LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de l'Agriculture, de la Viticulture
et du Développement rural

Administration luxembourgeoise vétérinaire
et alimentaire

Annual report
Control campaign on the presence of pesticide residues in food 2023

The Ministry of Agriculture, Food and Viticulture is the competent authority for the control of pesticide residues in food. Within this Ministry, the Luxembourg Veterinary and Food Administration (ALVA) is the executive, competent authority responsible for the control of pesticide residues in food of plant origin, including cereals and baby food and food of animal origin. In the realm of pesticide residues, this task is executed by the Division Food Chain Safety. The Division is also responsible for transferring notifications to the RASFF via the national contact point, also located within ALVA, for these same categories of food.

The implementation of the various actors during the sample collection process at wholesalers, retailers and during import are shown below.

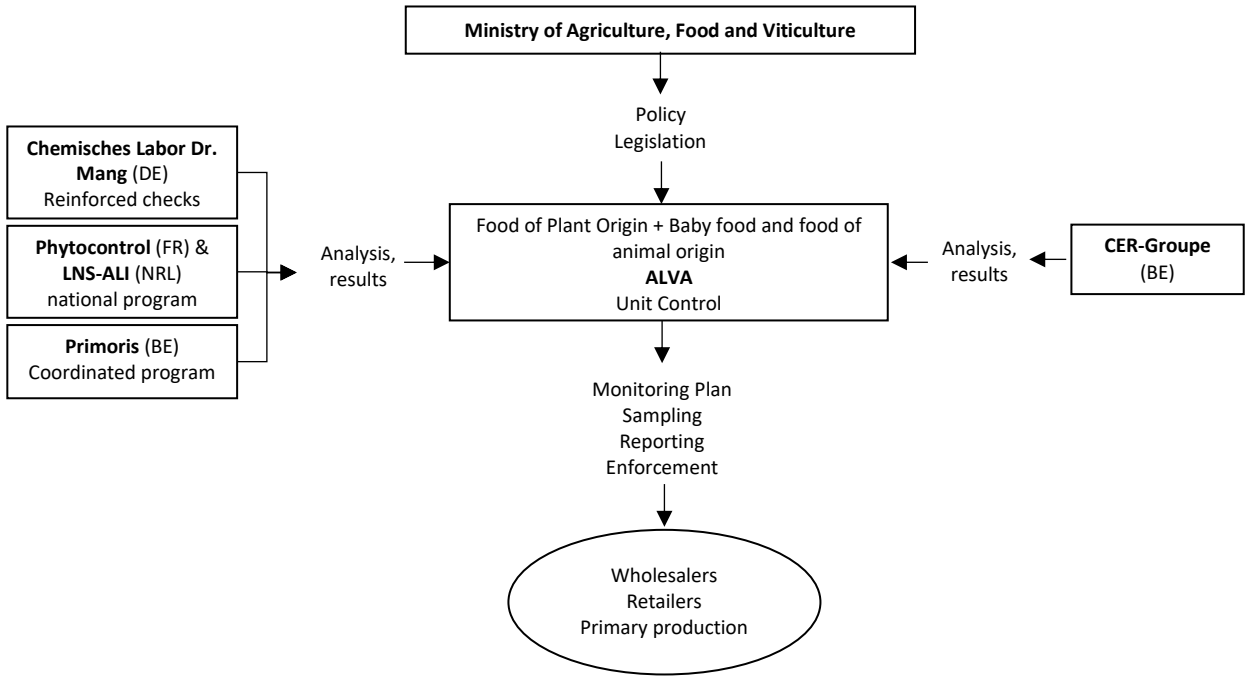

Figure 1. Implementation of the various departments involved in the control plan. ALVA: Luxembourg Veterinary and Food Administration, CER: Centre d'économie rurale, laboratory for the products of animal origin, LNS-ALI: Food Laboratory of the National Health Laboratory, Primoris: Laboratory for the products of plant origin, Phytocontrol: Laboratory for products of plant origin, Chemisches Labor Dr. Mang: Laboratoy for the analysis of reinforced checks.

The collected samples are sent to the appropriate laboratories: the samples from food of animal origin are analysed by the laboratory for the products of animal origin (CER, BE). For products of plant origin, including cereals and baby food, samples collected for the coordinated programme are sent to Primoris (BE).

Samples collected for the national program are sent to either Primoris (BE), Phytocontrol (BE) or the food laboratory of the National Health Laboratory (LU). One part of the pesticide analysis, for reinforced checks, analyses were performed either by Primoris (BE) or by Chemisches Labor Dr. Mang (DE).

The various roles of ALVA within the remit of the control of pesticide residues in food, are summarized in the table below:

Role	Organisation name	Organisation address	Products
- Official reporting organisation residue programme design - Sample collection - Enforcement agencies	ALVA	7 A, rue Thomas Edison L-1445 Strassen	Food of plant origin (fruits, vegetables, nuts, cereals), baby food, products of animal origin

Table 1. Various roles of ALVA for the control of pesticide residues in food.

Please note that the responsibility of the control of the food chain has only changed in October 2022. The Luxembourg Veterinary and Food Administration was created in 2022 by bringing together most of the food chain control bodies in a single administration, as illustrated in the previous chapter.

Following the logic of Regulation 2017/625 which defines common and uniform criteria for all controls in the agri-food chain, the ALVA is made up of the following pre-existing units:

- Administration of Veterinary Services
- Food Safety Division of the National Health Directorate
- Feed Control Department of the Administration of Agricultural Technical Services
- Government Commissariat for Quality, Fraud and Food Safety

The Luxembourg Veterinary and Food Administration is under the sole supervision of the Ministry of Agriculture, Food and Viticulture.

Objective and design of the national control programme

Objective

The aim of the national control programme is to judge the contamination of products regarding pesticide residues that can be found on fruit, vegetables and cereals as a result of the use of plant protection products during primary production.

To protect the consumers and to check the good use of plant protection products (i.e. the use of authorised products and the application of good agricultural practice), MRLs are set in European legislation. An MRL exceedance, while showing an incorrect use of a plant protection product, does not necessarily involve a risk for the health of consumers.

More information on the authorised pesticide products authorised in Luxembourg can be found via internet.[1]

Design

The Division of Food Chain Safety is responsible for drafting the sampling plan and for the control of presence of pesticide residues in fruits and nuts, vegetables, cereals, baby food and other plant products.

The control programme included two different programmes:

- the Coordinated Community control programme based on the Commission Regulation (EU) No. 2022/741 of 13th of Mai 2022 on a coordinated multiannual control programme;
- The national programme based on a risk assessment where several factors were taken into account: results from previous checks, data from the RASFF (rapid alert system for food and feed), toxicological data of residues, national production and available consumption.

Samples for the EU coordinated programme included oranges, pears, kiwi fruits, cauliflowers, onions, carrots, potatoes, beans (dried), rye grains, brown rice (husked rice), poultry fat, bovine liver as well as baby food (Regulation (EC) N°2022/741).

For the national programme, samples collected included cereals (barley, buckwheat, graham, maize, millet, sorghum, spelt, wheat), fruits (i.e. apples, avocados, blackberries, blueberries, cherries, citrons, peaches, currants, granate apples, guavas, jackfruits, kaki, kumquats, lemons, limes, mangoes, mirabelles, nectarines, papayas, passion fruits, plantains, plums, raspberries, red pitayas, strawberries, table grapes, tamarillos, wine grapes), dried fruits, aromatic herbs and spices (basil, cassia bark, chives, ginger roots, hops, lovage leaves, mints, oregano, paprika powder, rosemary, thyme), tea, nuts, legume seeds, vegetables (i.e. asparagus, aubergines, baby corn, baby leaf spinaches, beans, beetroots, broccoli, carrots, celeriacs, celeries, ceps, chanterelles, cherry tomatoes, chili peppers, courgettes, crisp lettuces, cucumbers, cutting lettuces, escaroles, Florence fennels, hedgehog mushrooms, jew's ears, leeks, lettuces, morels, okra, parsnip roots, peas, potatoes, radishes, red cabbages, roman rocket, shiitake, snow mushrooms, spinaches, spring onions, sweet corn, sweet peppers, tomatoes, witloofs), honey, food of animal origin (bovine, chicken, pig, rabbit and sheep liver) and baby food (biscuits, rusks, cookies, simple cereals which have to be reconstituted with milk or other appropriate nutritious liquids, ready-to-eat meals for children).

For both parts of the programme, the national production was taken into account, as well as food originating from other EEA countries and from third countries. Furthermore, where available, samples were taken from products originating from organic farming that reflect the market share of organic products. Sampling was done mainly at wholesalers and on retail level, but also during import. The choice of the matrices is based largely on fresh products to conduct the controls at the origin of the food chain and avoid the need of having to use a processing factor.

As far as the use pattern of pesticides and the toxicity of the active substances are concerned, Luxembourg works in collaboration with the laboratory responsible for controlling the samples for choosing the pesticides to be screened for as regards to a specific matrix (in function of their toxicity).

[1] https://saturn.etat.lu/tapes/tapes_de_mnu_pdt.htm

Key findings, interpretation of the results and comparability with the previous year's results

Key findings

In 2023, a total of 547 samples were analysed for pesticide residues. 540 samples were collected in the framework of surveillance (154 samples within the coordinated community control programme and 386 samples within the national programme) and 7 samples were collected during enforcement.

Matrix	*Organic samples*	*Total samples*	*< LOQ*	*Quantified <MRL*	*Result >MRL but compliant considering uncertainty*	*Result non-compliant*
Aromatic herbs and spices	16	44	27	15	1	1
Cereals	16	61	42	19	0	0
Food of animal origin	0	30	22	6	0	2
Food products for young population	14	25	21	3	1	0
Fruits	20	163	51	103	2	7
Honey	0	2	2	0	0	0
Legume seeds	1	13	1	8	2	2
Nuts	0	1	1	0	0	0
Tea	9	28	20	5	0	3
Vegetables	28	180	101	73	3	3
Grand total	104 (19 %)	**547**	288 (52. 7%)	232 (42.4 %)	9 (1.6 %)	18 (3.3 %)

Table 2. Summary of results for the samples collected (surveillance and enforcement).

Product	*Origin*	*Pesticide residue*	*Level (mg/kg)*	*MRL (mg/kg)*
National multiannual control program				
Beans (dry)	BR	Fosety-Al	5	2
Peas (dry)	MG	Chlorpyrifos	0.026	0.01
Granate apples	IT	Pyrimethanil	0.64	0.01
Granate apples	PE	Acetamiprid	0.038	0.01
Morels	FR	Nicotine	3.2	1.2
Onions	NZ	Fosetyl-Al	102	50
Papayas	BR	Etofenprox	0.05	0.01
Rabbit liver	FR	Copper	85	30
Sheep liver	LU	Copper	91	30
Import (2017/625)				
Black tea	US	Anthraquinone	0.041	0.02
		Pyrimethanil	0.4	0.05
Raspberries	MX	Iprodione	0.33	0.01
Green tea	SG	Azoxystrobin	0.43	0.05
Green tea	TW	Chlorpyrifos	0.027	0.01
		Lambda cyhalothrin	0.064	0.01
		Tolfenpyrad	0.33	0.01
		Chlorfluazuron	0.046	0.01
		Dinotefuran	0.55	0.01
Guavas	BR	Imidacloprid	0.11	0.01

Product	*Origin*	*Pesticide residue*	*Level (mg/kg)*	*MRL (mg/kg)*
Hops BIO	US	Novaluron	0.053	0.01
Avocados	BR	Lufenuron	0.038	0.01
Blueberries	MX	Iprodione	0.06	0.01
Import (contrôle renforcé)				
Beans (with pods)	KE	Flutriafol	0.026	0.01

Table 3. Summary of results of non-compliant samples

Interpretation of the results

In 2023, 3.3 % of the samples collected (enforcement and surveillance) were non-compliant (18 samples of fruits, vegetables, legume seeds, food of animal origin and tea & herbal infusions from a conventional production, as well as 1 sample of organic hop) with the MRL set in EU legislation. The rise in non-compliant samples over the past two years can be attributed to a higher proportion of samples being collected at the import level, which account for 44% of all non-compliant cases.

9 of the non-compliant samples were sampled as part of the national multiannual control programme and the products were withdrawn from the market. For the sample on rabbit liver, the information was also shared via the RASFF system (notification 2023.8672).

8 non-compliant sample were taken in the context of border inspection activities according to Regulation (EU) No 2017/625. The samples were not yet on the market and could be blocked. For one sample of green tea, for which a risk could not be excluded, a rapid alert notification was issued (notification 2023.7323).

From the samples collected for enforcement (EU 1793/2019), 1 sample of green beans was non-compliant. A border rejection was issued via TRACES and an entry in the AAC network was generated (notification AA23.4172).

4 of the non-compliant samples were from EU origin.14 non-compliant samples originated from a third country.

To note that also 1 sample of organic rice was non-compliant as regards regulation (UE) n°2018/848 on organic production. These samples would have been compliant to regulation (EC) n° 396/2005 on maximum residue levels of pesticides in or on food and feed for with a conventional production. A follow-up at the producer has been initiated (sample not represented in the table about non-compliances).

Comparability with the previous year's results

Year	*Total number of samples collected*	*Coordinated program*	*National program*	*Enforcement*	*Non-compliance (%)*
2023	547	154	386	7	3.29
2022	634	152	473	9	3.30
2021	709	153	548	8	1.97
2020	479	136	343	6	4.59[(a)]
2019	490	156	329	5	1.51
2018	349	156	189	4	2.3

Table 4. Number of samples collected between 2018 and 2023 and non-compliance rates. (a) Please note that this compliance rate is biased by the sampling of sesame seeds and derived products expected to be non-compliant as part of the crisis on ethylene oxide in various food products – without those samples the non-compliance rate lies at 2.9%.

Non-compliant samples: possible reasons, acute reference dose exceedance and actions taken

Reasons for MRL non-compliance	***Pesticide/food product***	***Frequency***	***Comments***
GAP not respected: use of an approved pesticide, but application rate, number of treatments, application rate or PHI not respected.	Fosetyl-Al / Beans (dry)	1	Reg. 2022/1323
GAP not respected: use of a pesticide not authorized in the European Union	Chlorpyrifos / Peas (dry)	1	Reg. 1107/2009
GAP not respected: use of a pesticide not authorized on the specific crop	Pyrimethanil/ Granate apples	1	Reg. 2018/832
GAP not respected: use of a pesticide not authorized on the specific crop	Acetamiprid / Granate apples	1	Reg. 88/2019
GAP not respected: use of an approved pesticide, but application rate, number of treatments, application rate or PHI not respected.	Nicotine / Morels	1	Reg. 2022/1290
GAP not respected: use of an approved pesticide, but application rate, number of treatments, application rate or PHI not respected.	Fosetyl-Al / Onions	1	Reg. 2022/1324
GAP not respected: use of a pesticide not authorized on the specific crop	Etofenprox / Papayas	1	Reg. 590/2021
GAP not respected: use of a pesticide not authorized in the European Union	Anthraquinone / Black tea	1	Reg. 1107/2009
GAP not respected: use of a pesticide not authorized on the specific crop	Pyrimethanil / Black tea	1	Reg. 2018/832
GAP not respected: use of a pesticide not authorized in the European Union	Raspberries / Iprodione	1	Reg. 1107/2009
GAP not respected: use of a pesticide not authorized on the specific crop	Azoxystrobin / Green tea	1	Reg. 2023/129
GAP not respected: use of a pesticide not authorized in the European Union	Chlorpyrifos / Green tea		Reg. 1107/2009
GAP not respected: use of a pesticide not authorized on the specific crop	Lambda cyhalothrin / Green tea		Reg. 2021/590
GAP not respected: use of a pesticide not authorized in the European Union	Tolfenpyrad / Green tea	1	Reg. 1107/2009
GAP not respected: use of a pesticide not authorized in the European Union	Chlorfluazuron / Green Tea	1	Reg. 1107/2009
GAP not respected: use of a pesticide not authorized in the European Union	Dinotefuran / Green Tea	1	Reg. 1107/2009
GAP not respected: use of a pesticide not authorized in the European Union	Imidacloprid / Guavas	1	Reg. 1107/2009
GAP not respected: use of a pesticide not authorized in the European Union	Novaluron / Hops Bio	1	Reg. 1107/2009
GAP not respected: use of a pesticide not authorized in the European Union	Avocados / Lufenuron	1	Reg. 1107/2009
GAP not respected: use of a pesticide not authorized in the European Union	Iprodione / Blueberries	1	Reg. 1107/2009

Reasons for MRL non-compliance	*Pesticide/food product*	*Frequency*	*Comments*
GAP not respected: use of a pesticide not authorized in the European Union	Flutriafol / Beans (with pods)	1	Reg. 1107/2009

Table 5. Possible reasons for MRL non-compliance.

All of the non-compliant samples were removed from the market, were still blocked at import or were in transit to another Member State, in which case the respective Member State was informed about the non-compliance for taking further action on their territory. In 2023, one of the samples exceeded the acute reference dose (ARfD, chlorpyrifos in green beans from Kenya). The product was destined for another EU Member State, who was informed about the non-compliance and the potential risk.

Quality assurance

Country	*Laboratory*		*Accreditation*		*Participation in proficiency tests or interlaboratory tests*
	Name	*Code*	*Date*	*Body*	
BE	Centre d'économie rurale	CER	20 May 2014	BELAC (073 Test)	Yes
BE	Primoris	Primoris	27 July 2012	BELAC (057-TEST)	Yes
FR	Phytocontrol	Phytocontrol	2019-09-24	COFRAC	Yes
LU	Laboratoire national de santé – Laboratoire de surveillance alimentaire	LNS-ALI	22 September 2009	OLAS (1/002)	Yes

Table 6. Laboratories participating in the national control programme.

Processing factors

Processing factors are applied when necessary to verify compliance of processed products with EU MRLs according to Article 20 of Regulation (EC) No 396/2005[2]. Processing factors were mainly applied to cover the dehydration of fruit or vegetables.

The main processing factors that were used to verify the compliance of the processed products with EU MRL are compiled in the table below.

Pesticide	*Unprocessed product (RAC)*	*Processed product*	*Processing factor*	*Comments*
All	Cereal grains (except rice)	Flour	1	Default processing Factor
All	Sweet pepper	Dried product	10	EFSA processing techniques, 2018
All	Oregano, Parsley	Dried products	6	EFSA processing techniques, 2018
All	Basil, Rosemary, Thyme	Dried products	7	EFSA processing techniques, 2018

Table 7. Processing factors.

[2] Regulation (EC) No 396/2005 of the European Parliament and of the Council of 23 February 2005 on maximum residue levels of pesticides in or on food and feed of plant and animal origin and amending Council Directive 91/414/EEC. OJ L 70, 16.3.2005, p. 1–16.

Note on confidentiality of certain control data submitted by the reporting country

Luxembourg confirms that reported data on the 2023 pesticide monitoring results do not contain confidential information and can be shared with third parties if required.