO-Rape Seed / Canola (GT73, MON88302) and GMO-Sugar Beet (H7-1)

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Allgemeine Informationen zur Eignungsprüfung (EP)
General Information on the proficiency test (PT)

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Unteraufträge *Subcontractors*	Im Rahmen dieser Eignungsprüfung wurden nachstehende Leistungen im Unterauftrag vergeben: Keine As part of the present proficency test the following services were subcontracted: none
Vertraulichkeit *Confidentiality*	Die Teilnehmerergebnisse sind im EP-Bericht in anonymisierter Form mit Auswertenummern benannt. Daten einzelner Teilnehmer werden ausschließlich nach vorheriger Zustimmung des Teilnehmers an Dritte weitergegeben. Participant result are named anonymously with evaluation numbers in the PT report. Data of individual participants will be passed on to third parties only with prior consent of the participant.

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1. Introduction

The participation in proficiency testing schemes is an essential element of the quality-management-system of every laboratory testing food and feed, cosmetics and food contact materials. The implementation of proficiency tests enables the participating laboratories to prove their own analytical competence under realistic conditions. At the same time they receive valuable data regarding the verification and/or validation of the particular testing method [1, 5].
The purpose of DLA is to offer proficiency tests for selected parameters in concentrations with practical relevance.
Realisation and evaluation of the present proficiency test follows the technical requirements of DIN EN ISO/IEC 17043 (2010) and DIN ISO 13528:2009 / ISO 13528:2015 [2, 3].

2. Realisation

2.1 Test material

The test materials are 5 different mixtures of common in commerce food or feed samples with added GMO reference materials from European and US-American suppliers (s. table 1). The raw materials were crushed, sieved (mesh <500 µm to <1,5 mm), mixed and homogenized. The composition of the samples is given in table 1.

Before homogenization microtracer particles were added in order to check the accuracy of mixing. After homogenization during bottling aliquots were taken for microtracer analysis (s. 2.1.1).

After homogenisation the samples were portioned to approximately 10 g into metallised PET film bags.

Table 1: Composition of DLA-Samples

DLA-Sample	Ingredients (per 100 g)	GMO-Elements *
1	Wheat flour Typ 550 (89,9 g) Ingredients: Wheat Nutrients per 100 g: Fat 1,1 g, Carbohydrates 71 g, Protein 9,8 g Sugar beet molasses (9,6 g) Ingredients: Sugar beet molasses H7-1 Sugar beet (0,50 g) Reference material: 100% GMO-Sugar beet seed	- - CP4-EPSPS, p-FMV
2	Wheat flour Typ 550 (89,9 g) Ingredients: Wheat Nutrients per 100 g: Fat 1,1 g, Carbohydrates 71 g, Protein 9,8 g Rape/Canola-Pellets (9,6 g) Ingredients: Rape (pressing residue) GT73/RT73 Rape / Canola (0,50 g) Reference material: 100% GMO-Rape seed	- - CP4-EPSPS, p-FMV (* unexpected amplification observed for: p-35S + t-NOS)
3	Wheat flour Typ 550 (90,0 g) Ingredients: Wheat Nutrients per 100 g: Fat 1,1 g, Carbohydrates 71 g, Protein 9,8 g Sugar beet molasses (10,0 g) Ingredients: Sugar beet molasses	- -
4	Wheat flour Typ 550 (89,9 g) Ingredients: Wheat Nutrients per 100 g: Fat 1,1 g, Carbohydrates 71 g, Protein 9,8 g Potato powder (9,8 g) Ingredients: Potatoes, E471, E304, E223, E100 utrients per 100 g: Fat 0,6 g, Carbohydrates 76 g, Protein 8,3 g Amflora EH92-527-1 (0,22 g) Reference material: 100% GMO-Potato	- - gbss, p-NOS-nptII, t-NOS
5	Wheat flour Typ 550 (90,0 g) Ingredients: Wheat Nutrients per 100 g: Fat 1,1 g, Carbohydrates 71 g, Protein 9,8 g Potato powder (10,0 g) Ingredients: Potatoes, E471, E304, E223, E100 utrients per 100 g: Fat 0,6 g, Carbohydrates 76 g, Protein 8,3 g	- -

* according to GMO Database [28] and BVL-Screening Liste [26]

Note: *The metrological traceability of temperature, mass and volume during production of the PT samples is ensured by DAkkS calibrated reference materials.*

2.1.1 Homogeneity

The **mixture homogeneity before bottling** was examined 8-fold by **microtracer analysis.** It is a standardized method that is part of the international GMP certification system for feed [14].
Before mixing dye coated iron particles of µm size are added to the sample and the number of particles is determined after homogenization in taken aliquots. The evaluation of the mixture homogeneity is based on the Poisson distribution using the chi-square test. A probability of ≥ 5 % is equivalent to a good homogeneous mixture and of ≥ 25% to an excellent mixture [14, 15].
The microtracer analysis of the present PT samples 1-5 showed probabilities of 92%, 99%, 98%, 94% and 74%, respectively. Additionally particle number results were converted into concentrations, statistically evaluated according to normal distribution and compared to the standard deviation according to Horwitz. For the assessment HorRat values between 0,3 and 1,3 are to be accepted under repeat conditions (measurements within the laboratory) [17]. This gave HorRat values of 0,71, 0,57, 0,55, 0,73 and 0,90, respectively. The results of microtracer analysis are given in the documentation.

2.1.2 Stability

A water activity (a_W) of < 0,5 is an important factor to ensure the stability of dry or dried products during storage. Optimum conditions for storage is the a_W value range of 0,15 - 0,3. In this range the lowest possible degradation rate is to be expected [16].

The experience with various DLA test materials showed good storage stability with respect to the durability of the sample (spoilage) and the content of the PT parameters for comparable food matrices and water activity (a_W value <0,5).
The a_W value of the PT samples was approx. 0,54 - 0,55 (25°C). Despite the slightly increased a_W values, the stability of the sample material during the investigation period can be regarded as ensured under the specified storage conditions, since at values <0.6 there is practically no microbial growth observed [16].

2.2 Sample shipment and information to the test

The portions of the test materials (sample 1 to 5) were sent to every participating laboratory in the 35th week of 2019. The testing method was optional. The tests should be finished at October 11th 2019 the latest.

With the cover letter along with the sample shipment the following information was given to participants:

DLA 34/2019 - GMO-Screening II (qualitative): 5 Samples with positive/negative amounts of GMO-Potato Amflora (EH92-527-1), GMO-Rape Seed / Canola (GT73, MON88302) and GMO-Sugar Beet (H7-1)
There are 5 different test samples which possibly contain the above mentioned parameters. The indication of results and evaluation will be done exclusively qualitative (positive/negative). Results for specific sequences, screening sequences and other events can be analyzed.

Please note the attached information on the proficiency test.
(see documentation, section 5.3 Information on the PT)

2.3 Submission of results

The participants submitted their results in standard forms, which have been sent by email or were available on our website. The results given as positive/negative were evaluated.
Queried and documented were the indicated results and details of the test methods like specificities, test kit manufacturer and hints about the procedure.
In case participants submitted several results for the same parameter obtained by different methods these results were evaluated with the same evaluation number with a letter as a suffix and indication of the related method.

All 15 participants submitted their results.

3. Evaluation

The evaluation of the GMO-screening proficiency test was done exclusively qualitative.

The results are presented for all 5 test samples in separate tables for each parameter p-35S, t-NOS, p-FMV, p-NOS / nptII and CTP2-CP4 EPSPS as well as GMO-potato Amflora (EH92-527-1), GMO-rape / canola (GT73,MON88302) and GMO-sugar beet (H7-1) and other DNA.

3.1 Agreement with consensus values from participants

The qualitative evaluation of the results of each participant was based on the agreement of the indicated results (positive or negative) with the **consensus values from participants.** A consensus value is determined in case ≥ 75% positive or negative results are present for a parameter.
The assessment will be in the form that the number of matching results followed by the number of samples for which a consensus value was obtained is indicated. Behind that the agreement is expressed as the percentage in parentheses.

3.2 Agreement with spiking of samples

The qualitative evaluation of the results of each participant was based on the agreement of the indicated results (positive or negative) with the **spiking of the five PT-samples** with GMO-containing ingredients (see Tab. 1).
The assessment will be in the form that the number of matching results followed by the number of samples is indicated. Behind that the agreement is expressed as the percentage in parentheses.

4. Results

All following tables are anonymized. With the delivering of the evaluation-report the participants are informed about their individual evaluation-number.

The participant results and evaluation are tabulated as follows:

Evaluation number	Sample 1	Sample 2	Sample 3	Sample 4	Qualitative Valuation	Qualitative Valuation	Method	Remarks
	pos/neg	pos/neg	pos/neg	pos/neg	Agreement with consensus value	Agreement with spiking of samples		

	Sample 1	Sample 2	Sample 3	Sample 4
Number positive				
Number negative				
Percent positive				
Percent negative				
Consensus value				
Spiking				

4.1 Proficiency Test GMO

4.1.1 Results: p-35S-Screening-Sequence

Qualitative valuation of results

Evaluation number	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Qualitative Valuation	Qualitative Valuation	Remarks
p-35S	pos/neg	pos/neg	pos/neg	pos/neg	pos/neg	Agreement with consensus value	Agreement with spiking of samples	
1	negative	negative	negative	negative	negative	4/4 (100%)	4/4 (100%)	
2	negative	negative	negative	negative	negative	4/4 (100%)	4/4 (100%)	
3	negative	negative	negative	negative	negative	4/4 (100%)	4/4 (100%)	
4	negative	negative	negative	negative	negative	4/4 (100%)	4/4 (100%)	
5	negative	negative	negative	negative	negative	4/4 (100%)	4/4 (100%)	
6	negative	negative	negative	negative	negative	4/4 (100%)	4/4 (100%)	
7	negative	negative	negative	negative	negative	4/4 (100%)	4/4 (100%)	
8	negative	negative	negative	negative	negative	4/4 (100%)	4/4 (100%)	
9	negative	negative	negative	negative	negative	4/4 (100%)	4/4 (100%)	
10	negative	positive	negative	negative	negative	4/4 (100%)	4/4 (100%)	
11	negative	positive	negative	positive	negative	3/4 (75%)	3/4 (75%)	
12	negative	positive	negative	positive	negative	3/4 (75%)	3/4 (75%)	
13	negative	negative	negative	negative	negative	4/4 (100%)	4/4 (100%)	
14	negative	positive	negative	negative	negative	4/4 (100%)	4/4 (100%)	
15	negative	negative	negative	negative	negative	4/4 (100%)	4/4 (100%)	

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Number positive	0	4	0	2	0
Number negative	15	11	15	13	15
Percent positive	0	27	0	13	0
Percent negative	100	73	100	87	100
Consensus value	negative	none	negative	negative	negative
Spiking	negative	*	negative	negative	negative

** GT73 Canola unexpected amplification observed for: p-35S + t-NOS (BVL 2015)*

Comments:

Consensus values were obtained for samples 1, 3, 4 and 5 with three times 100% and one 87% negative results. The consensus values are in agreement with the addition of the GMO-containing ingredients (spiking).

No consensus value of ≥75% positive or negative results was obtained for sample 2. The BVL has described the unexpected detection of p-35S in GT73 rapeseed reference material [26].

4.1.2 Results: t-NOS-Screening-Sequence

Qualitative valuation of results

Evaluation number	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Qualitative Valuation	Qualitative Valuation	Remarks
t-NOS	pos/neg	pos/neg	pos/neg	pos/neg	pos/neg	Agreement with consensus value	Agreement with spiking of samples	
1	negative	negative	negative	positive	negative	4/4 (100%)	4/4 (100%)	
2	negative	negative	negative	positive	negative	4/4 (100%)	4/4 (100%)	
3	negative	negative	negative	positive	negative	4/4 (100%)	4/4 (100%)	
4	negative	negative	negative	positive	negative	4/4 (100%)	4/4 (100%)	
5	negative	negative	negative	negative	negative	3/4 (75%)	3/4 (75%)	
6	negative	negative	negative	positive	negative	4/4 (100%)	4/4 (100%)	
7	negative	positive	negative	positive	negative	4/4 (100%)	4/4 (100%)	
8	negative	negative	negative	positive	negative	4/4 (100%)	4/4 (100%)	
9	negative	negative	negative	positive	negative	4/4 (100%)	4/4 (100%)	
10	negative	positive	negative	positive	negative	4/4 (100%)	4/4 (100%)	
11	negative	positive	negative	positive	negative	4/4 (100%)	4/4 (100%)	
12	negative	positive	negative	positive	negative	4/4 (100%)	4/4 (100%)	
13	negative	negative	negative	positive	negative	4/4 (100%)	4/4 (100%)	
14	negative	negative	negative	positive	negative	4/4 (100%)	4/4 (100%)	
15	negative	negative	negative	positive	negative	4/4 (100%)	4/4 (100%)	

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Number positive	0	4	0	14	0
Number negative	15	11	15	1	15
Percent positive	0	27	0	93	0
Percent negative	100	73	100	7	100
Consensus value	negative	none	negative	positive	negative
Spiking	negative	*	negative	positive	negative

** GT73 Canola unexpected amplification observed for: p-35S + t-NOS (BVL 2015)*

Comments:
Consensus values were obtained for samples 1, 3, 4 and 5 with three times 100% and one 93% positive or negative results. The consensus values are in agreement with the addition of the GMO-containing ingredients (spiking).
No consensus value of ≥75% positive or negative results was obtained for sample 2. The BVL has described the unexpected detection of p-35S in GT73 rapeseed reference material [26].

4.1.3 Results: p-FMV-Screening-Sequence

Qualitative valuation of results

Evaluation number	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Qualitative Valuation	Qualitative Valuation	Remarks
p-FMV	pos/neg	pos/neg	pos/neg	pos/neg	pos/neg	Agreement with consensus value	Agreement with spi-king of samples	
1	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
2	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
3	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
4	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
5	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
6	-	-	-	-	-			
7	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
8	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
9	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
10	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
11	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
12	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
13	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
14	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
15	-	-	-	-	-			

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Number positive	13	13	0	0	0
Number negative	0	0	13	13	13
Percent positive	100	100	0	0	0
Percent negative	0	0	100	100	100
Consensus value	positive	positive	negative	negative	negative
Spiking	positive	positive	negative	negative	negative

Comments:
For all 5 samples consensus values with 100% positive or negative results were obtained, respectively.
The consensus values are in agreement with the addition of the GMO-containing ingredients (spiking).

4.1.4 Results: p-NOS / nptII Screening-Sequence(s)

Qualitative valuation of results

Evaluation number	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Qualitative Valuation	Qualitative Valuation	Remarks
p-NOS / nptII	pos/neg	pos/neg	pos/neg	pos/neg	pos/neg	Agreement with consensus value	Agreement with spiking of samples	
1	negative	negative	negative	positive	negative	5/5 (100%)	5/5 (100%)	
2	-	-	-	-	-			
3	negative	negative	negative	positive	negative	5/5 (100%)	5/5 (100%)	
4	negative	negative	negative	positive	negative	5/5 (100%)	5/5 (100%)	
5	negative	negative	negative	negative	negative	4/5 (80%)	4/5 (80%)	
6	negative	negative	negative	positive	negative	5/5 (100%)	5/5 (100%)	
7	-	-	-	-	-			
8	negative	negative	negative	positive	negative	5/5 (100%)	5/5 (100%)	
9	negative	negative	negative	positive	negative	5/5 (100%)	5/5 (100%)	
10	negative	negative	negative	positive	negative	5/5 (100%)	5/5 (100%)	
11	negative	negative	negative	positive	negative	5/5 (100%)	5/5 (100%)	
12	negative	negative	negative	positive	negative	5/5 (100%)	5/5 (100%)	
13	negative	negative	negative	positive	negative	5/5 (100%)	5/5 (100%)	
14	negative	negative	negative	positive	negative	5/5 (100%)	5/5 (100%)	
15	-	-	-	-	-			

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Number positive	0	0	0	11	0
Number negative	12	12	12	1	12
Percent positive	0	0	0	92	0
Percent negative	100	100	100	8	100
Consensus value	negative	negative	negative	positive	negative
Spiking	negative	negative	negative	positive	negative

Comments:
For all 5 samples consensus values with four times 100% and one times 92% positive or negative results were obtained, respectively.
The consensus values are in agreement with the addition of the GMO-containing ingredients (spiking).

4.1.5 Results: CTP2-CP4 EPSPS-Screening-Sequence

Qualitative valuation of results

Evaluation number	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Qualitative Valuation	Qualitative Valuation	Remarks
CP4 EPSPS	pos/neg	pos/neg	pos/neg	pos/neg	pos/neg	Agreement with consensus value	Agreement with spiking of samples	
1	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
2	-	-	-	-	-			
3	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
4	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
5	-	-	-	-	-			
6	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
7		-	-	-	-			
8	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
9	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
10	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
11	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
12	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
13	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
14	positive	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
15	-	-	-	-	-			

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Number positive	11	11	0	0	0
Number negative	0	0	11	11	11
Percent positive	100	100	0	0	0
Percent negative	0	0	100	100	100
Consensus value	positive	positive	negative	negative	negative
Spiking	positive	positive	negative	negative	negative

Comments:
For all 5 samples consensus values with 100% positive or negative results were obtained, respectively.
The consensus values are in agreement with the addition of the GMO-containing ingredients (spiking).

4.1.6 Results: GMO-Sugar Beet H7-1

Qualitative valuation of results

Evaluation number	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Qualitativee Valuation	Qualitativee Valuation	Remarks
H7-1	pos/neg	pos/neg	pos/neg	pos/neg	pos/neg	Agreement with consensus value	Agreement with spi-king of samples	
1	positive	negative	negative	negative	negative	5/5 (100%)	5/5 (100%)	
2	positive	negative	negative	negative	negative	5/5 (100%)	5/5 (100%)	
3	-	-	-	-	-			
4	positive	negative	negative	negative	negative	5/5 (100%)	5/5 (100%)	
5	-	-	-	-	-			
6	positive	-	negative	-	-	2/2 (100%)	2/2 (100%)	
7	-	-	-	-	-			
8	positive	negative	negative	negative	negative	5/5 (100%)	5/5 (100%)	
9	positive	negative	negative	negative	negative	5/5 (100%)	5/5 (100%)	
10	positive	negative	negative	negative	negative	5/5 (100%)	5/5 (100%)	
11	positive	negative	negative	negative	negative	5/5 (100%)	5/5 (100%)	
12	-	-	-	-	-			
13	-	-	-	-	-			
14	positive	negative	negative	negative	negative	5/5 (100%)	5/5 (100%)	
15	positive	negative	negative	negative	negative	5/5 (100%)	5/5 (100%)	

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Number positivee	10	0	0	0	0
Number negativee	0	9	10	9	9
Percent positivee	100	0	0	0	0
Percent negativee	0	100	100	100	100
Consensus value	positive	negative	negative	negative	negative
Spiking	positive	negative	negative	negative	negative

Comments:
For all 5 samples consensus values with 100% positive or negative results were obtained, respectively.
The consensus values are in agreement with the addition of the GMO-containing ingredients (spiking).

4.1.7 Results: GMO-Potato Amflora

Qualitative valuation of results

Evaluation number	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Qualitative Valuation	Qualitative Valuation	Remarks
Amflora	pos/neg	pos/neg	pos/neg	pos/neg	pos/neg	Agreement with consensus value	Agreement with spiking of samples	
1	negativ	negativ	negativ	positiv	negativ	5/5 (100%)	5/5 (100%)	
2	negativ	negativ	negativ	positiv	negativ	5/5 (100%)	5/5 (100%)	
3	-	-	-	-	-			
4	negativ	negativ	negativ	positiv	negativ	5/5 (100%)	5/5 (100%)	
5	-	-	-	-	-			
6	-	-	-	-	-			
7	-	-	-	-	-			
8	negativ	negativ	negativ	positiv	negativ	5/5 (100%)	5/5 (100%)	
9	negativ	negativ	negativ	positiv	negativ	5/5 (100%)	5/5 (100%)	
10	negativ	negativ	negativ	positiv	negativ	5/5 (100%)	5/5 (100%)	
11	negativ	negativ	negativ	positiv	negativ	5/5 (100%)	5/5 (100%)	
12	-	-	-	positiv	negativ	2/2 (100%)	2/2 (100%)	
13	-	-	-	-	-			
14	negativ	negativ	negativ	positiv	negativ	5/5 (100%)	5/5 (100%)	
15	negativ	negativ	negativ	positiv	negativ	5/5 (100%)	5/5 (100%)	

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Number positivee	0	0	0	10	0
Number negativee	9	9	9	0	10
Percent positivee	0	0	0	100	0
Percent negativee	100	100	100	0	100
Consensus value	negativ	negativ	negativ	positiv	negativ
Spiking	negativ	negativ	negativ	positiv	negativ

Comments:
For all 5 samples consensus values with 100% positive or negative results were obtained, respectively.
The consensus values are in agreement with the addition of the GMO-containing ingredients (spiking).

4.1.8 Results: GMO-Rape / Canola GT73/RT73

Qualitative valuation of results

Evaluation number	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Qualitative Valuation	Qualitative Valuation	Remarks
GT73/RT73	pos/neg	pos/neg	pos/neg	pos/neg	pos/neg	Agreement with consensus value	Agreement with spiking of samples	
1	negative	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
2	negative	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
3	-	-	-	-	-			
4	negative	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
5	-	-	-	-	-			
6	-	positive	negative	-	-	2/2 (100%)	2/2 (100%)	
7	-	-	-	-	-			
8	negative	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
9	negative	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
10	negative	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
11	negative	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
12	-	-	-	-	-			
13	negative	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
14	negative	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	
15	negative	positive	negative	negative	negative	5/5 (100%)	5/5 (100%)	

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Number positivee	0	11	0	0	0
Number negativee	10	0	11	10	10
Percent positivee	0	100	0	0	0
Percent negativee	100	0	100	100	100
Consensus value	negative	positive	negative	negative	negative
Spiking	negative	positive	negative	negative	negative

Comments:
For all 5 samples consensus values with 100% positive or negative results were obtained, respectively.
The consensus values are in agreement with the addition of the GMO-containing ingredients (spiking).

4.1.9 Results: GMO-Rape / Canola MON88302

Qualitative valuation of results

Evaluation number	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Qualitative Valuation	Qualitative Valuation	Remarks
MON88302	pos/neg	pos/neg	pos/neg	pos/neg	pos/neg	Agreement with consensus value	Agreement with spi-king of samples	
1	negative	negative	negative	negative	negative	5/5 (100%)	5/5 (100%)	
2	negative	negative	negative	negative	negative	5/5 (100%)	5/5 (100%)	
3	-	-	-	-	-			
4	negative	negative	negative	negative	negative	5/5 (100%)	5/5 (100%)	
5	-	-	-	-	-			
6	-	negative	negative	-	-	2/2 (100%)	2/2 (100%)	
7	-	-	-	-	-			
8	negative	negative	negative	negative	negative	5/5 (100%)	5/5 (100%)	
9	negative	negative	negative	negative	negative	5/5 (100%)	5/5 (100%)	
10	negative	negative	negative	negative	negative	5/5 (100%)	5/5 (100%)	
11	negative	negative	negative	negative	negative	5/5 (100%)	5/5 (100%)	
12	-	-	-	-	-			
13	negative	negative	negative	negative	negative	5/5 (100%)	5/5 (100%)	
14	negative	negative	negative	negative	negative	5/5 (100%)	5/5 (100%)	
15	negative	negative	negative	negative	negative	5/5 (100%)	5/5 (100%)	

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Number positivee	0	0	0	0	0
Number negativee	10	11	11	10	10
Percent positivee	0	0	0	0	0
Percent negativee	100	100	100	100	100
Consensus value	negative	negative	negative	negative	negative
Spiking	negative	negative	negative	negative	negative

Comments:
For all 5 samples consensus values with 100% positive or negative results were obtained, respectively.
The consensus values are in agreement with the addition of the GMO-containing ingredients (spiking).
GMO rape seed / canola MON88302 was not added.

4.1.10 Results: Other Parameters (DNA)

Qualitative valuation of results

Evaluation number	Parameter	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Remarks
	further DNA	pos/neg	pos/neg	pos/neg	pos/neg	pos/neg	
1	cry1Ab/Ac	negative	negative	negative	negative	negative	
1	PAT	negative	negative	negative	negative	negative	
1	p-35S-PAT	negative	negative	negative	negative	negative	
1	BAR	negative	negative	negative	negative	negative	
1	p-NOS	negative	negative	negative	positive	negative	
2	Canola CruciferinA target (CrucA)	negative	positive	negative	negative	negative	
2	Sugarbeet GlutamaseA target (GluA)	positive	negative	negative	negative	negative	
2	Potato UGPase target	negative	negative	negative	positive	positive	
2	pat target	negative	negative	negative	negative	negative	
2	CryIAb/Ac target	negative	negative	negative	negative	negative	
6	Chloroplast-Leu-tRNA-Gene sequence (Plant-control)	positive	positive	positive	positive	positive	
6	Wheat reference gene	positive	positive	positive	positive	positive	
6	Potato reference gene	negative	negative	negative	positive	positive	
6	Brassicaceae (Rape) reference gene	negative	positive	negative	negative	negative	
6	Sugarbeet reference gene	positive	negative	negative	negative	negative	
6	bar	negative	negative	negative	negative	negative	
6	pat	negative	negative	negative	negative	negative	
6	pNOS	negative	negative	negative	positive	negative	
6	p35S-nptII	-	negative	negative	-	-	
6	pSSUAra-bar	-	negative	-	-	-	
6	p35S-nptII	-	negative	-	-	-	
6	gv-sugarbeet T120-7	negative	-	-	-	-	

Continuation next page

Evaluation number	Parameter	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Remarks
	further DNA	pos/neg	pos/neg	pos/neg	pos/neg	pos/neg	
6	gv-Canola Rf3	-	negative	-	-	-	
6	gv-Canola Rf2	-	negative	-	-	-	
6	gv-Canola Ms8	-	negative	-	-	-	
6	gv-Canola Rf1	-	negative	-	-	-	
6	gv-Canola Ms1	-	negative	-	-	-	
6	gv-Canola Topas 19/2	-	negative	-	-	-	
6	gv-Canola T45	-	negative	-	-	-	
6	gv-Canola Liberator	-	negative	-	-	-	
6	gv-Canola Falcon GS40/90	-	negative	-	-	-	
6	gv-Canola Falcon GS40/90	-	negative	-	-	-	
6	gv-Canola Laurat	-	negative	-	-	-	
6	gv-Canola OXY-235	-	negative	-	-	-	
6	gv-Canola OXY-235	-	negative	-	-	-	
6	gv-Canola DP73496	-	negative	-	-	-	
6	gv-Canola Laurat	-	negative	-	-	-	
6	gv-Canola Trierucin	-	negative	-	-	-	
7	PAT Gene	negative	negative	negative	negative	negative	
10	T45	negative	negative	negative	negative	negative	
10	Topas 19/2	negative	negative	negative	negative	negative	
10	MS8	negative	negative	negative	negative	negative	
10	RF3	negative	negative	negative	negative	negative	
10	Oxy235	negative	negative	negative	negative	negative	
10	73496	negative	negative	negative	negative	negative	
12	CruA (Canola)	positive	positive	positive	positive	positive	
12	UGPase (potato)	negative	negative	negative	positive	positive	
14	pat	negative	negative	negative	negative	negative	
14	bar	negative	negative	negative	negative	negative	
14	Soy	positive	positive	positive	positive	positive	
14	Canola	negative	positive	positive	positive	positive	
14	Maize	negative	positive	positive	negative	positive	

5. Documentation

5.1 Details by the participants

Note: Information given in German was translated by DLA to the best of our knowledge (without guarantee of correctness).

5.1.1 p-35S-Screening-Sequence

Evaluation number	Date of Analysis	Results given as	Limit of Detection	Test-Kit or Literature	Notes to Extraction	Notes to PCR-reaction	Further Remarks
	Day/Month	Target-Sequence / -DNA	number of copies / % / ct-value	Manufacturer / Official Method	e.g. Extraction / enzymes / clean-up / DNA quality / DNA amount	e.g real time PCR / gel electro-phoresis / cycles / amplificate length / reference material	
1	01.10.19		0,1%		Macherey Nagel Nucleospin Food Method		
2	11.09.19		36				
3	11.09.19	Target-Sequence / -DNA	0.1% w/w	S2126 SureFood GMO Screen	S1053 SureFood Prep Advanced Kit	Real Time PCR, 45 Cycles	
4					In House Method (SOP 0089)	Taqman real time PCR; SOP0020	
5	30.09-11.10	p-35S	</=5 DNA Copies	CONGEN Sure Food GMO SCREEN 4 plex Art. No. S1226	according to Kit from Macherey- Nagel	RealTime PCR	performed by co-workers Me and Rg
6	16.09.19	p35S	5 to 10 hapl. Genome copies	ASU L 00.00-122, mod.	1. Extraction according to ASU § 64 LFGB L 15.05-1 (SDS/Guanidiniumchloride-Buffer with Proteinase K, clean-up by Wizard-Kit from Promega), mod. 2. CTAB based Extraction method followd by clean-up with Wizard-Kit from Promega (according to Holzhauser et al., 2000)	Duplex-Real-time PCR with 45 cycles; 82 bp Amplificate; Ref. GTS 40-3-2	Samples 2 and 4 are suspicous, traces at LOD of 5-10 hapl.Genome copies
7	17.9.19.		0,1 Percent	In House Method	In House Method	In House Method	
8				In House Method		Proteinase/ Silica-columns/Real-Time PCR	
9	09/Sept.		00/01%		CTAB	RealTime PCR	LOD= Null,Null-EIns %
10	09.10.19		< 0.01%	In House Method	Macherey Nagel Food	Real Time PCR, 45 Cycles	Traces of GTS 40-3-2 in sample 2
11	24.09.19		10 Copies	ASU L 00.00-122	DNA-Isolation by Wizard-Resin	Real Time PCR	
12	12.09.19		'0,1%	ASU L 00.00-122 mod.	Maxwell FFS Kit, 200 mg sample wheigt, double determination	Real-Time PCR, 2x LightCycler480 Probes Mastermix, 45 cycles, RefMat 0,1 % RRS	
13	27.09.19	35S-CaMV Promotor	≤ 0,01 %	SureFood® GMO SCREEN 4plex 35S/NOS/FMV+IAC (S2126), R-Biopharm / Congen	Extraction with SureFood® PREP Basic (S1052)	real-time PCR	K00
14	11.09.19	DNA	10 Copies/PCR	GEN-IAL genControl RT Triplex I	GEN-IAL Simplex Easy Spin Food Kit, 56 - 195ng/µl	Real-time PCR, 45 cycles	
15							

5.1.2 t-NOS-Screening-Sequence

Evaluation number	Date of Analysis	Results given as	Limit of Detection	Test-Kit or Literature	Notes to Extraction	Notes to PCR-reaction	Further Remarks
	Day/Month	Target-Sequence / -DNA	number of copies / % / ct-value	Manufacturer / Official Method	e.g. Extraction / enzymes / clean-up / DNA quality / DNA amount	e.g real time PCR / gel electro-phoresis / cycles / amplificate length / reference material	
1	01.10.19		0,1%				
2	11.09.19		38				
3	11.09.19	Target-Sequence / -DNA	0.1% w/w	S2126 SureFood GMO Screen	S1053 SureFood Prep Advanced Kit	Real Time PCR, 45 Cycles	
4					In House Method (SOP 0089)	Taqman real time PCR; SOP0041	
5	30.09-11.10	t-NOS	</=5 DNA Copies	CONGEN Sure Food GMO SCREEN 4 plex Art. No. S1226	according to Kit from Macherey- Nagel	RealTime PCR	performed by co-workers Me and Rg
6	16.09.19	tNOS	5 to 10 hapl. Genome copies	ASU L 00.00-122, mod.	1. s.a. (SDS/Guanid.-Extr. + Wizard) 2. s.a. (CTAB-Extr. + Wizard)	Duplex-Real-time PCR with 45 cycles; 82 bp Amplificate; Ref. GTS 40-3-2	Sample 2 is suspicous, traces at LOD of 5-10 hapl.Genome copies
7	17.9.19.		0,1 Percent	In House Method	In House Method	In House Method	
8				In House Method		Proteinase/ Silica-columns/Real-Time PCR	
9	09/Sept.		00/01%		CTAB	RealTime PCR	
10	09.10.19		< 0.01%	In House Method	Macherey Nagel Food	Real Time PCR, 45 Cycles	(therfore p35S + tNOS in sample 2 weakly positive)
11	24.09.19		10 Copies	ASU L 00.00-122	DNA-Isolation by Wizard-Resin	Real Time PCR	
12	12.09.19		'0,1%	ASU L 00.00-122 mod.	Maxwell FFS Kit, 200 mg sample wheigt, double determination	Real-Time PCR, 2x LightCycler480 Probes Mastermix, 45 cycles, RefMat 0,1 % RRS	
13	27.09.19	NOS Terminator	≤ 0,01 %	SureFood® GMO SCREEN 4plex 35S/NOS/FMV+IAC (S2126), R-Biopharm / Congen	Extraction with SureFood® PREP Basic (S1052)	real-time PCR	K00
14	11.09.19	DNA	10 Copies/PCR	GEN-IAL genControl RT Triplex I			
15							

5.1.3 p-FMV-Screening-Sequence

Evaluation number	Date of Analysis	Results given as	Limit of Detection	Test-Kit or Literature	Notes to Extraction	Notes to PCR-reaction	Further Remarks
	Day/Month	Target-Sequence / -DNA	number of copies / % / ct-value	Manufacturer / Official Method	e.g. Extraction / enzymes / clean-up / DNA quality / DNA amount	e.g real time PCR / gel electro-phoresis / cycles / amplificate length / reference material	
1	01.10.19		0,1%				
2	11.09.19		36				
3	11.09.19	Target-Sequence / -DNA	0.1% w/w	S2126 SureFood GMO Screen	S1053 SureFood Prep Advanced Kit	Real Time PCR, 45 Cycles	
4					In House Method (SOP 0089)	Taqman real time PCR; SOP0118	
5	30.09-11.10	p-FMV	</=5 DNA Copies	CONGEN Sure Food GMO SCREEN 4 plex Art. No. S1226	according to Kit from Macherey- Nagel	RealTime PCR	performed by co-workers Me and Rg
6							not done
7	17.9.19.		0,1 Percent	In House Method	In House Method	In House Method	
8				In House Method		Proteinase/ Silica-columns/Real-Time PCR	
9	09/Sept.		00/01%		CTAB	RealTime PCR	
10	09.10.19		< 0.01%	In House Method	Macherey Nagel Food	Real Time PCR, 45 Cycles	
11	25.09.19		10 Copies		DNA-Isolation by Wizard-Resin	Real Time PCR	
12	16.09.19	10 hapl. Genomkopie n		ASU L 00.00-148 mod.	Maxwell FFS Kit, 200 mg sample wheigt, double determination	Real-Time PCR, 2x LightCycler480 Probes Mastermix, 45 cycles, RefMat MON89788	
13	27.09.19	34S-FMV Promotor	≤ 0,01 %	SureFood® GMO SCREEN 4plex 35S/NOS/FMV+IAC (S2126), R-Biopharm / Congen	Extraction with SureFood® PREP Basic (S1052)	real-time PCR	K00
14	13.09.19	DNA	10 Copies/PCR	GEN-IAL genControl RT Triplex VII			
15							

5.1.4 p-NOS / nptII Screening Sequence(s)

Evaluation number	Date of Analysis	Results given as	Limit of Detection	Test-Kit or Literature	Notes to Extraction	Notes to PCR-reaction	Further Remarks
	Day/Month	Target-Sequence / -DNA	number of copies / % / ct-value	Manufacturer / Official Method	e.g. Extraction / enzymes / clean-up / DNA quality / DNA amount	e.g real time PCR / gel electro-phoresis / cycles / amplificate length / reference material	
1	01.10.19		0,1%				
2	-		-				
3	11.09.19	Target-Sequence / -DNA	0.1% w/w	S2127 SureFood GMO Screen 2	S1053 SureFood Prep Advanced Kit	Real Time PCR, 45 Cycles	
4					In House Method (SOP 0089)	Taqman real time PCR; SOP0912	
5	30.09-11.10	p-NOS	</=5 DNA Copies	CONGEN Sure Food GMO SCREEN 4 plex Art. No. S1226	according to Kit from Macherey- Nagel	RealTime PCR	performed by co-workers Me and Rg
6	19.09.19	pNOS-nptII construct	5 hapl. Genome copies	ASU L 00.00-142, mod.	1. s.a. (SDS/Guanid.-Extr. + Wizard) 2. s.a. (CTAB-Extr. + Wizard)	Real-time PCR with 45 Cycles; 144-165 bp Amplificates; Ref. Topas 19/2	
7							
8				In House Method		Proteinase/ Silica-columns/Real-Time PCR	
9	09/Sept.		00/01%		CTAB	RealTime PCR	
10	09.10.19		< 0.01%	Hausmethode	Macherey Nagel Food	Real Time PCR, 45 Cyclen	
11	25.09.19		10 Copies	ASU L 00.00-142	DNA-Isolation by Wizard-Resin	Real Time PCR	
12	16.09.19	10 hapl. Genome copies		ASU L 00.00-142 mod.	Maxwell FFS Kit, 200 mg sample wheigt, double determination	Real-Time PCR, 2x LightCycler480 Probes Mastermix, 45 cycles, RefMat EH92-527-1	
13	27.09.19	NPT II Gen	≤ 0,01 %	SureFood® GMO SCREEN 4plex BAR/NPTII/PAT/CTP2:CP4 EPSPS (S2127), R-Biopharm / Congen	Extraction with SureFood® PREP Basic (S1052)	real-time PCR	K00
14	11.09.19	DNA	10 Copies/PCR	GEN-IAL genControl RT Pnos-nptII			
15							

5.1.5 CTP2-CP4 EPSPS-Screening Sequence

Evaluation number	Date of Analysis	Results given as	Limit of Detection	Test-Kit or Literature	Notes to Extraction	Notes to PCR-reaction	Further Remarks
	Day/Month	Target-Sequence / -DNA	number of copies / % / ct-value	Manufacturer / Official Method	e.g. Extraction / enzymes / clean-up / DNA quality / DNA amount	e.g real time PCR / gel electro-phoresis / cycles / amplificate length / reference material	
1	01.10.19		0,1%				
2	-		-				
3	11.09.19	Target-Sequence / -DNA	0.1% w/w	S2127 SureFood GMO Screen 2	S1053 SureFood Prep Advanced Kit	Real Time PCR, 45 Cycles	
4					In House Method (SOP 0089)	Taqman real time PCR ; SOP0159	
5							
6	17.09.19	CTP2-CP4-EPSPS construct	5 hapl. Genome copies	ASU L 00.00-154, mod.	1. s.a. (SDS/Guanid.-Extr. + Wizard) 2. s.a. (CTAB-Extr. + Wizard)	Triplex-Real-time PCR with 45 Cycles; 88 bp Amplificate; Ref. GT73	
7							
8				In House Method		Proteinase/ Silica-columns/Real-Time PCR	
9	09/Sept.		00/01%		CTAB	RealTime PCR	
10	09.10.19		< 0.01%	Hausmethode	Macherey Nagel Food	Real Time PCR, 45 Cycles	
11	25.09.19		10 Kopien	ASU L 00.00-154	DNA-Isolation by Wizard-Resin	Real Time PCR	
12	16.09.19		'0,1%	ASU L 00.00-125 mod.	Maxwell FFS Kit, 200 mg sample wheigt, double determination	Real-Time PCR, 2x LightCycler480 Probes Mastermix, 45 cycles, RefMat MON89788	
13	27.09.19	Transition from CTP2 to herbicide tolerance gene CP4 EPSPS	≤ 0,01 %	SureFood® GMO SCREEN 4plex BAR/NPTII/PAT/CTP2:CP4 EPSPS (S2127), R-Biopharm / Congen	Extraction with SureFood® PREP Basic (S1052)	real-time PCR	K00
14	11.09.19	DNA	10 Copies/PCR	GEN-IAL genControl RT Triplex I			
15							

5.1.6 GMO-Sugar beet (H7-1)

Evaluation number	Date of Analysis	Results given as	Limit of Detection	Test-Kit or Literature	Notes to Extraction	Notes to PCR-reaction	Further Remarks
	Day/Month	Target-Sequence / -DNA	number of copies / % / ct-value	Manufacturer / Official Method	e.g. Extraction / enzymes / clean-up / DNA quality / DNA amount	e.g real time PCR / gel electro-phoresis / cycles / amplificate length / reference material	
1	07.10.19		0,1%	CRL-Method			
2	17.09.19		37				
3							
4					In House Method (SOP 0089)	Taqman real time PCR; SOP0143	
5							
6	20.09.19	H7-1 Event	20 hapl. Genome copies	EURL-GMFF method for gm-sugarbeet H7-1, mod.	1. s.a. (SDS/Guanid.-Extr. + Wizard) 2. s.a. (CTAB-Extr. + Wizard)	Real-time PCR with 45 Cycles; 108 bp Amplificate; Ref. H7-1	
7							
8				In House Method		Proteinase/ Silica-columns/Real-Time PCR	
9	09/Sept.				CTAB	RealTime PCR	
10	09.10.19	eventspecific	< 0.045%	In House Method	Macherey Nagel Food	Real Time PCR, 45 Cycles	
11	07.10.19		10 copies	EU RL GMFF CRLVL28/04VP	DNA-Isolation by Wizard-Resin	Real Time PCR	
12							
13							
14	23.09.19	DNA	10 Copies/PCR	GEN-IAL genControl RT H7-1 Beet Kit			
15							

5.1.7 GMO-Potato Amflora (EH92-527-1)

Evaluation number	Date of Analysis	Results given as	Limit of Detection	Test-Kit or Literature	Notes to Extraction	Notes to PCR-reaction	Further Remarks
	Day/Month	Target-Sequence / -DNA	number of copies / % / ct-value	Manufacturer / Official Method	e.g. Extraction / enzymes / clean-up / DNA quality / DNA amount	e.g real time PCR / gel electro-phoresis / cycles / amplificate length / reference material	
1	07.10.19		0,1%	CRL-Method			
2	17.09.19		37				
3							
4					In House Method (SOP 0089)	Taqman real time PCR; SOP0146	
5							
6							not done
7							
8				In House Method		Proteinase/ Silica-columns/Real-Time PCR	
9	09/Sept.		00/01%		CTAB	RealTime PCR	
10	09.10.19	eventspecific	< 0.02%	In House Method	Macherey Nagel Food	Real Time PCR, 45 Cycles	
11	07.10.19		10 Kopien	EU RL GMFF CRLVL09/05VP	DNA-Isolation by Wizard-Resin	Real Time PCR	
12				EURL-GMFF EH92-527-1 Potato, 2006-09			
13							
14	23.09.19	DNA	1 Copy/PCR	GEN-IAL genControl RT Amflora Kit			
15							

5.1.8 GMO-Rape seed / Canola (GT73/RT73)

Evaluation number	Date of Analysis	Results given as	Limit of Detection	Test-Kit or Literature	Notes to Extraction	Notes to PCR-reaction	Further Remarks
	Day/Month	Target-Sequence / -DNA	number of copies / % / ct-value	Manufacturer / Official Method	e.g. Extraction / enzymes / clean-up / DNA quality / DNA amount	e.g real time PCR / gel electro-phoresis / cycles / amplificate length / reference material	
1	07.10.19		0,1%	CRL-Method			
2	17.09.19		37				
3							
4					In House Method (SOP 0089)	Taqman real time PCR; SOP0006	
5							
6	20.09.19	GT73 Event	10 hapl. Genome copies	EURL-GMFF method for gm-rape GT73, mod.	1. s.a. (SDS/Guanid.-Extr. + Wizard) 2. s.a. (CTAB-Extr. + Wizard)	Real-time PCR with 45 Cycles; 108 bp Amplificate; Ref. GT73	
7							
8				In House Method		Proteinase/ Silica-columns/Real-Time PCR	
9	09/Sept.		00/01%		CTAB	RealTime PCR	
10	09.10.19	eventspecific	< 0.04%	In House Method	Macherey Nagel Food	Real Time PCR, 45 Cycles	
11	26.09.19		10 Copies	EU RL GMFF CRLVL26/04VP	DNA-Isolation by Wizard-Resin	Real Time PCR	
12							
13	27.09.19	GT73 Raps (MON-ØØØ73-7)	≤ 0,01 %	SureFood® GMO 4plex Canola I (S2166), R-Biopharm / Congen	Extraktion with SureFood® PREP Basic (S1052)	real-time PCR	K01
14	23.09.19	DNA	5 Copies/PCR	GEN-IAL genControl RT RT73-Canola Kit			
15							

5.1.9 GMO-Rape seed / Canola (MON88302)

Evaluation number	Date of Analysis	Results given as	Limit of Detection	Test-Kit or Literature	Notes to Extraction	Notes to PCR-reaction	Further Remarks
	Day/Month	Target-Sequence / -DNA	number of copies / % / ct-value	Manufacturer / Official Method	e.g. Extraction / enzymes / clean-up / DNA quality / DNA amount	e.g real time PCR / gel electro-phoresis / cycles / amplificate length / reference material	
1	07.10.19		0,1%	CRL-Method			
2	17.09.19		not known yet (in validation)				
3							
4					In House Method (SOP 0089)	Taqman real time PCR; SOP0006	
5							
6	20.09.19	MON88302 Event	10 hapl. Genome copies	EURL-GMFF method for gm-rape seed MON88302, mod.	1. s.a. (SDS/Guanid.-Extr. + Wizard) 2. s.a. (CTAB-Extr. + Wizard)	Real-time PCR with 45 Cycles; 101 bp Amplificate; Ref. MON88302	
7							
8				In House Method		Proteinase/ Silica-columns/Real-Time PCR	
9	09/Sept.		00/01%		CTAB	RealTime PCR	
10	09.10.19	eventspecific	< 0.04%	In House Method	Macherey Nagel Food	Real Time PCR, 45 Cycles	
11	07.10.19		10 Copies	EU RL GMFF CRLVL09/11VP	DNA-Isolation by Wizard-Resin	Real Time PCR	
12							
13	27.09.19	MON88302 Raps (MON-883Ø2-9)	≤ 0,01 %	SureFood® GMO 4plex Canola II (S2167), R-Biopharm / Congen	Extraction with SureFood® PREP Basic (S1052)	real-time PCR	K01
14	27.09.19	DNA	5 Copies/PCR	GEN-IAL genControl RT MON88302-Canola Kit			
15							

5.1.10 Other Parameter (DNA)

Parameter	Evaluation No.	Date of Analysis	Results given as	Limit of Detection	Test-Kit or Literature	Notes to Extraction	Notes to PCR-reaction	Further Remarks
		Day/Month	Target-Sequence / -DNA	number of copies / % / ct-value	Manufacturer / Official Method	e.g. Extraction / enzymes / clean-up / DNA quality / DNA amount	e.g real time PCR / gel electrophoresis / cycles / amplificate length / reference material	
cry1Ab/Ac	1	01.10.19		0,1%				
PAT	1	01.10.19		0,1%				
p-35S-PAT	1	10.10.19		0,1%				
BAR	1	01.10.19		0,1%				
p-NOS	1	10.10.19		0,1%				
Canola CruciferinA target (CrucA)	2	11.09.19		36				
Sugarbeet Glutamase A target (GluA)	2	11.09.19		36				
Potato UGPase target	2	11.09.19		31,5				
pat target	2	11.09.19		35,43				
CrylAb/Ac target	2	11.09.19		37,26				
Chloroplasten-Leu-tRNA-Gensequenz (Plant-Kontrolle)	6	01.10.19	Leu-tRNA-Gen	nicht ermittelt	ASU L 00.00-118, mod.	1. s.o. (SDS/Guanid.-Extr. + Wizard) 2. s.o. (CTAB-Extr. + Wizard)	konventionelle PCR mit 35 Zyklen und Gelelektrophorese; ca. 380-650 bp Amplifikat; Ref. Versch. Pflanzenarten	allgemeine Kontroll-PCR zum Nachweis von pflanzlicher DNA
Weizen-Referenzgen	6	30.09.19	waxy-D1-Gen	10 hapl. Genomkopien	Iida et al., 2005	1. s.o. (SDS/Guanid.-Extr. + Wizard) 2. s.o. (CTAB-Extr. + Wizard) 3. CTAB basiertes Extrationsverfahren mit anschließender Aufreinigung über QIAquick PCR Purification Kit der Fa. Qiagen (nach Holzhauser et al., 2000, modif.)	Real-time PCR mit 45 Zyklen; 102 bp Amplifikat; Ref. Weizen	
Kartoffel Referenzgen	6	13.09.19	UGPase	10 hapl. Genomkopien	EURL-GMFF Verfahren für gv-Kartoffel EH92-527-1, mod.	1. s.o. (SDS/Guanid.-Extr. + Wizard) 2. s.o. (CTAB-Extr. + Wizard)	Real-time PCR mit 45 Zyklen; 88 bp Amplifikat; Ref. EH92-527-1	
Brassicaceae (Raps) Referenzgen	6	13.09.19	cruA	10 hapl. Genomkopien	EURL-GMFF Verfahren für gv-Raps GT73, mod.	1. s.o. (SDS/Guanid.-Extr. + Wizard) 2. s.o. (CTAB-Extr. + Wizard)	Real-time PCR mit 45 Zyklen; 101 bp Amplifikat; Ref. GT73	Die Proben 1, 3, 4 und 5 sind auffällig im Spurenbereich unterhalb der Nachweisgrenze von 10 hapl.Genomkopien
Zuckerrübe Referenzgen	6	16.09.19	GS	10 hapl. Genomkopien	EURL-GMFF Verfahren für gv-Zuckerrübe H7-1, mod.	1. s.o. (SDS/Guanid.-Extr. + Wizard) 2. s.o. (CTAB-Extr. + Wizard) 3. s.o. (CTAB + QIAquick)	Real-time PCR mit 45 Zyklen; 121 bp Amplifikat; Ref. H7-1	
bar	6	17.09.09	bar	10 hapl. Genomkopien	ASU L 00.00-154, mod.	1. s.o. (SDS/Guanid.-Extr. + Wizard) 2. s.o. (CTAB-Extr. + Wizard)	Triplex-Real-time PCR mit 45 Zyklen; 60 bp Amplifikat; Ref. Ms8	
pat	6	17.09.19	pat	5 hapl. Genomkopien	ASU L 00.00-154, mod.	1. s.o. (SDS/Guanid.-Extr. + Wizard) 2. s.o. (CTAB-Extr. + Wizard)	Triplex-Real-time PCR mit 45 Zyklen; 108 bp Amplifikat; Ref. T45	

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Parameter	Evaluation No.	Date of Analysis	Results given as	Limit of Detection	Test-Kit or Literature	Notes to Extraction	Notes to PCR-reaction	Further Remarks
		Day/Month	Target-Sequence / -DNA	number of copies / % / ct-value	Manufacturer / Official Method	e.g. Extraction / enzymes / clean-up / DNA quality / DNA amount	e.g real time PCR / gel electrophoresis / cycles / amplificate length / reference material	
pNOS	6	19.09.19	pNOS	5 hapl. Genomkopien	ASU L 00.00-141, mod.	1. s.o. (SDS/Guanid.-Extr. + Wizard) 2. s.o. (CTAB-Extr. + Wizard)	Real-time PCR mit 45 Zyklen; 94 bp Amplifikat; Ref. Topas 19/2	
p35S-nptII	6	20.09.19	p35S-nptII Konstrukt	20 hapl. Genomkopien	ASU G 30.40-18 (Entwurf), mod. bzw. Reiting, 2010	1. s.o. (SDS/Guanid.-Extr. + Wizard) 2. s.o. (CTAB-Extr. + Wizard)	Real-time PCR mit 45 Zyklen; 163 bis 294 bp Amplifikate; Ref. Trierucin-Raps	
pSSUAra-bar	6	04.10.19	pSSUAra-bar Konstrukt	0,1 Prozent gv-Anteil	ASU G 30.40-13, mod.	1. s.o. (SDS/Guanid.-Extr. + Wizard) 2. s.o. (CTAB-Extr. + Wizard)	konventionelle PCR mit 45 Zyklen und Gelelektrophorese; 454 bzw. 624 bp Amplifikat; Ref. Ms1xRf1 und Ms8xRf3	
p35S-nptII	6	04.10.19	p35S-nptII Konstrukt	0,1 Prozent gv-Anteil	ASU G 30.40-12, mod.	1. s.o. (SDS/Guanid.-Extr. + Wizard) 2. s.o. (CTAB-Extr. + Wizard)	konventionelle PCR mit 45 Zyklen und Gelelektrophorese; 427-553 bp Amplifikat; Ref. Laurat und Trierucin	
gv-Zuckerrübe T120-7	6	07.10.19	T120-7 Event	nicht ermittelt	Hess et al., 2002	1. s.o. (SDS/Guanid.-Extr. + Wizard) 2. s.o. (CTAB-Extr. + Wizard) 3. s.o. (CTAB + QIAquick)	konventionelle PCR mit 45 Zyklen und Gelelektrophorese; 202 bp Amplifikat; Ref. T120-7	
gv-Raps Rf3	6	23.09.19	Rf3 Event	10 hapl. Genomkopien	EURL-GMFF Verfahren für gv-Raps Rf3, mod.	1. s.o. (SDS/Guanid.-Extr. + Wizard) 2. s.o. (CTAB-Extr. + Wizard)	Real-time PCR mit 45 Zyklen; 139 bp Amplifikat; Ref. Rf3	
gv-Raps Rf2	6	23.09.19	Rf2 Event	10 hapl. Genomkopien	EURL-GMFF Verfahren für gv-Raps Rf2, mod.	1. s.o. (SDS/Guanid.-Extr. + Wizard) 2. s.o. (CTAB-Extr. + Wizard)	Real-time PCR mit 45 Zyklen; 104 bp Amplifikat; Ref. Rf2	
gv-Raps Ms8	6	23.09.19	Ms8 Event	10 hapl. Genomkopien	EURL-GMFF Verfahren für gv-Raps Ms8, mod.	1. s.o. (SDS/Guanid.-Extr. + Wizard) 2. s.o. (CTAB-Extr. + Wizard)	Real-time PCR mit 45 Zyklen; 130 bp Amplifikat; Ref. Ms8	
gv-Raps Rf1	6	23.09.19	Rf1 Event	10 hapl. Genomkopien	EURL-GMFF Verfahren für gv-Raps Rf1, mod.	1. s.o. (SDS/Guanid.-Extr. + Wizard) 2. s.o. (CTAB-Extr. + Wizard)	Real-time PCR mit 45 Zyklen; 113 bp Amplifikat; Ref. Rf1	
gv-Raps Ms1	6	23.09.19	Ms1 Event	10 hapl. Genomkopien	EURL-GMFF Verfahren für gv-Raps Ms1, mod.	1. s.o. (SDS/Guanid.-Extr. + Wizard) 2. s.o. (CTAB-Extr. + Wizard)	Real-time PCR mit 45 Zyklen; 187 bp Amplifikat; Ref. Ms1	
gv-Raps Topas 19/2	6	27.09.19	Topas 19/2 Event	10 hapl. Genomkopien	EURL-GMFF Verfahren für gv-Raps Topas 19/2, mod.	2. s.o. (CTAB-Extr. + Wizard)	Real-time PCR mit 45 Zyklen; 95 bp Amplifikat; Ref. Topas 19/2	
gv-Raps T45	6	27.09.19	T45 Event	10 hapl. Genomkopien	EURL-GMFF Verfahren für gv-Raps T45, mod.	2. s.o. (CTAB-Extr. + Wizard)	Real-time PCR mit 45 Zyklen; 123 bp Amplifikat; Ref. T45	

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Parameter	Evaluation No.	Date of Analysis	Results given as	Limit of Detection	Test-Kit or Literature	Notes to Extraction	Notes to PCR-reaction	Further Remarks
		Day/Month	Target-Sequence / -DNA	number of copies / % / ct-value	Manufacturer / Official Method	e.g. Extraction / enzymes / clean-up / DNA quality / DNA amount	e.g real time PCR / gel electro-phoresis / cycles / amplificate length / reference material	
gv-Raps Liberator	6	27.09.19	Liberator Event	10 hapl. Genomkopien	ASU G 30.40-6, mod.	2. s.o. (CTAB-Extr. + Wizard)	Real-time PCR mit 45 Zyklen; 96 bp Amplifikat; Ref. Liberator	
gv-Raps Falcon GS40/90	6	27.09.19	Falcon GS40/90 Event (Intergrationsort 1/Avalon)	20 hapl. Genomkopien	ASU G 30.40-6, mod.	1. s.o. (SDS/Guanid.-Extr. + Wizard)	Real-time PCR mit 45 Zyklen; 166 bp Amplifikat; Ref. Falcon GS40/90	
gv-Raps Falcon GS40/90	6	27.09.19	Falcon GS40/90 Event (Intergrationsort 2/Falcon)	20 hapl. Genomkopien	ASU G 30.40-6, mod.	1. s.o. (SDS/Guanid.-Extr. + Wizard)	Real-time PCR mit 45 Zyklen; 83 bp Amplifikat; Ref. Falcon GS40/90	
gv-Raps Laurat	6	27.09.19	für Laurat Event spezifisches p35S-nptII Konstrukt	5 hapl. Genomkopien	Reiting, 2010	1. s.o. (SDS/Guanid.-Extr. + Wizard)	Real-time PCR mit 45 Zyklen; 180 bp Amplifikat; Ref. Laurat	
gv-Raps OXY-235	6	30.09.19	OXY-235 Event	10-20 hapl. Genomkopien	Yang et al., 2008	2. s.o. (CTAB-Extr. + Wizard)	Real-time PCR mit 45 Zyklen; 124 bp Amplifikat; Ref. OXY-235	
gv-Raps OXY-235	6	30.09.19	OXY-235 Event	5 hapl. Genomkopien	Fa. Bayer/EURL-GMFF Verfahren für gv-Raps OXY-235	2. s.o. (CTAB-Extr. + Wizard)	Real-time PCR mit 45 Zyklen; 119 bp Amplifikat; Ref. OXY-235	
gv-Raps DP73496	6	30.09.19	DP73496 Event	10 hapl. Genomkopien	EURL-GMFF Verfahren für gv-Raps DP73496, mod.	2. s.o. (CTAB-Extr. + Wizard)	Real-time PCR mit 45 Zyklen; 84 bp Amplifikat; Ref. DP73496	
gv-Raps Laurat	6	04.10.19	für Laurat Event spezifisches pNapin-BayTE Konstrukt	10 hapl. Genomkopien	Methodensammlung des LAG (AM015)	2. s.o. (CTAB-Extr. + Wizard)	konventionelle PCR mit 45 Zyklen und Gelelektrophorese; 314 bp Amplifikat; Ref. Laurat	
gv-Raps Trierucin	6	04.10.19	für Trierucin spezifisches plsC-Gen	150 hapl. Genomkopien	Methodensammlung des LAG (AM015)	2. s.o. (CTAB-Extr. + Wizard)	konventionelle PCR mit 45 Zyklen und Gelelektrophorese; 603 bp Amplifikat; Ref. Laurat-Amplifikat	
PAT Gen	7	17.9.19.		0,1 Prozent	Hausmethode	Hausmethode	Hausmethode	
T45	10	09.10.19	eventspezifisch	< 0.045%	Hausmethode	Macherey Nagel Food	Real Time PCR, 45 Cyclen	
Topas 19/2	10	09.10.19	eventspezifisch	< 0.045%	Hausmethode	Macherey Nagel Food	Real Time PCR, 45 Cyclen	
MS8	10	09.10.19	eventspezifisch	< 0.045%	Hausmethode	Macherey Nagel Food	Real Time PCR, 45 Cyclen	
RF3	10	09.10.19	eventspezifisch	< 0.045%	Hausmethode	Macherey Nagel Food	Real Time PCR, 45 Cyclen	
Oxy235	10	09.10.19	eventspezifisch	< 0.045%	Hausmethode	Macherey Nagel Food	Real Time PCR, 45 Cyclen	
73496	10	09.10.19	eventspezifisch	< 0.04%	Hausmethode	Macherey Nagel Food	Real Time PCR, 45 Cyclen	

Continuation next page

Parameter	Evaluati-on No.	Date of Analysis	Results given as	Limit of Detection	Test-Kit or Literature	Notes to Extraction	Notes to PCR-reaction	Further Remarks
		Day/Month	Target-Sequence / -DNA	number of copies / % / ct-value	Manufacturer / Official Method	e.g. Extraction / enzymes / clean-up / DNA quality / DNA amount	e.g real time PCR / gel electro-phoresis / cycles / amplificate length / reference material	
CruA (Raps)	12	11.09.19	20 hapl. Genomkopien		ASU G 30.40-6 mod.	Maxwell FFS Kit, 200 mg Einwaage, Doppelbestimmung	Real-Time PCR, 2x LightCycler480 Probes Mastermix, RefMat Blumenkohlblatt	
UGPase (Kartoffel)	12	10.09.19	10 hapl. Genomkopien		EURL-GMFF EH92-527-1 Kartoffel mod.	Maxwell FFS Kit, 200 mg Einwaage, Doppelbestimmung	Real-Time PCR, 2x LightCycler480 Probes Mastermix, 45 Zyklen, RefMat EH92-527-1	
pat	14	13.09.19	DNA	10 Kopien/PCR	GEN-IAL genControl RT Triplex VII			
bar	14	13.09.19	DNA	10 Kopien/PCR	GEN-IAL genControl RT Triplex VII			
Soja	14	18.09.19	DNA	10pg/PCR	GEN-IAL First- Plant Triplex I			
Raps	14	18.09.19	DNA	10pg/PCR	GEN-IAL First- Plant Triplex I			
Mais	14	18.09.19	DNA	10pg/PCR	GEN-IAL First- Plant Triplex I			

5.2 Homogeneity

5.2.1 Mixture homogeneity before bottling

Microtracer Homogeneity Test
DLA 34-2019 Sample 1

Weight whole sample	1,00	kg
Microtracer	FSS-rot lake	
Particle size	75 – 300	µm
Weight per particle	2,0	µg
Addition of tracer	24,4	mg/kg

Result of analysis

Sample	Weight [g]	Particle number	Particles [mg/kg]
1	4,79	85	35,5
2	5,05	76	30,1
3	5,00	75	30,0
4	4,97	84	33,8
5	5,09	92	36,1
6	4,87	80	32,9
7	5,00	84	33,6
8	5,13	86	33,5

Poisson distribution		
Number of samples	8	
Degree of freedom	7	
Mean	82,8	Particles
Standard deviation	5,54	Particles
χ^2 (CHI-Quadrat)	2,60	
Probability	**92**	%
Recovery rate	136	%

Normal distribution		
Number of samples	8	
Mean	33,2	mg/kg
Standard deviation	2,22	mg/kg
rel. Standard deviaton	6,69	%
Horwitz standard deviation	9,44	%
HorRat-value	**0,71**	
Recovery rate	136	%

Microtracer Homogeneity Test
DLA 34-2019 Sample 2

Weight whole sample	1,00	kg
Microtracer	FSS-rot lake	
Particle size	75 – 300	µm
Weight per particle	2,0	µg
Addition of tracer	19,3	mg/kg

Result of analysis

Sample	Einwaage [g]	Partikel Anzahl	Partikel [mg/kg]
1	4,82	50	20,7
2	5,03	46	18,3
3	5,05	52	20,6
4	5,00	56	22,4
5	5,09	54	21,2
6	4,84	53	21,9
7	5,06	53	20,9
8	5,00	52	20,8

Poisson distribution		
Number of samples	8	
Degree of freedom	7	
Mean	52,0	Particles
Standard deviation	3,02	Particles
χ^2 (CHI-Quadrat)	1,23	
Probability	**99**	%
Recovery rate	108	%

Normal distribution		
Number of samples	8	
Mean	20,9	mg/kg
Standard deviation	1,21	mg/kg
rel. Standard deviaton	5,81	%
Horwitz standard deviation	10,1	%
HorRat-value	**0,57**	
Recovery rate	108	%

Microtracer Homogeneity Test
DLA 34-2019 Sample 3

Weight whole sample	1,00	kg
Microtracer	FSS-rot lake	
Particle size	75 – 300	µm
Weight per particle	2,0	µg
Addition of tracer	25,0	mg/kg

Result of analysis

Sample	Weight [g]	Particle number	Particles [mg/kg]
1	5,16	76	29,5
2	4,87	75	30,8
3	5,03	73	29,0
4	4,99	70	28,1
5	5,18	75	29,0
6	4,82	70	29,0
7	4,99	80	32,1
8	5,07	82	32,3

Poisson distribution		
Number of samples	8	
Degree of freedom	7	
Mean	75,1	Particles
Standard deviation	3,96	Particles
χ^2 (CHI-Quadrat)	1,46	
Probability	**98**	%
Recovery rate	120	%

Normal distribution		
Number of samples	8	
Mean	30,0	mg/kg
Standard deviation	1,58	mg/kg
rel. Standard deviaton	5,26	%
Horwitz standard deviation	9,59	%
HorRat-value	**0,55**	
Recovery rate	120	%

Microtracer Homogeneity Test
DLA 34-2019 Sample 4

Weight whole sample	1,00	kg
Microtracer	FSS-rot lake	
Particle size	75 – 300	µm
Weight per particle	2,0	µg
Addition of tracer	22,7	mg/kg

Result of analysis

Sample	Weight [g]	Particle number	Particles [mg/kg]
1	5,13	62	24,2
2	5,14	57	22,2
3	4,98	59	23,7
4	5,06	66	26,1
5	5,18	62	23,9
6	5,11	72	28,2
7	4,99	61	24,4
8	5,12	63	24,6

Poisson distribution		
Number of samples	8	
Degree of freedom	7	
Mean	62,8	Particles
Standard deviation	4,54	Particles
χ^2 (CHI-Quadrat)	2,30	
Probability	**94**	%
Recovery rate	109	%

Normal distribution		
Number of samples	8	
Mean	24,7	mg/kg
Standard deviation	1,79	mg/kg
rel. Standard deviaton	7,24	%
Horwitz standard deviation	9,88	%
HorRat-value	**0,73**	
Recovery rate	109	%

Microtracer Homogeneity Test
DLA 34-2019 Sample 5

Weight whole sample	1,00	kg
Microtracer	FSS-rot lake	
Particle size	75 – 300	µm
Weight per particle	2,0	µg
Addition of tracer	31,1	mg/kg

Result of analysis

Sample	Weight [g]	Particle number	Particles [mg/kg]
1	4,92	96	39,0
2	4,98	82	32,9
3	5,09	87	34,2
4	5,10	86	33,7
5	5,13	78	30,4
6	5,11	94	36,8
7	5,07	82	32,3
8	5,20	81	31,2

Poisson distribution		
Number of samples	8	
Degree of freedom	7	
Mean	85,8	Particles
Standard deviation	7,29	Particles
χ^2 (CHI-Quadrat)	4,33	
Probability	**74**	%
Recovery rate	109	%

Normal distribution		
Number of samples	8	
Mean	33,8	mg/kg
Standard deviation	2,87	mg/kg
rel. Standard deviaton	8,49	%
Horwitz standard deviation	9,42	%
HorRat-value	**0,90**	
Recovery rate	109	%

5.3 Information on the Proficiency Test (PT)

Before the PT the participants received the following information in the sample cover letter:

PT number	***DLA 34-2019***
PT name	***GMO-Screening II (qualitative): 5 Samples with positive/negative amounts of GMO-Potato Amflora (EH92-527-1), GMO-Rape Seed / Canola (GT73, MON88302) and GMO-Sugar Beet (H7-1)***
*Sample matrix**	*5 different Samples: possible ingredients: flours and plant powder mixtures of potato, rape seed, sugar beet and wheat.*
Number of samples and sample amount	*5 different samples, 10 g each.*
Storage	*Samples: dry and dark at room temperature (long term cooled 2 - 10°C)*
Intentional use	*Laboratory use only (quality control samples)*
Parameter	***qualtitative:** Screening sequences - p-35S, t-NOS, p-NOS/nptII, p-FMV, CP4EPSPS and specific events - GMO-Potato Amflora (EH92-527-1), GMO-Rape Seed / Canola (GT73, MON88302) and GMO-Sugar Beet (H7-1)*
Methods of analysis	*Analytical methods are optional*
Notes to analysis	*The analysis of PT samples should be performed like a routine laboratory analysis.* *In general we recommend to homogenize a representative sample amount before analysis according to good laboratory practice, especially in case of low sample weights.*
Result sheet	*One result each should be determined for Samples 1-5 per parameter and filled in the result submission file.*
Units	*positive / negative (limit of detection: copies or percentage)*
Number of significant digits	*only qualitative*
Further information	*Further information can be given in the result submission file.*
Result submission	*The result submission file should be sent by e-mail to:* ***pt@dla-lvu.de***
Deadline	***the latest 11th October 2019***
Evaluation report	*The evaluation report is expected to be completed 6 weeks after deadline of result submission and sent as PDF file by e-mail.*
Coordinator and contact person of PT	*Matthias Besler-Scharf PhD*

** Control of mixture homogeneity and qualitative testings are carried out by DLA. Any testing of the content, homogeneity and stability of PT parameters is subcontracted by DLA.*

6. Index of participant laboratories

Teilnehmer / Participant	Ort / Town	Land / Country
		SWITZERLAND
		Germany
		Germany
		Germany
		FRANCE
		Germany
		AUSTRIA
		BELGIUM
		Germany
		Germany
		Germany
		Germany
		Germany
		GREAT BRITAIN
		Germany

[Die Adressdaten der Teilnehmer wurden für die allgemeine Veröffentlichung des Auswerte-Berichts nicht angegeben.]

[The address data of the participants were deleted for publication of the evaluation report.]

7. Index of references

1. DIN EN ISO/IEC 17025:2005; Allgemeine Anforderungen an die Kompetenz von Prüf- und Kalibrierlaboratorien / General requirements for the competence of testing and calibration laboratories
2. DIN EN ISO/IEC 17043:2010; Konformitätsbewertung – Allgemeine Anforderungen an Eignungsprüfungen / Conformity assessment – General requirements for proficiency testing
3. ISO 13528:2015 & DIN ISO 13528:2009; Statistische Verfahren für Eignungsprüfungen durch Ringversuche / Statistical methods for use in proficiency testing by interlaboratory comparisons
4. ASU §64 LFGB: Planung und statistische Auswertung von Ringversuchen zur Methodenvalidierung / DIN ISO 5725 series part 1, 2 and 6 Accuracy (trueness and precision) of measurement methods and results
5. Verordnung / Regulation 882/2004/EU; Verordnung über über amtliche Kontrollen zur Überprüfung der Einhaltung des Lebensmittel- und Futtermittelrechts sowie der Bestimmungen über Tiergesundheit und Tierschutz / Regulation on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules
6. Evaluation of analytical methods used for regulation of food and drugs; W. Horwitz; Analytical Chemistry, 54, 67-76 (1982)
7. The International Harmonised Protocol for the Proficiency Testing of Analytical Laboratories ; J.AOAC Int., 76(4), 926 – 940 (1993)
8. A Horwitz-like funktion describes precision in proficiency test; M. Thompson, P.J. Lowthian; Analyst, 120, 271-272 (1995)
9. Protocol for the design, conduct and interpretation of method performance studies; W. Horwitz; Pure & Applied Chemistry, 67, 331-343 (1995)
10. Recent trends in inter-laboratory precision at ppb and sub-ppb concentrations in relation to fitness for purpose criteria in proficiency testing; M. Thompson; Analyst, 125, 385-386 (2000)
11. The International Harmonised Protocol for the Proficiency Testing of Analytical Chemistry Laboratories; Pure Appl Chem, 78, 145 – 196 (2006)
12. AMC Kernel Density - Representing data distributions with kernel density estimates, amc technical brief, Editor M Thompson, Analytical Methods Committee, AMCTB No 4, Revised March 2006 and Excel Add-in Kernel.xla 1.0e by Royal Society of Chemistry
13. EURACHEM/CITAC Leitfaden, Ermittlung der Messunsicherheit bei analytischen Messungen (2003); Quantifying Uncertainty in Analytical Measurement (1999)
14. GMP+ Feed Certification scheme, Module: Feed Safety Assurance, chapter 5.7 Checking procedure for the process accuracy of compound feed with micro tracers in GMP+ BA2 Control of residues, Version: 1st of January 2015 GMP+ International B.V.
15. MTSE SOP No. 010.01 (2014): Quantitative measurement of mixing uniformity and carry-over in powder mixtures with the rotary detector technique, MTSE Micro Tracers Services Europe GmbH
16. Homogeneity and stability of reference materials; Linsinger et al.; Accred Qual Assur, 6, 20-25 (2001)
17. AOAC Official Methods of Analysis: Guidelines for Standard Method Performance Requirements, Appendix F, p. 2, AOAC Int (2016)
18. European Network of GMO Laboratories, Definition of Minimum Performance Requirements for Analytical Methods of GMO Testing, Version 20-10-2015
19. JRC Technical Report, European technical guidance document for the flexible scope accreditation of laboratories quantifying GMOs, Trapmann et al. (2014, 2nd Version)
20. JRC Scientific Technical Report, Overview on the detection, interpretation and reporting on the presence of unauthorised genetically modified materials Prepared by the ENGL *ad hoc* working group on "unauthorised GMOs", December 2011
21. ALS-Stellungnahme, Untersuchung auf gentechnisch veränderte Lebensmittel

(2007/43) Stellungnahme des Arbeitskreises Lebensmittelchemischer Sachverständiger der Länder und des Bundesamtes für Verbraucherschutz und Lebensmittelsicherheit (ALS) Beschluss 89. Sitzung, 27./28. März 2007 [Opinion on Analysis of genetically modified foods, working group of german food chemistry experts]
22. Powell J, Owen L, Reliability of food measurements: the application of proficiency testing to GMO analysis, Accred Qual. Assur. 7, 392-402 (2002)
23. Thompson M, GMO Proficiency testing: Interpreting z-scores derived from log-transformed data, amc technical brief, No. 18 Dec 2004
24. Thompson M et al., Scoring in Genetically Modified Organism Proficiency Tests Based on Log-Transformed Results, J. AOAC Int., 89(1), 232-239 (2006)
25. Žel J et al., Calculation of Measurement Uncertainty in Quantitative Analysis of Genetically Modified Organisms Using Intermediate Precision - A Practical Approach, J. AOAC Int., 90(2), 582-586 (2007)
26. Screening-Tabelle für den GVO-Nachweis, BVL - Bundesamt für Verbraucherschutz und Lebensmittelsicherheit, 26.05.2015 [Screening table for GMO-detection, Federal Office of Consumer Protection and Food Safety (BVL)]
27. Leitlinien zur Einzellabor-Validierung qualitativer real-time PCR Methoden, BVL - Bundesamt für Verbraucherschutz und Lebensmittelsicherheit, 2016 [Guidelines for single laboratory validation of qualitative real-time PCR methods, Federal Office of Cosumer Protection and Food Safety, 2016]
28. EUginius (EUropean GMO INItiative for a Unified database System), The European GMO Database, Federal Office of Consumer Protection and Food Safety (BVL) and the WFSR Wageningen University & Research (WFSR), https://euginius.eu (1.8, Aug. 2019)