

Decision chart for assessing pesticide residues in 'Bud' products

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The legal basis for assessing residues in organic products in Switzerland is the 'Weisung zum Vorgehen bei Rückständen im Bio-Bereich' ('Directive on procedures in case of residue contamination in the organic sector') issued by the Swiss Federal Office for Agriculture (FOAG) and the Swiss Federal Food Safety and Veterinary Office (FSVO) on 20 November 2015. The present decision chart demonstrates Bio Suisse' stance on residues in 'Bud' products . It is made publicly available for the sake of transparency.

Procedures in the event that residues have been detected

- The products concerned must be temporarily banned from trade.
- Operations: Report incidents to your certification body as per the contract with your certification body by means of the [notification form](#) (German and French only).
- Operations: Report incidents to Bio Suisse; All detected residues ≥ 0.001 mg/kg must be reported to Bio Suisse by means of the [notification form](#) (German and French only).
- Licensees, Bio Suisse and certification bodies outside of Switzerland: appropriate measures are outlined in Table 2.
- The certification body decides whether the product in question may be traded as organic, possibly in consultation with the competent law enforcement authority.
- The certification body's trade decision also applies to trade under the 'Bud' logo. Bio Suisse will confirm receipt of the notification of residue detection. In most cases it is not necessary for Bio Suisse to make a separate decision regarding trade under the 'Bud' logo.
- Bio Suisse may commence investigations in order to devise measures for improving future harvests/production.
- Bio Suisse reserves the right to temporarily or permanently ban products from trade under the 'Bud' logo and introduce investigations on a case-by-case basis, independent of decisions by the certification body. In such cases, Bio Suisse will inform operations about its decision when confirming its receipt of the notification of residue detection.
- Upon request, Bio Suisse will assist licensees in dealing with and investigating incidents of residue contamination.

Bio Suisse' overall stance on residues

Bio Suisse quality requirements aim for 'Bud' products that contain no residues or as few traces of residues as possible. However, agricultural production is influenced by environmental factors. The environment is polluted by contaminants from traffic, industry and incineration. Moreover, organic products are produced within the larger context of non-organic surroundings (e.g., in the neighbourhood of non-organic agricultural operations or processed by operations that process both non-organic and organic products). Residues therefore cannot be entirely avoided. Bio Suisse believes a zero-tolerance policy toward residues would be unfair and counterproductive.

Bio Suisse assesses incidents of residue contamination in light of whether the Bio Suisse standards were upheld and due diligence obligations were met. Should that be the case, then slight traces of residues in 'Bud' products can be tolerated. In every case, potential measures for improvement are assessed and implemented. Bio Suisse believes that declassification (rescinding organic certification) is only justified if there is evidence of violations of the Bio Suisse standards, if due diligence obligations were not met, and/or residue levels are high. For further information, see the position paper [Haltung von Bio Suisse zum Thema "Rückstände"](#) (German and French only).

Assessing cases of 'Bud' products containing pesticide residues with regard to tradability

The table below gives an overview of Bio Suisse' stance on the assessment of cases of residue contamination in 'Bud' products with regard to tradability (exceptions are given in Table 3 on page 4). As a rule, the certification body's trade decision, which may be made in consultation with the responsible law enforcement authority, also applies to trade under the 'Bud' logo. However, Bio Suisse reserves the right to temporarily or permanently ban products from trade under the 'Bud' logo on a case-by-case basis, independent of decisions by the certification body.

Table 1: Bio Suisse' stance on trading products under the 'Bud' logo depending on the level of residue contamination

Cat.	Residue level in the raw product ¹	Bio Suisse' stance on whether the product may be traded under the 'Bud' logo	Measures
A	Residue level > the tolerance threshold as per the PestRO²	These lots may not be traded under the 'Bud' logo³.	As given in Table 2 on page 3
B	0.02 mg/kg < residue level ≤ the tolerance threshold as per the PestRO	Trade under the 'Bud' logo is possible. The certification body will decide on a case-by-case basis, possibly in consultation with the competent law enforcement authority.	
C	IL⁴ < residue level ≤ 0.02 mg/kg	Trade under the 'Bud' logo is possible. The certification body will decide in consultation with the competent law enforcement authority on a case-by-case basis.	
D	0.001 mg/kg < residue level ≤ IL	These lots can be traded under the 'Bud' logo.	
E	Residue level ≤ 0.001 mg/kg	These lots can be traded under the 'Bud' logo.	

Explanatory notes regarding category A (Table 1)

For certain active substances no specific tolerance threshold has been defined in the 'FDHA Ordinance on the Maximum Residue Levels for Pesticides in or on Products of Plant and Animal Origin' (PestRO) (VPRH, SR 817.021.23), and the standard tolerance threshold of 0.01 mg/kg applies. For others, depending on their approval status, a tolerance threshold of 0.01 mg/kg has been defined. If in such cases it may be assumed that there was no improper use of plant protection products (e.g., in the case of preexisting contamination) and the detected concentration of the substance poses no health risk, Bio Suisse takes the stance that products containing such residues may still be traded under the 'Bud' logo.

Explanatory notes regarding category C (Table 1)

Many years of experience in the investigation of incidents of pesticide contamination in 'Bud' products have led to the conclusion that residues of up to 0.02 mg/kg (actual measured value) were usually not due to improper use, but rather resulted from inadvertent contamination. In most cases, the exact cause of contamination cannot be determined or can only be surmised.

When estimating residue concentrations, Bio Suisse takes potential measurement uncertainty into account. If there is no risk of dilution and traceability is ensured, Bio Suisse sees no reason to rescind the 'Bud' status of products containing residues of up to 0.02 mg/kg, provided that the certification body or the competent law enforcement authority has cleared their organic status. However, in some cases measures to improve the prevention of pesticide residue contamination in future will be introduced.

¹ Relevant residue concentrations as defined in the 'Weisung zum Vorgehen bei Rückständen im Bio-Bereich' ('Directive on procedures in case of residue contamination in the organic sector', German, French and Italian only) issued by the FOAG and the FSVO for individual substances in raw products or as defined by the FDHA Ordinance on the Maximum Residue Levels for Pesticides in or on Products of Plant and Animal Origin (PestRO) (VPRH, SR 817.021.23). For exceptions and explanatory notes, please see page 3 of this document.

²PestRO: FDHA Ordinance on the Maximum Residue Levels for Pesticides in or on Products of Plant and Animal Origin (VPRH, SR 817.021.23): <https://www.admin.ch/opc/de/classified-compilation/20143405/index.html>

³ In the case of animal feed and seed, it may be possible to trade a product under the 'Bud' logo even if the residue concentration is > the tolerance threshold defined by the PestRO, depending on the result of each individual investigation.

⁴ IL: Intervention level as defined by the 'Weisung zum Vorgehen bei Rückständen im Bio-Bereich' issued by the FOAG and the FSVO (German, French and Italian only).

Measures to be taken in the event of contamination

The required measures given in the following table serve Bio Suisse in the assessment of incidents of contamination and in devising measures toward the improvement of future deliveries.

Table 2: Measures to be taken by the licensee, Bio Suisse and the certification body outside of Switzerland

Cat.	Measures to be taken by the licensee	Measures to be taken by Bio Suisse	Measures to be taken by the certification body of operations abroad
A	<ul style="list-style-type: none"> ▪ Notify Bio Suisse and your organic certification body (via the notification form). ▪ Obtain a statement from your supplier. ▪ Suspend trade of these and all other lots of the same provenance (supplier, producer) in consultation with the competent law enforcement authority. ▪ These lots must be recalled after consulting with the competent law enforcement authority. 	<ul style="list-style-type: none"> ▪ If warranted, (temporarily) suspend trade of the product. ▪ Conduct an audit of the chain of custody, check compliance with due diligence obligations and seek the source of contamination. ▪ Take measures to prevent future incidents of contamination. ▪ Following clarification, lift or make permanent the suspension of trade of the product in question and other batches, as warranted. 	<ul style="list-style-type: none"> ▪ Notify the inspection body outside of Switzerland. ▪ Conduct an audit of the chain of custody, check conformance to due diligence obligations, and seek the source of contamination. ▪ Take measures to prevent future incidences of contamination.
B	<ul style="list-style-type: none"> ▪ Notify Bio Suisse and your organic certification body (via the notification form). ▪ Obtain a statement from your supplier. ▪ Suspend trade of these and (if applicable) all other lots of the same product and provenance (supplier, producer) in consultation with your certification body. 	<ul style="list-style-type: none"> ▪ If warranted, (temporarily) suspend trade of the product and/or trade with the supplier in consultation with the licensee. ▪ Conduct an audit of the chain of custody, check compliance with due diligence obligations and seek the source of contamination. ▪ Take measures to prevent future incidences of contamination. ▪ Following clarification, lift or make permanent the suspension of trade, as warranted. 	<ul style="list-style-type: none"> ▪ Notify the inspection body outside of Switzerland. ▪ In consultation with Bio Suisse: Conduct an audit of the chain of custody, check conformance to due diligence obligations, seek the source of contamination and take measures to prevent future incidences of contamination.
C	<ul style="list-style-type: none"> ▪ Notify Bio Suisse and your organic certification body (via the notification form). ▪ Obtain a statement from your supplier. ▪ Suspend these lots in consultation with your certification body. 	<ul style="list-style-type: none"> ▪ If warranted, (temporarily) suspend trade of the product. ▪ Conduct an audit of the chain of custody. ▪ If there is a risk of dilution: If warranted, check conformance to due diligence obligations and seek the source of contamination. ▪ If warranted, take measures to prevent future incidences of contamination. 	<ul style="list-style-type: none"> ▪ If warranted, notify the inspection body outside of Switzerland. ▪ In consultation with Bio Suisse or if there is a risk of dilution: Check conformance to due diligence obligations, seek the source of contamination and take measures to prevent future incidences of contamination.
D	<ul style="list-style-type: none"> ▪ Notify Bio Suisse (via the notification form). ▪ Notify your organic certification body in conformance with your contract. 	<ul style="list-style-type: none"> ▪ Conduct an audit of the chain of custody. ▪ If pesticide contamination presumably occurred during cultivation, if usage is suspected and if more than 2 producers are implicated: Check conformance to due diligence obligations and seek the source of contamination. ▪ If warranted, take measures to prevent future incidences of contamination. 	<ul style="list-style-type: none"> ▪ If pesticide contamination presumably occurred during cultivation, if usage is suspected and if more than 2 producers are implicated: Notify the inspection body outside of Switzerland. Conduct an audit of the fulfilment of due diligence obligations and seek the source of contamination. If warranted, take measures to prevent future incidences of contamination. ▪ If no use of pesticides is suspected and there is no risk of dilution: No measures are necessary.
E	<ul style="list-style-type: none"> ▪ No notification is necessary. 	<ul style="list-style-type: none"> ▪ None 	<ul style="list-style-type: none"> ▪ None

Exceptions and special cases

Table 3 shows Bio Suisse' stance on the assessment of exceptions and special cases. The procedures described below are based on the procedures given in Table 1 on page 2. If the tolerance threshold as per the PestRO is reached, then procedure A applies.

Table 3: Exceptions and special cases

Substance	Assessment according to Bio Suisse	Explanations / comments
Bromide	5 mg/kg < bromide level ≤ tolerance threshold: procedure B	<p>Bromide levels under 5 mg/kg are assumed to be naturally occurring. According to the interpretation guide on bromide detected in organic products issued by the Bundesverband Naturkost Naturwaren (BNN) e.V. [1], causes for bromide levels higher than 5 mg/kg should be clarified.</p> <p>Bromide levels higher than 5 mg/kg may also have natural causes. As a precaution, evidence must be furnished that neither soil sterilization nor fumigation has been carried out. Such evidence is unnecessary for products that were grown, stored and processed in the EU.</p> <p>Elevated levels may naturally occur in herbs, spices, teas, brassica crops and cep/porcino mushrooms [2]. Bio Suisse will decide on a case-by-case basis which measures listed under procedures B and D should be taken.</p>
	Bromide level is ≤ 5 mg/kg: procedure D	
Spinosad and other auxiliary inputs that are permitted in organic farming (especially plant protection products)	Spinosad level ≤ the tolerance threshold set for crops for which spinosad is not permitted: procedure D; however, measures to prevent future incidences of contamination must be taken	<p>Spinosad is permitted in organic farming for certain crops (according to the list of approved auxiliary inputs issued by FiBL; this extends to the EU as well).</p> <p>The same procedures apply to all auxiliary inputs that are permitted in organic farming, except for preservatives.</p>
	Spinosad level ≤ the tolerance threshold set for crops for which spinosad is permitted: procedure E	
Piperonyl butoxide	Piperonyl butoxide level ≤ the tolerance threshold: in general, procedure D	<p>Piperonyl butoxide is often added as a synergist to pyrethrum compounds to enhance the insecticidal effect.</p> <p>Residues in <u>imported</u> 'Bud' products can result from proper use.</p> <p>Residues in <u>domestic</u> 'Bud' products can only result from proper use as a storage preservative. However, the use of pyrethrum compounds containing piperonyl butoxide is prohibited on farming operations.</p>
Chlorpropham (germination inhibitor)	As prescribed by the decision chart.	<p>Experience has shown that even when due diligence obligations are met, unavoidable chlorpropham contamination of up to 0.1 mg/kg can occur.</p> <p>Bio Suisse recommends its 'Merkblatt zur Vermeidung von Kontaminationen durch Keimhemmungsmittel' (Information note on preventing contamination from germination inhibitors; German and French only)</p>
Phosphine (PH₃)	0.02 mg/kg < phosphine level ≤ the tolerance threshold: procedure B	<p>PH₃ levels higher than 0.001 mg/kg in grain and higher than 0.01 mg/kg in other products will not be tolerated by the law enforcement authority (as per FOAG/FSVO directive 22/2015); this will be assessed on a case-by-case basis.</p>
	0.01 mg/kg < phosphine level ≤ 0.02 mg/kg: procedure C	
	0.001 mg/kg < phosphine level ≤ 0.01 mg/kg: procedure D	

Fungicides in wine	Sum of all active substances > 0.03 mg/l or if at least one active substance > 0.01 mg/l: procedure B	Multiple residues occur more often in wine than in other products [3]. The benchmark values given in the first column were derived from a comprehensive study, whereby measurement uncertainty was taken into account [4]. Bio Suisse recommends the FiBL information note 'Pestizidrückstände in Biowein: Wie vermeiden?' ('Avoiding pesticide residues in organic wine'; German and French only).
	0.01 mg/kg < sum of all active substances ≤ 0.03 mg/l and each active substance ≤ 0.01 mg/l: procedure C	
	If only one active substance or the sum of all active substances is ≤ 0.01 mg/kg: procedure D	
Glyphosate	Glyphosate level > 0.05 mg/kg: procedure B	This only applies to imports from North America. Due to the widespread use of glyphosate in non-organic agriculture, 'Bud' products from North America may unavoidably contain contaminant traces of glyphosate ranging from 0.01 mg/kg to 0.05 mg/kg [5].
	0.01 mg/kg is < glyphosate level ≤ 0.05 mg/kg: procedure C	
	Glyphosate level is ≤ 0.01 mg/kg: procedure D	
Permethrin in products from tropical countries	Permethrin level > 0.04 mg/kg: procedure B	Permethrin residues in products from tropical countries may be caused by protective measures against malaria (mosquito repellents). This is not a violation of the Bio Suisse standards, and levels of up to 0.04 mg/kg are therefore tolerated.
	Permethrin level ≤ 0.04 mg/kg: procedure D	
Anthraquinone (in dried herbs, teas and spices)	Anthraquinone level > 0.02 mg/kg: procedure B	From the public statement issued by BNN, Bundesverband Naturkost Naturwaren e.V., on the use of the BNN benchmark value for detected biphenyl and anthraquinone residues in organic herbs, spices, herbal teas and tea (<i>Camellia sinensis</i>): <i>In the opinion of the Scientific Advisory Board levels of up to 0.02 mg anthraquinone per kg of product can be considered as accidental or unavoidable in terms of this public statement</i> [6]. In cases when concentrations pose no health risk and there is no suspicion of improper usage, Bio Suisse is of the opinion that trade under the 'Bud' logo is possible even in the event of higher concentrations.
	0.01 is < anthraquinone level ≤ 0.02 mg/kg: procedure C	
	Anthraquinone level ≤ 0.01 mg/kg: procedure D	
Biphenyl (in dried herbs, teas and spices)	Biphenyl level > 0.05 mg/kg: procedure B	From the public statement issued by BNN, Bundesverband Naturkost Naturwaren e.V., on the use of the BNN benchmark value for detected biphenyl and anthraquinone residues in organic herbs, spices, herbal teas and tea (<i>Camellia sinensis</i>): <i>In the opinion of the Scientific Advisory Board levels of up to 0.05 mg biphenyl per kg of product can be considered as accidental or unavoidable in terms of this public statement</i> [6]. In cases when concentrations pose no health risk and there is no suspicion of improper usage, Bio Suisse is of the opinion that trade under the 'Bud' logo is possible even in the event of higher concentrations.
	IL < biphenyl level ≤ 0.05 mg/kg: procedure C	
	Biphenyl level < IL: procedure D	
Phthalimide	As prescribed by the decision chart.	Assessments will take into account the interpretation guide on phthalimide detected in organic products issued by the Bundesverband Naturkost Naturwaren (BNN) e.V. [7].
Organochlorine pesticides detected in seed of cucurbit crops (not intended for human consumption)	In general, procedure D	The main cause of organochlorine pesticides detected in cucurbit crops is attributable to preexisting contamination of the soil [8]. This is not a violation of the Bio Suisse standards. Organochlorine pesticide residues detected in seed of cucurbit crops that are not intended for human consumption are therefore tolerated.

DEET in cocoa	DEET level > 0.1 mg/kg: procedure B	DEET residues in cocoa may be caused by protective measures against malaria (mosquito repellents). This is not a violation of the Bio Suisse standards, and levels of up to 0.1 mg/kg are therefore tolerated [9].
	IL < DEET level ≤ 0.1 mg/kg: procedure C	
Chlorate/perchlorate	Chlorate/perchlorate level > 0.1 mg/kg: procedure B	Organic and non-organic products appear to be equally affected, which leads us to conclude that chlorate and perchlorate residues are a ubiquitous pollution that is not specific to organic production and does not constitute a violation of the Bio Suisse standards. The most probable cause of current chlorate and perchlorate residues is the use of chlorinated water or water containing environmental pollutants as irrigation water or for processing [10] [11].
	IL < chlorate/perchlorate level ≤ 0.1 mg/kg: procedure C	
Seed	Level of residues detected in seed > 0.02 mg/kg: procedure B	Tolerance thresholds as per the PestRO do not apply to seed.
Phosphonic acid (phosphonate)	Phosphonic acid level > 0.1 mg/kg: procedure B	Experience has shown that even when due diligence obligations are met, unavoidable phosphonic acid contamination of up to 0.1 mg/kg can occur. According to the fact sheet published by the Bundesverband Naturkost Naturwaren (BNN): <i>If no fosetyl itself is detected, then there is no reasonable cause to suspect that the phosphonic acid detected is a result of unauthorized use of fosetyl-Al</i> [12].
	IL < phosphonic acid level ≤ 0.1 mg/kg: procedure C	

References

Not all sources are available in English (partly only in German and/or French).

- [1] BNN, Bundesverband Naturkost Naturwaren e.V., «Interpretation guide for bromide detection in organic products,» 2009.
- [2] B. Speiser, «Bromid in pflanzlichen Bio-Lebensmitteln,» FiBL, 2012.
- [3] G. Wyss, L. Tamm und A. Häseli, «Pestizidrückstände im Biowein: Wie vermeiden?,» FiBL, 2001.
- [4] K. Seiler, F. Erzinger und G. S. Wyss, «Pestizidrückstände auf Bio-Produkten - Beurteilung der Kontaminationswege am Beispiel Bio-Wein,» Amt für Lebensmittelkontrolle der Kantone AR, AI, GL und SH und FiBL, 2007.
- [5] Lach & Bruns Partnerschaft, *Glyphosat-Rückständen auf Produkten aus Nordamerika*, Bio Suisse interner Bericht, 2015.
- [6] BNN, Bundesverband Naturkost Naturwaren e.V., «Public statement on the application of the BNN orientation value for biphenyl and anthraquinone detected in organic herbs, spices, herbal teas and tea (*Camellia sinensis*),» 2015.
- [7] BNN, Bundesverband Naturkost Naturwaren e.V., «Interpretation guide for phthalimid detection in organic products,» 2016.
- [8] Forschungsinstitut für biologischen Landbau, FiBL; Bio Suisse, «Rückstände in Kürbisgewächsen,» 2012.
- [9] «Ursachenabklärung von Diethyltoluamide (DEET)- Kontaminationen in Biokakaobohnen aus Ecuador,» Bio Suisse interner Bericht, 2016.
- [10] European Food Safety Authority, «Chlorate in food: risks for public health,» 2015. [Online]. Available: <https://www.efsa.europa.eu/en/press/news/150624a>.
- [11] European Food Safety Authority, «Perchlorate in fruit and vegetables opinion re-published,» 2015. [Online]. Available: <https://www.efsa.europa.eu/en/press/news/150526>.
- [12] BNN, Bundesverband Naturkost Naturwaren e.V., «Phosphonic acid, potassium phosphonate (potassium salt of phosphonic acid), fosetyl-aluminium,» 2017.