RIDA®QUICK DON RQS ECO

Art. No. R5911

Validation report

The new deoxynivalenol rapid test for more accurate results in less time

- RIDA®SMART APP evaluation for more flexibility in where to test and how to report results
- Extremely fast water extraction of 30 sec.
- Shorter incubation time of only 3 min.
- Wider detection range of 0.25 - 50 mg/kg

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Intended use

RIDA®QUICK DON RQS ECO is a quantitative immunochromatographic test with a water extraction in a test strip format for the determination of DON in grains (wheat, corn, oats and barley).
The evaluation is carried out with the RIDA®SMART APP smartphone software (Art. No. ZRSAM1000, version 3.21 or higher) or the RIDA®QUICK SCAN reader (Art. No. ZG5005 with software version V1.0.1.7.2.0 or higher).

Brief information

Technology:	Lateral flow test
Format:	20 tests/kit
Sample preparation:	Grinding, shaking, sedimentation/filtration or centrifugation, dilution
Extraction:	Water, 30 sec.
Incubation time:	3 min.
Limit of detection (LOD):	< 0.25 mg/kg (ppm)
Limit of quantification (LOQ):	0.25 mg/kg
Detection range:	0.25 - 7.5 mg/kg and 7.5 - 50 mg/kg

Benefits

Water-extraction:	No organic solvents needed, extraction carried out with water
Fast:	Only 30 sec. of extraction and 3 min incubation time
Cost-effective:	Minimal laboratory equipment required
Flexible:	On-site testing and result reporting wherever you are, with the optional state-of-the-art RIDA®SMART APP smartphone evaluation

Background

DON is a trichothecene mycotoxin that is produced by fungi of the *Fusarium* genus. DON can be found in plant products and grains in particular and is the most prevalent toxin of the more than 100 known trichothecenes in Europe and North America.

Test principle

The immunochromatographic test in the form of a test strip is based on an antigen-antibody reaction. A specific anti-DON antibody detects the DON in the sample and results in a line pattern (test line/control line). The intensity of the test line depends on the DON concentration of the sample. It increases with raising DON contamination. The control band (control line) should be present in all cases in order to prove that the test strip is valid. The control line fades as the DON concentration in the sample increases. The quantitative evaluation is carried out with the RIDA®SMART APP software or the RIDA®QUICK SCAN reader.

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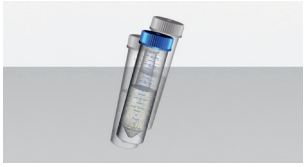
Test procedure

Bring all components to room temperature (20 - 25°C/68 - 77 °F) and complete the testing process also at room temperature.
For evaluation, use the RIDA®SMART APP software or the RIDA®QUICK SCAN reader. Choose the appropriate evaluation application/method depending on the matrix and the detection limit of interest (IFU, section 10).

1

5 g ground and homogenized sample + 25 mL distilled or deionized water
(for larger sample sizes increase the water volume proportionately, e.g. 50 g + 250 mL)

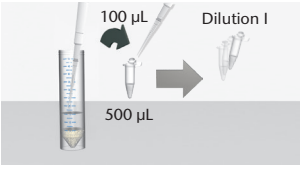
2



Close the tube and shake vigorously for 30 sec. (e.g. on Rock-it 360)

Centrifuge (e.g. 1 min., 2000 g) , filter or allow to settle until a particle-free supernatant can be obtained

3



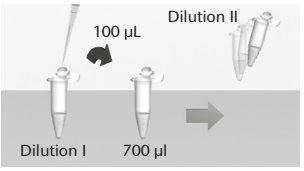
Dilution I: Dilute 100 µL of the particle-free supernatant with 500 µL of mobile solvent. Thoroughly mix (invert tube 5 times).

4

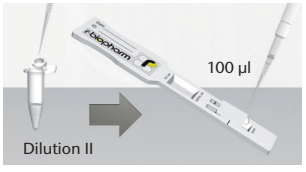
a) Detection range 0.25 - 7.5 mg/kg (ppm)

Pipette 100 µL of Dilution I onto the application area of the test strip and incubate the test strip for 3 min.

b) Detection range 7.5 - 50 mg/kg (ppm)

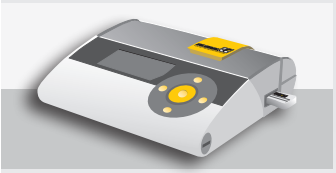


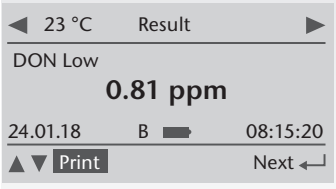
Dilution II: Further dilute 100 µL of Dilution I with 700 µL mobile solvent. Invert tube 5 times to thoroughly mix



Pipette 100 µL of Dilution II onto the application area and incubate the test strip for 3 min.

5





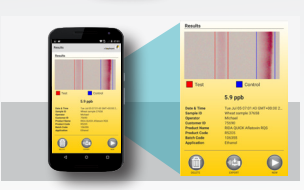
Put the test strip into the test strip insert of the RIDA®QUICK SCAN reader and start the measurement

Read and/or print the result

For the description of how to use the RIDA®QUICK SCAN check the reader manual.

or

Use the RIDA®SMART APP software to scan and evalutate the test strip



Read and/or export the results to a printer, cloud server or send it per e-mail

For the RIDA®SMART APP manual check the section “manual” in the RIDA®SMART APP software or read the quick guide that can be found on our website www.r-biopharm.com.

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Preliminary remark

All data shown in this report was generated by performing the shaking during extraction on a Rock-It 360 from Trilogy Analytical Labs, USA, followed by centrifuging an aliquot of the extract for 1 min at 2000 g.

Limit of detection (LOD) and limit of quantification (LOQ)

To determine the limit of detection (LOD) and the limit of quantification (LOQ) a total of 36 non-detect samples (19 wheat and 17 corn samples) were sourced. All samples were extracted 3 times and tested with 3 different lots of RIDA®QUICK DON RQS ECO. The evaluation has been carried out with two different evaluation technologies (RIDA®SMART APP software and RIDA®QUICK SCAN reader). The results were < 0.25 mg/kg DON for all measurements. Based on this data the LOD was calculated as the mean value + 3xstandard deviation (SD) and the LOQ as the mean value + 9xSD.

	No. of tests (total)	Mean value [mg/kg]	SD	LOD [mg/kg]	LOQ [mg/kg]
RIDA®SMART APP evaluation					
Lot 1	n=324	0.092	0.011	0.125	0.190
Lot 2		0.049	0.010	0.080	0.142
Lot 3		0.124	0.013	0.162	0.239
RIDA®QUICK SCAN evaluation					
Lot 1	n=324	0.114	0.014	0.155	0.236
Lot 2		0.053	0.009	0.080	0.133
Lot 3		0.166	0.042	0.291	0.540
				Total LOD	**Total LOQ**
				0.149	0.247

SD = Standard deviation
LOD = Limit of detection
LOQ = Limit of quantification

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Recovery with RIDA®SMART APP software evaluation

A comparison of the test performance with HPLC/LC-MS/MS was carried out by testing Trilogy® materials. The DON contamination of these naturally contaminated materials were identified by the manufacturer by repeated HPLC or LC-MS/MS testing. The identified DON values of the Trilogy® materials given on the certificates were set as target values (100 %). Twelve corn and twelve wheat materials were extracted 3 times and tested with 2 lots of RIDA®QUICK DON RQS ECO according to the instruction for use of the test kit. The results were evaluated with the RIDA®SMART APP software installed on a compatible smartphone. The recovery rates for the RIDA®QUICK DON RQS ECO measurements are shown below, together with the mean results, the mean recovery of the 3 extracts and the coefficients of variation.

Corn

Trilogy® sample ID	D-C-623		D-C-632		D-C-622		D-C-635		D-C-614		D-C-620	
Target DON concentration	0.5 mg/kg	Recovery	0.6 mg/kg	Recovery	1.9 mg/kg	Recovery	2.0 mg/kg	Recovery	2.7 mg/kg	Recovery	3.6 mg/kg	Recovery
Lot 1												
Extract 1	0.46	92 %	0.64	107 %	1.87	98 %	2.12	106 %	2.52	93 %	3.32	92 %
Extract 2	0.45	90 %	0.68	113 %	1.90	100 %	2.34	117 %	2.61	97 %	3.43	95 %
Extract 3	0.45	90 %	0.56	93 %	1.97	104 %	2.17	109 %	2.66	99 %	3.43	95 %
Mean	0.45	90 %	0.62	103 %	1.91	101 %	2.21	111 %	2.60	96 %	3.39	94 %
CV [%]	1.3		9.8		2.7		5.2		2.7		1.9	
Lot 2												
Extract 1	0.53	106 %	0.57	95 %	1.81	95 %	1.91	96 %	2.42	90 %	3.38	94 %
Extract 2	0.49	98 %	0.62	103 %	1.83	96 %	1.84	92 %	2.77	103 %	3.82	106 %
Extract 3	0.54	108 %	0.58	97 %	1.86	98 %	2.10	105 %	2.86	106 %	3.03	84 %
Mean	0.52	104 %	0.59	98 %	1.83	96 %	1.95	98 %	2.68	99 %	3.41	95 %
CV [%]	5.1		4.5		1.4		6.9		8.7		11.6	

Trilogy® sample ID	D-C-621		D-C-609		D-C-617		D-C-629		D-C-616		D-C-627-GS	
Target DON concentration	4.7 mg/kg	Recovery	4.8 mg/kg	Recovery	5.3 mg/kg	Recovery	5.5 mg/kg	Recovery	6.2 mg/kg	Recovery	30.8 mg/kg	Recovery
Lot 1												
Extract 1	4.35	93 %	4.37	91 %	4.57	86 %	4.57	83 %	5.63	91 %	27.83	90 %
Extract 2	4.27	91 %	4.21	88 %	4.76	90 %	4.51	82 %	5.97	96 %	26.71	87 %
Extract 3	4.33	92 %	4.13	86 %	4.85	92 %	4.68	85 %	5.53	89 %	28.14	91 %
Mean	4.32	92 %	4.24	88 %	4.73	89 %	4.59	83 %	5.71	92 %	27.56	89 %
CV [%]	1.0		2.9		3.0		1.9		4.0		2.7	
Lot 2												
Extract 1	4.29	91 %	4.70	98 %	5.06	95 %	5.10	93 %	5.97	96 %	29.01	94 %
Extract 2	4.78	102 %	4.92	103 %	5.23	99 %	5.69	103 %	6.17	100 %	28.87	94 %
Extract 3	4.23	90 %	4.48	93 %	5.14	97 %	5.47	99 %	6.56	106 %	27.10	88 %
Mean	4.43	94 %	4.70	98 %	5.14	97 %	5.42	99 %	6.23	101 %	28.33	92 %
CV [%]	6.8		4.7		1.7		5.5		4.8		3.8	

CV = Coefficient of variation

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Wheat

Trilogy® sample ID	D-W-1207		D-W-159		D-W-177		D-W-193		D-W-192		D-W-169	
Target DON concentration	0.5 mg/kg	Recovery	0.7 mg/kg	Recovery	1.6 mg/kg	Recovery	2.3 mg/kg	Recovery	2.9 mg/kg	Recovery	3.5 mg/kg	Recovery
Lot 1												
Extract 1	0.53	106 %	0.67	96 %	1.66	104 %	2.39	104 %	2.72	94 %	3.49	100 %
Extract 2	0.56	112 %	0.68	97 %	1.58	99 %	2.19	95 %	2.70	93 %	3.58	102 %
Extract 3	0.62	124 %	0.67	96 %	1.67	104 %	2.24	97 %	2.81	97 %	3.43	98 %
Mean	0.57	114 %	0.67	96 %	1.64	102 %	2.27	99 %	2.74	95 %	3.50	100 %
CV [%]	8.0		0.9		3.0		4.6		2.1		2.2	
Lot 2												
Extract 1	0.51	102 %	0.68	97 %	1.60	100 %	2.39	104 %	2.22	77 %	3.13	89 %
Extract 2	0.56	112 %	0.61	87 %	1.52	95 %	2.23	97 %	2.63	91 %	3.15	90 %
Extract 3	0.47	94 %	0.65	93 %	1.70	106 %	2.30	100 %	2.53	87 %	3.43	98 %
Mean	0.51	103 %	0.65	92 %	1.61	100 %	2.31	100 %	2.46	85 %	3.24	92 %
CV [%]	8.8		5.4		5.6		3.5		8.7		5.2	

Trilogy® sample ID	D-W-176		D-W-196		D-W-179		D-W-197		D-W-189		D-W-1208	
Target DON concentration	4.0 mg/kg	Recovery	5.4 mg/kg	Recovery	8.9 mg/kg	Recovery	9.3 mg/kg	Recovery	28.9 mg/kg	Recovery	36.3 mg/kg	Recovery
Lot 1												
Extract 1	3.68	92 %	5.47	101 %	8.51	96 %	9.28	100 %	24.48	85 %	29.72	82 %
Extract 2	4.12	103 %	5.62	104 %	9.56	107 %	9.02	97 %	24.85	86 %	29.33	81 %
Extract 3	3.52	88 %	5.12	95 %	9.37	105 %	8.70	94 %	25.16	87 %	30.21	83 %
Mean	3.77	94 %	5.40	100 %	9.15	103 %	9.00	97 %	24.83	86 %	29.75	82 %
CV [%]	8.2		4.7		6.1		3.2		1.4		1.5	
Lot 2												
Extract 1	3.34	84 %	5.29	98 %	9.07	102 %	7.50	81 %	25.79	89 %	40.78	112 %
Extract 2	3.62	91 %	4.58	85 %	7.97	90 %	7.50	81 %	28.04	97 %	33.88	93 %
Extract 3	3.68	92 %	4.89	91 %	8.30	93 %	8.40	90 %	29.06	101 %	31.59	87 %
Mean	3.55	89 %	4.92	91 %	8.45	95 %	7.80	84 %	27.63	96 %	35.42	98 %
CV [%]	5.1		7.2		6.7		6.7		6.1		13.5	

CV = Coefficient of variation

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A comparison of the test performance with HPLC/ LC-MS/MS was carried out by testing Trilogy® materials. The DON contamination of these naturally contaminated materials are identified by the manufacturer by repeated HPLC or LC-MS/MS testing. The identified DON values of the Trilogy® materials given on the certificates were set as target values (100 %).Twelve samples (barley (B) and malted barley (MB)) were extracted 2 times and tested in up to 3 runs with RIDA®QUICK DON RQS ECO according to the instruction for use of the test kit. The results were evaluated with the RIDA®SMART APP software installed on a compatible smartphone. The recovery rates for the RIDA®QUICK DON RQS ECO measurements are shown below, together with the mean results, the mean recovery of the extracts and the coefficientes of variation.

Barley

Trilogy® sample ID	D-B-500		D-B-510		D-B-509		D-B-522		D-MB-5852		D-B-520	
Target DON concentration	ND	Recovery	0.5 mg/kg	Recovery	1.0 mg/kg	Recovery	1.0 mg/kg	Recovery	1.2 mg/kg	Recovery	1.5 mg/kg	Recovery
Lot 1												
Extract 1 – run 1	< 0.25	-	0.54	108 %	0.93	93 %	1.00	100 %	1.08	90 %	1.51	101 %
Extract 1 – run 2	< 0.25	-	0.55	111 %	0.99	99 %	0.96	96 %	1.13	94 %	1.53	102 %
Extract 1 – run 3	< 0.25	-	0.51	102 %	0.98	98 %	1.16	116 %	1.13	94 %	1.53	102 %
Extract 2 – run 1	< 0.25	-	0.54	107 %	0.98	98 %	0.96	96 %	1.08	90 %	1.49	100 %
Extract 2 – run 2	< 0.25	-	0.43	85 %	0.97	97 %	0.94	94 %	1.10	92 %	1.60	107 %
Mean	-	-	0.51	103 %	0.97	97%	1.01	101 %	1.11	92 %	1.53	102 %
CV [%]	-		10 %		2 %		9 %		2 %		3 %	

Trilogy® sample ID	D-B-524		D-MB-5851		D-B-507		D-B-528		D-B-518		D-B-519	
Target DON concentration	2.1 mg/kg	Recovery	2.4 mg/kg	Recovery	2.6 mg/kg	Recovery	3.6 mg/kg	Recovery	7.0 mg/kg	Recovery	7.9 mg/kg	Recovery
Lot 1												
Extract 1 – run 1	2.27	108 %	2.19	91 %	2.35	90 %	3.66	102 %	6.89	98 %	7.06	89 %
Extract 1 – run 2	2.21	105 %	2.16	90 %	2.32	89 %	3.73	104 %	7.43	106 %	6.13	78 %
Extract 1 – run 3	2.34	112 %	2.19	91 %	2.62	101 %	3.57	99 %	7.21	103 %	6.82	86 %
Extract 2 – run 1	2.36	112 %	2.22	93 %	2.35	90 %	3.47	97 %	6.86	98 %	7.29	92 %
Extract 2 – run 2	2.36	112 %	2.11	88 %	2.36	91 %	3.46	96 %	6.76	97 %	6.78	86 %
Mean	2.31	110 %	2.18	91%	2.40	92 %	3.58	99 %	7.03	100 %	6.82	86 %
CV [%]	3 %		2 %		5 %		3 %		4 %		6 %	

CV = Coefficient of variation

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A comparison of the test performance with HPLC was carried out. Naturally contaminated oats samples sourced on the European market were tested for there DON contamination by an external ISO 17025 accredited laboratory with HPLC. The reported values were set as target values for the testing with RIDA®QUICK DON RQS ECO in combination with the RIDA®SMART APP. Each sample was extracted 3 times and tested in up to 3 runs with the RIDA®QUICK DON RQS ECO according to the instructions for use of the test kit. The results were evaluated with the RIDA®SMART APP installed on a compatible smartphone. The recovery rates for the RIDA®QUICK DON RQS ECO measurements are shown below, together with the mean results, the mean recovery and the coefficientes of variation.

Oats

Trilogy® sample ID	1		2		3		4		5		6	
Target DON concentration	0.22 mg/kg	Recovery	1.92 mg/kg	Recovery	2.58 mg/kg	Recovery	5.14 mg/kg	Recovery	6.41 mg/kg	Recovery	7.79 mg/kg	Recovery
Lot 1												
Extract 1 – run 1	< 0.25	-	1.56	81 %	2.39	93 %	5.15	100 %	9.60	150 %	7.32	94 %
Extract 1 – run 2	< 0.25	-	1.56	81 %	2.32	90 %	5.42	105 %	7.99	125 %	7.64	98 %
Extract 1 – run 3	< 0.25	-	1.49	78 %	2.23	87 %	5.82	113 %	8.25	129 %	7.12	91 %
Extract 2 – run 1	< 0.25	-	1.56	81 %	2.53	98 %	5.34	104 %	8.16	127 %	8.36	107 %
Extract 2 – run 2	< 0.25	-	1.58	82 %	2.46	95 %	5.54	108 %	8.30	130 %	7.71	99 %
Mean	-	-	1.55	81 %	2.39	93 %	5.45	106 %	8.46	132 %	7.63	98 %
CV [%]	-		2 %		5 %		5 %		8%		6 %	

Trilogy® sample ID	7		8		9		10		11		12	
Target DON concentration	7.8g mgg/kg	Recovery	10.1 mg/kg	Recovery	14.1 mg/kg	Recovery	20.9 mg/kg	Recovery	25,0 mg/kg	Recovery	36.1 mg/kg	Recovery
Extract 1 – run 1	7.67	98 %	10.02	99 %	13.15	93 %	21.48	103 %	27.29	109 %	34.60	96 %
Extract 1 – run 2	7.03	90 %	10.80	107 %	12.79	91 %	21.80	104 %	26.80	107 %	36.46	101 %
Extract 1 – run 3	7.45	96 %	10.71	106 %	13.62	97 %	22.35	107 %	27.14	109 %	40.46	112 %
Extract 2 – run 1	7.31	94 %	10.41	103 %	13.60	96 %	19.85	95 %	23.93	96 %	34.28	95 %
Extract 2 – run 2	6.97	89 %	10.32	102 %	13.05	93 %	20.95	100 %	25.24	101 %	40.20	111 %
Mean	7.29	93 %	10.45	104 %	13.24	94 %	21.28	102 %	26.08	104 %	37.20	103%
CV [%]	4%		3 %		3 %		4 %		6 %		8 %	

CV = Coefficient of variation

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Recovery with RIDA®QUICK SCAN reader evaluation

A comparison of the test performance with HPLC/LC-MS/MS was carried out by testing Trilogy® materials. The DON contamination of these naturally contaminated materials were identified by the manufacturer by repeated HPLC or LC-MS/MS testing. The identified DON values of the Trilogy® materials given on the certificates were set as target values (100 %). Twelve corn materials and twelve wheat materials were extracted 3 times and tested with 2 lots of RIDA®QUICK DON RQS ECO according to the instruction for use of the test kit. The results were evaluated with the RIDA®QUICK SCAN reader. The recovery rates for the RIDA®QUICK DON RQS ECO measurements are shown below, together with the mean results, the mean recovery of the 3 extracts and the coefficients of variation.

Corn

Trilogy® sample ID	D-C-623		D-C-632		D-C-622		D-C-635		D-C-614		D-C-620	
Target DON concentration	0.5 mg/kg	Recovery	0.6 mg/kg	Recovery	1.9 mg/kg	Recovery	2.0 mg/kg	Recovery	2.7 mg/kg	Recovery	3.6 mg/kg	Recovery
Lot 1												
Extract 1	0.54	108 %	0.72	120 %	2.00	105 %	2.28	114 %	2.87	106 %	3.52	98 %
Extract 2	0.46	92 %	0.73	122 %	2.11	111 %	2.46	123 %	3.09	114 %	3.96	110 %
Extract 3	0.48	96 %	0.60	100 %	2.12	112 %	2.37	119 %	2.89	107 %	3.87	108 %
Mean	0.49	99 %	0.68	114 %	2.08	109 %	2.37	119 %	2.95	109 %	3.78	105 %
CV [%]	8.4		10.6		3.2		3.8		4.1		6.1	
Lot 2												
Extract 1	0.61	122 %	0.65	108 %	1.88	99 %	1.88	94 %	2.46	91 %	3.20	89 %
Extract 2	0.55	110 %	0.71	118 %	1.90	100 %	1.86	93 %	2.75	102 %	3.74	104 %
Extract 3	0.55	110 %	0.61	102 %	1.87	98 %	2.15	108 %	2.85	106 %	3.00	83 %
Mean	0.57	114 %	0.66	109 %	1.88	99 %	1.96	98 %	2.69	100 %	3.31	92 %
CV [%]	6.1		7.7		0.8		8.2		7.5		11.6	

Trilogy® sample ID	D-C-621		D-C-609		D-C-617		D-C-629		D-C-616		D-C-627-GS	
Target DON concentration	4.7 mg/kg	Recovery	4.8 mg/kg	Recovery	5.3 mg/kg	Recovery	5.5 mg/kg	Recovery	6.2 mg/kg	Recovery	30.8 mg/kg	Recovery
Lot 1												
Extract 1	4.92	105 %	5.37	112 %	5.20	98 %	5.34	97 %	6.52	105 %	30.61	99 %
Extract 2	5.15	110 %	5.16	108 %	5.41	102 %	5.33	97 %	6.75	109 %	29.10	94 %
Extract 3	5.05	107 %	4.57	95 %	5.85	110 %	5.55	101 %	6.26	101 %	30.67	100 %
Mean	5.04	107 %	5.03	105 %	5.49	104 %	5.41	98 %	6.51	105 %	30.13	98 %
CV [%]	2.3		8.2		6.0		2.3		3.8		3.0	
Lot 2												
Extract 1	4.06	86 %	4.48	93 %	4.57	86 %	4.82	88 %	5.89	95 %	27.16	88 %
Extract 2	4.71	100 %	4.86	101 %	4.94	93 %	4.97	90 %	5.84	94 %	26.91	87 %
Extract 3	4.08	87 %	4.23	88 %	4.44	84 %	5.02	91 %	6.06	98 %	25.59	83 %
Mean [ppb]	4.28	91 %	4.52	94 %	4.65	88 %	4.94	90 %	5.93	96 %	26.55	86 %
CV [%]	8.6		7.0		5.6		2.1		1.9		3.2	

CV = Coefficient of variation

RIDA®QUICK DON RQS ECO

Art. No. R5911

Wheat

Trilogy® sample ID	D-W-1207		D-W-159		D-W-177		D-W-193		D-W-192		D-W-169	
Target DON concentration	0.5 mg/kg	Recovery	0.7 mg/kg	Recovery	1.6 mg/kg	Recovery	2.3 mg/kg	Recovery	2.9 mg/kg	Recovery	3.5 mg/kg	Recovery
Lot 1												
Extract 1	0.44	88 %	0.84	120 %	1.66	104 %	2.38	103 %	2.79	96 %	3.55	101 %
Extract 2	0.50	100 %	0.73	104 %	1.50	94 %	2.22	97 %	2.77	96 %	3.53	101 %
Extract 3	0.62	124 %	0.60	86 %	1.59	99 %	2.27	99 %	2.80	97 %	3.37	96 %
Mean	0.52	104 %	0.72	103 %	1.58	99 %	2.29	100 %	2.79	96 %	3.48	100 %
CV [%]	17.6		16.6		5.1		3.6		0.5		2.8	
Lot 2												
Extract 1	0.54	108 %	0.68	97 %	1.62	101 %	2.26	98 %	2.20	76 %	3.04	87 %
Extract 2	0.58	116 %	0.69	99 %	1.46	91 %	2.19	95 %	2.55	88 %	3.01	86 %
Extract 3	0.61	122 %	0.68	97 %	1.70	106 %	2.21	96 %	2.44	84 %	3.46	99 %
Mean	0.58	115 %	0.68	98 %	1.59	100 %	2.22	97 %	2.40	83 %	3.17	91 %
CV [%]	6.1		0.8		7.7		1.6		7.5		7.9	

Trilogy® sample ID	D-W-176		D-W-196		D-W-179		D-W-197		D-W-189		D-W-1208	
Target DON concentration	4.0 mg/kg	Recovery	5.4 mg/kg	Recovery	8.9 mg/kg	Recovery	9.3 mg/kg	Recovery	28.9 mg/kg	Recovery	36.3 mg/kg	Recovery
Lot 1												
Extract 1	3.70	93 %	5.18	96 %	9.10	102 %	10.04	108 %	27.31	94 %	32.00	88 %
Extract 2	3.94	99 %	6.01	111 %	9.79	110 %	9.22	99 %	26.74	93 %	33.59	93 %
Extract 3	3.92	98 %	5.04	93 %	9.62	108 %	8.47	91 %	27.55	95 %	35.03	97 %
Mean	3.85	96 %	5.41	100 %	9.50	107 %	9.24	99 %	27.20	94 %	33.54	92 %
CV [%]	3.5		9.7		3.8		8.5		1.5		4.5	
Lot 2												
Extract 1	3.53	88 %	4.96	92 %	9.35	105 %	8.00	86 %	26.44	91 %	39.40	109 %
Extract 2	3.96	99 %	4.36	81 %	8.65	97 %	8.22	88 %	27.34	95 %	34.30	94 %
Extract 3	3.51	88 %	4.89	91 %	8.39	94 %	9.60	103 %	28.42	98 %	30.21	83 %
Mean	3.67	92 %	4.74	88 %	8.80	99 %	8.61	93 %	27.40	95 %	34.64	95 %
CV [%]	6.9		6.9		5.6		10.1		3.6		13.3	

CV = Coefficient of variation

RIDA®QUICK DON RQS ECO

Art. No. R5911

Robustness

Three untrained operators tested Trilogy® naturally contaminated cereals (two corn samples and two wheat samples) with the RIDA®QUICK DON RQS ECO at different time points. The DON values of the naturally contaminated samples given on the manufacturers certificates were set as target values (100 %). Each sample was extracted seven times. The result evaluation was carried out with the RIDA®SMART APP software. The recovery rates for the RIDA®QUICK DON RQS ECO measurements are shown below, togehter with the mean results, the mean recovery of the 7 extracts and the coefficients of variation.

Corn

Trilogy® sample ID	D-C-614						D-C-621					
Target DON concentration	2.7 mg/kg						4.7 mg/kg					
	Operator 1		Operator 2		Operator 3		Operator 1		Operator 2		Operator 3	
	Result [µg/kg]	Recovery	Result [µg/kg]	Recovery	Result [µg/kg]	Recovery	Result [µg/kg]	Recovery	Result [µg/kg]	Recovery	Result [µg/kg]	Recovery
Extract 1	3.01	112%	2.73	101%	2.67	99%	4.52	96%	4.37	93%	4.63	98%
Extract 2	2.90	107%	2.80	104%	2.76	102%	4.38	93%	4.63	98%	4.61	98%
Extract 3	2.72	101%	2.90	108%	2.64	98%	4.74	101%	4.04	86%	4.62	98%
Extract 4	2.84	105%	2.74	101%	2.66	98%	4.69	100%	4.68	100%	4.12	88%
Extract 5	2.74	101%	2.56	95%	2.73	101%	4.50	96%	4.60	98%	4.61	98%
Extract 6	2.91	108%	2.92	108%	2.55	94%	4.41	94%	4.82	103%	4.35	92%
Extract 7	2.94	109%	2.71	100%	2.63	98%	4.39	93%	4.77	101%	4.26	91%
Mean	2.87	106%	2.77	102%	2.66	99%	4.52	96%	4.56	97%	4.46	95%
CV [%]	3.7		4.5		2.6		3.2		6.0		4.7	

Wheat

Trilogy® sample ID	D-W-1201						D-W-196					
Target DON concentration	2.1 mg/kg						5.4 mg/kg					
	Operator 1		Operator 2		Operator 3		Operator 1		Operator 2		Operator 3	
	Result [µg/kg]	Recovery	Result [µg/kg]	Recovery	Result [µg/kg]	Recovery	Result [µg/kg]	Recovery	Result [µg/kg]	Recovery	Result [µg/kg]	Recovery
Extract 1	2.06	98 %	2.22	105 %	2.18	104 %	4.89	91 %	5.46	101 %	4.44	82 %
Extract 2	2.18	104 %	2.19	104 %	2.03	97 %	4.93	91 %	5.62	104 %	5.47	101 %
Extract 3	2.12	101 %	2.15	102 %	2.25	107 %	4.89	91 %	5.41	100 %	4.44	82 %
Extract 4	2.10	100 %	2.28	108 %	2.09	99 %	4.92	91 %	5.43	100 %	4.40	81 %
Extract 5	2.06	98 %	2.22	106 %	2.27	108 %	4.71	87 %	5.14	95 %	4.83	90 %
Extract 6	2.13	102 %	2.14	102 %	1.97	94 %	4.84	90 %	6.05	112 %	4.84	90 %
Extract 7	2.16	103 %	2.13	101 %	2.03	97 %	5.01	93 %	5.74	106 %	5.72	106 %
Mean	2.12	101 %	2.19	104 %	2.12	101 %	4.89	90 %	5.55	103 %	4.88	90 %
CV [%]	2.2		2.4		5.5		1.9		5.2		10.8	

CV = Coefficient of variation

RIDA®QUICK DON RQS ECO

Art. No. R5911

FAPAS® Proficiency Testing Round

The quality of the RIDA®QUICK DON RQS ECO tests system was proven by paticipating in an external, blinded proficiency test for mycotoxins, organized by FAPAS®. In such proficiency tests samples that are known to be contaminated with certain mycotoxins are send to the participating labs. The levels of contamination are unknown. The levels of contamination identified by the participants are reported to the proficiency testing provider. The quality of the submitted results is described as a z-score with a score of $-2 \leq z \leq 2$ being acceptable. A z-score of 0 (zero) describes a result that is identical to the contamination value assigned to the sample by FAPAS®. As test material a flaked maize (flaked corn) sample with Aflatoxin B1, Ochratoxin A, Zearalenone and Deoxynivalenol (DON) contaminations was shipped to the participants. We tested the sample with the RIDA®QUICK DON RQS ECO test according to the instructions for use and reported the identified contamination level for DON. FAPAS® confirmed the high quality of our submitted results by rating it with a z-score of 0.4. For details check the FAPAS® Food Chemistry Proficiency Test Report 04348, Mycotoxins in Maize, October-Dezember 2018.

FAPAS® round 04348

Matrix	Analyte	Art. No.	Test name	Submitted result	FAPAS assigned value	Z-score
Corn flour from flaked corn	DON	R5911	RIDA®QUICK DON RQS ECO	1190 µg/kg	1123 µg/kg	0.4

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