INFORMATION NOTE

BIOSUISSE

Food and feed components of 'Bud' products that are at risk of GMO contamination

January 2023

We consider organic food and feed components to be 'at risk of GMO contamination' when they

- are also cultivated in the form of genetically modified organisms (GMOs) in non-organic agriculture
- exist as genetically modified products or as products produced with the help of GMOs
- are microorganism/yeast cultures
- are non-organic ingredients, additives or processing aids that are permitted in the production of organic food as per CH organic regulations (appendix 3 of the Swiss EAER Ordinance on Organic Farming, SR 910.181)

This memo is focused on GMOs for which an authorisation procedure is required. The future procedure with new genetic engineering methods is currently not yet clarified and therefore not considered here.

Any use of food and feed components that are at risk of GMO contamination must comply with the current Bio Suisse standards, and the information given in the Bio Suisse information notes on GMOs must be followed. More information can be found in documents available on the Bio Suisse website under 'GMO':

- Information note 'Knospe ohne Gentechnik –die Sicherstellung' / 'Le Bourgeon sans manipulations génétiques-la garantie' (German and French only)
- Information note 'Preventing GMOs and GM derivatives in imported "Bud" products'
- Interpretation of the ban on the use of genetic engineering
- Form certifying GMO-free agriculture

1. At-risk countries and crops for the production and importation of 'Bud' products

Bio Suisse regularly assesses the risk for 'Bud' products of GMO contamination or contamination with GM derivatives. This takes into account that genetically modified products are not only cultivated, but are also transported, stored and processed worldwide. Therefore, 'Bud' products also risk becoming commingled outside of those areas where genetically modified plants are cultivated.
In general, imported 'Bud' products should be tested if there is any suspicion of contamination with GMOs or GM derivatives. Bio Suisse requires a PCR test for certain countries and products.[1]

A list of countries and crops that are deemed to be at risk due to the cultivation of genetically modified crops has been compiled based on information received from the Biosafety Clearing House (BSCH), ISAAA, FAO GM Foods Platform and local experts (Table 1).

Monitoring in the food sector is coordinated by the Federal Food Safety and Veterinary Office and carried out by the cantons. Monitoring of feed is performed by the Federal Office for Agriculture.

[1] See the Bio Suisse Standards, part V, appendix to section 1.8 or the information note 'Preventing GMOs and GM derivatives in imported "Bud" products''

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Table 1: List of countries and crops that are deemed to be at risk last updated: December 2022)

Countries and crops that are deemed to be at risk																					
	maize	soy	rape	papaya	sugar beet	rice	sugar cane	linseed	mustard	turnips	potato	squash	alfalfa	tomato	bentgrass	apple	plum	cotton	eggplant	pineapple	safflower
Argentina	xx	xx	(x)								(x)		xx					xx			
Australia			xx						C	C								xx			xx
Bangladesh																			xx		
Bolivia		xx																			
Brazil	xx	xx					x											xx			
Chile	xx	x	xx						C	C											
China				xx														xx			
Costa Rica		x																xx		xx	
EU	xx																				
Portugal	xx																				
Spain	xx																				
Ethiopia																		xx			
Honduras	xx																				
India																		xx			
Japan	(x)	(x)	(x)	(x)					C	C											
Indonesia	x						x														
Canada	xx	xx	xx		xx			(x)	C	C			xx			(x)					
Colombia	xx	(x)																xx			
Malawi																		x			
Mexico		(x)																xx			
Myanmar																		xx			
Nigeria																		xx			
Pakistan	(x)																	xx			
Paraguay	xx	xx																xx			
Philippines	xx																				
South Africa	xx	xx																xx			
South Korea	(x)	(x)	(x)															(x)			
Sudan																		xx			
Swaziland																		xx			
Thailand				xx																	

Ukraine	xx	x	x						C	C												
Uruguay	xx	xx																				
USA	xx	xx	xx	xx	xx	(x)		(x)	C	C	xx	xx	xx	xx	xx	(x)	(x)	xx				
Hawaii				xx																		
Vietnam	xx																					

xx = Cultivation; x = Cultivation probable; (x) = Approval available, but no cultivation known yet; C = No cultivation, but cross-breeding with rape possible

Further information in German can also be found at www.transgen.de an at FAO GM Foods Platform.

Honey/bees:
There are no GM bees. In Switzerland honey counts as an animal product and pollen does not count as an ingredient. Just as milk from cows that eat GM feed need not be declared as 'genetically modified', honey from bees that collected pollen from GM crops need not be declared. If pollen from GM plants is detected, its presence is considered adventitious, and the honey remains salable.
In the EU it is unclear how pollen should be dealt with. However, when pollen occurs in honey, the plants from which it is derived must be permitted as food in the EU.
The following also applies to organic beekeeping: Beehives must be situated in such a way that the nectar and pollen sources within a three-kilometre radius mainly consist of organically cultivated crops and/or spontaneous vegetation and/or crops treated with low environmental impact methods which cannot affect the organic status of the apiculture products.
In particular, there should be no cultivation of GM crops within a 10-km radius.

2. Agricultural ingredients, straight feeds, additives and processing aids used in 'Bud' products that are at risk of GMO contamination

In the case of ingredients of agricultural origin and basic feed components for which there is a risk that genetically modified varieties were used, only certified organic ingredients may be used in 'Bud' products. The same rule applies to additives which have been physically extracted from agricultural products (e.g., fructose, wafers, rice and waxy maize starch, vegetable oils/maize-germ oil, rum [see sugarcane cultivation]) and at-risk straight feeds that are also derived from genetically modified plants. Genetically modified straight feeds which are permitted in Switzerland are given in the Swiss Federal Office for Agriculture Ordinance on GMO Feed Lists (SR 916.307.11). Additives and processing aids are at risk of GMO contamination when they are physically derived from non-organic agricultural products and are permitted for use in organic products.[2] In the case of at-risk additives and processing aids as well as cultures, the manufacturer of a product must provide verification that it does not contain GMOs.
According to Bio Suisse standards these include:

- separating agents, glazing agents, antifoaming agents (vegetable oils)
- rennet and rennet substitutes
- organic acids (e.g., lactic acid, sodium citrate, citric acid, tartaric acid, sodium tartrate and potassium tartrate) in food and animal feed
- enzymes (e.g., pectinase, lactase, amylase, hemicellulase, asparaginase)
- microorganisms/pure cultured yeast/fungi (e.g., yogurt cultures and sour milk and kefir cultures, lactic acid bacteria, soy products, cultures for producing and curing cheese, washed-rind cultures, wine yeast, starter cultures for producing raw sausage, and cultures for producing fermented drinks and products)
- vitamins in feed (vitamins B2, B12, C, E and lysine)
- microorganisms and yeasts in animal feed
- lactic acid starter culture

The form confirming contractual compliance with the prohibition of genetically modified organisms in accordance with the provisions of Council Regulation (EC) No. 2018/848', which also complies with the current version of the

[2] Cf. the Bio Suisse Standards, part III, section 1.6

Swiss Ordinance on Organic Farming (SR 910.18), can be obtained from the Bio Suisse head office or downloaded from the Bio Suisse website. It is not necessary to furnish verification that no GM derivatives were used in culture media for microorganisms.

Table 2 shows examples of Bud products in which conventional additives, processing aids and microorganisms are permitted in accordance with Bio Suisse Standard for the production, processing and trade of Bud Products and in which a declaration of compliance confirming freedom from genetic engineering is required (not exhaustive).
In Switzerland, asparaginase and amylase from GM microorganisms are permitted for use in food products. The comprehensive list can be found on the Federal Office for Agriculture website. However, no labelling as GMO is required.
Since July 2021, the FSVO has maintained a list of fermentation products that are produced in a closed system by a genetically modified microorganism, subsequently purified, separated and chemically defined, in appendix 3 of the FDHA Ordinance on Genetically Modified Foodstuffs (SR 817.022.51).
More information is available in the Bio Suisse Standards for the Production, Processing and Trade of 'Bud' Products.

Table 2: Examples of Bud products, in which conventional additives, processing aids and microorganisms are permitted by Bio Suisse and a declaration of compliance confirming freedom from genetic engineering is required (not exhaustive).

Product group	Additives, processing aids and cultures
Fruit and vegetable products, including canned fruits and vegetables	Lactic acid (E270), citric acid (E330), fermentation starters
Breads, pastries and durable baked goods	Amylases, hemicellulases, the enzyme asparaginase, pure vegetable oils and fats as non-stick baking grease, citric acid (E330), tartaric acid (E334) and potassium tartrate for use as excipients in baking powder
Starches, gluten, grain syrups and starch sweeteners	Amylases, cellulases and citric acid (E 330)
Fruit and vegetable juices, nectars and syrups	Fermentation starters, lactic acid (E270), citric acid (E330) Clarifying and fining agents: pectinase, hemicellulases, amylases
Jams and jellies	Citric acid (E 330), L(+)-tartaric acid (E 334), calcium citrate (E 333)
Wine and sparkling wine	Inactive yeast, pure cultured yeast, bacterial starter cultures, pectinases, tartaric acid (E334)
Fruit wine	Pure cultured yeast, pectinases
Distilled alcoholic beverages	Cultures/yeast (pure cultured yeast), lactic acid (E270), enzymes
Yeast and yeast products	Cultures, enzymes, lactic acid (E 270), citric acid (E 330)
Cold beverages made from tea, herbs, fruit and vegetables	Cultures for fermented beverages, lactic acid (E 270), citric acid (E 330)
Vinegar	Acetic acid bacteria, pectinases
Soy drinks and grain drinks	Cultures for fermented products, amylases
Tofu, tempeh and other products made of plant-based proteins	Cultures for fermented products
Soy sauce and liquid seasonings	Aspergillus sojae, Pediococcus halophilus, Saccharomyces rouxii
Bouillon	Enzymatically hydrolysed plant-based protein
Milk and dairy products	All cultures, rennet and rennet substitutes, enzymes Lactase

Yogurt and other fermented milk products	Yogurt, sour milk and kefir cultures, yeast
Cheese (fresh cheese, aged cheese and cheese products)	All cultures, rennet and rennet substitutes, lactic acid (E270), washed-rind cultures, wine yeast Citric acid (E 330) and sodium citrate (E 331)
Cream and cream products	Lactic acid bacteria Sodium citrate (E 331)
Whey cheese and mascarpone	Lactic acid (E 270) and citric acid (E 330)
Boiled egg products	Lactic acid (E 270)
Processed meat products	Lactic acid (E270), cultures, sodium citrate (E250)
Vegetable oils and fats (incl. margarine)	Citric acid (E 330)
Mayonnaise	Enzymatically modified egg yolk
Candy and sweets	Vegetable oils, calcium citrate (E 333), citric acid (E 330), tartaric acid (E 334), sodium tartrate (E 335), potassium tartrate (E 336), separating and glazing agents (vegetable fats and oils)
Animal feed	Spent grains/brewer's yeast, potato protein, maize gluten, vitamins and excipients in mineral feeds and supplementary feeds, organic acids
Crop protection and plant protection products	Effective microorganisms