

# SureFood® GMO kits

For qualitative and quantitative detection of genetically modified organisms (GMO) in food & feed



Robust DNA preparation for complex samples



Multiplex screening



Qualitative detection and Quantification

# GMO-analysis in food and feed

Currently, the routine analyses for the detection of genetically modified organisms (GMO) focus on genetically modified crops.

Most GMO events contain promotor/ terminator sequences (35S, NOS, FMV and others) which are not natural in these plants. Identification of these sequences is used for absence/ presence screening of GMO. Some new GMO soya events do not contain such sequences. Screening must be performed by direct identification.

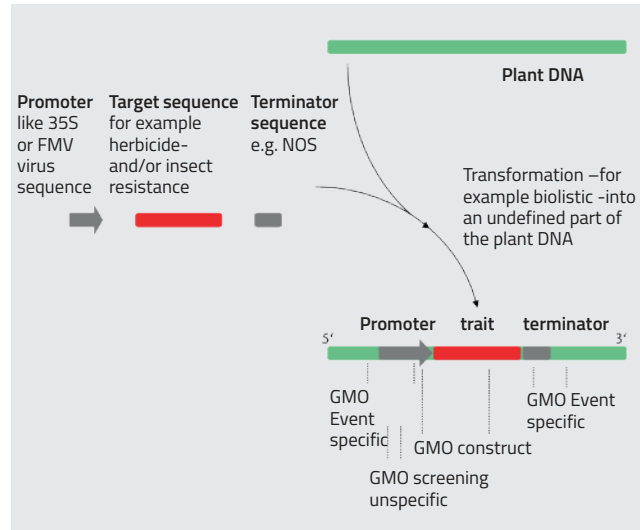


Fig.: Simplified presentation of the production and analytical sequences for plants containing GMO's

## Multi-stage analysis method for GMO products:



### Consistent DNA preparation

Manual – Spin filter

**SureFood® PREP Basic**  
For raw materials and low-processed foods.

**SureFood® PREP Add On**  
For 2 g sample weighing.

**SureFood® PREP Advanced**  
For heavily processed samples.

Semi-automated –  
Magentic-Beads

**SureFast® Mag PREP Food / TANBead Maelstrom**  
For raw materials, low- and heavily processed food and feed samples.



### Modular qPCR System

Unspecific multiplex screening

#### SureFood® GMO SCREEN

- Fast and comprehensive analysis
- Result whether GMOs are present or not

Multiplex Identification

#### SureFood® GMO ID

- Specific detection method for the exclusion of unauthorized GMOs
- There is a 0 % tolerance for unauthorized GMOs in the EU

Relative Quantification

#### SureFood® GMO QUANT

- According to EU Regulation EC1829/2003 and EC 1830/2003 - food must be labeled with a permissible GMO content of > 0.9 % per matrix
- Regulation EC 619/2011 applies to feed
- The quantification of GMO events is proportional to the respective plant matrix



### Your benefits

**User-friendly:**

- Standardized sample preparation, qPCR set up and thermo profiles
- Extracted DNA can be used for additional tests (e.g. allergens)
- Simultaneous qPCR analysis GMO and allergen samples

**Time saving:**

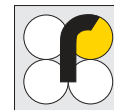
Semi-automated DNA extraction and multiplex kits

**Everything from a single source:**

Kits, Equipment, Support

**Flexible:**

qPCR cycler: FAM, VIC, HEX, Cy5



# Screening table of common crops containing GMO's

Due to the combination of different vectors, it is possible to include/exclude the presence of certain GMO events.

GMO-event	OECD	S2126			S2127				S2128
		P-35S CAMV	T-NOS	P-35S FMV	BAR	NPTII	pat	CTP2:CP4E PSPS	CryIAb
<b>Soya</b>									
A2704-12	ACS-GM005-3	+	-	-	-	-	+	-	-
A5547-127	ACS-GM006-4	+	-	-	-	-	+	-	-
DAS-68416-4	DAS-68416-4	-	-	-	-	-	+	-	-
DAS-81419	DAS-81419-2	-	-	-	-	-	+	-	-
DAS-44406-6	DAS-44406-6	-	-	-	-	-	+	-	-
DP-305423	DP-305423-1	+	-	-	-	-	-	-	-
FG72	MST-FG072-2	-	+	-	-	-	-	-	-
FG72 x A5547-127	MST-FG072-2 x ACS-GM006-4	+	+	-	-	-	+	-	-
GMB151	BCS-GM151-6	+	-	-	-	-	-	-	-
GTS 40-3-2 (RR-Sox)	MON-04032-6	+	+	-	-	-	-	-	-
MON87705	MON-87705-6	-	-	+	-	-	-	+	-
MON87751	MON-87751-7	-	-	-	-	-	-	-	+
MON87769 x MON89788	MON-87769-7 x MON-89788-1	-	-	+	-	-	-	+	-
MON87701	MON-87701-2	-	-	-	-	-	-	-	-
MON87701 x MON89788	MON-87701-2 x MON-89788-1	-	-	+	-	-	-	+	-
MON87708 x MON89788	MON-87708-9 x MON-89788-1	-	-	+	-	-	-	+	-
MON87708	MON-87708-9	-	-	-	-	-	-	-	-
MON87705 x MON89788	MON-87705-6 x MON-89788-1	-	-	+	-	-	-	+	-
SYHT0H2	SYN-000H2-5	+	+	-	-	-	+	-	-
<b>Corn</b>									
59122	DAS-59122-7	+	-	-	-	-	+	-	-
Bt11	SYN-BT011-1	+	+	-	-	-	+	-	+
GA21	MON-00021-9	-	+	-	-	-	-	-	-
MON810	MON-00810-6	+	-	-	-	-	-	-	-
MIR162	SYN-IR162-4	-	+	-	-	-	-	-	-
MIR604	SYN-IR604-5	-	+	-	-	-	-	-	-
MON87411	MON87411-9	+	-	-	-	-	-	+	-
MON87419	MON-87419-8	-	-	-	-	-	+	-	-
MON87427	MON-87427-7	+	+	-	-	-	-	+	-
MON87460	MON-87460-4	+	+	-	-	+	-	-	-
MON87751	MON87751.7	-	-	-	-	-	-	-	+
MON88017	MON-88017-3	+	+	-	-	-	-	+	-
MON89034	MON-89034-3	+	+	+	-	-	-	-	-
MZHGOJG	SYN-000JG-2	+	+	-	-	-	+	-	-
NK603	MON-00603-6	+	+	-	-	-	-	+	-
NK603 x MON810	MON-00603-6 x MON-00810-6	+	+	-	-	-	-	+	+
NK603 x T25	MON-00603-6 x ACS-ZM002-1	+	+	-	-	-	+	-	-
T25	ACS-ZM003-2	+	-	-	-	-	+	-	-
T25 x MON810	ACS-ZM003-2 x MON-00810-6	+	-	-	-	-	-	-	-
T25 /T14	ACS-ZM002-1, ACS-ZM003-2	+	-	-	-	-	+	-	-
TC1507	DAS-01507-1	+	-	-	-	-	+	-	-
<b>Canola</b>									
73496	DP-073496-4	-	-	-	-	-	-	-	-
GT73 (RT73)	MON-00073-7	-	-	+	-	-	-	+	-
MON88302	MON-88302-9	-	-	+	-	-	-	+	-
T45 (HCN28)	ACS-BN008-2	+	-	-	-	-	+	-	-
<b>Cotton</b>									
GHB614 x LLCotton25	BCS-GH002-5 x ACS-GH001-3	+	+	-	+	-	-	-	-
LLCotton25	ACS-GH001-3	-	+	-	+	-	-	-	-
MON15985	MON-15985-7	+	+	-	-	+	-	+	-
MON88913	MON-88913-8	+	-	+	-	-	-	+	-
MON531	MON-00531-6	+	+	-	-	+	-	-	-
T304-40	BCS-GH004-7	+	+	-	+	-	-	-	+

Please note: The table only shows examples and is not complete.

# SureFood® GMO products

SureFood®	No. of tests/amount	Art. No.
<b>SureFood® PREP – DNA-preparation</b>		
Basic	100 preparations	S1052
Advanced	50 preparations	S1053
Add-On (For 2 g samples; in combination with SureFood® PREP Basic)	15 preparations	S1055
SureFast® Mag PREP Food	96 preparations	F1060
<b>Extraction control</b>		
Animal + Plant Control 3plex	100 reactions	F4053
<b>SureFood® GMO</b>		
Plant PLUS	100 reactions	S2049
Plant 4plex Corn/Soya/Canola/Cotton	100 reactions	S2156
Plant 4plex Corn/Soya/Canola+IAC	100 reactions	S2158
<b>SureFood® GMO SCREEN – qualitative real-time PCR</b>		
4plex 35S/NOS/FMV+IAC	100 reactions	S2126
4plex BAR/PAT/NPTII/CTP2:CP4 EPSPS	100 reactions	S2127
CaMV	100 reactions	S2027
4plex BAR/PAT/CryIAb/CTP2:CP4 EPSPS	100 reactions	S2128
P35S:BAR Rice	100 reactions	S2022



SureFood® PREP Basic, Art. No. S1052



SureFood® GMO SCREEN

SureFood®	No. of tests/amount	Art. No.
<b>SureFood® GMO ID – qualitative real-time PCR</b>		
<b>Canola</b>		
4plex Canola I	100 reactions	S2166
4plex Canola II	100 reactions	S2167
<b>Corn</b>		
DAS-40278-9 Corn	100 reactions	S2140
4plex Corn I	100 reactions	S2170
<b>Rice</b>		
Bt63 Rice	2 x 50 reactions	S2024
<b>Soya</b>		
4plex Soya I	100 reactions	S2161
4plex Soya II	100 reactions	S2162
4plex Soya III	100 reactions	S2164
<b>SureFood® GMO QUANT – quantitative real-time PCR</b>		
<b>Corn</b>		
35S Corn	2 x 50 reactions*	S2020
Bt176 Corn	2 x 50 reactions*	S2015
Bt11 Corn	2 x 50 reactions*	S2016
MIR162 Corn	2 x 50 reactions*	S2135
MON810 Cornx	2 x 50 reactions*	S2019
MON863 Corn	2 x 50 reactions*	S2051
T25 Corn	2 x 50 reactions*	S2017
TC1507 Corn	2 x 50 reactions*	S2081
<b>Soya</b>		
Roundup Ready Soya	2 x 50 reactions*	S2014
35S Soya	2 x 50 reactions*	S2028
RR2Y Soya	2 x 50 reactions*	S2029
<b>Reference material</b>		
SureFood® GMO Plant Reference Sample	2 gram	S2150

MS8/6GT73/T45 Canola

MON88302/DPO734906/RF3 Canola

MON810/TC1507/NK603/MON89034

MON87708+CV127/DP305423/MON87701/MON87769

RR-Soya/RR-2Yield Soya/A2704-12/A5547-127

FG72-Soya/DAS68416-Soya/GMB151-Soya/DAS44406-Soya

(0.1 % non-GMO soya, maize, canola, rice)

\*1 x 50 reactions to quantify the reference gene.