

**PESTICIDE RESIDUE CONTROL RESULTS**

**NATIONAL SUMMARY REPORT**

**Year: 2017**

**Country: Finland**

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# 1. Finland

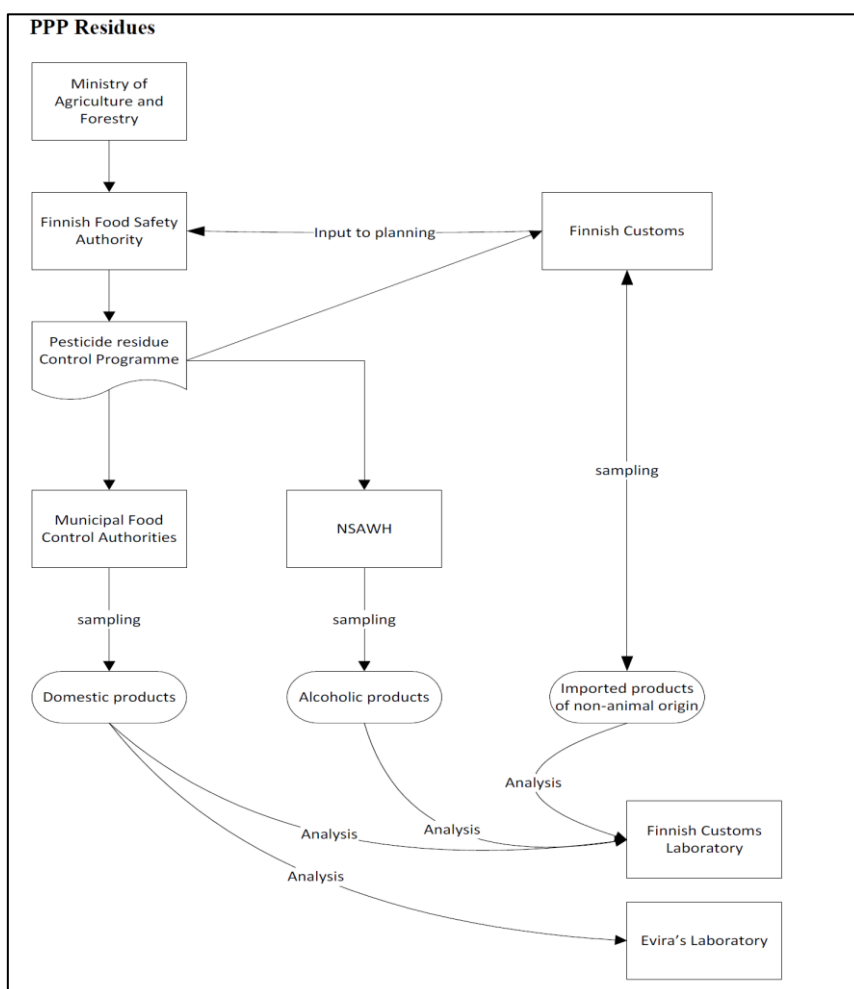
## 1.1. Name of the national competent authority/organisation

The national competent authorities of pesticide residue controls in Finland are Finnish Food Safety Authority Evira (central competent authority), Finnish Customs, National Supervisory Authority for Welfare and Health, and municipal food control authorities.

A functional mailbox for pesticide residue controls is: [kasvinsuojeluainejaamat@evira.fi](mailto:kasvinsuojeluainejaamat@evira.fi) and a web address where the national annual report is published: <https://www.evira.fi/en/foodstuff/manufacture-and-sales/common-requirements-for-composition/residues-of-plant-protection-products/control/>.

## 2. Objective and design of the national control programme

The Finnish pesticide residue control programme is coordinated by Finnish Food Safety Authority Evira and carried out in collaboration with Finnish Customs, National Supervisory Authority for Welfare and Health (Valvira) and municipal food control authorities (Figure 1).



**Figure 1:** Control system of pesticide residues in Finland.

## 2.1. Objective

The objective of the annual pesticide residue control plan is to monitor and verify that i) foods do not contain residues of unauthorized pesticides and ii) the levels of residues for authorized pesticides do not exceed the maximum residue levels (MRLs).

## 2.2. Design

The control programme is comprised of two strategies: i) surveillance of products of plant and animal origin randomly sampled for the presence of pesticide residues and ii) enforcement of specific pesticide residue legislation (e.g. where targeting of samples with a history of non-compliances and commodities is listed in Regulation (EC) No 669/2009 for pesticide residues).

The control programme consists of two parts: the EU coordinated multiannual control programme (EUCP, Commission Regulation ((EU) No 2016/662) and separate, national control programmes of the above mentioned authorities based mainly on the dietary intake patterns of Finnish consumers as well as on the relevance of the national agricultural production.

### 2.2.1. Defining food products to be included in the control programme

When defining the food products to be analysed in the control programmes special importance was given to the factors listed below:

- EU Commissions Regulation concerning a coordinated multiannual control programme of the Union ((EU) No 2016/662);
- relevance of a food product in national dietary patterns and in the national agricultural production;
- food products with a high non-compliance rate identified in the previous years;
- high RASFF notification rate;
- organic or conventional products;
- origin of the food product (e.g. domestic, EU, third countries);
- co-operation possibilities in sampling with different contaminant projects and organic control programme;
- needs of the national risk assessment projects.

#### 2.2.1.1. Defining pesticides to be included in the control programme

For defining pesticides that should be included in the control programme the following aspects were taken into consideration:

- pesticides listed in the Regulation concerning a coordinated multiannual control programme (included as far as possible),
- RASFF notifications for a pesticide and frequency of pesticide findings in the EU monitoring reports.
- use pattern of pesticides: commonly used pesticides as well as pesticides that are known to leave residues in foods,
- pesticides that are authorized for use in Finland (when relevant),
- toxicity of the active substances; e.g. many toxic organophosphate compounds which are not commonly used anymore are still included (they may occur in samples originating from the developing countries),

- cost of analysis: multiple residue methods are preferred, as the cost of analysis in case of single residue methods is higher; if several single residue analyses are performed the total number of samples to be analysed is decreased,
- capacity of the labs: single residue methods are run as required by the EU coordinated programme and a limited number of other samples; instrument and personnel capacity in the laboratories is limiting the number of single residue analyses.

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

#### 3.1. Key findings

The sampling for pesticide residue control programme was carried out well in accordance with the plan of 2017. The summary of samples and their results are presented in Tables 1.-3. In general, the results presented in this report include only the data submitted successfully to EFSA Data Warehouse (DWH).

**Table 1:** Summary of samples taken in 2017 by product class.

Samples	Total	Without Residues	%	With Residues below MRL	%	Exceeding MRL	%	Non-Compliant	%
Animal products	21	21	100	0	0	0	0	0	0
Cereals	53	38	71,7	14	26,4	1	1,9	0	0
Baby food	39	37	94,9	2	5,1	0*	0*	0*	0*
Fruits and nuts, vegetables and other plant products	1333	717	53,8	548	41,1	68	5,1	41	3,1
Processed products	218	168	77,1	35	16,1	15	6,9	10	4,6
	<b>1664</b>	<b>981</b>	<b>59</b>	<b>599</b>	<b>36</b>	<b>84</b>	<b>5,1</b>	<b>51</b>	<b>3,1</b>

\* N.B. In two infant formula samples (mango puree) residues of etepon was detected. In both samples the MRL was exceeding, while only the other was found non-compliant. These results were not submitted successfully to EFSA data Warehouse (DWH) and therefore not included in the table.

**Table 2:** Summary of the number of samples taken, MRL-exceedances and non-compliances in 2017 by region of origin.

Origin	Samples	%	Exceeding MRL	%	Non-Compliant	%
Domestic	248	14,9	3	3,6	1	2
EU	665	40	11	13,1	2	3,9
Third countries	751	45,1	70	83,3	48	94,1
	<b>1664</b>		<b>84</b>		<b>51</b>	

**Table 3:** Summary of organic samples taken in 2017 by product class and results.

Samples	Total	Without Residues	%	With Residues below MRL	%	Exceeding MRL	%	Non-Compliant	%
Fruits and nuts, vegetables and other plant products	129	122	94.6	7	5.4	0	0	0	0
Vegetables	101	99	98	2	2	1	1	1	1
Cereals	36	32	88.9	4	11.1	3	8	3	8
Baby food	21	21	100	0	0	0	0	0	0
Animal products	1	1	100	0	0	0	0	0	0
Other plant products	70	70	100	0	0	0	0	0	0
	<b>358</b>	<b>345</b>	<b>96.3</b>	<b>13</b>	<b>3.6</b>	<b>4</b>	<b>1</b>	<b>4</b>	<b>1</b>

### 3.2. Interpretation of the results

The total number of samples analysed under the EU coordinated and national programmes – and the results of which were successfully submitted to EFSA Data Warehouse (DWH) - was 1664, which is about 15 % less than in the previous year. This total amount includes 55 follow-up enforcement samples or enforcement samples based on the Regulation (EC) No 669/2009. The distribution of all the samples by origin was: domestic 15 %, EU 40 % and third countries 45 %.

41 % of all samples had residues of one or more pesticide active ingredients. Exceedances of MRLs were found in 84 samples, of which 51 were non-compliant (measurement uncertainty taken in to consideration; number including surveillance and enforcement samples). The total percentage of non-compliances (3.1 %) is about one third higher as compared with the previous year (1.9 %).

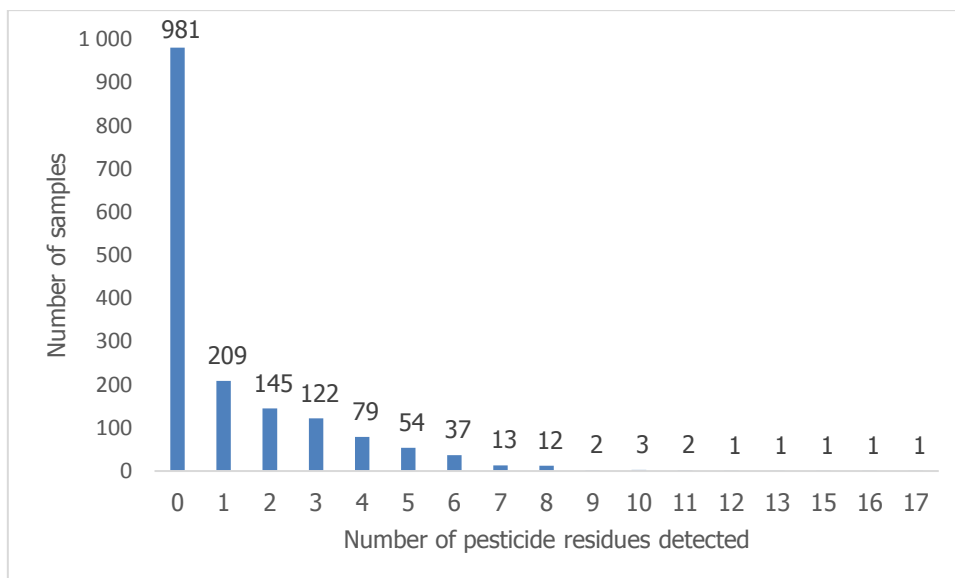
The non-compliant lots originated from 14 different countries. Highest number of non-compliances was in products from India (9 samples), Pakistan (8 samples) and Thailand (8 samples). Several non-compliant samples were detected also in products of Bangladesh (7 samples), Malaysia (5 samples) and Turkey (4 samples). Three non-compliant samples originated from EU countries, of which one was of domestic origin.

The number of samples above MRL was highest in the food group vegetables (30 samples) followed by fruits and nuts (7 samples), cereals (7 samples) and other plant products (7 samples). The product with highest number of MRL-exceedances was rice (8 samples) followed by pomegranates (7 samples), sweet peppers (6 samples) and beans with pods (6 samples). No residues were detected in any of the analysed animal products or baby foods (N.B. see also Table 1: in two infant formula samples MRL for etephon was exceeded, but the results were not submitted successfully to DWH).

In 2017, a total of 55 enforcement samples were taken from cereals (3 samples), fruits and nuts (15 samples), other plant product (15 samples) and vegetables (22 samples). None of the enforcement samples originated from EU countries. In five (9 %) of the enforcement samples, the MRL was exceeded.

A total of 358 samples from organic production were analysed. 13 samples of them had residues above reporting level. In 4 samples the residues exceeded the MRLs and were also non-compliant.

The number of compounds analysed from samples of plant origin was 351 active ingredients and metabolites. From animal products (poultry, sheep) 38 active ingredients and metabolites were analysed. In 59 % of the samples no pesticide residues were detected (Figure 2). In 1.6 % of the samples (27 in total) more than six pesticide residues were detected simultaneously. The highest number of different residues (17) was detected in an Indian sweet pepper sample.



**Figure 2:** The number of samples with multiple pesticide residues detected.

### 3.3. Comparability with the previous year results

The total number of samples was about 15 % less than in the previous year. However, this is partly explained with the fact that all of the results were not successfully submitted to EFSA Data Warehouse (DWH). In fact, 2008 samples in total was analysed in the pesticide residues programmes of 2017 in Finland. The number of enforcement samples analysed was slightly increased (40 samples in 2016; 55 samples in 2017). The distribution of the origin of the samples (domestic/EU/third countries) was about the same as in 2016, although a small decrease in the share of third country-samples.

The percentage of samples with residues detected was decreased to 41 % (in 2016 47 %). However, the number of samples exceeding the MRLs was increased to 84. Furthermore, the number of non-compliant samples was increased to 51. This may partly indicate the increase in effectiveness of the risk-based sampling.

The origin of the non-compliant samples by countries as well as the product types of the non-compliant differed significantly from the results of 2016. This is certainly in some extent explained with the fact that there are differences in the contents of the EU coordinated multiannual control programme as well as in the separate national control programme plan between years.

Long-term (2011-2017) summary of the pesticide residue control programme results are presented in Table 4. During the period the number of samples with no residues detected has slightly increased. Simultaneously the proportional part of non-compliant samples has increased. These findings (not tested with statistical methods) may indicate the improved risk management for pesticide residues of the food business operators throughout the food chain, as well as the progress in the risk-based sampling.

**Table 4:** Summary of the results of pesticide residue control programme results in Finland during 2011-2017.\*

Year	Samples	Without residues (%)	With residues (%)	Number of samples exceeding MRL	Number of non-compliant samples
2017	1664	64	36	84	51
2016	1969	57	43	65	37
2015	2088	55	45	55	35
2014	2383	54	46	126	49
2013	2408	49	51	117	63
2012	2243	48	52	66	31
2011	2104	47	53	54	22

\* N.B. The data represents only the results successfully submitted to EFSA DWH.

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

##### 4.1. Possible reasons for non-compliant samples

One domestic lettuce sample was found non-compliant due to the detection of imidacloprid residue exceeding MRL. The use of imidacloprid is not authorised on lettuce in Finland indicating that the reason for non-compliance was that GAP was not respected. Due to the finding, an on-site control on the use of pesticides was conducted by the competent authorities (Finnish Safety and Chemicals Agency (Tukes) and Centre for Economic Development, Transport and Environment) followed by the enforcement of the applicable legislation.

The reasons for non-compliant samples from import control mainly remain unknown. As the highest proportion of non-compliant samples occur in products from third countries, possible reasons might be the use of a pesticide on food imported from third countries for which no import tolerance was set, and GAP not respected: use of a pesticide not approved in the EU.



**Table 5:** Possible reasons for MRL non-compliances (N/A = information not available).

Reasons for MRL non-compliance	Pesticide/food product <sup>(a)</sup>	Frequency <sup>(b)</sup>	Comments
GAP not respected: use of a pesticide not approved in the EU <sup>(c)</sup>	N/A	N/A	
GAP not respected: use of an approved pesticide not authorised on the specific crop <sup>(c)</sup>	Imidacloprid/lettuce	1 sample	On-site control on the use of pesticides followed by enforcement of legislation
GAP not respected: use of an approved pesticide, but application rate, number of treatments, application method or PHI not respected	N/A	N/A	
Use of pesticide according to authorised GAP: unexpected slow degradation of residues	N/A	N/A	
Cross contamination: spray drift or other accidental contamination	N/A	N/A	
Contamination from previous use of a pesticide: uptake of residues from the soil (e.g. persistent pesticides used in the past)	N/A	N/A	
Residues resulting from other sources than plant protection product (e.g. biocides, veterinary drugs, bio fuel)	N/A	N/A	
Naturally occurrence (e.g. dithiocarbamates in turnips)	N/A	N/A	
Changes of the MRL	N/A	N/A	
Use of a pesticide on food imported from third countries for which no import tolerance was set <sup>(d)</sup>	N/A	N/A	
Other (please specify)	N/A	N/A	

(a): Report name as specified in the MatrixTool

(b): Number of cases

(c): Applicable only for food products produced in the EU

(d): For imported food only

## 4.2. ARfD exceedances

The acute reference dose (ARfD) calculated according the pesticide residue intake model (PRIMO) of the European Food Safety Authority EFSA was exceeded in three samples: passionfruit from Ecuador, green chili from Pakistan and lettuce from Finland. These lots were recalled and RASFF-alerts were notified, when applicable (see also 4.3).

## 4.3. Actions taken

In 2017, 3,1 % of the samples (51 samples in total) were found to be non-compliant with the EU MRLs. For 12 samples RASFF notifications and for 6 organic samples OFIS notifications were issued.

For all non-compliant samples detected, effective and appropriate actions were taken in order to protect the European consumers (Table 6).

**Table 6:** Actions taken for samples non-compliant with the EU MRLs.

Action taken	Number of non-compliant samples concerned	Comments
Rapid Alert Notification	12	Number of RASFFs notified by Finland for pesticide residues
OFIS Notifications	6	Two OFIS notifications and four INTC OFIS notifications
Administrative sanctions (e.g. fines)	26	
Lot recalled from the market	2	Additionally one lot already consumed before the analytical result was available
Lot withdrawn from the market	14	
Rejection of a non-compliant lot at the border	20	
Destruction of non-compliant lot	25	5 lots already consumed before analytical result available
Follow-up (suspect) sampling of similar products, samples of same producer or country of origin	N/A	Follow-up sampling is regular procedure after rejection but there is no numerical data available.
Warnings to responsible food business operator	1	
Other follow-up investigations to identify reason of non-compliance or responsible food business operator	5	The lot partly or totally consumed. The remaining part detained and destroyed or sent back to the seller by permission of authorities in the country of origin. Enforcement sampling on next coming import lots.
Marketing as organic prohibited	-	
Other actions	-	

## 5. Quality assurance

All the laboratories conducting the official analyses of pesticide residues are accredited according to ISO-17025, have routine quality assurance activities and participate regularly in proficiency tests in the field of their expertise (Table 7).

**Table 7:** Laboratories participated in the national control programme.

Country	Laboratory		Accreditation		Participation in proficiency tests or inter-laboratory tests
	Name	Code	Date	Body	
FI	Finnish Customs Laboratory	FI01	11/09/2018	FINAS-Espoo, Finland	EUPT-FV19, EUPT-CF11, EUPT-FV-SM09, EUPT-SRM12, EUPT-FV-SC01, JRC-GEEL Fipronil, ERM-BC403
FI	Finnish Food Safety Authority	FI03	24/11/2017	FINAS-Espoo, Finland	EUPT-AO12, FAPAS-09113, JRC-PT-2017-01, EUPT-CF11

## 6. Processing Factors (PF)

The processing factors used by national competent authorities to verify the compliance of processed products with EU MRLs are presented in Table 8.

Processing factors for processed products were mainly acquired from the database of Bundesinstitut für Risikobewertung (BfR). In the cases where processing factors were not available in the database, the crude estimate based on Table 8 was used.

**Table 8:** Processing factors used to verify the compliance of processed products.

<b>Pesticide (report name)<sup>(a)</sup></b>	<b>Unprocessed product (RAC)</b>	<b>Processed product</b>	<b>Processing factor<sup>(b)</sup></b>	<b>Comments</b>
All pesticides	Fresh herbs	Dried herbs	10	factors are used for first estimation, in case of
All pesticides	Fresh vegetables	Dried vegetables	10	non-compliance, more detailed information is requested from the stake holder
All pesticides	Fresh fruits	Dried fruits	5	

a) Report name as specified in the MatrixTool2016

b) Processing factor for the enforcement residue definition

## 7. Additional Information

In this national summary report only the data successfully submitted to EFSA Data Warehouse (DWH) (in 2017 about 83 % of the total sample amount of national control programmes) is presented. In the following years further developments will be made to improve the efficacy of the data submission system at the national level.

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

Finland follows the common agreements made at the EFSA Network on Pesticide Monitoring regarding the confidentiality of certain control data submitted.