Evaluation Report
proficiency test

DLA ptGMS1 (2021)

GMO-Screening I (qualitative):

5 Samples with positive/negative amounts of p-35S, t-NOS, p-FMV, CP4 EPSPS, 35S-Pat, Cry1Ab/Ac / GMO-Maize (Bt11, MIR604) and GMO-Soya (RR GTS 40-3-2, RR2 MON89788)

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

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EP-Bericht Freigabe *PT-Report Authorization*	Dr. Matthias Besler-Scharf (Technischer Leiter / Technical Manager) *- gezeichnet / signed M. Besler-Scharf* Alexandra Scharf MSc. (QM-Beauftragte / Quality Manager) *- gezeichnet / signed A. Scharf* Datum / Date: 17 September 2021
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.

Contents

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 from European and US-American suppliers (s. table 1). The raw materials were crushed, sieved (mesh <400 µm, <600 µm and <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 homogenization 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-Content Maize	GMO-Content Soya
1	Wheat flour Typ 550 (100 g) Ingredients: Wheat Nutrients per 100 g: Protein 11 g, Carbohydrates 72 g, Fat 1,1 g	-	-
2	Wheat flour Typ 550 (90 g) Ingredients: Wheat Nutrients per 100 g: Protein 11 g, Carbohydrates 72 g, Fat 1,1 g Soya flour, European Supplier (7,0 g) Ingredients: **Soya flour toasted** Nutrients per 100 g: Protein 37 g Soya Chunks, USA Supplier (3,0 g) Ingredients: **Soya flour** Nutrients per 100 g: Protein 47 g, Carbohydrates 17 g, Fat 0,8 g	- - -	- - positive (GMO-Soya experimental)
3	Complete feed for laying hens (25 g) Ingredients: M**aize**, **soy extraction flour**, calcium carbonate, wheat, sunflower extraction flour, glued wheat feed, wheat bran, Ca-Na phosphate, sodium chloride, vegetable fatty acids and other additives Nutrients per 100 g: Crude protein 19 g, crude fiber 3,9 g, crude fat 3,0 g, crude ash 17 g Wheat flour Typ 550 (75 g) Ingredients: Wheat Nutrients per 100 g: Protein 11 g, Carbohydrates 72 g, Fat 1,0 g	< 0,9% (GVO-Maize experimental) -	positive (GMO-Soya experimental) -
4	Wheat flour Typ 550 (80 g) Ingredients: Wheat Nutrients per 100 g: Protein 11 g, Carbohydrates 72 g, Fat 1,1 g Soya flour, European Supplier (10 g) Ingredients: **Soya flour toasted** Nutrients per 100 g: Protein 37 g Maize flour, European Supplier (10 g) Ingredients: **Maize flour** Nutrients per 100 g: Protein 7,5 g, Carbohydrates 77 g, Fat 1 g	- - -	- - -
5	Wheat flour Typ 505 (80 g) Ingredients: Wheat Nutrients per 100 g: Protein 11 g, Carbohydrates 72 g, Fat 1,1 g Maize flour, European Supplier (13 g) Ingredients: **Maize flour** Nutrients per 100 g: Protein 7,5 g, Carbohydrates 77 g, Fat 1 g Maize flour, USA Supplier (7,0 g) Ingredients: **Maize flour** Nutrients per 100 g: Protein 9 g, Carbohydrates 79 g, Fat 0 g	- - positive (GMO-Maize experimental)	- - -

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 2-5 showed probabilities of 99%, 95%, 99% and 98%, 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 0,57, 1,0, 0,54 and 0,62, 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 0,47 - 0,49 (21°C). The stability of the sample material was thus ensured during the investigation period under the specified storage conditions.

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 19th week of 2021. The testing method was optional. The tests should be finished at Juli 9th 2021 the latest (extended).

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

DLA ptGMS1 (2021) – GMO-Screening I (qualitative): 5 Samples with positive / negative amounts of p-35S, t-NOS, p-FMV, CP4 EPSPS, 35S-Pat, Cry1Ab/Ac / GMO-Maize (Bt11, MIR604) and GMO-Soya (RR GTS 40-3-2, RR2 MON89788)
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.

23 out of 25 participants submitted their results in time. 2 participants submitted no 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, FMN, p-NOS/nptII, CTP2-CP4 EPSPS, 35S-Pat, Cry1Ab/Ac, GMO-Maize Bt11, GMO-Maize MIR604, Maize-DNA and GMO-Soya RR (GTS 40-3-2), GMO-Soya RR2 (MON89788), Lectin-DNA 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 all participants.** A consensus value is determined if ≥ 75% positive or negative results are available 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	Sample 5	Qualitative Valuation	Qualitative Valuation	Remarks
	pos/neg	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	Sample 5
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	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
2	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
3	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
4	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
5	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
6	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
7	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
8	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
9	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
10	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
11	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
12	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
13	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
14	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
15	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
16	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
17	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
18	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
19	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
20	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
21	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
22	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
23	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Number positive	0	23	23	0	23
Number negative	23	0	0	23	0
Percent positive	0	100	100	0	100
Percent negative	100	0	0	100	0
Consensus value	negative	positive	positive	negative	positive
Spiking	negative	positive	positive	negative	positive

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

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	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
2	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
3	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
4	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
5	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
6	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
7	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
8	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
9	negative	negative	positive	negative	positive	4/5 (80%)	4/5 (80%)	
10	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
11	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
12	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
13	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
14	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
15	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
16	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
17	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
18	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
19	positive	positive	positive	positive	positive	3/5 (60%)	3/5 (60%)	
20	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
21	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
22	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
23	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Number positive	1	22	23	1	23
Number negative	22	1	0	22	0
Percent positive	4	96	100	4	100
Percent negative	96	4	0	96	0
Consensus value	negative	positive	positive	negative	positive
Spiking	negative	positive	positive	negative	positive

Comments:
For all 5 samples consensus values with two times 100% and three times 96% positive or negative results were obtained, respectively.
The consensus values are in agreement with the addition of the GMO-containing ingredients (spiking).

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 spiking of samples	
1	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
2	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
3	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
4	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
5	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
6	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
7	negative	negative	positive	negative	negative	4/5 (80%)	4/5 (80%)	
8	negative	negative	positive	negative	negative	4/5 (80%)	4/5 (80%)	
10	negative	negative	positive	negative	negative	4/5 (80%)	4/5 (80%)	
11	negative	negative	positive	negative	negative	4/5 (80%)	4/5 (80%)	
12	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
13	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
14	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
15	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
16	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
17	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
18	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
19	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
20	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
21	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
22	negative	negative	positive	negative	negative	4/5 (80%)	4/5 (80%)	
23	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Number positive	0	17	22	0	0
Number negative	22	5	0	22	22
Percent positive	0	77	100	0	0
Percent negative	100	23	0	100	100
Consensus value	negative	positive	positive	negative	negative
Spiking	negative	positive	positive	negative	negative

Comments:
For all 5 samples consensus values with four times 100% and once 77% 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: 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
CTP2- CP4 EPSPS	pos/neg	pos/neg	pos/neg	pos/neg	pos/neg	Agreement with consensus value	Agreement with spiking of samples	
5	negative	positive	positive	negative	negative	4/5 (80%)	4/5 (80%)	
6	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
7	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
8	negative	positive	positive	negative	negative	4/5 (80%)	4/5 (80%)	
9	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
11	negative	negative	positive	negative	negative	3/5 (60%)	3/5 (60%)	
12	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
14	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
16	negative	negative	positive	negative	positive	4/5 (80%)	4/5 (80%)	
17	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
19	negative	negative	positive	negative	positive	4/5 (80%)	4/5 (80%)	
20	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
21	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	
23	negative	positive	positive	negative	positive	5/5 (100%)	5/5 (100%)	

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Number positive	0	11	14	0	11
Number negative	14	3	0	14	3
Percent positive	0	79	100	0	79
Percent negative	100	21	0	100	21
Consensus value	negative	positive	positive	negative	positive
Spiking	negative	positive	positive	negative	positive

Comments:
For all 5 samples consensus values with three times 100% and two times 79% 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: 35S-Pat-Screening-Sequence

Qualitative valuation of results

Evaluation number	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Qualitative Valuation	Qualitative Valuation	Remarks
35S-Pat	pos/neg	pos/neg	pos/neg	pos/neg	pos/neg	Agreement with consensus value	Agreement with spiking of samples	
5	negative	positive	positive	negative	positive	3/3 (100%)	5/5 (100%)	
7	negative	negative	negative	negative	positive	3/3 (100%)	3/5 (60%)	Sample 3 < LOD
8	negative	negative	positive	negative	positive	3/3 (100%)	4/5 (80%)	
10	negative	negative	positive	negative	positive	3/3 (100%)	4/5 (80%)	
12	negative	negative	positive	negative	positive	3/3 (100%)	4/5 (80%)	
16	negative	negative	negative	negative	positive	3/3 (100%)	3/5 (60%)	
19	negative	negative	negative	negative	positive	3/3 (100%)	3/5 (60%)	
20	negative	positive	negative	negative	positive	3/3 (100%)	4/5 (80%)	Traces < LOD in sample 3
21	negative	negative	negative	negative	positive	3/3 (100%)	3/5 (60%)	
23	negative	positive	positive	negative	positive	3/3 (100%)	5/5 (100%)	

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Number positive	0	3	5	0	10
Number negative	10	7	5	10	0
Percent positive	0	30	50	0	100
Percent negative	100	70	50	100	0
Consensus value	negative	none	none	negative	positive
Spiking	negative	positive	positive	negative	positive

Comments:
For the samples 1, 4 and 5 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).
For samples 2 and 3 no consensus values with ≥75% positive or negative results were obtained.

4.1.6 Results: Cry1Ab/Ac-Screening-Sequence

Qualitative valuation of results

Evaluation number	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Qualitative Valuation	Qualitative Valuation	Remarks
Cry1Ab/Ac	pos/neg	pos/neg	pos/neg	pos/neg	pos/neg	Agreement with consensus value	Agreement with spiking of samples	
6	negative	negative	positive	negative	positive	5/5 (100%)	5/5 (100%)	
8	negative	negative	positive	negative	positive	5/5 (100%)	5/5 (100%)	
10	negative	negative	positive	negative	positive	5/5 (100%)	5/5 (100%)	
12	negative	negative	positive	negative	positive	5/5 (100%)	5/5 (100%)	
14	negative	negative	positive	negative	positive	5/5 (100%)	5/5 (100%)	
17	negative	negative	positive	negative	positive	5/5 (100%)	5/5 (100%)	
18	negative	negative	positive	negative	positive	5/5 (100%)	5/5 (100%)	
21	negative	negative	positive	negative	positive	5/5 (100%)	5/5 (100%)	
23	negative	negative	positive	negative	positive	5/5 (100%)	5/5 (100%)	

	Probe 1	Probe 2	Probe 3	Probe 4	Probe 5
Number positive	0	0	9	0	9
Number negative	9	9	0	9	0
Percent positive	0	0	100	0	100
Percent negative	100	100	0	100	0
Consensus value	negative	negative	positive	negative	positive
Spiking	negative	negative	positive	negative	positive

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

4.1.7 Results: GMO-Maize Bt11

Qualitative valuation of results

Evaluation number	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Qualitative Valuation	Qualitative Valuation	Remarks
GMO maize (Bt11)	pos/neg	pos/neg	pos/neg	pos/neg	pos/neg	Agreement with consensus value	Agreement with spiking of samples	
5	negative	negative	positive	negative	positive	4/4 (100%)	5/5 (100%)	
8	negative	negative	negative	negative	positive	4/4 (100%)	4/5 (80%)	
9	negative	negative	negative	negative	positive	4/4 (100%)	4/5 (80%)	
10	negative	negative	negative	negative	positive	4/4 (100%)	4/5 (80%)	
12	negative	negative	positive	negative	positive	4/4 (100%)	5/5 (100%)	
14	negative	negative	positive	negative	positive	4/4 (100%)	5/5 (100%)	
16	negative	negative	negative	negative	positive	4/4 (100%)	4/5 (80%)	
18	negative	negative	positive	negative	positive	4/4 (100%)	5/5 (100%)	Sample 3 positive < LOD
23	negative	negative	negative	negative	positive	4/4 (100%)	4/5 (80%)	

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Number positive	0	0	4	0	9
Number negative	9	9	5	9	0
Percent positive	0	0	44	0	100
Percent negative	100	100	56	100	0
Consensus value	negative	negative	none	negative	positive
Spiking	negative	negative	positive	negative	positive

Comments:
For 4 samples consensus values with 100% positive or negative results were obtained. The consensus values are in agreement with the addition of the GMO-containing ingredients (spiking).
For sample 3 no consensus value with ≥75% positive or negative results was obtained.

4.1.8 Results: GMO-Maize MIR604

Qualitative valuation of results

Evaluation number	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Qualitative Valuation	Qualitative Valuation	Remarks
GMO maize (MIR604)	pos/neg	pos/neg	pos/neg	pos/neg	pos/neg	Agreement with consensus value	Agreement with spiking of samples	
8	negative	negative	negative	negative	positive	5/5 (100%)	5/5 (100%)	
10	negative	negative	negative	negative	positive	5/5 (100%)	5/5 (100%)	
14	negative	negative	negative	negative	positive	5/5 (100%)	5/5 (100%)	
23	negative	negative	negative	negative	positive	5/5 (100%)	5/5 (100%)	

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

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

4.1.9 Results: Maize-DNA (Maize-specific)

Qualitative valuation of results

Evaluation number	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Qualitative Valuation	Qualitative Valuation	Remarks
Maize specific DNA	pos/neg	pos/neg	pos/neg	pos/neg	pos/neg	Agreement with consensus value	Agreement with spiking of samples	
5	negative	negative	positive	positive	positive	4/4 (100%)	5/5 (100%)	
8	negative	negative	positive	positive	positive	4/4 (100%)	5/5 (100%)	
9	negative	negative	positive	positive	positive	4/4 (100%)	5/5 (100%)	
10	negative	positive	positive	positive	positive	4/4 (100%)	4/5 (80%)	
12	negative	negative	positive	positive	positive	4/4 (100%)	5/5 (100%)	
14	negative	positive	positive	positive	positive	4/4 (100%)	4/5 (80%)	
16	negative	positive	positive	positive	positive	4/4 (100%)	4/5 (80%)	
17	negative	negative	positive	positive	positive	4/4 (100%)	5/5 (100%)	Sample 2: weak amplification <LOD
23	negative	negative	positive	positive	positive	4/4 (100%)	5/5 (100%)	

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Number positive	0	3	9	9	9
Number negative	9	6	0	0	0
Percent positive	0	33	100	100	100
Percent negative	100	67	0	0	0
Consensus value	negative	none	positive	positive	positive
Spiking	negative	negative	positive	positive	positive

Comments:
For 4 samples consensus values with 100% positive or negative results were obtained. The consensus values are in agreement with the addition of the maize-containing ingredients (spiking).
For sample 2 no consensus value with ≥75% positive or negative results was obtained.

4.1.10 Results: GMO-Soya RR (GTS 40-3-2)

Qualitative valuation of results

Evaluation number	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Qualitative Valuation	Qualitative Valuation	Remarks
GMO soya RR (GTS 40-3-2)	pos/neg	pos/neg	pos/neg	pos/neg	pos/neg	Agreement with consensus value	Agreement with spiking of samples	
5	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
6	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
8	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
9	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
10	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
12	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
14	negative	positive	positive	positive	negative	4/5 (80%)	4/5 (80%)	Sample 4 at LOD
16	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
18	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
23	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Number positive	0	10	10	1	0
Number negative	10	0	0	9	10
Percent positive	0	100	100	10	0
Percent negative	100	0	0	90	100
Consensus value	negative	positive	positive	negative	negative
Spiking	negative	positive	positive	negative	negative

Comments:
For all 5 samples consensus values with four times 100% and once 90% positive or negative results were obtained, respectively.
The consensus values are in agreement with the addition of the GMO-containing ingredients (spiking).

4.1.11 Results: GMO-Soya RR2 (MON89788)

Qualitative valuation of results

Evaluation number	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Qualitative Valuation	Qualitative Valuation	Remarks
GMO soya RR2 (MON89788)	pos/neg	pos/neg	pos/neg	pos/neg	pos/neg	Agreement with consensus value	Agreement with spiking of samples	
5	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
6	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
8	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
10	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
12	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
14	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
16	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	
23	negative	positive	positive	negative	negative	5/5 (100%)	5/5 (100%)	

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

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

4.1.12 Results: Lectin-DNA (Soya-specific)

Qualitative valuation of results

Evaluation number	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Qualitative Valuation	Qualitative Valuation	Remarks
Lectin-DNA	pos/neg	pos/neg	pos/neg	pos/neg	pos/neg	Agreement with consensus value	Agreement with spiking of samples	
5	negative	positive	positive	positive	negative	5/5 (100%)	5/5 (100%)	
6	negative	positive	positive	positive	negative	5/5 (100%)	5/5 (100%)	
8	negative	positive	positive	positive	negative	5/5 (100%)	5/5 (100%)	
9	negative	positive	positive	positive	negative	5/5 (100%)	5/5 (100%)	
10	negative	positive	positive	positive	negative	5/5 (100%)	5/5 (100%)	
12	negative	positive	positive	positive	negative	5/5 (100%)	5/5 (100%)	
14	negative	positive	positive	positive	negative	5/5 (100%)	5/5 (100%)	
16	negative	positive	positive	positive	negative	5/5 (100%)	5/5 (100%)	
17	negative	positive	positive	positive	negative	5/5 (100%)	5/5 (100%)	
23	negative	positive	positive	positive	negative	5/5 (100%)	5/5 (100%)	

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

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

4.1.13 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	
3	AB II	negative	positive	positive	negative	positive	
7	BAR	negative	negative	negative	negative	negative	
14	BAR	negative	negative	negative	negative	negative	
17	BAR	negative	negative	negative	negative	negative	
18	BAR	negative	negative	positive	negative	negative	
20	BAR	negative	negative	positive	negative	negative	
21	BAR	negative	negative	negative	negative	negative	
23	Baumwolle	negative	negative	negative	negative	negative	
6	CaMV	-	negative	negative	-	negative	
7	CaMV	negative	negative	negative	negative	negative	
23	GMO-Maize Events DAS59122, T25	-	negative	negative	-	positive	
12	GMO-Maize Mon88017	negative	negative	negative	negative	positive	
23	GMO-Maize Mon88017	-	-	-	-	positive	
23	GMO-Maize Mon87411	-	-	-	-	negative	
12	GMO-Maize NK603	negative	negative	negative	negative	positive	
14	GMO-Maize (NK603)	negative	positive	positive	negative	positive	
23	GMO-Maize NK603	-	-	-	-	positive	
23	GMO-Maize TC1507	-	negative	negative	-	negative	
6	GMO-Soya LL (A2704-12)	negative	negative	negative	negative	negative	Sample 2 weak amplificates < LOD
14	GMO-Soya (A2704-12)	negative	positive	negative	negative	negative	
23	GMO-Soya A2704	-	negative	negative	-	negative	
14	GMO-Soya (A5547-127)	negative	negative	negative	negative	negative	
23	GMO-Soya A5547	-	negative	negative	-	negative	
23	GMO-Soya Events DP4114-3, SyHT0H2	-	negative	negative	-	negative	
23	GMO-Soya Mon87701	negative	negative	positive	negative	-	
23	GMO-Soya Mon87751	negative	negative	negative	negative	-	
18	NPTII	negative	negative	negative	negative	negative	
20	NPTII	negative	negative	negative	negative	positive	
7	P-35S-nptII	negative	negative	negative	negative	negative	
19	p-NOS	positive	negative	negative	positive	negative	
7	p-NOS-nptII	negative	negative	negative	negative	negative	
14	p-NOS-nptII	negative	negative	negative	negative	negative	
6	PAT	negative	negative	positive	negative	positive	
9	PAT	negative	positive	positive	negative	positive	
14	PAT	negative	positive	positive	negative	positive	
17	PAT	negative	negative	negative	negative	positive	
18	PAT	negative	positive	positive	negative	positive	
6	Plants	positive	positive	positive	positive	positive	
14	Rape specific DNA	negative	negative	negative	negative	negative	
23	Rice	negative	negative	negative	negative	negative	
9	tE9	negative	positive	positive	negative	negative	
12	TC1507	negative	negative	positive	negative	positive	
14	Wheat specific DNA	positive	positive	positive	positive	positive	
23	Wheat	positive	positive	positive	positive	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	21.05.2021	p35S/DNA	0,03%	Imegen Screening kit	CTAB	real time PCR	
2	18.05.21	cauliflower mosaic virus (CaMV)	<5 copies	Sure Food ® GMO Screen Art.-no. S2126	SureFood® PREP Basic Art. no. S1052	Real Time PCR	
3	20.05.21	-				Real Time PCR	
4	09.06.21	35S Promotor DNA	≤ 5 DNA-copies	r.biopharm	extraction by SureFood®PREP Advanced	real time PCR with SureFood®GMO Screen 4plex 35S/NOS/FMV + IAC	
5	31.05.21	-	0,05%	Swiss food handbook (2000)	CTAB-Wizard	Multiplex real-time PCR, 45 cycles	
6	31.05.21	Target-DNA	0.03%	in-house method	Genomic DNA from food, Macherey-Nagel	real-time PCR	LOD: Specification of decimal places with "point"
7	15.06.21	target-Sequence P-35S	0,10%	foodproof GMO Screening 1 LyoKit, Biotecon Diagnostics	Sample Preparation Kit III, Biotecon Diagnostics	real time PCR, Light Cycler 96, Roche	
8	20.05.21		0.1%			realtime PCR	
9			0.05%	Official method	CTAB method / 40 ng/uL	real time PCR/82 pb	
10	22.06.21	P35S / DNA	0,10%	ISO 21569:2005. EU Database of Reference Methods for GMO Analysis - (P-35S)- ql-ele-00-004ISO 21569:2005. EU Database of Reference Methods for GMO Analysis - (P-35S)- ql-ele-00-004	CTAB	Conventional PCR-gel electrophoresis	
11	08.06.21	Target-Sequence	0,01%	Manufacturer	clean up	real time PCR	
12	09.06.	Targetsequenz-	0.01 %	L00.00-118:2014	CTAB, Prot. K; Qiagen DNeasy Mericon Food Kit/100 ng/ Reaktion	Real Time PCR (Taqman); 45 Cycles; ERM BF 413	
13	18.05.21	-		QMAA-P-19 (Multiplex PCR):2018-08; R-Biopharm, S2026:2017-04; R-Biopharm, S2126:2016-12			
14	08.07.21	-	0.01%	Gen-ial	CTAB, Proteinase K, FFS-Kit Promega	real time PCR, 45 Cycles	
15	29.06.21	-		GEN-IAL		Real Time PCR	
16	28.06.21	-	0,01%	Internal method	Kit SureFood® GMO SCREEN 4plex 35S/NOS/FMV/IAC - R-Biopharm S2126	Real-time PCR	
17	02.07.21	p35S (CaMV)	0,10%	SureFood® GMO SCREEN 4plex BAR/PAT/CrylAb/IAc/CTP2:CP4 EPSPS	SureFood® GMO SCREEN 4plex BAR/PAT/CrylAb/IAc/CTP2:CP4 EPSPS	Real-Time PCR	
18	June - 07 (Sample 3)		0,05%	ISO 21569:2005 / Amd1:2013 - Anex B9	Using SureFood Perp Basic kit - Elute to 100ul	NOS) / 40 cycle / Reference material is Bt11 (ERM-	
19							
20	24.05.21		0,10%	Congen S2126	Congen Surefood Prep Advanced Kit	Congen SureFood GMO Screen 1 Kit S2126	
21	07.01.21	Target-Sequence	<0.01%	RBIOPHARM	Spin Column Extraction	REAL TIME PCR	
22	07.06.21	positiv		biotecon	Mericon Food Kit , Quiagen	real time PCR	
23	06.07.	-			MN-Food	realtime PCR	LOD: 0.01%

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	21.05.2021	tNOS/DNA	0,03%	Imegen Screening kit	CTAB	real time PCR	
2	18.05.21	A. tumefaciens	< 5 copies	Sure Food ® GMO Screen Art.-no. S2126	SureFood® PREP Basic Art. no. S1052	Real Time PCR	
3	20.05.21	-				Real Time PCR	
4	09.06.21	NOS Terminator DNA	≤ 5 DNA-copies	r-biopharm	Extraction by SureFood®PREP Advanced	real time PCR with SureFood®GMO Screen 4plex 35S/NOS/FMV + IAC	
5	31.05.21	-	0,05%	Gaudron et al, Eur. Food Res. (2009) Technol. 229, 295-305	CTAB-Wizard	Multiplex real-time PCR, 45 cycles	
6	31.05.21	Target-DNA	0.03%	in-house methdo	Genomic DNA from food, Macherey-Nagel	real-time PCR	LOD: Specification of decimal places with "point"
7	15.06.21	target-Sequence T-NOS	0,10%	foodproof GMO Screening 1 LyoKit, Biotecon Diagnostics	Sample Preparation Kit III, Biotecon Diagnostics	real time PCR, Light Cycler 96, Roche	
8	20.05.21		0.1%			realtime PCR	
9			0.05%	Official method	CTAB method / 40 ng/uL	real time PCR/84 pb	
10	22.06.21	TNOS / DNA	0,10%	ISO 21569:2005. EU Database of Reference Methods for GMO Analysis - (T-nos)- ql-ele-00-009ISO 21569:2005. EU Database of Reference Methods for GMO Analysis - (T-nos)- ql-ele-00-009	CTAB	Conventional PCR-gel electrophoresis	
11	08.06.21	Target-Sequence	0,01%	Manufacturer	clean up	real time PCR	
12	09.06.	Targetsequence	0.01 %	L00.00-118:2014	CTAB, Prot. K; Qiagen DNeasy Mericon Food Kit/100 ng/ Reaktion	Real Time PCR (Taqman); 45 Cycles; ERM BF 413	
13	18.05.21	-		QMAA-P-19 (Multiplex PCR):2018-08; R-Biopharm, S2026:2017-04; R-Biopharm, S2126:2016-12			
14	08.07.21	-	0.01%	Gen-ial	CTAB, Proteinase K, FFS-Kit Promega	real time PCR, 45 Cycles	
15	29.06.21	-		GEN-IAL		Real Time PCR	
16	28.06.21	-	0,01%	Internal method	Kit SureFood® GMO SCREEN 4plex 35S/NOS/FMV/IAC - R-Biopharm S2126	Real-time PCR	
17	02.07.21	tNOS (A. tumefaciens)	0,10%	SureFood® GMO SCREEN 4plex BAR/PAT/CrylAb/IAc/CTP2:CP4 EPSPS	SureFood® GMO SCREEN 4plex BAR/PAT/CrylAb/IAc/CTP2:CP4 EPSPS	Real-Time PCR	
18	June - 07 (Sample 3)		0,05%	ISO 21569:2005 / Amd1:2013 - Anex B9	Using SureFood Perp Basic kit - Elute to 100ul	35S) / / 40 cycle / Reference material is Bt11 (ERM-	
19							
20	24.05.21		0,10%	Congen S2126	Congen Surefood Prep Advanced Kit	Congen SureFood GMO Screen 1 Kit S2126	
21	07.01.21	Target-Sequence	< 0.01%	r-biopharm	Spin Column Extraction	REAL TIME PCR	
22	07.06.21	positiv		biotecon	Mericon Food Kit , Quiagen	real time PCR	
23	06.07.	-					LOD: 0.01%

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	21.05.2021	pFMV/DNA	0,03%	Imegen Screening kit	CTAB	real time PCR	
2	18.05.21	Figwort-Mosaikvirus	< 5 copies	Sure Food ® GMO Screen Art.-no. S2126	SureFood® PREP Basic Art. no. S1052	Real Time PCR	
3	20.05.21	-				Real Time PCR	
4	09.06.21	34S FMV Promotor DNA	≤ 5 DNA-copies	r-biopharm	Extraction by SureFood®PREP Advanced	real time PCR with SureFood®GMO Screen 4plex 35S/NOS/FMV + IAC	
5	31.05.21	-	0,05%	in House	CTAB-Wizard	Multiplex real-time PCR, 45 cycles	
6	28.05.21	Target-DNA	0.003%	in-house method	in-house method	real-time PCR	LOD: Specification of decimal places with "point"
7	15.06.21	target-Sequence P-FMV	0,10%	foodproof GMO Screening 1 LyoKit, Biotecon Diagnostics	Sample Preparation Kit III, Biotecon Diagnostics	real time PCR, Light Cycler 96, Roche	
8	20.05.21		0.1%			realtime PCR	
10	28.06.21	p-FMV / DNA	0,10%	EU Database of Reference Methods for GMO Analysis - (FMV)- ql-ele-00-010	CTAB	Conventional PCR-gel electrophoresis	
11	08.06.21	Target-Sequence	0,01%	Manufacturer	clean up	real time PCR	
12	09.06.	Targetsequen z-	0.01 %	L00.00-148:2014	CTAB, Prot. K; Qiagen DNeasy Mericon Food Kit/100 ng/ Reaktion	Real Time PCR (Taqman); 45 Cycles; AOCS	
13	18.05.21	-		PCR):2018-08; R-Biopharm, S2026:2017-04; R-			
14	08.07.21	-	0.01%	Gen-ial	CTAB, Proteinase K, FFS-Kit Promega	real time PCR, 45 Cycles	
15	29.06.21	-		GEN-IAL		Real Time PCR	
16	28.06.21	-	0,01%	Internal method	35S/NOS/FMV/IAC - R-Biopharm	Real-time PCR	
17	02.07.21	34S FMV promoter	0,10%	SureFood® GMO SCREEN 4plex BAR/PAT/CryIAb/IAc/CTP2:CP4 EPSPS	SureFood® GMO SCREEN 4plex BAR/PAT/CryIAb/IAc/CTP2:CP4 EPSPS	Real-Time PCR	
18	May - 05 (Sample 1) May - 31 (Sample 2) June - 07 (Sample 3) June - 28 (Sample 4) July - 6 (Sample 5)		0,05%	ISO /TS 21569-5: 2016	Using SureFood Perp Basic kit - Elute to 100ul	Realtime PCR / 40 cycle / Reference material is Surgar beet (ERM-BF419)	
19							
20	24.05.21		0,10%	Congen S2126	Congen Surefood Prep Advanced Kit	Congen SureFood GMO Screen 1 Kit S2126	
21	07.01.21	Target-Sequence	< 0.01%	RBIOPHARM	Spin Column Extraction	REAL TIME PCR	
22	07.06.21	positive		biotecon	Mericon Food Kit , Quiagen	real time PCR	
23	06.07.	-					LOD: 0.01%

5.1.4 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	
5	03.06.21	-	0,05%	Zeitler et al, Eur. Food Res. (2002) Technol. 214, 346-351	CTAB-Wizard	Multiplex real-time PCR, 45 cycles	
6	31.05.21	Target-DNA	0.03%	in-house method	Genomic DNA from food, Macherey-Nagel	real-time PCR	LOD: Specification of decimal places with "point"
7	15.06.21	target-Sequence CTP2-CP4-EPSPS	0,10%	foodproof GMO Screening 2 LyoKit, Biotecon Diagnostics	Sample Preparation Kit III, Biotecon Diagnostics	real time PCR, Light Cycler 96, Roche	
8	20.05.21		0.1%			realtime PCR	
9			0.05%	Official method	CTAB method / 40 ng/uL	real time PCR/88 pb	
11	08.06.21	Target-Sequence	0,01%	Manufacturer	clean up	real time PCR	
12	15.06.	Targetsequence	0.01 %	L00.00-154:2014	CTAB, Prot. K; Qiagen DNeasy Mericon Food Kit/100 ng/ Reaction	Real Time PCR (Taqman); 45 Cycles; AOCS	
14	08.07.21	-	0.01%	Gen-ial	CTAB, Proteinase K, FFS-Kit Promega	real time PCR, 45 Cycles	
16	28.06.21	-	0,01%	Internal method	BAR/NPTII/PAT/CTP2:CP4 EPSPS - R-	Real-time PCR	
17	02.07.21	the transition from CTP2 to herbicide tolerance-gene CP4 EPSPS	0,10%	SureFood® GMO SCREEN 4plex BAR/PAT/CryIAb/IAc/CTP2:CP4 EPSPS	SureFood® GMO SCREEN 4plex BAR/PAT/CryIAb/IAc/CTP2:CP4 EPSPS	Real-Time PCR	
19							
20	24.05.21		0,10%	Congen S2127	Congen Surefood Prep Advanced Kit	Congen SureFood GMO Screen 1 Kit S2127	
21	07.01.21	Target-Sequence	< 0.01%	RBIOPHARM	Spin Column Extraction	REAL TIME PCR	
23	06.07.	-					LOD: 0.01%

5.1.5 35S-Pat-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	
5	03.06.21	-	0,05%	Zeitler et al, Eur. Food Res. Technol. 214, 346-351 (2002)	CTAB-Wizard	Multiplex real-time PCR, 45 cycles	
7	15.06.21	target-Sequence P-35S-pat	0,10%	foodproof GMO Screening 2 LyoKit, Biotecon Diagnostics	Sample Preparation Kit III, Biotecon Diagnostics	real time PCR, Light Cycler 96, Roche	Sample 3 <LOD
8	20.05.21		0.1%			realtime PCR	
10	01.07.21	pat gene - 35S terminator (CaMV T-35S) / DNA	0,10%		CTAB	Conventional PCR-gel electrophoresis	
12	15.06.	Targetsequen z-	0.01 %	L00.00-154:2014	CTAB, Prot. K; Qiagen DNeasy Mericon Food Kit/100 ng/ Reaktion	Real Time PCR (Taqman); 45 Cycles; AOCS	
16	28.06.21	-	0,01%	Internal method	Kit SureFood® GMO SCREEN 4plex BAR/NPTII/PAT/CTP2:CP4 EPSPS - R-Biopharm S2127	Real-time PCR	
19							
20	24.05.21		0,10%	Congen S2127	Congen Surefood Prep Advanced Kit	Congen SureFood GMO Screen 1 Kit S2127	Only Trace amounts of 35S-pat detected below LOD in sample 3
21	07.01.21	Target-Sequence	< 0.01%	r-biopharm	Spin Column Extraction	REAL TIME PCR	
23	06.07.	-					LOD: 0.01%

5.1.6 Cry1Ab/AC-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	
6	31.05.21	Target-DNA	0.03%	in-house method	Genomic DNA from food, Macherey-Nagel	real-time PCR	LOD: Specification of decimal places with "point"
8	20.05.21		0.1%			realtime PCR	
10	23.06.21	cry1A(b) synthetic construct derived from Bacillus thuringiensis / DNA	0,10%	EU Database of Reference Methods for GMO Analysis - (cry1A(b)/Ac)- ql-ele-00-020	CTAB	Conventional PCR-gel electrophoresis	
12	20.06.21	Targetsequenz-	0.01 %	EU Database of Reference Methods for GMO Analysis.	CTAB, Prot. K; Qiagen DNeasy Mericon Food Kit/100 ng/ Reaktion	Real Time PCR (Taqman); 45 Cycles; AOCS	
14	08.07.21	-	0.01%	Gen-ial	CTAB, Proteinase K, FFS-Kit Promega	real time PCR, 45 Cycles	
17	02.07.21	genetically engineered CryIAb-DNA-sequences and CryIAb/Ac-fusion gene sequences	0,10%	SureFood® GMO SCREEN 4plex BAR/PAT/CryIAb/IAc/CTP2:CP4 EPSPS	SureFood® GMO SCREEN 4plex BAR/PAT/CryIAb/IAc/CTP2:CP4 EPSPS	Real-Time PCR	
18	May - 05 (Sample 1) May - 31 (Sample 2) June - 07 (Sample 3) June - 28 (Sample 4) July - 6 (Sample 5)		0,05%	QL-ELE-00-016	Using SureFood Perp Basic kit - Elute to 100ul	Realtime PCR / 40 cycle / Reference material is Bt11 (ERM-BF412)	
21	07.01.21	Target-Sequence	< 0.01%	RBIOPHARM	Spin Column Extraction	REAL TIME PCR	
23	06.07.	-					LOD: 0.01%

5.1.7 GMO-Maize (Bt11)

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	
5	10.06.21	-	0,1%	Brodmann et al, J. AOAC Int. 85, 646-653 (2002)	CTAB-Wizard	real-Time PCR, 45 cycles	
8	20.05.21		0.1%			realtime PCR	
9			0.05%	Official method	CTAB method / 40 ng/uL	real time PCR/70 pb	
10	23.06.21	intron 2 from the maize adh1 gene and the pat gene / DNA	0,10%	EU Database of Reference Methods for GMO Analysis ql-con-00-003	CTAB	Conventional PCR-gel electrophoresis	
12	20.06.	Targetsequenz-	0.01 %	L00.00-118:2014	CTAB, Prot. K; Qiagen DNeasy Mericon Food Kit/100 ng/ Reaktion	Real Time PCR (Taqman); 45 Cycles; AOCS	
14	08.07.21	-	0.01%	Gen-ial	CTAB, Proteinase K, FFS-Kit Promega	real time PCR, 45 Cycles	
16	28.06.21	-	0,01%	Official method: UNI EN ISO 21571: 2013 + UNI EN ISO 21569:2013Official method: UNI EN ISO 21571: 2013 + UNI EN ISO 21569:2013	-	Real-time PCR	
18	May - 05 (Sample 1) May - 31 (Sample 2) June - 07 (Sample 3) June - 28 (Sample 4) July - 6 (Sample 5)		0,05%	ISO 21570:2005 / Anex C7	Using SureFood Perp Basic kit - Elute to 100ul	Realtime PCR / 40 cycle / Reference material is Bt11 (ERM-BF412)	Bt11 in Sample 3 is detected below our LOD value
23	06.07.	-					LOD: 0.01%

5.1.8 GMO-Maize (MIR604)

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	
8	20.05.21		0.1%			realtime PCR	
10	23.06.21	(IBR) of maize event MIR 604 - maize host genome / DNA	0,10%	EU Database of Reference Methods for GMO Analysis - QT-EVE-ZM-013	CTAB	Conventional PCR-gel electrophoresis	
14	08.07.21	-	0.01%	Gen-ial	CTAB, Proteinase K, FFS-Kit Promega	real time PCR, 45 Cycles	
23	06.07.	-					

5.1.9 Maize-DNA (Maize-specific)

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	
5	25.05.21	-	1 cp/ul	Hernandez, M. et al; J. Agric. Food Chem. (2004), 52, 4632-4637.	CTAB-Wizard	Multiplex real-time PCR, 45 cycles	
8	20.05.21		0.1%			realtime PCR	
9			0.1%	Official method	CTAB method / 40 ng/uL	real time PCR/79 pb	
10	28.06.21	Invertase / DNA	0,10%	Methods for GMO Analysis - (Invertase)- QL-TAX-ZM-003ISO 21569:2005. EU Database of Reference Methods for GMO Analysis	CTAB	Conventional PCR-gel electrophoresis	
12	20.06.	Targetsequence	0.01%	L00.00-118:2014	CTAB, Prot. K; Qiagen DNeasy Mericon Food Kit/100 ng/ Reaktion	Real Time PCR (Taqman); 45 Cycles; ERM BF410	
14	08.07.21	-	0.01%	Gen-ial	CTAB, Proteinase K, FFS-Kit Promega	real time PCR, 45 Cycles	
16	29.06.21	-	0,01%	Internal method	Kit MODIfinder Zeine (Corn ENDO) Assay - fornitore GENERON (cod. PGE10A-50)	Real-time PCR	
17	05.07.21	HMG gene	0,10%	EURL QT-TAX-ZM-002	SureFood® GMO SCREEN 4plex BAR/PAT/CryIAb/IAc/CTP2:CP4 EPSPS	Real-Time PCR	sample 2: weak amplification but <LOD
23	06.07.	-					LOD: 0.1%

5.1.10 GMO-Soya RR (GTS 40-3-2)

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	
5	08.06.21	-	0,05%	AllSoy A, Microsynth	CTAB-Wizard	Multiplex real-time PCR, 45 cycles	
6	31.05.21	Target-DNA	0.05%	in-house method	in-house method	real-time PCR	LOD: Specification of decimal places with "point"
8	20.05.21		0.1%			realtime PCR	
9			0.05%	Official method	CTAB method / 40 ng/uL	gel electrophoresis/169 pb	
10	24.06.21	P35 S-f2 Petu r1 / DNAP35 S-f2 Petu r1 / DNA	0,10%	ISO 21569:2005. EU Database of Reference Methods for GMO Analysis -QL-CON-00-001ISO 21569:2005. EU Database of Reference Methods for GMO Analysis -QL-CON-00-001	CTAB	Conventional PCR-gel electrophoresis	
12	25.06.	Targetsequence	0.01%	L00.00-118:2014	CTAB, Prot. K; Qiagen DNeasy Mericon Food Kit/100 ng/ Reaktion	Real Time PCR (Taqman); 45 Cycles; ERM BF413	
14	08.07.21	-	0.01%	Gen-ial	CTAB, Proteinase K, FFS-Kit Promega	real time PCR, 45 Cycles	Sample 4 at LOD
16	28.06.21	-	0,01%	Official method: UNI EN ISO 21571: 2013 + UNI EN ISO 21569:2013Official method: UNI EN ISO 21571: 2013 + UNI EN ISO 21569:2013	-	Real-time PCR	
18	May - 05 (Sample 1) May - 31 (Sample 2) June - 07 (Sample 3) June - 28 (Sample 4) July - 6 (Sample 5)		0,05%	ISO 21570:2005 / Anex C1	Using SureFood Perp Basic kit - Elute to 100ul	Realtime PCR / 40 cycle / Reference material is GTS 40-3-2 Soya bean (ERM-BF410)	
23	06.07.	-					LOD: 0.01%

5.1.11 GMO-Soya RR2 (MON89788)

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	
5	08.06.21	-	0,05%	AllSoy A, Microsynth	CTAB-Wizard	Multiplex real-time PCR, 45 cycles	
6	31.05.21	Target-DNA	0.0015%	in-house method	in-house method	real-time PCR	LOD: Specification of decimal places with "point"
8	20.05.21		0.1%			realtime PCR	
10	24.06.21	(IBR) of soybean event MON 89788 - soybean host genome / DNA	0,10%	EU Database of Reference Methods for GMO Analysis -QT-EVE-GM-006	CTAB	Conventional PCR-gel electrophoresis	
12	25.06.	Targetsequenz-	0.01%	EU Database of Reference Methods for GMO Analysis.	CTAB, Prot. K; Qiagen DNeasy Mericon Food Kit/100 ng/ Reaktion	Real Time PCR (Taqman); 45 Cycles; AOCS	
14	08.07.21	-	0.01%	Gen-ial	CTAB, Proteinase K, FFS-Kit Promega	real time PCR, 45 Cycles	
16	29.06.21	-	0,01%	Internal method	Kit MODIfinder Soybean MON89788 Assay - GENERON (cod. PGS04A-50)	Real-time PCR	
23	06.07.	-					LOD: 0.01%

5.1.12 Lectin-DNA (Soya-specific)

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	
5	08.06.21	-	0,05%	AllSoy A, Microsynth	CTAB-Wizard	Multiplex real-time PCR, 45 cycles	
6	31.05.21	Target-DNA	0.015%	in-house method	in-house method	real-time PCR	LOD: Specification of decimal places with "point"
8	20.05.21		0.1%			realtime PCR	
9			0.1%	Official method	CTAB method / 40 ng/uL	real time PCR/81 pb	
10	28.06.21	Lectin / DNA	0,10%	ISO 21569:2005. EU Database of Reference Methods for GMO Analysis – (Soy lectin)- QL-TAX-GM-008ISO 21569:2005. EU Database of Reference Methods for GMO Analysis – (Soy lectin)- QL-TAX-GM-008	CTAB	Conventional PCR-gel electrophoresis	
12	25.06.	Targetsequence	0.01%	L00.00-118:2014	CTAB, Prot. K; Qiagen DNeasy Mericon Food Kit/100 ng/ Reaktion	Real Time PCR (Taqman); 45 Cycles; ERM BF413	
14	08.07.21	-	0.01%	Gen-ial	CTAB, Proteinase K, FFS-Kit Promega	real time PCR, 45 Cycles	
16	29.06.21	-	0,01%	Internal method	Kit MODIfinder Lectin (Soy ENDO) Assay - fornitore GENERON (cod. PGE9A-50)	Real-time PCR	
17	06.07.21	Le1 gene	0,10%	EURL QT-TAX-GM-002	SureFood® GMO SCREEN 4plex BAR/PAT/CrylAb/IAc/CTP2:CP4 EPSPS	Real-Time PCR	
23	06.07.	-					LOD: 0.1%

5.1.13 Other Parameters (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
other events		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	
AB II	3	20.05.21	-				Real Time PCR	
BAR	7	15.06.21	target-Sequence bar	0,10%	foodproof GMO Screening 2 LyoKit, Biotecon Diagnostics	Sample Preparation Kit III, Biotecon Diagnostics	real time PCR, Light Cycler 96, Roche	
BAR	14	08.07.21	-	0.01%	Gen-ial	CTAB, Proteinase K, FFS-Kit Promega	real time PCR, 45 Cycles	
BAR	17	02.07.21	Phosphinothricin-Acetyltransferase gene (BAR) from Streptomyces hygroscopius	0,10%	SureFood® GMO SCREEN 4plex BAR/PAT/CryIAb/IAc/CTP2:CP4 EPSPS	SureFood® GMO SCREEN 4plex BAR/PAT/CryIAb/IAc/CTP2:CP4 EPSPS	Real-Time PCR	
BAR	18	May - 05 (Sample 1) May - 31 (Sample 2) June - 07 (Sample 3) June - 28 (Sample 4) July - 6 (Sample 5)		0,05%	QL-ELE-00-003	Using SureFood Perp Basic kit – Eluieren auf 100ul	PCR / 35 cycles / 173 bp	
BAR	20	24.05.21		0,10%	Congen S2127	Congen Surefood Prep Advanced Kit	Congen SureFood GMO Screen 1 Kit S2127	
BAR	21	07.01.21	Target-Sequence	<0.01%	RBIOPHARM	Spin Column Extraction	REAL TIME PCR	
Cotton	23	09.07.						LOD: 0.1%
CaMV	6	31.05.21	Target-DNA	0.001%	genControl® RT CaMVirus Kit, GEN-IAL GmbH	Genomic DNA from food, Macherey-Nagel	real-time PCR	LOD: Specification of decimal places with "point"
CaMV	7	29.06.21	Target-Sequence CaMV 35S promoter	0,10%	CaMV Detection, Biotecon Diagnostics	Sample Preparation Kit III, Biotecon Diagnostics	real time PCR, Light Cycler 96, Roche	
GMO-Maize Events DAS59122, T25	23							Results valid for all specified events; LOD: 0.1%
GMO-Maize MON88017	12	06.07.	Targetsequence		EU Database of Reference Methods for GMO Analysis.	CTAB, Prot. K; Qiagen DNeasy Mericon Food Kit/100 ng/ Reaktion	Real Time PCR (Taqman); 45 Cycles; AOCS	
GMO-Maize Mon88017	23							Results valid for all specified events; LOD: 0.1%
GMO-Maize Mon87411	23	12.07.						LOD: 0.1%
GMO-Maize NK603	12	06.07.	Targetsequenz		EU Database of Reference Methods for GMO Analysis.	CTAB, Prot. K; Qiagen DNeasy Mericon Food Kit/100 ng/ Reaktion	Real Time PCR (Taqman); 45 Cycles; AOCS	
GMO-Maize (NK603)	14	08.07.21	-	0.01%	Gen-ial	CTAB, Proteinase K, FFS-Kit Promega	real time PCR, 45 Cycles	
GMO-Maize NK603	23	12.07.						LOD: 0.1%
GMO-Maize TC1507	23							LOD: 0.1%

Continued next page

Continuation: Other Parameters (DNA)

Parameter	Auswerte-nummer	Datum der Analyse	Ergebnisangabe als	Nachweis-grenze	Test-Kit oder Literatur	Hinweise zur DNA-Ex-traktion	Hinweise zur PCR-Reaktion	Sonstige Hinweise
weitere DNA		Tag / Monat	Target-sequence / -DNA	Kopien / %/ ct-Wert	Anbieter / ASU-Methode	z.B. Extraktion / Enzyme / Clean-Up / DNA-Qualität	z.B. Real Time PCR / Gelelek-trophorese / Cyclen / Amplifi-katlänge / Referenzmaterial	
GMO-Soya LL (A2704-12)	6	31.05.21	Target-DNA	0.03%	in-house method	in-house method	real-time PCR	LOD: Specification of decimal places with "point"; Sample 2 weak amplificates < LOD
GMO-Soya (A2704-12)	14	08.07.21	-	0.01%	Gen-ial	CTAB, Proteinase K, FFS-Kit Promega	real time PCR, 45 Cycles	
GMO-Soya A2704	23	12./13.07.	-					Results valid for all specified events; LOD: 0.1%
GMO-Soya (A5547-127)	14	08.07.21	-	0.01%	Gen-ial	CTAB, Proteinase K, FFS-Kit Promega	real time PCR, 45 Cycles	
GMO-Soya,A5547	23	12./13.07.	-					Results valid for all specified events; LOD: 0.1%
GMO-Soya Events DP4114-3, SyHT0H2	23	12./13.07.	-					Results valid for all specified events; LOD: 0.1%
GMO-Soya Mon87701	23	12.07.	-					LOD: 0.1%
GMO-Soya Mon87751	23	19.07.	-					LOD: 0.1%
NPTII	18	May - 05 (Sample 1) May - 31 (Sample 2) June - 07 (Sample 3) June - 28 (Sample 4) July - 6 (Sample 5)		0,05%	QL-ELE-00-003	Using SureFood Perp Basic kit – Eluieren auf 100ul	PCR / 35 cycle / 173 bp	
NPTII	20	24.05.21		0,10%	Congen S2127	Congen Surefood Prep Advanced Kit	Congen SureFood GMO Screen 1 Kit S2127	
P-35S-nptII	7	15.06.21	Targetsequence P-35S-nptII	0,10%	foodproof GMO Screening 2 LyoKit, Biotecon Diagnostics	Sample Preparation Kit III, Biotecon Diagnostics	real time PCR, Light Cycler 96, Roche	
p-NOS	19							
p-NOS-nptII	7	15.06.21	Targetsequence P-NOS-nptII	0,10%	foodproof GMO Screening 2 LyoKit, Biotecon Diagnostics	Sample Preparation Kit III, Biotecon Diagnostics	real time PCR, Light Cycler 96, Roche	
p-NOS-nptII	14	08.07.21	-	0.01%	Gen-ial	CTAB, Proteinase K, FFS-Kit Promega	real time PCR, 45 Cycles	
PAT	6	28.05.21	Target-DNA	0.03%	in-house method	Genomic DNA from food, Macherey-Nagel	real-time PCR	LOD: Specification of decimal places with "point"; Sample 2 weak amplificates < LOD
PAT	9			0.05%	offizielle Methode	CTAB method / 40 ng/uL	real time PCR/108 pb	
PAT	14	08.07.21	-	0.01%	Gen-ial	CTAB, Proteinase K, FFS-Kit Promega	real time PCR, 45 Cycles	
PAT	17	02.07.21	Phosphinothricin-Acetyltransferase-Gen (PAT) aus Streptomyces viridiochromogenes	0,10%	SureFood® GMO SCREEN 4plex BAR/PAT/CrylAb/IAc/CTP2:CP4 EPSPS	SureFood® GMO SCREEN 4plex BAR/PAT/CrylAb/IAc/CTP2: CP4 EPSPS	Real-Time PCR	
PAT	18	May - 05 (Sample 1) May - 31 (Sample 2) June - 07 (Sample 3) June - 28 (Sample 4) July - 6 (Sample 5)		0,05%	QT-ELE-00-002	Using SureFood Perp Basic kit – Eluieren auf 100ul	Realtime PCR / 40 Cycles/ Referenz Material ist Bt11 (ERM-BF412)	
Pflanzen	6	31.05.21	Target-DNA	0.1%	in-house method	Genomic DNA from food, Macherey-Nagel	real-time PCR	LOD: Specification of decimal places with "point"
Raps spezifische DNA	14	08.07.21	-	0.01%	Gen-ial	CTAB, Proteinase K, FFS-Kit Promega	real time PCR, 45 Cycles	
Reis	23	09.07.	-					LOD: 0.1%
tE9	9			0.05%	offizielle Methode	CTAB method / 40 ng/uL	real time PCR/87 pb	
TC1507	12		Targetsequence		EU Database of Reference Methods for GMO Analysis.	CTAB, Prot. K; Qiagen DNeasy Mericon Food Kit/100 ng/ Reaktion	Real Time PCR (Taqman); 45 Cycles; AOCS	
Weizen spezifische DNA	14	08.07.21	-	0.01%	Gen-ial	CTAB, Proteinase K, FFS-Kit Promega	real time PCR, 45 Cycles	
Weizen	23	30.06./9.07.						LOD: 0.1%

5.2 Homogeneity

5.2.1 Mixture homogeneity before bottling

Microtracer Homogeneity Test
DLA-ptGMS1 (2021) Sample 2

Weight whole sample	1,01	kg
Microtracer	FSS-rot lake	
Particle size	75 – 300	µm
Weight per particle	2,0	µg
Addition of tracer	28,0	mg/kg

Result of analysis

Sample	Weight [g]	Particle number	Particles [mg/kg]
1	4,96	53	21,4
2	5,00	51	20,4
3	5,02	53	21,1
4	4,98	45	18,1
5	4,98	55	22,1
6	5,02	53	21,1
7	5,00	53	21,2
8	4,95	52	21,0

Poisson distribution		
Number of samples	8	
Degree of freedom	7	
Mean	51,9	Particles
Standard deviation	2,98	Particles
χ^2 (CHI-Quadrat)	1,20	
Probability	**99**	%
Recovery rate	74	%

Normal distribution		
Number of samples	8	
Mean	20,8	mg/kg
Standard deviation	1,19	mg/kg
rel. Standard deviaton	5,74	%
Horwitz standard deviation	10,1	%
HorRat-value	**0,57**	
Recovery rate	74	%

Microtracer Homogeneity Test
DLA-ptGMS1 (2021) 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	29,0	mg/kg

Result of analysis

Sample	Weight [g]	Particle number	Particles [mg/kg]
1	4,97	72	29,0
2	5,00	74	29,6
3	5,01	73	29,1
4	5,01	76	30,3
5	5,00	63	25,2
6	5,03	62	24,7
7	5,03	71	28,2
8	4,98	59	23,7

Poisson distribution		
Number of samples	8	
Degree of freedom	7	
Mean	68,7	Particles
Standard deviation	6,40	Particles
χ^2 (CHI-Quadrat)	4,17	
Probability	**76**	%
Recovery rate	95	%

Normal distribution		
Number of samples	8	
Mean	27,5	mg/kg
Standard deviation	2,56	mg/kg
rel. Standard deviaton	9,3	%
Horwitz standard deviation	9,7	%
HorRat-value	**1,0**	
Recovery rate	95	%

Microtracer Homogeneity Test
DLA-ptGMS1 (2021) Sample 4

Weight whole sample	1,02	kg
Microtracer	FSS-rot lake	
Particle size	75 – 300	µm
Weight per particle	2,0	µg
Addition of tracer	21,8	mg/kg

Result of analysis

Sample	Weight [g]	Particle number	Particles [mg/kg]
1	5,00	59	23,6
2	5,01	60	24,0
3	4,98	61	24,5
4	5,00	62	24,8
5	5,03	58	23,1
6	5,00	57	22,8
7	5,01	64	25,5
8	5,02	54	21,5

Poisson distribution		
Number of samples	8	
Degree of freedom	7	
Mean	59,4	Particles
Standard deviation	3,18	Particles
χ^2 (CHI-Quadrat)	1,20	
Probability	**99**	%
Recovery rate	109	%

Normal distribution		
Number of samples	8	
Mean	23,7	mg/kg
Standard deviation	1,27	mg/kg
rel. Standard deviaton	5,4	%
Horwitz standard deviation	9,9	%
HorRat-value	**0,54**	
Recovery rate	109	%

Microtracer Homogeneity Test
DLA-ptGMS1 (2021) 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	29,7	mg/kg

Result of analysis

Sample	Weight [g]	Particle number	Particles [mg/kg]
1	5,00	63	25,2
2	5,00	64	25,6
3	4,98	66	26,5
4	5,02	67	26,7
5	5,01	66	26,3
6	4,97	57	22,9
7	5,03	58	23,1
8	4,97	66	26,6

Poisson distribution		
Number of samples	8	
Degree of freedom	7	
Mean	63,4	Particles
Standard deviation	3,86	Particles
χ^2 (CHI-Quadrat)	1,65	
Probability	**98**	%
Recovery rate	85	%

Normal distribution		
Number of samples	8	
Mean	25,4	mg/kg
Standard deviation	1,55	mg/kg
rel. Standard deviaton	6,1	%
Horwitz standard deviation	9,8	%
HorRat-value	**0,62**	
Recovery rate	85	%

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 ptGMS1 (2021)***
PT name	***GMO-Screening I (qualitative): 5 Samples with positive/negative amounts of p-35S, t-NOS, p-FMV, CP4 EPSPS, 35S-Pat, Cry1Ab/Ac / GMO-Maize (Bt11, MIR604) and GMO-Soya (RR GTS 40-3-2, RR2 MON89788)***
*Sample matrix**	*5 different Samples: possible ingredients: Products of soybean, maize and wheat flour and semolina*
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: p-35S, t-NOS, p-FMV, CP4 EPSPS, 35S-Pat, Cry1Ab/Ac / GMO-Maize (Bt11, MIR604) and GMO-Soya (RR GTS 40-3-2, RR2 MON89788)***
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***
Last Deadline	***the latest 09th July 2021***
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, Ph.D.*

* 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
		Germany
		SPAIN
		ITALY
		SWITZERLAND
		Germany
		MALAYSIA
		SWITZERLAND
		Germany
		SPAIN
		ITALY
		ITALY
		Germany
		SWEDEN
		Germany
		Germany
		Germany
		SPAIN
		BELGIUM
		GREAT BRITAIN
		VIETNAM
		Germany
		GREECE
		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 Ananlytical 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]
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]