



Greece

Objective and design of the national control programme

The Hellenic Ministry of Rural Development and Food is the national authority responsible for coordinating the implementation of Regulation (EC) 396/2005 according to national law 4036/2012. It is also responsible for the planning and the coordination of the official controls for plant origin food. The competent authorities responsible of the sampling of plant origin products are the Regional Centers of Plant Protection and Quality Control (RCPP&QC) of the Ministry of Rural Development and Food and the Directorates General of Regional Rural Economy and Veterinary Medicine.

The authority responsible for the planning and the coordination of the monitoring of processed foods is EFET (Hellenic Food Authority) while the controls of pesticide residues in wine are organized by the General Chemical State (GCS).

The official laboratories which analyzed the samples taken in 2022 were the Laboratory of Pesticides Residues of Benaki Phytopathological Institute (BPI), the Laboratory of Pesticide Residues of the Centre of Plant Protection and Quality Control of Thessaloniki (RCPP&QC) and the Laboratory of Pesticide Residues of the General Chemical State.

The control programs for pesticide residues and the report of results of the national residue monitoring are published on the official web site of the Hellenic Ministry of Rural Development and Food on an annual basis.^{[1],[2]}

^[1] <http://www.minagric.gr/index.php/el/for-farmer-2/crop-production/fytoprostasiamenu/ypoleimatafyto>

^[2] <http://www.minagric.gr/index.php/en/citizen-menu/foodsafety-menu>

The national control program of 2022 for pesticide residues (monitoring) as part of the Multi Annual Control Program (MACP) has been established according to terms and conditions of Articles 26-35 of Regulation (EC) No 396/2005. It is also noted that from 15-12-2022 articles 26, 27, 28 (1, 2) and 30 of Regulation (EC) 396/2005 do not apply. MACP is established according to OCR and the new Regulations applicable since 15-12-2022 (Delegated Regulation (EC) 2021/2244 and Implementing Regulation (EC) 2021/1355).

The national program was based on several risk analysis criteria and parameters: number of samples (domestic and imported) for each product, agricultural produce, cultivation area per culture, expected imports, results from previous years' monitoring programs, dietary intake contribution of each product, sampling location, community control program, pesticides used in practice by the farmers, relevant RASFF notifications for pesticide residues, personnel and analytical capacity of the official laboratories, recommendations from EFSA as well as the SANCO 12745/2013 working document (as applicable). It aims at ensuring compliance with maximum residue levels and assessing consumer exposure in order to achieve a high level of protection and application of good agricultural practice in all stages of production and harvest of agricultural products.

The responsibilities of the laboratories involved, regarding the number of samples of each commodity that should be analyzed, and the areas of sampling were defined. The sampling was carried out by the responsible for sampling regional and local authorities.

Sampling strategy was based on "from the farm to the fork" rationale, taking into account the specialties of each region of the country. The sampling methods, necessary for carrying out such controls of pesticide residues, were those provided for in JMD 91972/2003-Directive



2002/63/EC. Samples were taken by domestic production and imports, proportionally, covering all stages of the supply chain (i.e. borders, storage, packing, trade of products of plant origin, retail and wholesale).

The official laboratories, analyzing samples for pesticide residues are accredited and participate in the Community Proficiency Tests. The methods of analysis used by the laboratories comply with the criteria set out in relevant EU law provisions and other adopted technical guidelines.

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

In 2022, 3655 samples were analyzed in total by our authorities. 2697 samples were domestic (73,8%), 125 samples originated from EU (3,4%), 811 originated from third countries (22,2%) while the origin of 22 samples was unknown (0,6%). The total number of samples analyzed is higher compared to the samples considered by EFSA for the preparation of the Annual Report for pesticide residues. Composite/mixed samples were not taken into account in the Annual Report of pesticide residues as these commodities were not included in Annex I of Regulation (EC) 396/2005.

53,43% of samples analyzed were free of quantifiable residues, 41,91% of samples contained quantifiable residues at or below EU Mrl and 4,65% of samples exceeded the EU Mrl. Considering measurement uncertainty (50%), this percentage is reduced to 2,4%. Compared to the previous year's results, the non-compliance rate was reduced from 3% to 2,4%.

The total number of pesticides analyzed was approximately 550.

The non approved active substance chlorpyrifos remained the most frequently detected compound in non-compliant samples.

Among the domestic samples analyzed, grape leaves were the most frequently non-compliant commodity.

The main contributor for the non-compliance rate of selective samples from third countries (9 samples out of 20 non-compliant samples) was the commodity Black eyed beans (from Madagascar). Since 2023 this commodity/origin combination has been subject to increased temporary official controls (Regulation (EC) 2019/1793). The main contributor for the non-compliance rate of suspect samples from third countries was the commodity cumin seed/powder (from India).

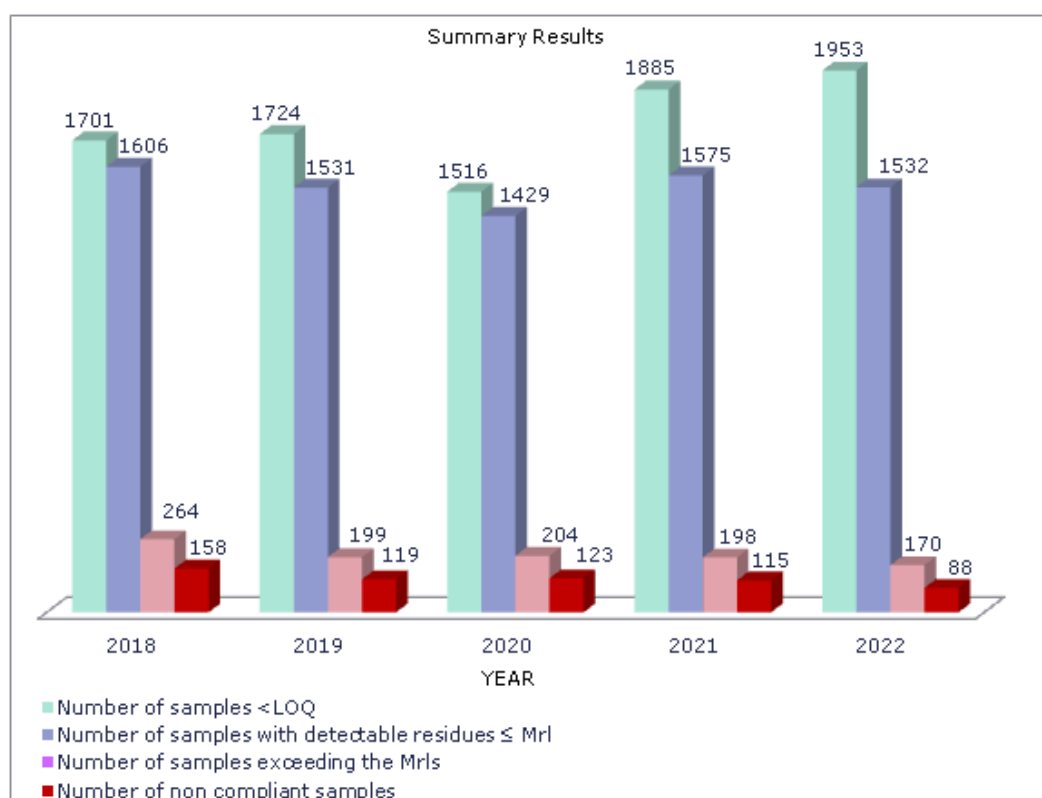
Regarding organic samples, 150 out of 163 samples were below LOQ (92%), 12 out of 163 samples contained quantifiable residues at or below the Mrl (7,4%) and 1 out of 165 samples, was non-compliant (0,6%).

A targeted sampling in sesame seeds continued in 2022. The total number of samples analyzed was 118. 83,9% of samples were below LOQ, 6,78% of samples contained quantifiable residues at or below the Mrl, 9,32% of samples exceeded the MRL and 1,6% were non-compliant. No ethylene oxide was detected.



Table 1: Summary results 2018-2022

Category	Year 2018	Year 2019	Year 2020	Year 2021	Year 2022
Total number of samples	3571	3454	3149	3658	3655
Number of samples without detectable residues	1701 (48%)	1724 (50%)	1516 (48%)	1885 (52%)	1953 (53,43%)
Number of samples with detectable residues at or below EU MRL	1606 (45%)	1531 (44%)	1429 (45%)	1575 (43%)	1532 (41,92%)
Number of samples with residues exceeding EU MRL	264 (7%)	199 (6%)	204 (7%)	198 (5%)	170 (4,65%)
Non-compliant samples	158 (4%)	119 (3%)	123 (4%)	115 (3%)	88 (2,4%)



**Table 2:** Summary results 2022 per origin

Origin of samples	Total No of samples	No of samples (%)			
		<LOQ	≥LOQ and ≤MRL	>MRL	
				Compliant and non-compliant	Non-compliant
EU	2822	1431 (50,7%)	1309 (46,4%)	82 (2,9%)	36 (1,28%)
TC	811	507 (62,5%)	217 (26,8%)	87 (10,7%)	52 (6,41%)
Unknown	22	15 (68,2%)	6 (27,3%)	1 (4,5%)	0 0%
Total	3655	1953 (53,4%)	1532 (41,9%)	170 (4,7%)	88 (2,4%)

Table 3: Summary results 2022 per type of product

Product	Total No of samples	No of samples (%)			
		<LOQ	≥LOQ and ≤MRL	>Mrl	
				Compliant and Non-compliant	Non-compliant
Animal products	6	6	0	0	0
Baby food	1	1	0	0	0
Cereals	89	71	16	2	2
Fruits, Vegetables and Nuts	2947	1408	1434	105	54
Other plant origin products	612	467	82	63	32

**Table 4:** Summary results 2022 per origin and sampling strategy

Sampling strategy	Origin of samples	Total No of samples	<LOQ	≥LOQ and ≤MRL	>MRL	
					Compliant and non-compliant	Non-compliant
Random sampling	EU	2632	1333 (50,65%)	1226 (46,58%)	73 (2,77%)	31 (1,2%)
	TC	206	122 (59,2%)	71 (34,5%)	13 (6,3%)	7 (3,4%)
	Unknown	21	15 (71,4%)	6 (28,6%)	0 (0%)	0 (0%)
Total No of random samples		2859	1470 (51,4%)	1303 (45,6%)	86 (3,0%)	38 (1,3%)
Selective sampling	EU	139	70 (50,4%)	63 (45,3%)	6 (4,3%)	2 (1,4%)
	TC	209	84 (40,2%)	89 (42,6%)	36 (17,2%)	20 (9,6%)
	Unknown	1	0	0	1	0
Total No of selective samples		349	154 (44,1%)	152 (43,6%)	43 (12,3%)	22 (6,3%)
Suspect sampling	EU	51	28 (54,9%)	20 (39,2%)	3 (5,9%)	3 (5,9%)
	TC	396	301 (76%)	57 (14,4%)	38 (9,6%)	25 (6,3%)
	Unknown	0	0	0	0	0
Total No of suspect samples		447	329	77	41	28
Total number of samples		3655	1953	1532	170	88

Table 5: Summary results 2022 for sesame seeds/tahini

Commodity	Origin of samples	Total No of samples	<LOQ	≥LOQ and ≤MRL	>MRL	
					Compliant and non-compliant	Non-compliant
Sesame seeds/tahini	EU	0	0	0	0	0
	TC	118	99 (83,9%)	8 (6,8%)	11 (9,3%)	2 (1,7%)
	Unknown	0	0	0	0	0
Total No of samples		118	99 (83,9%)	8 (6,8%)	11 (9,3%)	2 (1,7%)



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

Possible reasons for non-compliance

Table 6: Reasons for MRL exceedances

Reasons for MRL non-compliance	Pesticide ^(a) /food product	Frequency ^(b)	Comments*
GAP not respected: use of a pesticide not approved in the EU ^(c)	Chamomile flowers/chlorpyrifos	1	
	Carrots/phoxim	1	
	Carrots/linuron	1	
	Sweet cherries /imidacloprid	1	
	Cucumber/dimethoate	1	
	Cucumber/chlorpyrifos	2	
	Grape leaves/famoxadone	1	
	Nectarines/imidacloprid	1	
	Pistachios/imidacloprid	1	
	Roman rocket/alachlor	1	
	Spinach/dithiocarbamates	1	**
	Strawberries/propargite	1	
	Sweet peppers/famoxadone	1	
	Sweet pepper/chlorpyrifos	1	
	Tomato/dinotefuran	1	origin PL
	Cherry Tomato/chlorfenapyr	4	origin IT
Chinese cabbage/chlorpyrifos	1	origin PL	
GAP not respected: use of an approved pesticide not authorised on the specific crop ^(c)	Cucumber/formetanate	1	
	Grape leaves/trifloxystrobin	3	
	Grape leaves/metalaxyl	1	
	Grape leaves/penconazole	1	
	Grape leaves/acetamiprid	1	
	Grape leaves/cyflufenamid	1	
	Grape leaves/cymoxanil	1	
	Grape leaves/dimethomorph	2	
	Grape leaves/fluopyram	1	
	Grape leaves/pyrimethanil	1	
	Grape leaves/spiroxamine	1	
	Grape leaves/tebuconazole	1	
	Grape leaves/tebufenpyrad	1	
	Grape leaves/zoxamide	1	



	Grape leaves/fluvalinate	1	
	Grape leaves/lambda-cyhalothrin	1	
	Grape leaves/fluxapyroxad	1	
	Grape leaves/metrafenone	1	
	Leeks/aclonifen	1	
	Lentils (dry)/tetraconazole	1	
	Olive oil/fluopyram	1	
	Radish leaves/cyprodinil	1	
	Radish leaves/fludioxonil	1	
GAP not respected: use of an approved pesticide, but application rate, number of treatments, application method or PHI not respected			
	Spinach/deltamethrin	1	
Use of a pesticide on food imported from third countries for which no import tolerance was set/unknown reason ^(d)			
	Apples/chlorpyrifos	1	origin AL
	Basil/diclosulam	2	origin IL
	Basil/imidacloprid	1	origin IL
	Black eyed peas/chlorpyrifos	8	origin MG
	Black eyed peas/carbaryl	2	origin MG
	Black eyed peas/fenitrothion	2	origin MG
	Blackberries/cyantraniliprole	1	origin RS
	Courgette/iprodione	1	origin TR
	Courgette/metalaxyl	2	origin TR
	Cocoa beans/etofenprox	1	origin MG
	Cumin powder/acetamiprid	1	origin BD
	Cumin powder/Carbendazim & benomyl	1	origin BD
	Cumin powder/chlorpyrifos	1	origin BD
	Cumin powder/thiamethoxam	1	origin BD
	Cumin powder/tricyclazole	1	origin BD
	Cumin seed/acetamiprid	7	origin 5 IN, 1 PK, 1 XC
	Cumin seed/carbendazim & benomyl	8	origin 6 IN, 1 PK, 1 XC



Cumin seed/cypermethrin	1	origin PK
Cumin seed /chlorpyrifos	8	origin 7 IN, 1 XC
Cumin seed/imidacloprid	3	origin IN
Cumin seed/propiconazole	4	origin 3 IN, 1 XC
Cumin seed/thiamethoxam	6	origin 5 IN, 1 XC
Cumin seed/tricyclazole	9	origin 7 IN, 1 PK, 1 XC
Cumin seed/flonicamid	1	origin IN
Cumin seed/hexaconazole	5	origin 4 IN, 1 PK
Curry powder/chlorpyrifos	1	origin IN
Fenugreek seed/ethylene oxide	1	origin IN
Ginger roots/clothianidin	1	origin CN
Grape leaves/dithiocarbamates	1	origin TR
Hulled sesame seeds/chlorpyrifos	2	origin IN
Lemon/chlorpyrifos-methyl	1	origin TR
Lemon/buprofezin	4	origin TR
Mixed supplements/formulations/Ethylene oxide	3	origin IN
Pomegranates/acetamiprid	1	origin TR
Rice/hexaconazole	2	origin PK
Rice/thiamethoxam	2	origin PK
Sesame seeds/chlorpyrifos	2	origin IN
Sweet peppers /profenofos	1	origin UG
Strawberries/buprofezin	1	origin EG
Sweet pepper/spiroxamine	1	origin TR
Sweet pepper/buprofezin	1	origin TR
Other (Use of a pesticide on food imported from third country with exceedance of the ARfD)	black eyed beans/carbaryl	1 origin MG

*Domestic samples unless another origin is specified (ISO country 2-digit code)

**illegal use of the approved active substance (ziram) can't be excluded.

- a) Report name as specified in the MatrixTool
- b) Number of cases (these number do not correspond to number of samples)
- c) Applicable only for food products produced in the EU
- d) For imported food only

ARfD exceedances

Exceedance of the Acute Reference Dose (ARfD) were identified for 2 out of 3655 samples (black eyed beans/carbaryl and cucumber/formetanate).

Actions taken

In a case of an MRL exceedance, before any administrative and punitive enforcement action is taken, a default analytical uncertainty of 50% is subtracted from the measured value. If this




figure still exceeds the MRL, this sample is non-compliant and enforcement action relevant to the case is taken. Risk assessment on non-compliant samples is carried out by the Directorate of Plant Production Protection (Department of Plant Protection Products). RASFF notifications were prepared according to EU Regulations taking into account the results of the risk assessment and the instructions of the RASFF WI 2.2. Guidelines. Notifications were issued in case of Mrl exceedances not only due to exceedances of the Health Based Guidance Values (HBGVs) but also for active substances (a.s.) without established HBGV due to health concerns and/or for approved a.s. with use limited to non-edible crops (for example buprofezin). RASFF notifications can be found at <https://webgate.ec.europa.eu/rasff-window>.

The batches of products with MRL exceedance were set under official detention and were destroyed or re-dispatched to the country of origin. Next placement in the market of a batch of the same origin was not allowed unless, prior to marketing, a second laboratory analysis was conducted, and the results showed conformity with the respected MRLs.

Sanctions were imposed on producers of non-compliant samples according to national laws. If the producer (or farmer) of the lot of the product was unknown, the control authority called the distributor/s (traders, wholesaler, retailer etc) to provide elements (evidence) about the origin of the products. If traceability was lost, sanctions were imposed on the traders.

For imported products, sanctions were imposed on importers.

For samples taken according to Import Control Regulations (Regulation (EU) 1793/2019), a border rejection decision was taken for non-compliant samples. RASFF notifications were issued for samples when a risk to consumers was identified or in case of potential risks as described above.



Quality assurance

Table 7: Laboratories participation in the control program

Country	Laboratory		Accreditation	Participation in proficiency tests or inter-laboratory tests
	Name	Date	Body	
Hellas	Benaki Phytopathological Institute, Pesticides Residues Laboratory	09/07/2002	ESYD (Hellenic Accreditation System S.A.)	EUPT-FV24 EUPT-SRM18 EUPT-AO18 EUPT-CF17 COIPT Test Qual 149 (dithiocarbamates in potatoes)
	Regional Centre of Plant Protection, Quality and Phytopathology Control of Thessaloniki	08/09/2009	ESYD	EUPT-FV24 (tomato), EUPT-CF16 (barley kernerls) EUPT AO-17 (Rape Seed Oil)
	General Chemical State	ACCREDITED, ISO 17025, 2009-2018	ESYD	EUPT-SRM17, EUPT- FV24, EUPT-CF16, EUPT-AO17, EUPT- FVSC06, EUPTAOBF1, COI-PT, 2022-IOC CHEM2022
		ACCREDITED, ISO 17025, 1998-2009	UKAS	

Processing factors

The processing factors applied were those characterized as indicative/reliable at the European database of processing factors (pfs) for pesticides in food.^[1] If there wasn't available an indicative/reliable pf or other data, a default pf of 1 was considered.

^[1] <https://www.efsa.europa.eu/en/supporting/pub/en-1510>