

Controls of pesticide residues in food and feed - Belgium 2018



Results of the official controls in accordance to Regulation (CE)
N°396/2005 and Commission Regulation (EC) N° 2017/660

October 2019

PESTICIDE RESIDUE CONTROL RESULTS

NATIONAL SUMMARY REPORT

Year: 2018

Country: BELGIUM

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1. Country

1.1. Name of the national competent authority/organisation

The federal Agency for the Safety of the Food Chain (FASFC) is the competent Authority for the enforcement of Regulation 396/2005.

Pesticide residues results are published on <http://www.favv-afsc.a.gov.be/publicationsthematiques/pesticide-residue-monitoring-food-plant-origin.asp>

Functional mailbox : pesticidepccb.s1@favv-afsc.a.be

2. Objective and design of the national control programme

The use of plant protection products during the production of fruit, vegetables and cereals can lead to the presence of residues in food and feed. Maximum residue levels (MRL) are set in the European legislation^a in order to check the good use of plant protection products (use of authorised products according to their good agricultural practices) and to protect the consumers. Food or feed which do not comply with the MRL cannot be put on the market. MRLs are not toxicological limits. An MRL exceeding content is the sign of incorrect use of a plant protection product but does not necessarily involve a risk for the health of consumers according to the toxicological data available.

More information regarding plant protection products authorized in Belgium is available on the website [Fytoweb](#)^b. Information on MRLs can be found on the website of the [European Commission](#)^c.

The approach used by the Federal Agency for the Safety of the Food Chain (FASFC) for the control of pesticide residues is risk based. The programme has been drawn up following the general statistical approach developed within the FASFC^d. Several factors have been taken into account: the toxicity of the active substances, food consumption statistics, food commodities with a high residues/non-compliance rate in previous monitoring years, origin of food (domestic, EU or third country), RASFF notifications^e and all other useful information. Specific attention is then paid to products with high risk of MRL non-compliances.

Most of the groups of fruits and vegetables are included in the programme and a rotation programme has been applied for less important commodities. The coordinated control programme^f of the European Commission and some targeted sampling, mainly targeted sampling at border controls according to Regulation 669/2009^g and regulation 885/2014^h have been also included in the national programme (see table 1).

Products of animal origin, apart from the samples analysed in the framework of the European control programme, are not included in this report. They are reported under the data collection of residues of veterinary medicinal products and certain other substances (Directive 96/23).

Adjustments to the programme can be made in the course of the year so that emerging problems can be dealt with.

Sampling is done in accordance with Directive 2002/63/ECⁱ that has been implemented in Belgian legislation. Samples are analysed in ISO 17025 accredited laboratories by means of multi-residues and single-residues methods which in 2018 allowed the detection of more than 600 pesticide residues.

Table 1: Targeted sampling and EU coordinated control programme included in the control programme 2018

Targeted sampling at border controls (Reg 669/2009 & 885/2014)	
Origin	Products
Benin	Pineapples
Cambodia	Aubergines, yardlong beans, chinese celery
China	Tea, chinese broccoli, goji berries
Dominican Republic	Yardlong beans, aubergines, lauki, sweet peppers, chili peppers
Egypt	Strawberries, sweet peppers, chili peppers, tablegrapes
India	Curry leaves, okra, chili peppers
Kenya	Peas with pods
Marocco	Munt
Pakistan	Chili peppers
Peru	Table grapes
Thailand	Yardlong beans, aubergines, chili peppers
Turkey	Lemons, Vine leaves, sweet peppers, pomegranates
Uganda	Aubergines
Vietnam	Basilic, mint, pitahayas, coriander leaves, okras, chili peppers, parsley

EU Coordinated programme 2018 (Reg 2017/660)	
Products	Samples to analyze
Table grapes	12
Bananas	12
Grapefruits	12
Aubergines	12
Melons	12
Broccoli	12
Cultivated mushrooms	12
Sweet peppers	12
Wheat grain	12
Virgin olive oil	12
Bovine fat	12
Chicken eggs	12
processed cereal-based baby food	10

3. Key findings, interpretation of the results and comparability with the previous year results

In 2018, a total number of 2818 samples of fruits, vegetables, cereals and processed products (including baby food) were taken by the Federal Agency for the Safety of the Food Chain (FASFC) and analysed for the presence of pesticide residues. Products of animal origin, apart from the 24 samples analysed in the framework of the European control programme, are not included in this report. They are reported under the data collection of residues of veterinary medicinal products and certain other substances (Directive 96/23).

The products analysed were of Belgian origin (40,7%), EU origin (23,4%), non-EU origin (31,3%) and non-specified origin (4,6%).

Results are presented according to their sampling strategy. Contrary to surveillance samples which are randomly taken, enforcement samples are taken after concrete indications that certain food may be of higher risk as regards non-compliance or consumer safety (e.g. Rapid Alert notifications or follow-up enforcement samples following MRL violations identified in a first analysis of the product in focus).

Full details on the analytical scope, results per products and non-compliant samples can be found in the three annexes (xls format) of this summary report.

3.1. Surveillance samples

Out of the total of 2818 samples, 2484 surveillance samples were analysed within the context of the control programme. 98,1% were compliant with the legislation in force (table 2).

Table 2: Surveillance samples - Summary results

Sampling strategy	Types of products	Number of samples analysed	Without quantified residues (%)	With residues at or below MRL (%)	With residues > MRL ¹ (%)	With residues >MRL ² (Non-compliant) (%)	Compliance (%) compared to 2017
Surveillance	Fruit, vegetables, cereals & other	2183	32,2%	62,7%	5,1%	1,9%	98,1% (+0,2%)
	Processed products	97	60,6%	32,4%	7%	4%	96% (-0,2%)
	Baby food	93	95,7%	0%	4,3%	0%	100% (=)
	Animal products	24	95,9%	4,1 %	0%	0%	100% (=)
	Feed	87	54%	44,9%	1,1%	0%	100% (+1,3%)
		2484	37%	58%	5%	1,8%	98,1% (+0,1%)

¹ Measurement uncertainty is not taken into account (numerical MRL exceedances)

² Measurement uncertainty is taken into account (non-compliant samples)

- **Fruit, vegetables and cereals** : 98,1% of the 2183 samples analysed complied with the MRLS (+0,2% in comparison with 2017). Graph 1 gives an overview of the results these last 5 years.

67,8% of the samples contained one of more residues above the limit of quantification (LOQ). Citrus fruits, pome fruits & stone fruits are the groups with the highest frequency of detection of pesticide residues (More than 92% of the samples analysed contained one or more residues). All these fruits were however compliant with MRLs. At the opposite, brassica vegetables is the group with the lowest frequency of detection (30,5 % of the samples analysed with one or more residue). Products with the highest rate of non-compliances are fresh herbs and tea & infusions.

An overview of the detection frequencies and compliance to MRLs per product group is given in table 3.

As in previous years, more MRLs violations were proportionally observed in non-EU products (1,4%) than in products grown in the EU (6,6%).

Graph 1: overview of the evolution of the results for fruits, vegetables, cereals & other products of plant origin from 2013 to 2018 (surveillance samples)

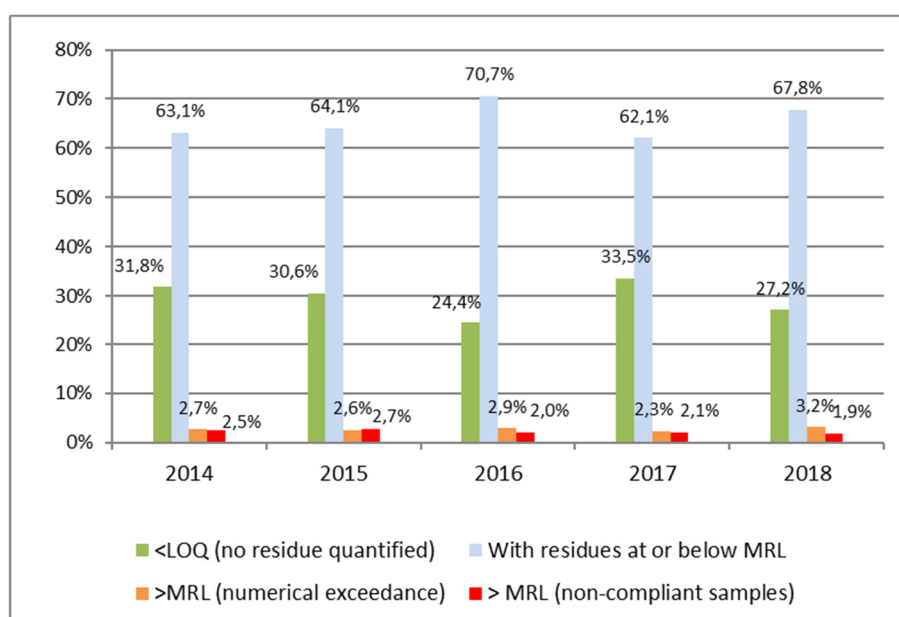


Table 3: Overview of the results 2018 per group of products [fruits, vegetables, cereals & others 2018 (surveillance samples)]

Groups of products	Number of samples analyzed	Samples with one of more residues >LOQ (%)	Compliant samples (%)
Citrus fruits	117	94%	100,0%
Pome fruits	42	92,9%	100,0%
Stone fruits	81	92,6%	100,0%

Groups of products	Number of samples analyzed	Samples with one of more residues >LOQ (%)	Compliant samples (%)
Berries and small fruits	292	91,4%	99,7%
Fresh herbs	81	90,1%	92,4%
Leafy vegetables	241	80%	98,8%
Champignons	40	77,5%	95%
Stem vegetables	124	71%	96,8%
Cereals	100	64%	96%
Root and tuber vegetables	169	62,1%	98,8%
Tea and infusion	79	59,5%	94,9%
Fruiting vegetables	300	54,3	98,3%
Miscellaneous fruits	123	49,6%	96%
Legume vegetables	132	47,7%	98,5%
Bulb vegetables	91	47,2 %	100,0%
Other products (oil products, coffee, cocoa & spices)	53	37,7%	95,8%
Brassica vegetables	118	30,5%	98,3%
	2183	67,8%	98,0%

- **Processed products** : 97 processed products were analysed. Four non-compliances were observed in samples of dried goji berries from China.
- **Babyfood** : Four sample showed a trace of pesticide (dieldrin, ethylene thiourea, orthophenyl-phenol and chlorpyrifos) but complied with the MRLs set in the babyfood legislation.

3.2. Enforcement samples

Beside surveillance samples, 334 enforcement samples were analysed in the case of suspicion about the non-compliance of a product with EU MRLs (table 4). These products were mainly targeted products analysed according to Regulation 669/2009 (products coming from non-EU countries among others from Egypt, Uganda, Dominican Republic and China) and products analysed within the context of following up of violations found previously. 85,9% were compliant with the legislation (-5,9% in comparison with 2017).

Table 4: Enforcement samples - Summary results

Sampling strategy	Types of products	Number of samples analysed	Without quantified residues (%)	With residues at or below MRL (%)	> MRL ³ (%)	>MRL ⁴ (Non-compliant) (%)	Compliance (%) compared to 2017
Enforcement (targeted samples)	Fruit, vegetables, cereals & other ⁵	328	27,7%	51,5%	20,7%	13,1%	86,9% (-4,9%)
	Processed products	6	16,6%	16,6%	66,6%	66,6%	33,3% (-66,6%)
		334	27,5%	50,9%	21,6%	13,7%	85,9% (-5,9%)

³ Measurement uncertainty is not taken into account (numerical MRL exceedances)

⁴ Measurement uncertainty is taken into account (non-compliant samples)

⁵ Including samples analysed in the framework of Regulation (CE) N°669/2009

- **Fruit, vegetables and cereals** : 86,9% of the 328 samples analysed complied with the MRLS (-4,9% in comparison with 2017). Graph 2 gives an overview of the evolution of the results of enforcement samples these last years. Non-compliances were observed mainly in products from non-EU countries (see table 5)

Graph 2: overview of the evolution of the results for fruit, vegetables, cereals & other products of plant origin from 2014 to 2018 (enforcement samples)

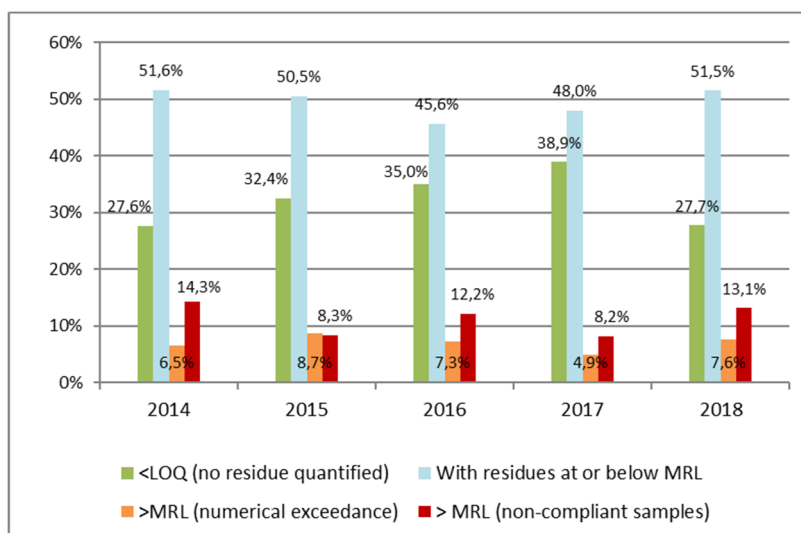


Table 5: Overview of the results per group of products (enforcement samples)

Groups of products	Number of samples analyzed	Compliant samples (%)	Main non -compliant products (>MRL) and origin
Fruiting vegetables	134	79,1%	Aubergines (Uganda, Senegal) & Chili-peppers (Uganda, Pakistan, Dominican Republic, Vietnam)
Legume vegetables	52	96,1%	Beans (Dominican Republic)
Berrie and small fruits	50	100%	
Miscellaneous fruits	41	85,4%	Soursops & durians (Vietnam)
Tea & infusions	18	83,3%	Tea (China)
Others	16	87,5%	Turnips (Belgium) & Rice (Indian)
Leaf vegetables	7	100%	
Fresh herbs	10	80% (2)	Mint (Marocco)
	328	86,9% (43)	

- **Processed products** : Six samples of dried goji berries coming from China were analysed as follow-up of violations found in the controlprogramme. Four of these samples did not comply with MRLs mainly due to the presence of nicotine.

4. Non-compliant samples: possible reasons, ARfD exceedances and actions taken

4.1. Possible reasons for non-compliant samples

The reasons of MRL violations in Belgian products are investigated at the premises of the food business operator responsible for the product in order to check the correct use of plant protection products (table 6). Such investigation cannot be done in case of non-compliances in imported products but these non-compliances are in general related to the use of plant protection products not authorized in the EU and for which no import tolerances were set.

Table 6: Possible reasons for MRL non-compliance in products of Belgian origin

Possible reasons for MRL non-compliance	Pesticide/food product	Frequency	Comments
GAP not respected: use of a pesticide not approved in the EU ⁽⁶⁾	Tetramethrin / wheat	1	Use of biocidal product
GAP not respected: use of an approved pesticide not authorised on the specific crop	Deltamethrin / spinach	1	
	Haloxypop / Head cabbage	1	
	Haloxypop / celery	1	
GAP not respected: use of an approved pesticide, but application rate, number of treatments, application method or PHI not respected	Phenmedipham / Spinach	1	
	Flonicamid / potatoes	1	
	Pymetrozine / brocolis	1	
	Lambda-cyhalothrin / turnips	1	
Contamination from previous use of a pesticide: uptake of residues from the soil (e.g. persistent pesticides used in the past)	Mepiquat / mushrooms	1	Residue coming from the growing substrate
Cross contamination: spray drift or other accidental contamination	Chlorothalonil / lettuce	1	
	Linuron / celery	1	
	Prosulfocarb / parsley	1	
Reason unknown	Chlorpropham / hop	1	Cross contamination suspected
Reason unknown	Propiconazole & tetraconazole / leeks	1	
	Acrinathrin / parsley	1	
	Dimethomorf / currants	1	
			1

4.2. ARfD exceedances

Twenty-four products of food of plant origin analysed by the FASFC in the framework of the control plan or by food business operators during self-checking contained pesticide residues at a level potentially dangerous for the consumers (ARfD exceedances). All these products were not put on the market or recalled from the consumers and notified via the RASFF⁶ (table 7).

Table 7: RASFF issued by Belgium in 2018 for food products showing a risk for consumers

Food products	Pesticide residue	Number	Origin	Context
Spinach	Dimethoate	1	Belgium	Self-checking
Strawberries	Dichlorvos	1	Belgium	Self-checking

⁶ http://ec.europa.eu/food/food/rapidalert/rasff_portal_database_en.print.htm

Food products	Pesticide residue	Number	Origin	Context
Gojiberries	Nicotine, carbofuran, propargite	6	China	Official control & self-checking
Pineapples	Ethephon, imazalil	2	Benin	Official control
Spinach	Fluazifop (sum)	1	France	Self-checking
Aubergines	Dimethoate	1	Uganda	Official control
Yellow millet (feed)	Chlorpyrifos	1	India	Official control
Apples	Chlorpyrifos	2	Poland	Self-checking
Beans	Carbofuran, chlorpyrifos	2	Dominican Republic	Official control
Aubergines	Dimethoate, methomyl, profenofos	2	Senegal	Official control
Durians	Carbendazim, chlorpyrifos, dicrotophos, metalaxyl, phentoate	2	Thailand	Official control
Soursops	Acephate, methamidophos, spirotetramate (sum)	3	Thailand	Official control

4.3. Actions taken

When non-compliant samples are identified, the batch is seized, if available, and prevented from entering the market. An assessment of the risk for consumers is performed on all samples showing an exceeding of the MRLs and the appropriate measures such as recall and RASFF notification are taken⁷ according to the risk for the consumer.

Follow-up action is taken to verify the violation and to identify its cause. When non-compliant samples are identified, the producer or importer is subject to enhanced control and an official report is drawn up and sent to the legal department of the FASFC which proposes a fine. If the fine is not paid, or in case of repeated offences, the matter is taken to court.

5. Quality assurance

Five ISO17025 accredited laboratories analysed pesticide residues in the framework of the national control program 2018 of the FASFC.

Table 8: Laboratories participation in the national control program

Country	Laboratory		Accreditation		Participation in proficiency tests or inter-laboratory tests
	Name	Code	Date	Body	
BE	CER Groupe	CER	073-TEST Versions 18 & 19 (28/08/2017 - 16/04/2019)	BELAC	EUPT-AO13
BE	Primoris Belgium cvba	PRIMORIS	057-TEST Versions 18 - 23 (26/05/2017 - 06/05/2021)	BELAC	EUPT-CF12, FT0114 (FAPAS-CORESTA), FAPAS

⁷ The actions to be taken when an MRL is exceeded are described in a procedure available on the website of the FASFC (<http://www.afsca.be/publicationsthematiques/inventaire-actions.asp>).

Country	Laboratory		Accreditation		Participation in proficiency tests or inter-laboratory tests
	Name	Code	Date	Body	
					04331, EUPT-FV-SM10, EUPT-FV20, Proof P1805-RT, FAPAS 22149, Proof P1806-RT, EUPT-AO13, Relana MRT1, EUPT-SRM13, QS-spring 2018, FAPAS 1667, COIPT-18 (Italian NRL AO (+ IOC)), BNN-competence test 2018, P1815-RT, FAPAS 0676, FAPAS 09117+b, FAPAS 19255+b, FAPAS 22155, FAPAS 3086, P1816-RT, FAPAS 19260+b, Relana MRT2, EUPT-FV-SC02, FAPAS 15133, Proof P1907-RT, undercoversample 1 Relana (Relana/Proof-ACS)
BE	Sciensano (Pesticiden)	WIV-PEST	081-TEST Versions 19 & 20 (03/05/2017-31/01/2020)	BELAC	EUPT-AO13, EUPT-CF12, EUPT-FV20, EUPT-SM10, EUPT-SRM13
GE	LUFA-ITL	LUFA	D-PL-14082-01-00 Versions: 31/03/2016-10/04/2019	DAkKS	FAPAS 19244, EUPT-SRM13, EUPT-AO13, FAPAF 19256, EUPT-FV20, QS-Spring 2018
NL	Eurofins Lab Zeeuws-Vlaanderen BV	ZEEUWS	L-201 (since 17/12/1997)	RvA	EUPT-CF12, Proof P1801-RT, FAPAS 19244, FAPAS 9114, EUPT-FV20, FAPAS 19246, Proof P1805-RT, Rikilt Fiproniltoets, Proof P1806-RT, EUPT-AO13, Relana acidic herbicides, QS-spring 2018, EUPT-SRM13, FAPAS 19249, Lach & Bruns competence test on behalf of BNN, LVU 2018-17a, FAPAS 19254, FAPAS 19256, FAPAS 19257, FAPAS 5130, FAPAS 9118, QS-autumn 2018, FAPAS 9119

6. Processing Factors (PF)

Processing factors are applied when necessary to verify compliance of processed products with EU MRLs according to article 20 of Regulation 396/2005. Processing factors were mainly applied to cover the dehydration of fruits or vegetables.

Table 9 : Processing factors

Pesticide (report name)^(a)	Unprocessed product (RAC)	Processed product	Processing factor^(b)	Comments
	Mushrooms	Dried mushrooms	9	General processing factor
	Gojiberries	Dried gojiberries	5	General processing factor

7. Additional Information

Organic production falls under the responsibility of the Belgian Regions. Samples of organic food and feed products analysed by the FASFC are checked for their compliance with MRLs set in Regulation 396/2005. Products containing pesticide residue are notified to the Regions for eventual follow-up according to the legislation applicable to organic farming.

In 2018, the FASFC analysed 23 organic food samples. 5 samples of dried goji berries contained pesticide residues above the LOQ.

8. Note on confidentiality of certain control data submitted by reporting country

References

- (a) Regulation (EC) N°396/2005 of the EU Parliament and the Council of 23 February 2005 on maximum residue levels of pesticides in or on food and feed of plant and animal origin
- (b) <http://www.fytoweb.be>
- (c) https://ec.europa.eu/food/plant/pesticides/max_residue_levels_en
- (d) Maudoux J-P., Saegerman C., Rettigner C., Houins G., Van Huffel X. & Berkvens D., Food safety surveillance by a risk based control programming: approach applied by the Belgian federal agency for the safety of the food chain (FASFC), Vet. Quart. 2006, 28(4): 140-154. <http://www.favv-afsc.fgov.be/publicationsthematiques/food-safety.asp>
- (e) <https://webgate.ec.europa.eu/rasff-window/portal/>
- (f) Commission Implementing Regulation (EU) 2017/660 concerning a coordinated multiannual control programme of the Union for 2018, 2019 and 2020 to ensure compliance with maximum residue levels of pesticides and to assess the consumer exposure to pesticide residues in and on food of plant and animal origin;
- (g) Regulation (EC) N°669/2009 of 24 July 2009 implementing Regulation (EC) No 882/2004 of the European Parliament and of the Council as regards the increased level of official controls on imports of certain feed and food of non-animal origin
- (h) Regulation 885/2014 of 13 August 2014 laying down specific conditions applicable to the import of okra and curry leaves from India and repealing Implementing Regulation (EU) No 91/2013
- (i) Commission Directive 2002/63/EC of 11 July 2002 establishing Community methods of sampling for the official control of pesticide residues in and on products of plant and animal origin and repealing Directive 79/700/EEC

Glossary [and/or] Abbreviations

ARfD	Acute Reference Dosis
FASFC	Federal Agency for the Safety of the Food Chain
GAP	Good Agricultural Practices
LOQ	Limit of quantification
MRL	Maximum residue limit
PHI	Pre-Harvest Interval
RASFF	Rapid Alert System for Food and Feed

Annex A – Overview results monitoring 2018 (xls format)

Part 1 : Analytical scope

Part 2 : Number of samples analysed, MRL exceedances, number of samples - Variables related to the origin of samples

Part 3 : overview of non-compliant samples