

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

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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)

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](#) (InfoXgen form)

### 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.<sup>1</sup>

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).

<sup>1</sup> 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](#)'

**Table 1: List of countries and crops that are deemed to be at risk**

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
Egypt	p																		
Argentina	xx	xx											xx					xx	
Australia			xx						C	C								xx	
Bangladesh																			xx
Bolivia		xx																	
Burkina Faso																		p	
Brazil	xx	xx					x											xx	
Chile	xx	x	xx						C	C									
China				xx														xx	
Costa Rica		x																xx	
EU	xx																		
Bulgaria	p	p																	
Poland	p																		
Portugal	xx																		
Romania		p																	
Slovakia	p																		
Spain	xx																		
Czech Republic	p																		
Ethiopia																		x	
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	
Cuba	p																		
Malawi																		x	
Mexico	p	(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
Thailand				xx																
Ukraine	xx	x	x						U	U										
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																			
Swaziland																				(x)

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

#### 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 3-km radius. These regulations do not apply when no plants are in bloom or when the beehives are dormant.

## 2. Vegetable raw materials used in 'Bud' products that are at risk of GMO contamination

Table 2 lists at-risk agricultural raw materials (maize/corn, soy and rape) that are used in 'Bud' products. The data are sourced from ISAAA Brief 55 ([www.isaaa.org](http://www.isaaa.org)), FAO GM Foods Platform and [www.biotradestatus.com](http://www.biotradestatus.com). A detailed summary of the data is available in German at: [www.transgen.de](http://www.transgen.de).

**Table 2: List of agricultural raw materials used in 'Bud' products that are at risk of GMO contamination**

<b>Agricultural raw materials that are at risk of GMO contamination</b>	
<b>Products</b>	<b>Explanatory notes</b>
Maize (corn) <sup>2</sup>	<p>In 2019, nearly 30% of the maize grown worldwide was genetically modified (GM maize). GM maize was grown in the following countries, whereby the percentage of GM maize of the total amount of maize grown in each country is given in parentheses: Argentina (93%), Brazil (91%), Canada (90%), Philippines (62%), South Africa (84%) Paraguay (76%), Uruguay (90%), USA (92%). Further cultivation takes place in Honduras, Colombia and Vietnam. In Chile GM varieties are mainly grown for seed propagation.</p> <p>In Europe, GM corn is cultivated in Spain (32%) in Portugal (less than Spain). Other countries in Europe have stopped growing GM maize.</p> <p>The situation in Mexico, Ukraine, Cuba and some African countries is unclear. GM maize is presumably grown there as well.</p> <p>Sweet maize varieties are also grown in Argentina, Canada and the USA.</p> <p>In Europe, mixtures of organic products with GM products can occur in processing systems if maize gluten or grain maize is imported from GM cultivating countries at the same time, as the separation of GM products from non-GM products is not always ensured in conventional feedstuffs.</p>
Soy	<p>In 2019, 74% of the soy grown worldwide was genetically modified. This is a slight decline compared to 2018 (78%).</p> <p>GM soy was mainly cultivated throughout the Americas, especially in Argentina (100%), Brazil (96%), Bolivia (97%), Canada (84%), Paraguay (99%), Uruguay (97%) and the USA (94%). It was also grown in South Africa (95%). It is grown in Costa Rica and Chile for seed propagation.</p> <p>The situation in Ukraine and Mexico is unclear. Ukraine does not have permission to cultivate GM soy; however, various sources hypothesize that significant amounts of GM soy are grown there. The situation in Mexico is unclear. The country has permission to grow GM soy, but there is no documented sale of seeds. GM soy is presumably grown there.</p> <p>No non-organic soy products are permitted in Bio Suisse products.</p> <p>In Europe organic products can become commingled with GM derivatives at processing operations because great amounts of GM soy and GM soy products (soybean press cake, soybean oil) are imported to Europe for animal feed or industrial purposes (biofuel). In the case of animal feed, GM products and non-GM products are not always kept strictly segregated.</p>
Rape	<p>In 2019, 27% of the rape grown worldwide was genetically modified.</p> <p>GM rape was primarily grown in Canada (95%), Australia (31%) and the USA (100%). The situation in Ukraine is unclear. GM rape is presumably grown there.</p> <p>No genetically modified rape is cultivated in Europe.</p> <p>No non-organic rape products are permitted in Bio Suisse products.</p> <p>In Europe organic products can become commingled with GM derivatives at processing operations, but very little GM rape is imported from outside of Europe. When rape is grown in rotation with other crops such as wheat, rapeseed can occur as an impurity in uncleaned wheat.</p> <p>GM rape can cross-breed with mustard and turnips.</p>

<sup>2</sup> Maize (corn) includes all forms of maize: silage maize, grain maize, maize gluten, maize starch.

### 3. 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.<sup>3</sup> 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 required InfoXgen form 'Declaration of compliance with the prohibition of genetically modified organisms as contained in the current version of Council Regulation (EC) No 834/2007', which also complies with the current version of the 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 3 lists examples of 'Bud' products for which Bio Suisse permits the use of non-organic additives, processing aids and microorganisms, and for which an InfoXgen form confirming freedom from GMOs is required (the list is not complete). Bio Suisse may issue additional restrictions. If no declaration of assurance can be furnished, then the substance may not be used in 'Bud' products.

In Switzerland, asparaginase and amylase from GM microorganisms are permitted for use in food products. However, food products that use enzymes do not need to be labelled as GMO products.

More information is available in the Bio Suisse Standards for the Production, Processing and Trade of 'Bud' Products.

**Table 3: Examples of 'Bud' products for which Bio Suisse permits the use of non-organic additives, processing aids and microorganisms, and for which an InfoXgen form confirming freedom from GMOs is required (the list is not complete).**

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

<sup>3</sup> Cf. the Bio Suisse Standards, part III, section 1.6

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