

2012

**PESTICIDES
RESIDUES
IN FOOD**



Department of
**Agriculture,
Food and the Marine**
An Roinn
**Talmhaíochta,
Bia agus Mara**

www.agriculture.gov.ie

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ABBREVIATIONS

ADI	Acceptable daily intake
ARfD	Acute Reference Dose
DAFM	Department of Agriculture, Food and the Marine
EC	European Community
EU	European Union
FVO	Food and Veterinary Office
FSAI	Food Safety Authority of Ireland
g day ⁻¹	gram per day
IUNA	Irish Universities Nutrition Alliance
LOQ	Limit of Quantitation
mg kg ⁻¹	milligram per kilogram
MRL	Maximum Residue Level
NCFS	National Children's Food Survey
OJ	Official Journal of the European Union
PCB	Polychlorinated Biphenyl
PCL	Pesticide Control Laboratory
PRCD	Pesticide Registration and Controls Division
RASFF	Rapid Alert System for Food and Feed
S.I.	Statutory Instrument

1 EXECUTIVE SUMMARY

This report on the National Pesticide Residues Control Programme, carried out in 2012 by the Department of Agriculture, Food and the Marine (DAFM), provides details on pesticide residues detected in food commodities available on the Irish market. The Programme enforces EU legislation establishing Maximum Residue Levels (MRLs) and aims to ensure that consumers are not exposed to unacceptable risks from pesticide residues.

The Programme for 2012 planned for the analysis of 1,451 consignments of fruit, vegetables, cereal, animal products and baby foods for up to 370 pesticide and metabolites and 7 PCB compounds to check for compliance with EU and national legislation for plant protection and veterinary products. The programme consisted of 2 strategies – a *surveillance strategy* consisting of the random sampling of food commodities, and an *enforcement strategy* involving the sampling of food commodities from specific sources where non-compliance with pesticide legislation was suspected or had been detected previously. The Programme was agreed with the Food Safety Authority of Ireland and sent to the EU Commission as required by European legislation. Sampling of domestic and imported foodstuffs was conducted at wholesalers, retailers, grain mills or at meat plants.

The 1,540 samples taken in 2012 exceeded the number planned in the Programme. The samples, comprising of 473 fruits, 345 vegetables, 113 processed foods, 103 cereals, 401 foods of animal origin, 40 infant formulae and follow-on formulae, 25 cereal based baby food and 40 enforcement samples, were taken and analysed for pesticide and chemical residues at the Pesticide Control Laboratory. The laboratory has continued to maintain and extend its accreditation status to ISO 17025 standards. Almost half of the samples analysed were of domestic origin and the rest were imported from the EU and elsewhere.

Overall results show that no residues were detected in 53.6% of the 1,540 samples taken, 45.6% of samples contained pesticide residues at levels which were in compliance with the EU legislation and 0.8% (13 samples) contained residues exceeding the MRLs.

No residues were detected in the milk, infant and baby food samples.

All of the 13 samples exceeding the MRLs related to fruit and vegetables. Produce from outside the EU accounted for 8 exceedances, produce from other EU countries accounted for 3 exceedances and produce of domestic origin accounted for the remaining 2 exceedances. A consignment of oranges from Egypt was rejected at point of import due to exceedance of the MRL and was notified using the EU-wide Rapid Alert System for Food and Feed (RASFF).

Where non-compliant residues were detected, consumer risk assessments, based on the residue level found and national food consumption data were carried out to estimate the risk to consumers and to guide the follow-up action to be taken. A small consignment of oranges from South Africa, destined only for the Irish market, contained a level of 2.6 mg kg⁻¹ carbendazim. The consumer risk assessment indicated a possible acute risk for consumers of unusually high quantities of oranges. Follow-up actions failed to locate any further supplies of the consignment on the market. Assessments for all other breaches indicated no unacceptable risks for the Irish consumers.

All breaches involving produce of domestic origin were investigated to establish the reasons for the breaches and for appropriate follow-up. In addition, all produce with MRL breaches, both domestic and imported, were listed for targeted sampling in 2013, as part of the follow-up enforcement strategy.

2 INTRODUCTION

Pesticides comprise plant protection products and biocides. Plant protection products are required to protect crops and plant products from damage caused by insects, fungi, weeds and other pests. Production and distribution of sufficient volumes of food to meet consumer demands of quality at reasonable price is not possible without their use. Biocidal products are essential for disinfection of surfaces, implements and machinery used in the food industry and to inhibit the action of a range of harmful organisms.

The manner of use of many plant protection and biocidal products requires their release into the environment, resulting in potential exposure of workers, consumers and the general public to such products or to residual traces remaining in food. It is therefore necessary that such products be tightly regulated.

Pesticide residues are regulated in Ireland through the implementation of European legislation, Regulation (EC) No 396/2005, which establishes EU Maximum Residues Levels (MRLs) for all pesticides in fruit and vegetables, cereals and in food of animal origin. Regulation (EC) No 37/2010 establishes MRLs for certain pesticides used as veterinary products. Commission directives 2006/125/EC and 2006/141/EC establishes MRL for food intended for babies and young infants.

Pesticides are further controlled through legislation implementing Regulation (EC) No 1107/2009, which requires that all plant protection products must be registered, before being placed on the market. This Regulation repealed and replaced Council Directive 91/414/EEC on the placing of plant protection products on the market and Council Directive 79/117/EEC which prohibited the marketing and use of certain plant protection products because of risks to human health or the environment associated with their use. The Irish registration system specifies the timing, frequency, rates and the crops on which the pesticide may be used. Use of non-registered pesticides is an offence.

Where an MRL is exceeded, a dietary intake calculation is carried out to determine if the residue presents a risk to Irish consumers, both adult and children. The results of the assessments are provided to the FSAI to coordinate a harmonised approach. Where warranted, for example when the pesticide intake exceeds toxicological endpoints, a Rapid Alert¹ is issued by the FSAI and officers of the Pesticide Registration and Control Division (PRCD) of the Department of Agriculture, Food and the Marine (DAFM) take appropriate enforcement action. This may involve removal of the produce concerned from the market and its destruction at the owner's expense. The Minister may also prosecute offenders or apply administrative fines.

'Pesticide Residues in Food for 2012' provides details of the results obtained during 2012 from a national programme to monitor food for the presence of pesticide residues, and is the latest report in the series of reports published since 1990.

Explanations of the various technical terms used in this report are provided in a glossary at the end of this report (Annex V).

¹ Regulation (EC) No. 178/2002 of the European Parliament and of the Council of 28th of January 2002.

3 PESTICIDE RESIDUE CONTROL PROGRAMME

The national pesticide residue control programme for pesticide residues is undertaken by the PRCD with laboratory support provided by the Pesticide Control Laboratory (PCL) of the Department of Agriculture, Food and Marine. The programme implements the requirements of Regulation (EC) No 396/2005, and takes into account the requirements set out in the EU “*coordinated multi-annual Community control programme for 2012, 2013 and 2014 to ensure compliance with maximum levels of, and to assess the consumer exposure to pesticide residues in and on food of plant and animal origin*”, (Commission Regulation (EC) No 1274/2011)². The requirement of the monitoring of food of animal origin for Directive 96/23/EC is also taken into consideration with respect to the determination of organochlorine and organophosphorus pesticides.

The annual control programme is carried out in accordance with contractual arrangements between the DAFM and the FSAI³ and involves sampling of imported and domestic produce.

The programme ensures that consumers are not exposed to unacceptable pesticide residue levels in food, that plant protection products are correctly applied, and that the unauthorised use of such products in Ireland is controlled.

3.1 Programme design

The programme is designed to monitor different food groups for which MRLs have been established: fruit and vegetables, cereals, food of animal origin and baby food. It involves sampling of produce at distribution outlets, collection, storage, processing or slaughter premises and the analysis of those samples for the presence of residues of up to 370 pesticides and metabolites and 7 PCBs congeners.

The control programme for 2012 took into consideration

- i the co-ordinated programme required by the European Commission
- ii dietary intake patterns of Irish consumers⁴ (adult and children),
- iii the residue profile of commodities as established from the results of the control programme in previous years,
- iv findings from the EFSA annual reports on other Member State programmes,
- v handling/processing of food prior to consumption,
- vi the analytical capacity of the laboratory.

The planned number of samples (1,451) for the 2012 control programme was agreed with the FSAI. The programme is the primary means of ensuring that plant protection products (pesticides) are used in accordance with *Good Agricultural Practice* and is essential if the misuse of registered products and the use of non-registered products are to be eliminated. Plant protection products, registered under Regulation (EC) No 1107/2009, can be misused in various ways, e.g., use of excessive dose rates, failure to respect the minimum periods specified between last application and harvest (i.e. pre-harvest intervals) and use for purposes for which they are not authorised (i.e. non-registered uses). When plant protection products are used in accordance with *Good Agricultural Practice*, unacceptable levels of residues should not occur in treated produce.

. The residue control programme also serves as an indicator of the level of compliance with those provisions.

² Commission Regulation of 8th of December 2011, concerning a coordinated multiannual Community control programme for 2012, 2013 and 2014, Commission Regulation (EC) No 1274/2011 OJ No L 325/24.

³ Service Contract from 2008 between the Food Safety Authority of Ireland and the Department of Agriculture, Food and the Marine

⁴ IUNA, Irish Universities Nutrition Alliance. North South Food Consumption Database, 2001 and National Children’s Food Survey 2005.

The programme consists of 2 strategies, as follows:

- *surveillance sampling* of fruit and vegetables, processed and organically labelled products, cereal samples, samples of food of animal origin (FAO), infant and follow on formulae and cereal based baby food samples, and
- *enforcement sampling* from border inspections and follow up to non-compliant samples, such as MRL breaches.

The surveillance sampling strategy involves sampling, in an objective manner and independent of the origin, of the food commodities that are available on the Irish market.

The enforcement sampling strategy involves sampling of food commodities from specific sources where non-compliance with pesticide legislation is suspected or has been detected previously.

3.2 Surveillance strategy

3.2.1 *Fruit and vegetables*

The control plan for fruit and vegetables is biased in favour of food commodities that are of greater dietary importance. Within particular commodity groups, samples are taken at random. Both domestic and imported produce are sampled, primarily at wholesale level. Samples are taken randomly from conventionally and organically grown produce. This approach ensures that samples taken are representative of consumption patterns and facilitates, if necessary, the taking of action prior to consumption. Authorised officers from PRCD carry out the sampling of food of plant origin and cereals in accordance with the sampling Directive, 2002/63/EC. Samples are labelled with unique sample identity numbers, sealed and brought to the laboratory for analysis.

In 2012, it was planned to take 822 samples of fruit and vegetables and to analyse for 353 pesticide substances and metabolites using the multiresidue methods and up to 17 additional substances using the single residue methods for selected samples.

3.2.2 *Cereals*

The main concern with respect to cereals relates to residues that arise as a result of growth regulation, pre-harvest desiccation and post-harvest application of plant protection products. The sampling plan for cereals is confined, for practical reasons, to the sampling and analysis of grain used in the milling, malting and breakfast cereal industries. Cereals and cereal products of both domestic and imported origin are sampled on a random basis at mills, assembly or storage locations by authorised officers of the PRCD.

In 2012, it was planned to take 100 cereal samples and to analyse for 353 pesticide substances and metabolites and 7 PCB congeners using the multiresidue methods and up to 17 additional substances using the single residue methods for selected samples.

3.2.3 *Food of animal origin*

Random samples of bovine, porcine, ovine, poultry, equine, and venison kidney fat samples are taken at various meat processing plants around the country in accordance with the monitoring plan organised by the Veterinary Medicine Unit of DAFM. The fat samples analysed are taken from individual animals at meat plants by officers of the Veterinary Inspectorate.

In 2012, it was planned to take 305 bovine, cervine, equine, ovine porcine, and poultry kidney fat samples and to analyse for up to 327 pesticide substances and metabolites and 7 PCB congeners.

In the case of milk, representative samples of particular bulk consignments were taken by officers of the Dairy Inspectorate. It was planned to take 53 samples in 2012 and to analyse for 348 pesticide substances and metabolites and 7 PCB congeners. A similar residue screen was planned for the 15 samples of eggs.

It was planned to take 11 honey samples at production plants or points of assembly by officers from the Veterinary Inspectorate and PRCD and to analyse for 353 pesticide substances and metabolites, in addition to amitraz and the 7 PCB congeners.

These samples are taken in accordance with the requirements of Directive 96/23/EC.

The planned number of 384 samples for food of animal origin was decided in conjunction with the Veterinary Medicine Unit of DAFM, as part of the National Residue Plan required under Directive 96/23/EC.

All food of animal origin samples were analysed for pesticides, metabolites and PCB marker congeners using the method with mass selective detection. PCBs are persistent environmental contaminants which in the past were released into the environment from industrial sources, but whose use has been discontinued for many years. They are included in the control programme as marker substances because of concerns related to their presence in food and their association with chlorinated dibenzodioxins and furans.

3.2.4 *Infant and follow on formulae*

It was planned to analyse 40 samples of infant and follow-on formulae for 348 pesticide substances and metabolites and 7 PCB congeners using the multiresidue methods and for thiocarbamates using single residue methods in 2012. The samples were taken by officers of the Dairy Science Laboratory of DAFM. The legislation and the MRLs governing these infant and follow-on formula samples are set in Commission Directive 2006/141/EC⁵.

3.2.5 *Processed foods*

It was planned to take a total of 85 processed food samples, such as wine, orange juice and canned fruits in 2012 and to analyse for up to 353 substances and metabolites, similar to the fruit and vegetable samples.

3.3 **Enforcement strategy and follow up**

The repeated occurrence of excessive residue levels in particular food commodities, which result in consumer safety being compromised, is unacceptable. As part of the violation investigation programme, commodities of specific origin are targeted for further special attention. Targeted sampling of produce found, in the monitoring plans, to be in breach of established MRLs is the prime means of determining whether violations that occur result from the systematic misuse of pesticides or are isolated incidents. This enforcement sampling programme is geared to eliminate any such abuses and to ensure that they are not repeated.

Produce is targeted for statutory sampling on the basis of information generated through the monitoring plans or a Food Alert issued through the Rapid Alert notification circulated by the European Commission. The targeted lot/consignment is detained pending analysis. The analytical result dictates the nature of the follow-up action taken with respect to the detained produce. When the results show a

⁵ Commission Directive 2006/141/EC of 22 December 2006 on infant formulae and follow-on formulae , 30.12.2006 OJ L 401

clear breach of an MRL, taking into account an analytical uncertainty of 50%, follow-up action may include the removal from the market and destruction of the product concerned, an administrative fine or the initiation of legal proceedings.

In cases where non-registered use of pesticides is detected, the premises and records of domestic growers concerned are inspected. Produce from those growers is targeted for sampling during the following year to ensure that the offence is not repeated.

Import control inspections on targeted produce from countries listed in Commission Regulation (EC) No. 669/2009⁶ were planned for 2012. This list identified produce and country of origin with a history of RASFF alerts for pesticide residues and sets down the proportion of imported consignments from specific countries to be taken at national border points. Custom officials at Dublin Port inform officers of PRCD who then sample the consignments, which are held at the port pending the outcome of the analysis carried out at the Pesticide Control Laboratory.

The targeted programme for pesticide residues provided for up to 20 enforcement samples of fruit and vegetables arising from MRL breaches, non-registered uses detected in 2011 and the 2012 import control samples.

3.4 Analytical procedures

The analytical methods used in the PCL are, in most cases, multi-residue in nature, an approach that facilitates the maximising of laboratory output. The modified mini Luke and the QuEChERS⁷ methods were used to extract residues from fruit, vegetable, cereal and honey samples in this programme. The Dutch ethyl acetate method was also used in cereal samples. A modified German method, using acetonitrile and acetone, followed by gel permeation clean-up was used to extract the residues from fat samples. A modified QuEChERS method was used for milk and eggs.

Samples were analysed using gas or liquid chromatography with selective ion mass spectrometry as the primary method of detection. A number of samples were also analysed for amitraz and the metabolites, chlormequat, cyromazone, daminozide, ethephon, diquat, glufosinate ammonium, glyphosate, mepiquat, paraquat and dithiocarbamates using single residue methods. References to the analytical methods employed by the laboratory are provided in Annex II.

Annex III provides a list of the pesticides, metabolites and PCB congeners sought using multi residue methods and the limit of quantitation achieved for the various matrices.

Annex IV provides the list of the pesticide residues sought using single residue methods and the limit of quantitation achieved.

3.5 Quality assurance

In 2012, the PCL was audited by the Irish National Accreditation Board and its accreditation status to ISO 17025 standards was confirmed and extended. The pesticides in the scope of the accreditation may be viewed on the Irish National Accreditation Board website at www.inab.ie. The PCL registration number is 121T.

The laboratory participated in all 4 of the EU Proficiency studies organised, on behalf of the EU Commission, by the Community Reference Laboratories in the pesticide area. In addition the laboratory participated in 7 proficiency tests (animal fat, potato, grape, lemon, tomato, milk powder and

⁶ Commission Regulation (EC) No 669/2009 of 24 July 2009 OJ L 194/11

⁷ QuEChERS (Quick Easy Cheap Easy Rugged Safe) - a rapid analytical method using solid phase extraction

infant formula) organised by the Food Analysis Performance Assessment Scheme (FAPAS)⁸. Routine quality assurance procedures are followed within the laboratory in accordance with the requirements specified to maintain accreditation to the ISO 17025 standard.

3.6 Consumer assessments

In accordance with procedures agreed between the FSAI and DAFM, risk assessments are carried out to assess the impact on consumers, both adults and children, of any sample found to contain pesticide residues that exceed an MRL. In assessing the impact for consumers of exposure to pesticide residues through the diet, it is appropriate to consider both acute exposure and chronic exposure. Estimation of acute exposure to pesticides is based on consumption data over a short period of up to 1 day, while chronic exposure is based on mean consumption data over an extended period. The intake figures used for individual commodities are derived from the Irish Universities Nutrition Alliance (IUNA) 1996-1998 dietary survey for adults and the National Children Food Survey (NCFS) 2003-2005 for children. In these surveys, a large number of people have recorded their eating habits over a number of days. The people in the survey are representative of the Irish population as a whole.

3.6.1 Risk assessment - point estimate method:

Risk assessments are carried out each time an MRL exceedance is detected using point estimates⁹ that consider variables, such as the residue level found and a dietary estimate of the mean quantity of food consumed. Assessments are calculated by multiplying the quantity of pesticide present by the quantity of food consumed. For large and medium sized fruit and vegetables (e.g. melons, citrus and pome fruit), a variability factor is applied to take account of a possible uneven distribution of residues in the sample units. Assessments of exposure can also be further refined by the application of processing factors, % of crop treated with the pesticide, % of residue present in the edible portion of the crop, etc. The calculated exposure levels are then compared with the appropriate toxicological endpoint to determine the risk to consumers. This method is internationally accepted as providing a significant over-estimation of the actual acute and chronic exposure of consumers to dietary intake of pesticides.

For the purposes of assessing the effects of acute exposure, the realistic highest levels of exposure likely for consumers (97.5th percentile exposure) over a single day is used in the calculation. The effects on health of such exposure is assessed by comparison with the Acute Reference Dose (ARfD) established for acutely toxic pesticides. The ARfD includes a safety factor to ensure that the elderly, infants and children and those whose systems are under stress due to illness are protected. This method takes into account all but the most extreme intake figures when estimating the acute dietary impact of these residues on Irish consumers.

When assessing chronic exposure, the level of pesticide exposure over a lifetime and the likely effects on health of such exposure is considered. This assessment method is well developed and considers the mean levels of exposure in relation to the Acceptable Daily Intake (ADI) values established for individual pesticides. In the case of consumers exposed to residues of chronically toxic pesticides, their health would only be at risk if their dietary intake exceeded the ADI every day for an extended period.

⁸ FAPAS an executive agency of the UK Department of the Environment, Food and Rural Affairs (DEFRA)

⁹ Guidance document on Notification Criteria to the RASFF Sanco 3346/2001 rev 7

4 RESULTS OF CONTROL PROGRAMME

A total of 1,540 samples were taken under the surveillance and enforcement strategies. A total of 1,500 samples were taken under the surveillance strategy and 40 samples were taken under to enforcement strategy.

Table 1 provides a detailed breakdown of the range of categories and the number of samples planned. The table confirms that, while the number of samples for some categories fell slightly short of the planned number, the overall number of samples planned in the 2012 programme was exceeded by 6%

Table 1: Number of samples planned and achieved in the 2012 control programme

Categories	Planned	Achieved
Citrus fruits	140	138
Pome fruits	120	118
Stone fruits	40	40
Berries and small fruits	80	78
Miscellaneous fruits	100	99
Root/ tuber vegetables	70	78
Bulb vegetables	10	10
Fruiting vegetables	70	72
Brassica vegetables	45	44
Leafy vegetables	70	70
Legume vegetables	30	31
Stem vegetables	20	20
Fungi	20	19
Spice	1	1
Processed foods	85	113
Cereals	100	103
Tea	6	0
Food of animal origin	384	401
Baby foods	40	65
Enforcement samples	20	40
Total	1451	1540

Table 2 provides a summary of all samples taken in 2012 for both sampling strategies (surveillance and enforcement), grouped by residues detected and source. The surveillance samples were taken randomly when available on the market and the enforcement samples were taken either from sources with a history of non-compliance or as part of the import controls under Regulation (EC) No 669/2009 which lists the commodities and countries of origin for sampling.

Table 2: Summary of all results from the 2012 control programme

Strategy	Group		Residue s				Origin		
		Total	>MRL	<MRL	<LOQ	Domesti c	EEA	TC	UNK
Surveillance	Fruits	473	4	384	85	15	218	239	1
	Vegetables	345	7	168	170	123	178	32	12
	Cereals	103	0	57	46	84	9	6	4
	FAO	401	0	16	385	399	0	0	2
	Processe d	113	0	47	66	16	24	19	54
	Baby foods	65	0	0	65	40	0	1	24
Enforcement	Fruit/Veg	39	2	28	9	7	2	30	0
	Cereal	1	0	1	0	1	0	0	0
Grand total		1540	13	701	826	685	431	327	97
Total %		100	0.8	45.5	53.7	44.5	28.0	21.2	6.3

The 1,540 samples were analysed for up to 353 pesticides and metabolites and 7 PCB congeners using the multi-methods. In addition, a selected number of samples were analysed for up to 17 pesticides using single residue methods specific for those compounds. Details of the analytical scopes for the multi and single residue methods are provided in Annexes III and IV respectively.

Of all the samples analysed, 685 (44.5%) were of Irish origin and 758 (49.2%) were imported from known EU and non-EU countries of origin, while the remaining 97 (6.3%) were of unknown origin. Some 826 (53.7%) of all the samples analysed contained no detected residues, 701 (45.5%) contained detected residues below the MRL and 13 (0.8%) contained detected residues above the MRLs.

Details of the food groups, taken as part of the surveillance strategy – fruits, vegetables, cereals, food of animal origin, processed and baby foods are described below. Details of enforcement samples are provided in Section 4.2 of this Report.

4.1 Results of surveillance strategy

4.1.1 Fruit samples taken for the surveillance strategy of the control programme

A total of 473 samples of raw fruits were analysed for up to 353 pesticides and metabolites using the multi-methods. In addition, a selected numbers of samples were analysed using the single residue methods: 38 samples analysed for amitraz, 148 for the dithiocarbamates and 46 samples chlormequat, cyromazine, daminozide, ethephon, mepiquat and paraquat. Of the 473 raw fruit samples selected from various distribution centres and retail outlets around the country, 15 (3.2%) were of domestic origin, 218 (46.1%) were from other EU countries, 239 (50.5%) from outside the EU and 1 (0.2%) was from an unknown source. Pesticide residues in compliance with the MRL regulations were detected in 384 (81.2%) samples, 4 (0.8%) samples exceeded the MRLs and 85 (18%) samples had no detected residues.

A more detailed breakdown of the fruit commodities sampled in the surveillance strategy of the control programme, their residues and origin is provided in Table 3.

Table 3: Residue levels and origin of fruit samples taken for the surveillance strategy of the control programme

Category	Commodity	Residues				Origin			
		Total	>MRL	<MRL	<LOQ	Irish	EEA	TC	UNK
Citrus	Grapefruit	14	0	14	0	0	5	9	0
	Oranges	25	1	22	2	0	10	15	0
	Lemons	20	0	17	3	0	14	6	0
	Limes	12	0	10	2	0	0	12	0
	Mandarins	67	0	67	0	0	32	35	0
Pome	Apples	80	0	73	7	3	56	21	0
	Pears	38	1	29	8	0	30	8	0
Stone	Apricots	2	0	2	0	0	2	0	0
	Cherries	2	0	2	0	0	0	2	0
	Peaches	21	0	16	5	0	17	4	0
	Plums	15	0	13	2	0	6	9	0
Berries	Table grapes	29	0	27	2	0	6	23	0
	Strawberries	22	0	21	1	11	9	2	0
	Blackberries	1	0	1	0	0	0	1	0
	Raspberries	10	0	4	6	1	5	4	0
	Blueberries	15	0	8	7	0	5	10	0
	Cranberries	1	0	1	0	0	0	1	0
Miscellaneous	Figs	2	0	0	2	0	0	2	0
	Kiwi	25	0	11	14	0	15	10	0
	Lychee	1	0	0	1	0	0	1	0
	Passion fruit	4	1	2	1	0	0	4	0
	Carambola	1	1	0	0	0	0	1	0
	Persimmon	4	0	0	4	0	3	1	0
	Avocados	9	0	3	6	0	0	9	0
	Bananas	26	0	23	3	0	0	26	0
	Mangoes	13	0	8	5	0	0	13	0
	Papaya	2	0	2	0	0	0	2	0
	Guava	2	0	2	0	0	0	2	0
	Pomegranate	6	0	3	3	0	2	4	0
	Pineapples	4	0	3	1	0	0	3	1
Total		473	4	384	85	15	218	239	1
Total %		100	0.8	81.8	18.0	3.2	46.1	50.5	0.2

Details of the levels of the pesticide residues detected in the fruit samples above the LOQ together with sample identification numbers, country of origin (where known), the relevant MRL for each substance detected and notes on the results are presented in Table 4.

Metabolites, breakdown products of the pesticides, where detected, are also reported as part of the EU residue definitions for the parent pesticides and, if required, corrected for the molecular weights. Results are expressed in mg kg⁻¹. Where no definitive MRL exists, a default value of 0.01 mg kg⁻¹ was applied, except in the case of the synergist, piperonyl butoxide, as this compound is not included in the list of substances in Annexes II or III of Regulation (EC) No 396/2005.

Table 4: Details of fruit samples with detected residues > LOQ in the surveillance strategy of the control programme.

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
Grapefruit	China	76354	Chlorpyrifos	0.01	0.3	
			Myclobutanil	0.02	3	
			Pyraclostrobin	0.01	1	
	Cyprus	75557	4-Phenylphenol	0.65	5	
			Chlorpyrifos	0.11	0.3	
			Imazalil	2.55	5	
		75884	Pyriproxyfen	0.09	0.6	
			Thiabendazole	2.14	5	
			2,4-D	0.02	1	
		75817	4-Phenylphenol	1.76	5	
			Chlorpyrifos	0.06	0.3	
			Imazalil	2.92	5	
		75842	Thiabendazole	1.93	5	
			Diphenylamine	0.01	0.05	
			Imazalil	0.57	5	
Oranges	Israel	75990	Pyriproxyfen	0.02	0.6	
			Thiabendazole	0.52	5	
			2,4-D	0.02	1	
		76065	Imazalil	2.13	5	
			Thiabendazole	2.61	5	
			Imazalil	2.57	5	
		76088	Pyraclostrobin	0.03	1	
			Thiabendazole	0.11	5	
			Imazalil	2.9	5	
		76166	Pyraclostrobin	0.04	1	
			Imazalil	2.94	5	
			Pyraclostrobin	0.04	1	
	Spain	75487	2,4-D	0.08	1	
			Imazalil	1.70	5	
			Trifloxystrobin	0.01	0.3	
		75685	Imazalil	0.01	0.3	
			Imazalil	0.07	5	
			Myclobutanil	0.01	3	
		76459	Acetamiprid	0.01	1	
			Chlorpyrifos	0.02	0.3	
			Imazalil	0.3	5	
		76511	Buprofezin	0.01	1	
			Chlorpyrifos	0.08	0.3	
			Imazalil	1.12	5	
	Turkey	76581	Prochloraz	0.05	10	Parent
			Trichlorophenol, 2,4,6-	0.04	10	Metabolite
			Prochloraz (sum)	0.07	10	Summed residue
		76581	Thiabendazole	0.86	5	
			Buprofezin	0.02	1	
			Chlorpyrifos	0.04	0.3	
		76581	Imazalil	1.05	5	
			Thiabendazole	1.00	5	
	Egypt	76027	4-Phenylphenol	2.37	5	
			Chlorpyrifos	0.05	0.3	
			Cypermethrin	0.02	2	
		75571	Imazalil	3.92	5	
			Thiabendazole	1.37	5	
			4-Phenylphenol	0.05	5	
		75571	Imazalil	2.30	5	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
	Italy	75609	Thiabendazole	0.55	5	
			4-Phenylphenol	0.41	5	
			Imazalil	1.66	5	
		75922	Lambda-cyhalothrin	0.01	0.2	
			Imazalil	1.79	5	
			Pyrimethanil	1.38	10	
		75524	Imazalil	2.18	5	
	Morocco	75776	Folpet	0.01	0.02	
			Imazalil	2.11	5	
		75794	4-Phenylphenol	1.39	5	
			Imazalil	1.59	5	
		75836	Chlorpyrifos	0.12	0.3	
			Dithiocarbamates	0.07	5	
			Imazalil	1.09	5	
		76012	Pyriproxyfen	0.01	0.6	
			Chlorpyrifos	0.07	0.3	
			Imazalil	0.80	5	
	South Africa	76035	Thiabendazole	0.27	5	
			Chlorpyrifos	0.19	0.3	
			Imazalil	2.32	5	
		76556	Chlorpyrifos	0.03	0.3	
			Imazalil	1.16	5	
		76148	2,4-D	0.13	1	
			Carbendazim	0.02	0.2	
			Imazalil	1.50	5	
			Malathion	0.01	0.02	
			Pyraclostrobin	0.03	1	
			Pyriproxyfen	0.02	0.6	
			Thiabendazole	0.11	5	
			2,4-D	0.11	1	
		76185	Carbendazim	2.58	0.2	Breach
			Imazalil	1.29	5	
			Prochloraz	0.02	10	
			Thiabendazole	0.02	5	
		76186	2,4-D	0.04	1	
			Imazalil	0.64	5	
			Imidacloprid	0.02	1	
		76272	Thiabendazole	0.52	5	
			2,4-D	0.15	1	
			Cypermethrin	0.05	2	
	Spain		Dithiocarbamates	0.18	5	
			Imazalil	1.59	5	
			Pyraclostrobin	0.04	2	
		76317	2,4-D	0.13	1	
			Imazalil	2.58	5	
			Malathion	0.01	0.02	
			Pyraclostrobin	0.03	2	
			Pyriproxyfen	0.02	0.6	
			Thiabendazole	0.03	5	
		76380	2,4-D	0.04	1	
			Imazalil	1.91	5	
			Thiabendazole	0.44	5	
		75482	4-Phenylphenol	1.97	5	
			Chlorpyrifos	0.02	0.3	
			Chlorpyrifos-methyl	0.01	0.5	
			Imazalil	1.13	5	
			Thiabendazole	1.01	5	
		75522	Chlorpyrifos	0.01	0.3	
			Imazalil	1.73	5	
		75790	Chlorpyrifos	0.06	0.3	
			Imazalil	2.26	5	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
Lemons	Argentina	75813	Imazalil	2.30	5	
			Pyridaben	0.01	0.5	
			Pyriproxyfen	0.02	0.6	
			Thiabendazole	2.07	5	
		75859	Chlorpyrifos	0.02	0.3	
			Chlorpyrifos-methyl	0.03	0.5	
			Imazalil	2.15	5	
		75927	Chlorpyrifos-methyl	0.07	0.5	
			Imazalil	1.26	5	
			Pyriproxyfen	0.01	0.6	
	South Africa	76050	4-Phenylphenol	0.29	5	
			Carbendazim	0.17	0.7	
			Imazalil	3.42	5	
			Pyrimethanil	0.53	10	
			Thiabendazole	1.28	5	
		76170	2,4-D	0.02	1	
			4-Phenylphenol	0.76	5	
			Carbendazim	0.23	0.7	
			Imazalil	4.30	5	
			Pyrimethanil	0.27	10	
	Spain	76101	Thiabendazole	0.47	5	
			Imazalil	0.87	5	
			Imidacloprid	0.02	1	
			Chlorpyrifos	0.02	0.2	
			Prochloraz	0.04	10	Parent
		75488	Trichlorophenol, 2,4,6-	0.19	10	Metabolite
			Prochloraz (sum)	0.14	10	Summed residue
			Pyriproxyfen	0.03	0.6	
		75594	4-Phenylphenol	0.02	5	
			Imazalil	0.03	5	
			Pyriproxyfen	0.01	0.6	
	Spain	75602	Chlorpyrifos	0.02	0.2	
			Chlorpyrifos-methyl	0.01	0.3	
		75700	Chlorpyrifos	0.13	0.2	
			Trichlorophenol, 2,4,6-	0.02	10	Metabolite
			Prochloraz (sum)	0.01	10	Expressed as parent
		75741	Pyriproxyfen	0.07	0.6	
			4-Phenylphenol	1.50	5	
			Chlorpyrifos	0.02	0.2	
		75848	Imazalil	0.74	5	
			Prochloraz	1.84	10	Parent
			Trichlorophenol, 2,4,6-	0.24	10	Metabolite
			Prochloraz (sum)	1.96	10	Summed residue
			Pyriproxyfen	0.02	0.6	
	Spain	75909	Chlorpyrifos	0.01	0.2	
			Imazalil	3.44	5	
			Prochloraz	0.94	10	Parent
			Trichlorophenol, 2,4,6-	0.21	10	Metabolite
			Prochloraz (sum)	1.05	10	Summed residue
		75943	Pyrimethanil	0.03	10	
			Pyriproxyfen	0.01	0.6	
			Chlorpyrifos	0.02	0.2	
		75943	Fenpyroximate	0.01	0.5	
			Pyriproxyfen	0.03	0.6	
			4-Phenylphenol	0.01	5	
		75943	Chlorpyrifos	0.03	0.2	
			Prochloraz	1.13	10	Parent
			Trichlorophenol, 2,4,6-	0.13	10	Metabolite
			Prochloraz (sum)	1.20	10	Summed residue
			Pyriproxyfen	0.07	0.6	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
	Turkey	76028	Pyriproxyfen	0.01	0.6	
		76408	Chlorpyrifos	0.09	0.2	
			Pyriproxyfen	0.05	0.6	
		76488	4-Phenylphenol	0.05	5	
			Imazalil	0.68	5	
			Prochloraz	1.30	10	Parent
			Trichlorophenol, 2,4,6-	0.37	10	Metabolite
			Prochloraz (sum)	1.49	10	Summed residue
			Pyriproxyfen	0.03	0.6	
		76560	Chlorpyrifos-methyl	0.03	0.3	
			Pyriproxyfen	0.01	0.6	
		76336	Chlorpyrifos	0.03	0.2	
			Imazalil	0.19	5	
			Pyriproxyfen	0.02	0.6	
		76487	Chlorpyrifos	0.07	0.2	
			Hexythiazox	0.01	1	
			Imazalil	0.25	5	
			Pyriproxyfen	0.01	0.6	
			Thiabendazole	0.03	5	
Limes	Brazil	75563	2,4-D	0.05	1	
			Imazalil	0.13	5	
		75699	2,4-D	0.03	1	
			Imazalil	0.72	5	
			Prochloraz	0.47	10	Parent
			Trichlorophenol, 2,4,6-	0.19	10	Metabolite
			Prochloraz (sum)	0.57	10	Summed residue
		75791	2,4-D	0.02	1	
			4-Phenylphenol	0.26	5	
			Imazalil	0.31	5	
			Thiabendazole	0.01	5	
		75882	2,4-D	0.02	1	
			Carbendazim	0.03	0.7	
			Difenoconazole	0.02	0.1	
			Imazalil	0.26	5	
			Prochloraz	0.1	10	Parent
			Trichlorophenol, 2,4,6-	0.07	10	Metabolite
			Prochloraz (sum)	0.13	10	Summed residue
		76094	2,4-D	0.10	1	
			Imazalil	0.47	5	
			Imidacloprid	0.02	1	
			Prochloraz	0.1	10	Parent
			Trichlorophenol, 2,4,6-	0.20	10	Metabolite
			Prochloraz (sum)	0.20	10	Summed residue
		76443	2,4-D	0.07	1	
			Imazalil	0.77	5	
			Prochloraz	1.63	10	Parent
			Trichlorophenol, 2,4,6-	0.20	10	Metabolite
			Prochloraz (sum)	1.73	10	Summed residue
		76557	2,4-D	0.03	1	
			Chlorpyrifos	0.01	0.3	
			Imazalil	0.12	5	
			Tebuconazole	0.02	0.05	
	Mexico	75852	Imazalil	0.01	5	
		76013	Imazalil	0.12	5	
		76279	4-Phenylphenol	0.01	5	
			Lambda-cyhalothrin	0.04	0.2	
Mandarins	Argentina	75752	2,4-D	0.04	1	
			4-Phenylphenol	0.09	5	
			Fludioxonil	0.02	7	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
		75753	Imazalil	1.30	5	
			Prochloraz	0.86	10	Parent
			Trichlorophenol, 2,4,6-	0.10	10	Metabolite
			Prochloraz (sum)	0.91	10	Summed residue
			Pyrimethanil	0.01	10	
			Thiabendazole	0.01	5	
			2,4-D	0.03	1	
			4-Phenylphenol	0.24	5	
			Chlorpyrifos	0.05	2	
			Fludioxonil	0.01	7	
		75788	Imazalil	1.75	5	
			Prochloraz	0.88	10	Parent
			Trichlorophenol, 2,4,6-	0.11	10	Metabolite
			Prochloraz (sum)	0.94	10	Summed residue
			Thiabendazole	1.35	5	
			4-Phenylphenol	0.25	5	
			Chlorpyrifos	0.06	2	
			Imazalil	0.89	5	
			Prochloraz	0.40	10	Parent
			Trichlorophenol, 2,4,6-	0.04	10	Metabolite
		76024	Prochloraz (sum)	0.42	10	Summed residue
			Thiabendazole	1.23	5	
			Azoxystrobin	0.01	15	
			Imazalil	2.38	5	
			Prochloraz	0.03	10	
			Pyrimethanil	1.97	10	
			4-Phenylphenol	2.81	5	
			Chlorpyrifos	0.02	2	
			Imazalil	1.90	5	
			Thiabendazole	1.44	5	
	Cyprus	75652	2,4-D	0.07	1	
			Chlorpyrifos	0.04	2	
			Imazalil	2.30	5	
			Pyrimethanil	1.91	10	
			Thiabendazole	3.52	5	
			Chlorpyrifos	0.11	2	
			Imazalil	1.56	5	
			Thiabendazole	0.24	5	
			Chlorpyrifos	0.11	2	
			Imazalil	1.98	5	
	Israel	75789	Thiabendazole	0.11	5	
			Imazalil	2.34	5	
			Thiabendazole	0.24	5	
			Chlorpyrifos	0.04	2	
			Imazalil	1.78	5	
			Thiabendazole	0.08	5	
			4-Phenylphenol	1.26	5	
			Dicofol	0.19	2	
			Imazalil	2.10	5	
			Lambda-cyhalothrin	0.01	0.2	
	Morocco	75507	Pyrimethanil	0.45	10	
			2,4-D	0.24	1	
			Imazalil	3.07	5	
			Pyrimethanil	2.71	10	
			Thiabendazole	2.49	5	
		75572	2,4-D	0.10	1	
			Imazalil	1.90	5	
			Pyrimethanil	2.58	10	
			Thiabendazole	1.51	5	
			Fenpropathrin	0.16	2	
			Hexythiazox	0.01	1	
	Peru	75772				

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
		75906	Imazalil	3.65	5	
			Thiabendazole	3.88	5	
			2,4-D	0.16	1	
			Fenpropathrin	0.01	2	
			Imazalil	2.80	5	
		75907	Pyrimethanil	3.83	10	
			Pyriproxyfen	0.01	0.6	
			Thiabendazole	2.67	5	
			2,4-D	0.08	1	
			Imazalil	3.07	5	
		75940	Pyrimethanil	3.78	10	
			Thiabendazole	2.45	5	
			Imazalil	2.02	5	
		76006	Thiabendazole	2.32	5	
			Acetamiprid	0.01	1	
			Imazalil	1.10	5	
		76018	Thiabendazole	0.31	5	
			2,4-D	0.09	1	
			Chlorpyrifos	0.04	2	
			Imazalil	3.68	5	
		76105	Imidacloprid	0.02	1	
			Thiabendazole	3.36	5	
			2,4-D	0.30	1	
			Fenpropathrin	0.06	2	
			Imazalil	4.01	5	
		76179	Pyrimethanil	4.86	10	
			Thiabendazole	1.93	5	
			2,4-D	0.35	1	
			Fenpropathrin	0.04	2	
			Imazalil	2.52	5	
		76310	Pyrimethanil	2.47	10	
			Thiabendazole	2.18	5	
			4-Phenylphenol	0.07	5	
			Fenpropathrin	0.10	2	
			Imazalil	1.91	5	
		76322	Thiabendazole	1.15	5	
			2,4-D	0.26	1	
			Acetamiprid	0.01	1	
			Chlorpyrifos	0.02	2	
			Imazalil	1.95	5	
		76335	Pyrimethanil	0.03	10	
			Thiabendazole	3.55	5	
			2,4-D	0.45	1	
			Chlorpyrifos	0.02	2	
			Fenpropathrin	0.01	2	
		75709	Hexythiazox	0.02	1	
			Imazalil	2.57	5	
			Pyrimethanil	1.36	10	
			Pyriproxyfen	0.01	0.6	
			Tebufenpyrad	0.04	0.5	
		75844	Thiabendazole	3.41	5	
			Imazalil	0.71	5	
			2,4-D	0.02	1	
			Imazalil	1.85	5	
			Imidacloprid	0.03	1	
	South Africa	75845	Pyraclostrobin	0.01	1	
			Thiabendazole	1.00	5	
			Trifloxystrobin	0.01	0.3	
			2,4-D	0.1	1	
			4-Phenylphenol	0.03	5	
		75845	Cypermethrin	0.02	2	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
			Imazalil	1.46	5	
			Iprodione	0.01	1	
			Pyrimethanil	0.17	10	
		75881	Thiabendazole	0.02	5	
			2,4-D	0.12	1	
			4-Phenylphenol	0.02	5	
			Dithiocarbamates	0.16	5	
			Imazalil	1.34	5	
			Pyrimethanil	1.49	10	
		75894	Thiabendazole	0.63	5	
			2,4-D	0.04	1	
			Imazalil	1.27	5	
			Iprodione	0.01	1	
			Thiabendazole	1.14	5	
		75910	2,4-D	0.03	1	
			Carbendazim	0.06	0.7	
			Chlorpyrifos	0.12	2	
			Fenpropathrin	0.01	2	
			Imazalil	1.98	5	
			Imidacloprid	0.04	1	
			Pyrimethanil	0.90	10	
			Thiabendazole	0.11	5	
		75947	2,4-D	0.11	1	
			Imazalil	2.10	5	
			Pyrimethanil	1.58	10	
			Thiabendazole	1.21	5	
		76037	2,4-D	0.15	1	
			Imazalil	2.69	5	
			Imidacloprid	0.03	1	
			Malathion	0.02	0.02	
			Pyrimethanil	2.59	10	
			Thiabendazole	1.73	5	
		76049	2,4-D	0.19	1	
			4-Phenylphenol	0.02	5	
			Azoxystrobin	0.01	15	
			Imazalil	1.67	5	
			Pyrimethanil	1.21	10	
			Thiabendazole	1.04	5	
		76061	2,4-D	0.13	1	
			4-Phenylphenol	0.01	5	
			Imazalil	3.29	5	
			Imidacloprid	0.02	1	
			Pyrimethanil	0.77	10	
			Thiabendazole	0.82	5	
		76093	2,4-D	0.15	1	
			Azoxystrobin	0.01	15	
			Imazalil	3.53	5	
			Pyrimethanil	0.65	10	
			Thiabendazole	0.69	5	
	Spain	75498	Chlorpyrifos	0.02	2	
			Imazalil	1.08	5	
			Pyriproxyfen	0.02	0.6	
		75525	4-Phenylphenol	0.12	5	
			Chlorpyrifos	0.05	2	
			Chlorpyrifos-methyl	0.01	1	
			Imazalil	2.69	5	
			Pyriproxyfen	0.01	0.6	
		75553	4-Phenylphenol	1.44	5	
			Chlorpyrifos	0.11	2	
			Imazalil	2.18	5	
			Pyriproxyfen	0.01	0.6	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
			Thiabendazole	2.05	5	
		75555	4-Phenylphenol	0.97	5	
			Chlorpyrifos	0.06	2	
			Imazalil	1.39	5	
			Pyriproxyfen	0.02	0.6	
			Thiabendazole	1.24	5	
		75564	Chlorpyrifos	0.05	2	
			Imazalil	2.86	5	
			Thiabendazole	1.30	5	
		75601	Imazalil	2.43	5	
		75610	Imazalil	1.09	5	
		75637	Chlorpyrifos	0.03	2	
			Imazalil	1.04	5	
			Lambda-cyhalothrin	0.01	0.2	
		75650	Chlorpyrifos	0.09	2	
			Imazalil	2.13	5	
			Thiabendazole	1.39	5	
		75651	Chlorpyrifos	0.03	2	
			Chlorpyrifos-methyl	0.01	1	
			Imazalil	1.57	5	
		75682	4-Phenylphenol	3.31	5	
			Chlorpyrifos	0.21	2	
			Imazalil	1.47	5	
			Tebufenpyrad	0.03	0.5	
			Thiabendazole	0.41	5	
		75688	Chlorpyrifos	0.05	2	
			Imazalil	1.04	5	
			Pyriproxyfen	0.02	0.6	
		75698	Imazalil	0.68	5	
			Imidacloprid	0.05	1	
			Propargite	0.07	3	
			Pyriproxyfen	0.01	0.6	
		75702	Chlorpyrifos	0.02	2	
			Chlorpyrifos-methyl	0.02	1	
			Imazalil	1.04	5	
		75707	Chlorpyrifos	0.02	2	
			Imazalil	2.31	5	
			Thiabendazole	0.05	5	
		75731	Chlorpyrifos	0.06	2	
			Etofenprox	0.02	1	
			Imazalil	0.94	5	
			Lambda-cyhalothrin	0.02	0.2	
		75732	4-Phenylphenol	0.01	5	
			Chlorpyrifos	0.3	2	
			Imazalil	1.90	5	
			Pyridaben	0.03	0.5	
		75765	Chlorpyrifos	0.04	2	
		75797	Chlorpyrifos-methyl	0.07	1	
			Dithiocarbamates	0.08	5	
			Imazalil	1.69	5	
			Terbuthylazine	0.01	0.1	
		75830	Chlorpyrifos	0.12	2	
			Imazalil	1.28	5	
			Pyriproxyfen	0.01	0.6	
		76302	Imazalil	1.43	5	
			Pyrimethanil	0.02	10	
		76381	4-Phenylphenol	0.01	5	
			Chlorpyrifos	0.06	2	
			Diphenylamine	0.04	0.05	
			Imazalil	0.99	5	
			Pyriproxyfen	0.01	0.6	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
			Tebufenpyrad	0.01	0.5	
			Chlorpyrifos	0.07	2	
			Imazalil	0.78	5	
			Pyridaben	0.01	0.5	
			Pyrimethanil	0.02	10	
			Chlorpyrifos	0.03	2	
			Diphenylamine	0.04	0.05	
			Imazalil	1.22	5	
			Tebufenpyrad	0.01	0.5	
			Thiabendazole	0.01	5	
			4-Phenylphenol	0.03	5	
			Imazalil	1.08	5	
			Chlorpyrifos	0.03	2	
			Imazalil	4.17	5	
			Thiabendazole	4.64	5	
			Chlorpyrifos	0.05	2	
			Imazalil	2.27	5	
			4-Phenylphenol	0.10	5	
			Chlorpyrifos	0.11	2	
			Imazalil	1.39	5	
			Pyriproxyfen	0.01	0.6	
			Chlorpyrifos	0.31	2	
			Etoxazole	0.01	0.1	
			Imazalil	1.62	5	
			Thiabendazole	0.49	5	
			4-Phenylphenol	0.34	5	
			Chlorpyrifos	0.18	2	
			Imazalil	1.30	5	
			Pyriproxyfen	0.02	0.6	
			Thiabendazole	0.02	5	
			4-Phenylphenol	0.03	5	
			Imazalil	0.62	5	
			Prochloraz	0.97	10	Parent
			Trichlorophenol, 2,4,6-	0.09	10	Metabolite
			Prochloraz (sum)	1.02	10	Summed residue
			Pyrimethanil	0.24	10	
			2,4-D	0.03	1	
			4-Phenylphenol	0.20	5	
			Imazalil	1.50	5	
			Prochloraz	0.34	10	Parent
			Trichlorophenol, 2,4,6-	0.03	10	Metabolite
			Prochloraz (sum)	0.36	10	Summed residue
			Pyrimethanil	0.03	10	
Apples	Argentina	75806	Fludioxonil	0.38	5	
			Thiacloprid	0.06	0.3	
	Austria	75654	Captan/Folpet (sum)	0.09	3	
			Diphenylamine	0.01	5	
			Pirimicarb	0.01	2	
			Pirimicarb (sum)	0.01	2	
	Brazil	75807	Captan	0.16	3	
		75724	Captan	0.02	3	
			Carbendazim	0.05	0.2	
			Dodine	0.01	5	
			Phosmet	0.11	0.2	
			Pyrimethanil	0.01	5	
			Spirodiclofen	0.01	0.8	
		75740	Captan/Folpet (sum)	0.08	3	
			Phosmet	0.06	0.2	
		75942	Dithiocarbamates	0.09	5	
			Thiabendazole	0.01	5	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
	Chile	76005	Dithiocarbamates	0.17	5	
		76025	Dithiocarbamates	0.50	5	
		76054	Phosmet	0.01	0.2	
			Carbendazim	0.04	0.2	
			Chlorpyrifos	0.10	0.5	
			Phosmet	0.04	0.2	
		76103	Pyrimethanil	0.02	5	
			Trifloxystrobin	0.02	0.5	
			Acetamiprid	0.01	0.7	
			Carbendazim	0.03	0.2	
		76278	Pyraclostrobin	0.01	0.3	
			Spirodiclofen	0.01	0.8	
			Carbendazim	0.02	0.2	
			Dithiocarbamates	0.36	5	
		75770	Methoxyfenozide	0.02	2	
		75787	Dodine	0.02	5	
		76095	Lambda-cyhalothrin	0.01	0.1	
			Pyrimethanil	0.12	5	
			Chlorantraniliprole	0.01	0.5	
			Methoxyfenozide	0.03	2	
		76187	Trichlorophenol, 2,4,6-	0.01	0.05	Metabolite
			Prochloraz (sum)	0.01	0.05	Expressed as parent
			Pyrimethanil	0.03	5	
			Thiabendazole	0.04	5	
	France	75499	Captan	0.01	3	
			Fludioxonil	0.02	5	
			Pyrimethanil	0.02	5	
			Thiophanate-methyl	0.01	0.5	
		75600	Boscalid	0.03	2	
			Captan	0.04	3	
			Chlorpyrifos	0.04	0.5	
			Etofenprox	0.02	1	
		75503	Pyraclostrobin	0.02	0.3	
			Captan	0.21	3	
			Fludioxonil	0.04	5	
			Thiophanate-methyl	0.01	0.5	
		75523	Boscalid	0.07	2	
			Pyraclostrobin	0.02	0.3	
		75534	Diphenylamine	0.01	5	
			Fludioxonil	0.03	5	
		75535	Diphenylamine	1.43	5	
			Fludioxonil	0.01	5	
			Propargite	0.04	3	
			Thiabendazole	0.96	5	
		75573	Chlorpyrifos	0.02	0.5	
			Diphenylamine	1.16	5	
			Propargite	0.38	3	
			Pyrimethanil	0.33	5	
		75575	Carbendazim	0.02	0.2	
			Chlorpyrifos	0.06	0.5	
			Deltamethrin	0.01	0.2	
			Diphenylamine	0.36	5	
		75593	Omethoate	0.01	0.02	Metabolite
			Dimethoate (sum)	0.01	0.02	Expressed as parent
			Propargite	0.21	3	
			Pyrimethanil	0.63	5	
		75593	Captan	0.01	3	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
			Fludioxonil	0.08	5	
		75605	Captan	0.03	3	
			Diphenylamine	0.04	5	
			Fludioxonil	0.03	5	
		75606	4-Phenylphenol	0.02	0.05	
			Carbendazim	0.02	0.2	
			Chlorpyrifos	0.08	0.5	
			Diphenylamine	1.54	5	
			Propargite	0.67	3	
			Pyrimethanil	1.04	5	
		75639	Boscalid	0.10	2	
			Captan	0.33	3	
			Pyraclostrobin	0.04	0.3	
		75640	Captan	0.22	3	
			Fludioxonil	0.01	5	
		75657	Boscalid	0.02	2	
			Captan	0.08	3	
			Pyraclostrobin	0.01	0.3	
		75658	4-Phenylphenol	0.01	0.05	
			Diphenylamine	0.03	5	
			Fludioxonil	0.02	5	
		75703	Captan	0.10	3	
			Diphenylamine	0.20	5	
			Fludioxonil	0.09	5	
			Thiabendazole	0.03	5	
		75705	Captan	0.01	3	
			Diphenylamine	1.10	5	
			Fludioxonil	0.06	5	
		75755	Propargite	0.02	3	
		75771	Carbendazim	0.06	0.2	
			Chlorpyrifos	0.24	0.5	
			Deltamethrin	0.02	0.2	
			Omethoate	0.01	0.02	Metabolite
			Dimethoate (sum)	0.01	0.02	Expressed as parent
			Diphenylamine	0.36	5	
			Dithiocarbamates	0.08	5	
			Propargite	0.34	3	
			Pyrimethanil	0.94	5	
			Tebufenpyrad	0.01	0.2	
			Thiophanate-methyl	0.02	0.5	
		75778	Boscalid	0.02	2	
			Diphenylamine	1.04	5	
			Fludioxonil	0.01	5	
			Thiabendazole	0.67	5	
		75793	Captan	0.02	3	
			Chlorpyrifos	0.02	0.5	
			Diphenylamine	0.63	5	
			Fludioxonil	0.03	5	
			Thiabendazole	0.83	5	
		75815	Diphenylamine	0.03	5	
			Fludioxonil	0.04	5	
		75829	Boscalid	0.05	2	
			Captan	0.61	3	
			Propargite	0.01	3	
			Pyraclostrobin	0.02	0.3	
		75902	Diphenylamine	0.02	5	
			Fludioxonil	0.03	5	
			Thiophanate-methyl	0.02	0.5	
		76274	Dithiocarbamates	0.05	5	
			Pirimicarb	0.02	2	
		76315	Chlorpyrifos	0.01	0.5	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
			Diphenylamine	0.02	5	
			Thiacloprid	0.02	0.3	
		76324	Acetamiprid	0.01	0.7	
			Dodine	0.02	5	
		76328	Captan	0.01	3	
		76330	Fludioxonil	0.01	5	
		76376	Boscalid	0.03	2	
			Pyraclostrobin	0.02	0.3	
		76446	Chlorpyrifos	0.04	0.5	
			Cyprodinil	0.01	1	
			Deltamethrin	0.01	0.2	
			Diphenylamine	4.72	5	
			Fludioxonil	0.02	5	
			Thiabendazole	0.45	5	
		76552	Fludioxonil	0.02	5	
		76588	Fludioxonil	0.07	5	
	Germany	75558	Boscalid	0.07	2	
			Captan	0.15	3	
			Myclobutanil	0.01	0.5	
			Pirimicarb	0.01	2	
			Pyraclostrobin	0.02	0.3	
		75757	Captan	0.08	3	
			Desmethyl Pirimicarb	0.02	2	Metabolite
			Pirimicarb	0.31	2	Parent
			Pirimicarb (sum)	0.33	2	Summed residue
			Trifloxystrobin	0.02	0.5	
		76489	Boscalid	0.08	2	
			Chlorantraniliprole	0.01	0.5	
			Desmethyl Pirimicarb	0.01	2	Metabolite
			Pirimicarb	0.12	2	Parent
			Pirimicarb (sum)	0.13	2	Summed residue
			Trichlorophenol, 2,4,6-	0.02	0.05	Metabolite
			Prochloraz (sum)	0.01	0.05	Expressed as parent
			Pyraclostrobin	0.03	0.3	
	Ireland	75592	Chlorpyrifos	0.01	0.5	
			Diphenylamine	0.47	5	
		76416	Boscalid	0.01	2	
		76448	Diphenylamine	0.01	5	
	Italy	75903	Captan	0.29	3	
			Chlorpyrifos	0.04	0.5	
			Imazalil	0.01	2	
			Methoxyfenozide	0.01	2	
			Thiabendazole	0.02	5	
		76309	Chlorantraniliprole	0.01	0.5	
			Diphenylamine	0.01	5	
			Fenhexamid	0.02	0.05	
	Netherlands	75782	Boscalid	0.05	2	
			Cyprodinil	0.01	1	
			Fludioxonil	0.01	5	
			Pirimicarb	0.02	2	
			Pyraclostrobin	0.01	0.3	
		76029	Boscalid	0.07	2	
	New Zealand	76149	Captan	0.09	3	
			Indoxacarb	0.01	0.5	
		76306	Captan	0.09	3	
			Fenhexamid	0.01	0.05	
		76326	Captan	0.04	3	
			Tebufofenozide	0.03	1	
	Portugal	75560	Diphenylamine	0.07	5	
			Imazalil	0.15	2	
	South Africa	76032	Azinphos-methyl	0.04	0.05	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
	Spain	76150	Diphenylamine	0.03	5	
			Acetamiprid	0.01	0.7	
			Chlorantraniliprole	0.02	0.5	
		76323	Diphenylamine	0.05	5	
			Indoxacarb	0.03	0.5	
			Captan	0.03	3	
			Chlorpyrifos	0.02	0.5	
			Diphenylamine	0.01	5	
			Imazalil	0.02	2	
			Lambda-cyhalothrin	0.01	0.1	
	United Kingdom	75675	Thiabendazole	0.02	5	
			Cyprodinil	0.48	1	
			Diphenylamine	0.38	5	
		75710	Fludioxonil	0.15	5	
			Chlorpyrifos	0.02	0.5	
		75989	Chlorpyrifos	0.04	0.5	
			Cyprodinil	0.07	1	
			Diphenylamine	0.87	5	
		76016	Fludioxonil	0.02	5	
			Paclobutrazol	0.02	0.5	
		76085	Cyprodinil	0.32	1	
			Diphenylamine	0.18	5	
			Dithiocarbamates	0.16	5	
		76114	Dodine	0.12	5	
			Fludioxonil	0.11	5	
			Methoxyfenozide	0.01	2	
		76144	Cyprodinil	0.36	1	
			Diphenylamine	0.20	5	
			Fludioxonil	0.16	5	
		76344	Cyprodinil	0.21	1	
			Diphenylamine	0.29	5	
			Fludioxonil	0.09	5	
Pears		76580	Boscalid	0.09	2	
			Captan	0.05	3	
			Chlorantraniliprole	0.01	0.5	
		76580	Diphenylamine	0.01	5	
			Methoxyfenozide	0.03	2	
			Pyraclostrobin	0.05	0.3	
		76580	Diphenylamine	0.02	5	
	Argentina	75850	Thiacloprid	0.03	0.3	
			Captan	0.59	3	
			Chlorantraniliprole	0.06	0.5	
		76031	Diphenylamine	0.01	10	
			Fludioxonil	0.25	5	
			Thiabendazole	0.45	5	
		75506	Thiacloprid	0.03	0.3	
			Boscalid	0.05	2	
			Imazalil	0.10	2	
	Belgium	75841	Pyraclostrobin	0.02	0.3	
			Pyrimethanil	0.22	5	
			Boscalid	0.04	2	
		75991	Chlormequat	0.03	0.1	
			Cyprodinil	0.14	1	
			Dithiocarbamates	0.10	5	
		76410	Fludioxonil	0.08	5	
			Pyraclostrobin	0.02	0.3	
			Boscalid	0.03	2	
	China	76410	Cyprodinil	0.04	1	
			Fludioxonil	0.03	5	
		76410	Carbendazim	0.06	0.2	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes		
	Italy	75579	Diphenylamine	0.02	10	Labelled as organic		
		75655	Boscalid	0.06	2			
			Captan	0.05	3			
			Chlorpyrifos	0.05	0.5			
		76456	Boscalid	0.05	2			
			Pyraclostrobin	0.01	0.3			
		Netherlands	75883	Captan	0.40		3	
				Cyprodinil	0.05		1	
	Fludioxonil		0.02	5				
76490	Boscalid		0.07	2				
			Pyraclostrobin	0.05	0.3			
		Portugal	75518	Chlorpyrifos	0.02		0.5	
				Difenoconazole	0.01		0.5	
				Diphenylamine	1.55		10	
	Dodine		0.26	5				
			Imazalil	0.72	2			
			Indoxacarb	0.04	0.3			
			Paclobutrazol	0.01	0.5			
			Phosmet	0.06	0.2			
			Tebuconazole	0.03	1			
			Thiacloprid	0.03	0.3			
		75538	Diphenylamine	0.39	10			
			Folpet	0.20	3			
Imazalil	0.21		2					
Tebuconazole	0.02		1					
		75590	Boscalid	0.05	2			
			Diphenylamine	0.38	10			
		Folpet	0.38	3				
		Imazalil	0.60	2				
			Imidacloprid	0.02	0.5			
			Phosmet	0.07	0.2			
			Pyraclostrobin	0.02	0.3			
			Tebuconazole	0.03	1			
			Thiacloprid	0.02	0.3			
			Trifloxystrobin	0.01	0.5			
		75596	4-Phenylphenol	0.02	0.05			
			Diphenylamine	0.78	10			
Folpet	0.71		3					
Imazalil	0.31		2					
			Phosmet	0.02	0.2			
			Thiabendazole	0.01	5			
		75638	Chlorpyrifos	0.10	0.5			
			Diphenylamine	2.60	10			
Dithiocarbamates	0.58		5					
Folpet	2.00		3					
			Imazalil	0.43	2			
			Lambda-cyhalothrin	0.02	0.1			
			Thiacloprid	0.07	0.3			
		75653	4-Phenylphenol	0.02	0.05			
Diphenylamine	1.72		10					
Folpet	1.30		3					
Imazalil	0.32		2					
			Kresoxim-methyl	0.01	0.2			
			Thiacloprid	0.06	0.3			
		75701	Diphenylamine	0.74	10			
			Folpet	0.55	3			
Imazalil	0.73		2					
Tebuconazole	0.04		1					
			Thiacloprid	0.06	0.3			
			Trifloxystrobin	0.02	0.5			
		75729	Carbendazim	0.04	0.2			

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
			Difenoconazole	0.02	0.5	
			Diphenylamine	0.95	10	
			Folpet	1.29	3	
			Imazalil	0.44	2	
			Lambda-cyhalothrin	0.01	0.1	
			Phosmet	0.03	0.2	
			Tebuconazole	0.01	1	
			Thiacloprid	0.03	0.3	
			Trifloxystrobin	0.01	0.5	
		75777	Diphenylamine	2.00	10	
			Folpet	2.71	3	
			Imazalil	1.67	2	
			Tebuconazole	0.03	1	
			Thiacloprid	0.03	0.3	
			Trifloxystrobin	0.02	0.5	
		75888	Diphenylamine	0.29	10	
			Dithiocarbamates	0.45	5	
			Folpet	0.68	3	
			Imazalil	0.43	2	
			Tebuconazole	0.02	1	
		75928	Boscalid	0.12	2	
			Diphenylamine	0.69	10	
			Dithiocarbamates	0.07	5	
			Imazalil	0.68	2	
			Lambda-cyhalothrin	0.01	0.1	
			Phosmet	0.02	0.2	
			Pyraclostrobin	0.04	0.3	
			Thiacloprid	0.04	0.3	
			Trifloxystrobin	0.03	0.5	
		76298	Chlorpyrifos	0.04	0.5	
			Diphenylamine	0.05	10	
			Phosmet	0.01	0.2	
			Thiabendazole	0.02	5	
		76304	Chlorpyrifos	0.08	0.5	
			Diffubenzuron	0.03	5	
			Diphenylamine	0.04	10	
			Tebuconazole	0.02	1	
			Thiabendazole	0.01	5	
		76316	Boscalid	0.11	2	
			Carbendazim	0.07	0.2	
			Diphenylamine	1.74	10	
			Imazalil	0.68	2	
			Phosmet	0.06	0.2	
			Pyraclostrobin	0.05	0.3	
			Tebuconazole	0.01	1	
			Trifloxystrobin	0.03	0.5	
		76331	Boscalid	0.18	2	
			Chlorpyrifos	0.02	0.5	
			Diphenylamine	0.02	10	
			Folpet	0.02	3	
			Kresoxim-methyl	0.01	0.2	
			Lambda-cyhalothrin	0.01	0.1	
			Pyraclostrobin	0.12	0.3	
			Tebuconazole	0.11	1	
		76382	Boscalid	0.13	2	
			Diphenylamine	3.16	10	
			Dithiocarbamates	0.22	5	
			Folpet	1.79	3	
			Imazalil	0.94	2	
			Lambda-cyhalothrin	0.01	0.1	
			Phosmet	0.02	0.2	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
Apricots	South Africa	76553	Pyraclostrobin	0.04	0.3	breach
			Tebuconazole	0.02	1	
			Chlorpyrifos	0.05	0.5	
			Difenoconazole	0.01	0.5	
			Diphenylamine	0.02	10	
		75814	Phosmet	0.49	0.2	
			Tebuconazole	0.25	1	
			Acetamiprid	0.01	0.7	
			Flufenoxuron	0.01	0.5	
		76033	Acetamiprid	0.03	0.7	
			Chlorantraniliprole	0.20	0.5	
			Diphenylamine	0.06	10	
			Flufenoxuron	0.01	0.5	
			Thiacloprid	0.11	0.3	
Apricots	Spain	75904	Boscalid	0.04	3	
			Cypermethrin	0.03	2	
			Cyprodinil	0.01	2	
		76039	Imidacloprid	0.02	0.5	
			Dodine	0.05	5	
			Iprodione	0.48	3	
Cherries	Chile	75521	Iprodione	0.42	3	
			Tebuconazole	0.33	5	
		75711	Fenhexamid	0.03	5	
			Iprodione	0.21	3	
			Lambda-cyhalothrin	0.01	0.3	
Peaches	Chile	75706	Chlorpyrifos	0.02	0.2	
			Fludioxonil	0.38	7	
			Iprodione	0.02	3	
			Methoxyfenozide	0.01	0.3	
			Spinosad	0.01	1	
	Egypt	75901	Boscalid	0.04	3	
			Imazalil	0.01	0.05	
			Thiabendazole	0.01	0.05	
	Greece	76030	Chlorpyrifos	0.02	0.2	
			Cypermethrin	0.04	2	
			Etofenprox	0.01	0.5	
	Italy	76151	Tebuconazole	0.02	1	
			Etofenprox	0.02	0.5	
			Tebuconazole	0.02	1	
		76180	Boscalid	0.16	3	
			Etofenprox	0.09	0.5	
			Pyraclostrobin	0.05	0.2	
	Portugal	76100	Acrinathrin	0.01	0.2	
			Chlorpyrifos	0.01	0.2	
			Cyprodinil	0.03	2	
		76107	Fenbuconazole	0.01	0.5	
			Lambda-cyhalothrin	0.01	0.2	
			Tebuconazole	0.01	1	
	Spain	75893	Cyprodinil	0.10	2	
			Fludioxonil	0.08	7	
			Imidacloprid	0.02	0.5	
		75925	Iprodione	0.34	3	
			Thiophanate-methyl	0.01	2	
			Difenoconazole	0.02	0.5	
		76008	Chlorpyrifos	0.03	0.2	
			Cyprodinil	0.03	2	
			Tebuconazole	0.01	1	
		76045	Fenhexamid	0.27	5	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
		76091	Spinosad	0.07	1	
			Tebuconazole	0.07	1	
			Thiacloprid	0.05	0.3	
			Chlorpyrifos	0.03	0.2	
			Cyprodinil	0.03	2	
		76141	Propargite	0.02	4	
			Cyfluthrin	0.01	0.3	
			Cyprodinil	0.16	2	
			Iprodione	0.44	3	
		76193	Lambda-cyhalothrin	0.02	0.2	
			Iprodione	0.04	3	
			Propargite	0.09	4	
			Tebuconazole	0.04	1	
		76275	Cyprodinil	0.62	2	
			Dithiocarbamates	0.07	2	
			Lambda-cyhalothrin	0.12	0.2	
			Spinosad	0.03	1	
		76308	Chlorpyrifos	0.03	0.2	
			Deltamethrin	0.02	0.1	
			Fenhexamid	0.04	5	
			Iprodione	0.26	3	
			Lambda-cyhalothrin	0.02	0.2	
Plums	Chile	75775	Phosmet	0.02	0.6	
		75854	Iprodione	0.77	3	
		75896	Iprodione	0.03	3	
		75930	Iprodione	0.45	3	
	South Africa	75500	Iprodione	0.01	3	
		75642	Iprodione	0.09	3	
		75728	Fenhexamid	0.01	1	
		75795	Fenbuconazole	0.02	0.5	
	Spain		Imazalil	0.02	0.05	
			Iprodione	0.08	3	
			Thiabendazole	0.01	0.05	
			Iprodione	0.41	3	
		76011	Propargite	0.09	4	
		76092	Cyprodinil	0.09	2	
			Propargite	0.20	4	
		76192	Chlorpyrifos	0.01	0.2	
			Propargite	0.03	4	
		76277	Iprodione	0.02	3	
			Tebuconazole	0.05	0.5	
		76303	Chlorpyrifos	0.02	0.2	
			Cyprodinil	0.08	2	
			Fenpyroximate	0.02	0.3	
			Fludioxonil	0.01	0.5	
			Iprodione	0.26	3	
Table grapes	Brazil	76415	Difenoconazole	0.04	0.5	
			Dimethomorph	0.12	3	
			Indoxacarb	0.02	2	
		76491	Difenoconazole	0.05	0.5	
			Dimethomorph	0.03	3	
			Indoxacarb	0.02	2	
	Chile		Kresoxim-methyl	0.01	1	
		76582	Tebuconazole	0.05	2	
		75708	Fenhexamid	0.36	5	
			Imidacloprid	0.05	1	
		75727	Boscalid	0.12	5	
			Fenhexamid	0.21	5	
			Pyraclostrobin	0.04	1	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes	
	Egypt	75730	Boscalid	0.02	5		
			Imidacloprid	0.38	1		
			Myclobutanil	0.03	1		
		75738	Boscalid	0.02	5		
			Fenhexamid	0.37	5		
		75739	Boscalid	0.17	5		
			Fenhexamid	0.10	5		
			Imidacloprid	0.13	1		
			Pyraclostrobin	0.07	1		
			Tebuconazole	0.01	2		
			Trifloxystrobin	0.02	5		
			75773	Boscalid	0.44		5
				Imazalil	0.01		0.05
		Imidacloprid		0.13	1		
		Pyrimethanil		0.02	5		
		Thiabendazole		0.02	0.05		
		75837	Boscalid	0.02	5		
			Cyprodinil	0.13	5		
			Fludioxonil	0.09	5		
			Myclobutanil	0.02	1		
		75908	Bifenthrin	0.10	0.2		
			Boscalid	0.69	5		
			Fenhexamid	0.16	5		
			Imidacloprid	0.36	1		
		76036	Imidacloprid	0.03	1		
			76102	Azoxystrobin	0.07		2
				Boscalid	0.03		5
				Difenoconazole	0.02		0.5
				Pyraclostrobin	0.02		1
		India	75838	Azoxystrobin	0.09		2
				Chlormequat	0.03		0.05
				Fludioxonil	0.01		5
				Imidacloprid	0.01		1
				Myclobutanil	0.01		1
				Spinosad	0.02		0.5
			75857	Chlormequat	0.02		0.05
				Lambda-cyhalothrin	0.02		0.2
				Myclobutanil	0.01		1
				Lambda-cyhalothrin	0.02		0.2
		Italy	75891	Lambda-cyhalothrin	0.02		0.2
			76273	Spiroxamine	0.03		1
			76305	Fenhexamid	0.95		5
		Lebenon	76444	Methoxyfenozide	0.02		1
				Boscalid	0.06		5
				Cyprodinil	0.16		5
				Fludioxonil	0.14		5
	Indoxacarb			0.09	2		
	Kresoxim-methyl			0.07	1		
	Lambda-cyhalothrin			0.05	0.2		
	Trifloxystrobin			0.03	5		
	Pyraclostrobin			0.03	1		
Trichlorophenol, 2,4,6-	0.03			0.05	Metabolite		
Prochloraz (sum)		0.01		0.05	As parent		
Peru	75644	Boscalid	0.15	5			
		Iprodione	0.28	10			
		Pyraclostrobin	0.06	1			
		Tebuconazole	0.03	2			
South Africa	75502	Flutriafol	0.01	0.05			
	75632	Azoxystrobin	0.04	2			
		Fenhexamid	0.07	5			
		Iprodione	1.19	10			
	75704	Cyprodinil	0.01	5			

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes	
Strawberries	Spain	76153	Fenhexamid	0.30	5		
			Iprovalicarb	0.02	2		
			Zoxamide	0.05	5		
			Spinosad	0.01	0.5		
			Trifloxystrobin	0.03	5		
		76183	Chlorpyrifos	0.01	0.5		
			Cyprodinil	0.09	5		
			Fludioxonil	0.04	5		
			Iprodione	0.15	10		
			76332	famoxadone	0.05	2	
		76414	Imidacloprid	0.01	1		
			Iprodione	0.01	10		
			Myclobutanil	0.01	1		
			Penconazole	0.01	0.2		
			Boscalid	0.04	5		
			Dimethomorph	0.06	3		
			Fenhexamid	0.03	5		
			Fenpyroximate	0.02	0.3		
			Myclobutanil	0.02	1		
			Trichlorophenol, 2,4,6-	0.01	0.05		
	Prochloraz (sum)	0.01	0.05				
	Belgium	76290	Boscalid	0.28	10		
			Cyprodinil	0.01	5		
			Fenhexamid	0.17	5		
			Fludioxonil	0.01	3		
			Kresoxim-methyl	0.01	1		
			Mepanipyrim	0.05	2		
			Myclobutanil	0.03	1		
			Penconazole	0.04	0.5		
			Pyraclostrobin	0.06	1		
			Spinosad	0.08	0.3		
		Ireland	75812	Trifloxystrobin	0.03	0.5	
				Bupirimate	0.02	1	
				Ethirimol	0.01	0.2	
				Fenhexamid	0.08	5	
				Iprodione	0.05	15	
			75954	Mepanipyrim	0.02	2	
				Pirimicarb	0.04	3	
				Thiacloprid	0.05	1	
				Azoxystrobin	0.03	10	
Fenhexamid				0.20	5		
Iprodione	0.38	15					
Mepanipyrim	0.06	2					
Quinoxifen	0.02	0.3					
76038	Azoxystrobin	0.12		10			
	Boscalid	0.20		10			
	Fenhexamid	0.17	5				
	Iprodione	0.81	15				
	Mepanipyrim	0.15	2				
	Myclobutanil	0.03	1				
	Piperonyl Butoxide	0.05	No MRL				
	Pirimicarb	0.11	3				
	Pyraclostrobin	0.04	1				
	Thiacloprid	0.09	1				
76083	Azoxystrobin	0.19	10				
	Boscalid	0.13	10				
	Bupirimate	0.08	1				
	Cyprodinil	0.01	5				
	Fenhexamid	0.17	5				
	Fludioxonil	0.02	3				

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
		76086	Iprodione	0.03	15	
			Pirimicarb	0.02	3	
			Pyraclostrobin	0.03	1	
			Thiacloprid	0.09	1	
			Azoxystrobin	0.82	10	
			Boscalid	0.21	10	
			Chlorothalonil	0.39	5	
			Cyprodinil	0.24	5	
			Fenhexamid	0.91	5	
			Fludioxonil	0.15	3	
		76112	Iprodione	1.01	15	
			Mepanipyrim	0.44	2	
			Myclobutanil	0.07	1	
			Pirimicarb	0.16	3	
			Pyraclostrobin	0.03	1	
			Pyrimethanil	0.41	5	
			Quinoxifen	0.03	0.3	
			Thiacloprid	0.03	1	
			Azoxystrobin	0.06	10	
			Bupirimate	0.01	1	
		76119	Fenhexamid	0.67	5	
			Iprodione	1.10	15	
			Myclobutanil	0.32	1	
			Pyrimethanil	0.05	5	
			Thiacloprid	0.03	1	
			Azoxystrobin	0.08	10	
			Cyprodinil	0.01	5	
			Fenhexamid	0.47	5	
			Fludioxonil	0.02	3	
			Iprodione	0.32	15	
		76121	Myclobutanil	0.12	1	
			Piperonyl Butoxide	0.03	No MRL	
			Pirimicarb	0.25	3	
			Pyrimethanil	0.08	5	
			Azoxystrobin	0.26	10	
			Boscalid	0.02	10	
			Cyprodinil	0.05	5	
			Fenhexamid	0.53	5	
			Fludioxonil	0.08	3	
			Iprodione	0.18	15	
		76140	Mepanipyrim	0.21	2	
			Myclobutanil	0.15	1	
			Pirimicarb	0.09	3	
			Pyrimethanil	0.31	5	
			Quinoxifen	0.02	0.3	
			Azoxystrobin	0.03	10	
			Bupirimate	0.03	1	
			Ethirimol	0.01	0.2	
			Iprodione	0.36	15	
			Kresoxim-methyl	0.01	1	
		76178	Mepanipyrim	0.28	2	
			Myclobutanil	0.03	1	
			Pyrimethanil	0.55	5	
			Thiacloprid	0.36	1	
			Azoxystrobin	0.12	10	
			Boscalid	0.10	10	
			Cyprodinil	0.09	5	
			Fludioxonil	0.10	3	
			Iprodione	0.24	15	
			Kresoxim-methyl	0.04	1	
			Mepanipyrim	0.01	2	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
	Morocco	76232	Myclobutanil	0.02	1	
			Pyraclostrobin	0.02	1	
			Thiacloprid	0.05	1	
			Boscalid	0.43	10	
			Bupirimate	0.42	1	
			Ethirimol	0.09	0.2	
			Fenhexamid	0.13	5	
			Iprodione	1.19	15	
		75712	Myclobutanil	0.56	1	
			Pirimicarb	0.08	3	
			Pirimicarb (sum)	0.08	3	
			Pyraclostrobin	0.07	1	
			Boscalid	0.06	10	
			Cyprodinil	0.01	5	
			Fenhexamid	0.50	5	
			Fludioxonil	0.01	3	
	Netherlands	76117	Myclobutanil	0.04	1	
			Pyraclostrobin	0.01	1	
			Triadimenol	0.01	0.5	
			Trifloxystrobin	0.02	0.5	
			Bupirimate	0.02	1	
			Cyprodinil	0.14	5	
			Fenhexamid	0.04	5	
			Fludioxonil	0.03	3	
		76492	Boscalid	0.16	10	
			Mepanipyrim	0.09	2	
			Pirimicarb	0.01	3	
			Pyraclostrobin	0.03	1	
		75505	Kresoxim-methyl	0.05	1	
			Cyprodinil	0.24	5	
	Spain	75634	Fludioxonil	0.16	3	
			Trifloxystrobin	0.01	0.5	
			Cypermethrin	0.03	0.07	
			Azoxystrobin	0.05	10	
		75759	Clofentezine	0.02	2	
			Cyprodinil	0.01	5	
			Fludioxonil	0.01	3	
			Iprodione	0.01	15	
		75792	Myclobutanil	0.01	1	
			Trifloxystrobin	0.06	0.5	
			Chlorpyrifos-methyl	0.04	0.5	
			Cyprodinil	0.01	5	
		75892	Fludioxonil	0.02	3	
			Iprodione	0.01	15	
			Myclobutanil	0.01	1	
			Bupirimate	0.16	1	
		75892	Chlorpyrifos-methyl	0.02	0.5	
			Ethirimol	0.01	0.2	
Blackberries	Mexico	75811	Iprodione	0.01	10	
Raspberries	Ireland	76334	Piperonyl Butoxide	0.10	No MRL	
	Portugal	76090	Bifenthrin	0.06	1	
			Imazalil	0.02	0.05	
	Spain	75504	Fenhexamid	0.02	10	
		76007	Clofentezine	0.03	3	
Blueberries	Argentina	75527	Cyprodinil	0.02	5	
			Fludioxonil	0.01	3	
			Iprodione	0.08	10	
			Permethrin	0.01	0.05	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
	Chile	76333	Boscalid	0.06	10	Metabolite As parent
		76378	Cyprodinil	0.02	5	
			Fludioxonil	0.01	3	
		76445	Boscalid	0.01	10	
			Cyprodinil	0.01	5	
			Fludioxonil	0.02	3	
			Trichlorophenol, 2,4,6-	0.01	0.05	
			Prochloraz (sum)	0.01	0.05	
		75519	Folpet	0.01	0.02	
			Phosmet	0.03	10	
		75631	Boscalid	0.01	10	
			Fenhexamid	0.04	5	
			Phosmet	0.02	10	
		76089	Boscalid	0.02	10	
			Cyprodinil	0.03	5	
			Fludioxonil	0.03	3	
	Italy	76010	Etofenprox	0.02	1	
Cranberries	Canada	76493	Chlorothalonil	0.02	2	
Kiwi	Chile	75946	Chlorpyrifos	0.02	2	
		76009	Fenhexamid	0.17	10	
			Iprodione	0.03	5	
		76189	Fenhexamid	0.26	10	
	Italy		Lambda-cyhalothrin	0.01	0.02	
		76411	Iprodione	4.22	5	
		75520	Folpet	0.01	0.02	
		75599	Fludioxonil	2.48	20	
		75633	Fenhexamid	3.86	10	
			Iprodione	0.03	5	
		75656	Fludioxonil	4.13	20	
		75760	Fenhexamid	0.01	10	
		75808	Fenhexamid	0.01	10	
		75816	Fenhexamid	5.99	10	
			Fludioxonil	0.06	20	
Passion fruit	Colombia	76071	Azoxystrobin	0.02	4	Breach
			Boscalid	0.10	0.05	
			Dodine	0.02	0.2	
		76164	Thiabendazole	0.01	0.05	
		76595	Azoxystrobin	0.03	4	
			Cyprodinil	0.01	0.05	
			Difenoconazole	0.01	0.1	
Carambola (star fruit)	Malaysia	76203	Dimethoate	0.02	0.02	Breach
Avocados	Israel	76561	Prochloraz	0.02	5	Parent Metabolite Summed residue Parent Metabolite Summed residue
	Peru	75941	Prochloraz	0.16	5	
			Trichlorophenol, 2,4,6-	0.01	5	
			Prochloraz (sum)	0.17	5	
	South Africa	76413	Prochloraz	0.86	5	
			Trichlorophenol, 2,4,6-	0.13	5	
			Prochloraz (sum)	0.92	5	
Bananas	Belize	75735	Azoxystrobin	0.11	2	
			Bitertanol	0.04	3	
			Chlorpyrifos	0.05	3	
			Imazalil	0.26	2	
		76109	Azoxystrobin	0.12	2	
			Imazalil	0.24	2	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes	
	Colombia	76276	Azoxystrobin	0.13	2		
			Chlorpyrifos	0.03	3		
			Imazalil	0.35	2		
			Thiabendazole	0.12	5		
		76539	Azoxystrobin	0.11	2		
			Fenpropidin	0.06	0.5		
			Imazalil	0.57	2		
		76542	Azoxystrobin	0.26	2		
			Imazalil	0.18	2		
		75951	Imazalil	0.40	2		
			Thiabendazole	0.26	5		
		Costa Rica	75649	Azoxystrobin	0.15		2
				Thiabendazole	0.12		5
		75743	Azoxystrobin	0.09	2		
			Thiabendazole	0.51	5		
		75779	Azoxystrobin	0.13	2		
			Bifenthrin	0.02	0.1		
			Chlorpyrifos	0.01	3		
			Fenpropimorph	0.01	2		
			Thiabendazole	0.16	5		
			75780	Azoxystrobin	0.19		2
				Bifenthrin	0.01		0.1
				Chlorpyrifos	0.03		3
				Thiabendazole	0.40		5
	75804		Azoxystrobin	0.12	2		
			Bifenthrin	0.02	0.1		
			Chlorpyrifos	0.02	3		
		Thiabendazole	0.07	5			
	75895	Bifenthrin	0.01	0.1			
		Chlorpyrifos	0.03	3			
		Imazalil	0.11	2			
		Thiabendazole	0.15	5			
	76023	Azoxystrobin	0.08	2			
		Bifenthrin	0.01	0.1			
		Chlorpyrifos	0.04	3			
		Thiabendazole	0.30	5			
	76147	Azoxystrobin	0.12	2			
		Thiabendazole	0.19	5			
	76327	Azoxystrobin	0.05	2			
		Imazalil	0.22	2			
	76347	Azoxystrobin	0.16	2			
		Chlorpyrifos	0.01	3			
		Thiabendazole	0.24	5			
	76538	Bifenthrin	0.02	0.1			
		Imazalil	0.06	2			
		Thiabendazole	0.08	5			
	76540	Azoxystrobin	0.08	2			
		Bifenthrin	0.01	0.1			
		Chlorpyrifos	0.15	3			
		Myclobutanil	0.07	2			
		Honduras	75723	Chlorpyrifos	0.02		3
	Azoxystrobin			0.02	2		
	75944		Chlorpyrifos	0.01	3		
			Trichlorophenol, 2,4,6-Prochloraz (sum)	0.01	0.05		Metabolite As parent
			76125	Chlorpyrifos	0.02		3
				Imazalil	0.23		2
	76377		Thiabendazole	0.28	5		
			Azoxystrobin	0.09	2		
			Chlorpyrifos	0.08	3		
	Imazalil		0.23	2			

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
Mangoes	Brazil	76541	Azoxystrobin	0.02	2	
			Chlorpyrifos	0.03	3	
			Imazalil	0.02	2	
		75604	Prochloraz	0.43	5	Parent
			Trichlorophenol, 2,4,6-	0.04	5	Metabolite
			Prochloraz (sum)	0.45	5	Summed residue
		75802	Prochloraz	0.15	5	Parent
			Trichlorophenol, 2,4,6-	0.01	5	Metabolite
			Prochloraz (sum)	0.16	5	Summed residue
		76075	Thiabendazole	0.49	5	
			Prochloraz	0.12	5	Parent
			Trichlorophenol, 2,4,6-	0.01	5	Metabolite
			Prochloraz (sum)	0.12	5	Summed residue
		76104	Thiabendazole	0.17	5	
			Prochloraz	0.01	5	
			Prochloraz	0.10	5	Parent
	Nicaragua	76412	Trichlorophenol, 2,4,6-	0.01	5	Metabolite
			Prochloraz	0.23	5	Summed residue
			Trichlorophenol, 2,4,6-	0.04	5	Metabolite
			Prochloraz (sum)	0.23	5	Summed residue
		75935	4-Phenylphenol	0.04	0.05	
			Thiabendazole	0.06	5	
	Peru	75581	Thiabendazole	0.28	5	
Papaya	Ecuador	75803	Prochloraz	0.05	5	Parent
			Trichlorophenol, 2,4,6-	0.01	5	Metabolite
			Prochloraz (sum)	0.05	5	Summed residue
			Thiabendazole	0.11	10	
		76068	Prochloraz	0.08	5	Parent
			Trichlorophenol, 2,4,6-	0.01	5	Metabolite
			Prochloraz (sum)	0.08	5	Summed residue
			Thiabendazole	0.21	10	
Guava	Vietnam	76165	Difenoconazole	0.02	0.1	
		76458	Azoxystrobin	0.05	0.05	
			Carbendazim	0.06	0.1	
			Difenoconazole	0.03	0.1	
			Iprodione	0.01	0.02	
			Propiconazole	0.02	0.05	
Pomegranate	Spain	76355	Acrinathrin	0.01	0.05	
			Fludioxonil	0.30	3	
	Turkey	76558	Chlorpyrifos	0.02	0.05	
		76598	Chlorpyrifos	0.03	0.05	
Pineapples	Costa Rica	75781	Triadimefon	0.09	3	
			Triadimenol	0.09	3	
			Triadimefon and triadimenol	0.18	3	Residue definition
		76495	Triadimefon	0.18	3	
			Triadimenol	0.21	3	
			Triadimefon and triadimenol	0.39	3	Summed residues
		76591	Diazinon	0.02	0.3	
			Prochloraz	0.05	5	Parent
			Trichlorophenol, 2,4,6-	0.02	5	Metabolite
			Prochloraz (sum)	0.06	5	Summed residue
			Triadimefon	0.04	3	
			Triadimenol	0.05	3	
			Triadimefon and triadimenol	0.09	3	Summed residue

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
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4.1.2 Vegetable samples taken for the surveillance strategy of the control programme

A total of 345 samples of raw vegetables were analysed for up to 367 pesticides and metabolites using the multi-methods. In addition, a selected numbers of samples were analysed using the single residue methods: 13 samples were analysed for amitraz, 52 for the dithiocarbamates and 24 for chlormequat, cyromazine, daminozide, diquat, ethephon, mepiquat and paraquat. Of the 345 fresh vegetable samples selected from various distribution centres and retail outlets around the country, 123 (35.6%) were of domestic origin, 178 (51.6%) were from other EEA countries, 32 (9.3%) were from outside the EEA and 12 (3.5%) samples were from an unknown source. Pesticide residues in compliance with the MRL regulations were detected in 168 (48.7%) samples, 7 (2.0%) samples exceeded the MRLs and 170 (49.3%) samples had no detectable residues.

A summary of the vegetable commodities sampled in the surveillance strategy of the control programme, their residues and origin is provided in Table 5.

Table 5: Residue levels and origin of vegetable samples taken for the surveillance strategy of the control programme

Group	Commodity	Residues				Origin			
		Total	>MRL	<MRL	<LOQ	Irish	EEA	TC	UNK
Root Tubers	Potatoes	31	0	12	19	23	8	0	0
	Cassava	2	0	0	2	0	0	2	0
	Sweet potatoes	4	1	2	1	0	0	4	0
	Yams	1	0	1	0	0	0	1	0
	Beetroot	2	0	0	2	0	2	0	0
	Carrots	21	2	12	7	5	15	1	0
	Parsnips	6	0	4	2	3	3	0	0
	Radishes	1	0	0	1	0	0	1	0
	Swedes	2	0	1	1	2	0	0	0
	Turnips	8	0	2	6	7	1	0	0
Bulb	Onions	7	0	1	6	1	6	0	0
	Shallots	1	0	1	0	0	1	0	0
	Spring onions	2	0	2	0	1	0	1	0
Fruiting	Tomatoes	13	0	7	6	2	9	2	0
	Peppers	19	0	14	5	3	14	2	0
	Aubergines	16	0	7	9	1	14	1	0
	Cucumbers	6	0	2	4	1	5	0	0
	Courgettes	11	1	5	5	2	8	1	0
	Melons	4	0	1	3	0	2	2	0
	Watermelons	1	0	1	0	0	0	1	0
	Sweet corn	2	0	0	2	0	1	1	0
Brassica	Broccoli	9	0	1	8	4	5	0	0
	Cauliflower	16	0	1	15	7	9	0	0
	Brussels sprouts	3	1	2	0	3	0	0	0

Group	Commodity	Residues				Origin			
		Total	>MRL	<MRL	<LOQ	Irish	EEA	TC	UNK
Leafy	Head cabbage	11	0	6	5	9	2	0	0
	Chinese cabbage	4	0	1	3	2	2	0	0
	Kale	1	0	1	0	1	0	0	0
	Lettuce	48	0	35	13	17	31	0	0
	Scarole	3	0	3	0	0	3	0	0
	Rocket	3	0	3	0	0	3	0	0
	Leaves of Brassica	1	0	0	1	0	1	0	0
	Spinach	10	0	6	4	4	5	1	0
	Water cress	1	0	0	1	0	1	0	0
	Parsley	2	1	1	0	1	1	0	0
	Celery leaves	1	0	1	0	0	1	0	0
Legume	Basil	1	0	1	0	0	0	0	1
	Beans (with pods)	10	0	1	9	2	0	5	3
	Beans (without pods)	1	0	0	1	0	1	0	0
	Peas (with pods)	5	1	2	2	0	0	5	0
Stem	Peas (without pods)	15	0	7	8	2	6	0	7
	Asparagus	2	0	0	2	0	2	0	0
	Celery	12	0	9	3	0	12	0	0
	Leek	5	0	4	1	2	3	0	0
Fungi	Rhubarb	1	0	0	1	1		0	0
	Fungi	19	0	7	12	17	1	0	1
Spices	Ginger	1	0	1	0	0	0	1	0
Total		345	7	168	170	123	178	32	12
Total %		100	2.0	48.7	49.3	35.6	51.6	9.3	3.5

Details of the levels of the pesticide residues detected in the vegetable samples above the LOQ together with sample identification numbers, country of origin (where known), the relevant MRL for each substance detected and notes on the results are presented in Table 6.

Metabolites, breakdown products of the pesticides, where detected, are also reported as part of the EU residue definitions for the parent pesticides and, if required, corrected for the molecular weights. Results are expressed in mg kg⁻¹. Where no definitive MRL exists, a default value of 0.01 mg kg⁻¹ was applied, except in the case of the synergist, Piperonyl butoxide, as this compound is not included in the list of substances in Annexes II or III of Regulation (EC) No 396/2005.

Table 6: Details of vegetable samples with detected residues > LOQ in the surveillance strategy of the control programme.

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
Vegetables						
Potatoes	Cyprus	75985	Chlorpropham	0.04	10	
	France	75648	Chloroaniline, 3-	0.04	10	
			Chlorpropham	2.19	10	
			Chlorpropham (sum)	2.22	10	
	Ireland	75863	Chlorpropham	3.34	10	
		75866	Chlorpropham	3.32	10	
		75543	Chlorpropham	0.31	10	
		75544	Chlorpropham	0.20	10	
			Flutolanil	0.01	0.5	
		75862	Chlorpropham	0.03	10	
		75864	Chlorpropham	0.07	10	
		75865	Chlorpropham	0.02	10	
		75960	Chlorpropham	0.07	10	
		76003	Azoxystrobin	0.01	1	
			Flutolanil	0.03	0.5	
	United Kingdom	75898	Chlorpropham	2.32	10	
Sweet potatoes	Honduras	75786	Bifenthrin	0.01	0.05	
			Fipronil	0.01	0.005	Parent
			Fipronil (sum)	0.03	0.005	Summed residue breach
			Fipronil-Sulfone	0.01	0.005	Metabolite
	United States	75585	Fludioxonil	0.08	10	
		76070	Fludioxonil	0.33	10	
			Piperonyl Butoxide	0.02	No MRL	
Yams	United States	75986	Fludioxonil	0.20	10	
Carrots	France	75714	Boscalid	0.02	2	
		76015	Linuron	0.02	0.2	
	Ireland	75493	Boscalid	0.03	2	
			Linuron	0.02	0.2	
			Tebuconazole	0.01	0.5	
		76082	Linuron	0.01	0.2	
		76135	Linuron	0.08	0.2	
		76176	Pendimethalin	0.01	0.2	
			Boscalid	0.01	2	
	Israel	76020	Linuron	0.01	0.2	
			Boscalid	0.02	2	
			Difenoconazole	0.02	0.3	
			Iprodione	1.65	0.5	Breach
			Thiabendazole	0.03	0.05	
	Portugal	76145	Linuron	0.02	0.2	
			Tebuconazole	0.03	0.5	
	Spain	75588	Azoxystrobin	0.02	1	
			Chlorpyrifos	0.03	0.1	
			Linuron	0.01	0.2	
		75767	Linuron	0.01	0.2	
		75823	Linuron	0.26	0.2	Breach
			Metamitron	0.05	0.1	
		75929	DDE, p,p-	0.02	0.05	Metabolite
			DDT	0.02	0.05	As definition
			Metamitron	0.01	0.1	
	United Kingdom	75987	4-Phenylphenol	0.03	0.05	
		75832	Boscalid	0.02	2	
			Fludioxonil	0.02	1	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
Parsnips	Ireland	75574	Tebuconazole	0.07	0.5	
		75742	Boscalid	0.02	2	
			Tebuconazole	0.10	0.5	
			Tefluthrin	0.01	0.05	
		76173	Boscalid	0.02	2	
	Spain		Tebuconazole	0.01	0.5	
		76051	Terbuthylazine	0.02	0.05	
Swedes	Ireland	75495	Chlorfenvinphos	0.01	0.02	
			Chlorpyrifos	0.04	0.05	
Turnips	Ireland	76057	metamitron	0.01	0.1	
		76113	Chlorpyrifos	0.02	0.05	
Onions	Netherlands	76225	Thiophanate-methyl	0.06	0.1	
Shallots	France	76546	Thiophanate-methyl	0.01	0.1	
Spring onions	Ireland	76087	Azoxystrobin	0.03	10	
			Chlorothalonil	0.02	10	
			Cyprodinil	0.01	1	
			Fenhexamid	0.01	0.05	
			Iprodione	0.09	3	
			Dichloroaniline, 3,5-	0.01	0.05	Metabolite
	Mexico	75822	Vinclozolin (sum)	0.02	0.05	As parent definition
			Chlorthal-dimethyl	0.01	0.5	
Tomatoes	Colombia	76163	Fenhexamid	0.03	1	
	Ireland	76053	Iprodione	0.51	5	
			Propamocarb	0.55	10	
		76128	Azoxystrobin	0.05	3	
	Netherlands	75880	Chlorothalonil	0.07	2	
			Boscalid	0.01	3	
			Imazalil	0.01	0.5	
			Pyrimethanil	0.02	1	
	Spain	75483	Chlorothalonil	0.12	2	
			Thiabendazole	0.01	0.05	
		75539	Chlorothalonil	0.01	2	
			Pyridaben	0.01	0.3	
			Pyriproxyfen	0.01	1	
		75826	Pyridaben	0.02	0.3	
			Pyriproxyfen	0.02	1	
Peppers	Ireland	76329	Indoxacarb	0.04	0.3	
	Israel	75754	Imazalil	0.01	0.05	
	Netherlands	76223	Indoxacarb	0.01	0.3	
		76346	Chlorantraniliprole	0.02	1	
		76465	Chlorantraniliprole	0.01	1	
			Imidacloprid	0.01	1	
			Spinosad	0.02	2	
	Spain	75485	Iprodione	0.03	5	
		75554	Flutriafol	0.03	1	
			Tebufenozide	0.07	1	
		75584	Chlorothalonil	0.02	2	
			Flutriafol	0.06	1	
			Myclobutanil	0.01	0.5	
			Pyrimethanil	0.02	2	
			Tebuconazole	0.03	0.5	
		75676	Flutriafol	0.03	1	
			Pyrimethanil	0.01	2	
		75683	Flutriafol	0.02	1	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
		75734	Flutriafol	0.03	1	
		76002	Flutriafol	0.02	1	
		76559	Chlorantraniliprole	0.02	1	
			Chlorothalonil	0.15	2	
			Cyprodinil	0.04	1	
			Fludioxonil	0.06	2	
			Flutriafol	0.09	1	
			Metalaxyl	0.02	0.5	
			Spiromesifen	0.01	0.5	
		76604	Chlorothalonil	0.18	2	
			Cyprodinil	0.05	1	
			Flubendiamide	0.04	0.2	
			Fludioxonil	0.09	2	
			Flutriafol	0.10	1	
Aubergines	Netherlands	76420	Pymetrozine	0.01	0.5	
			Spiromesifen	0.04	0.5	
	Spain	75670	Cyprodinil	0.03	1	
			Fenhexamid	0.02	1	
			Fludioxonil	0.01	1	
		76442	Bupirimate	0.02	2	
			Chlorothalonil	0.09	2	
		76504	Chlorothalonil	0.19	2	
			Cyprodinil	0.03	1	
			Fenhexamid	0.04	1	
		76545	Acetamiprid	0.01	0.15	
			Imidacloprid	0.05	0.5	
		76569	Chlorantraniliprole	0.01	0.6	
			Chlorothalonil	0.33	2	
			Fenhexamid	0.04	1	
Cucumbers	Spain	75678	Penconazole	0.01	0.1	
		75552	Chlorothalonil	0.04	0.5	
			Metalaxyl	0.03	1	
			Myclobutanil	0.01	0.5	
			Cyprodinil	0.02	0.5	
Courgettes	Greece	76196	Azoxystrobin	0.02	1	Breach
	Ireland	76219	Dieldrin	0.01	0.05	
	Spain	75556	Cyprodinil	0.01	0.1	
			Metalaxyl	0.02	1	
			Myclobutanil	0.02	0.01	
			Imidacloprid	0.06	1	
		75818	Triadimenol	0.02	0.2	
		75847	Myclobutanil	0.01	0.1	
Melons	Spain	76017	Chlorothalonil	0.01	2	
Watermelons	Costa Rica	75839	Boscalid	0.01	0.5	
			Carbendazim	0.02	0.1	
			Imazalil	0.03	0.05	
			Metalaxyl	0.02	0.2	
			Thiophanate-methyl	0.08	0.3	
Broccoli	Ireland	76234	Azoxystrobin	0.01	5	
Cauliflower	Poland	76052	Chlorpyrifos	0.01	0.05	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
Brussels sprouts	Ireland	75674	Boscalid	0.01	5	Breach
			Iprodione	0.02	0.5	
			Tebuconazole	0.05	0.5	
		76385	Boscalid	0.03	5	
			Chlorpyrifos	0.08	0.05	
			Difenoconazole	0.03	0.2	
		76386	Methiocarb	0.04	0.1	
			Chlorothalonil	0.04	3	
Head cabbage	Ireland	75948	Metalaxyl	0.01	1	
			Tebuconazole	0.01	1	
		76019	Lambda-cyhalothrin	0.01	0.2	
			Metalaxyl	0.01	1	
		76084	Metalaxyl	0.02	1	
		76175	Azoxystrobin	0.04	5	
			Boscalid	0.13	2	
			Cypermethrin	0.04	1	
			Difenoconazole	0.04	0.2	
			Lambda-cyhalothrin	0.01	0.2	
			Metalaxyl	0.02	1	
			Pyraclostrobin	0.02	0.2	
			Quizalofop	0.03	0.4	
	Portugal	75992	Azoxystrobin	0.02	5	
			Chlorpyrifos	0.01	1	
			Indoxacarb	0.01	3	
	Spain	75763	Fluazifop (free acid)	0.13	0.3	
Chinese cabbage	Spain	75586	Methiocarb-Sulfoxid	0.01	0.1	
Kale	Ireland	76048	Pendimethalin	0.02	0.5	
Lettuce	France	75827	Boscalid	0.03	30	
			Cypermethrin	0.06	2	
			Dimethomorph	0.02	10	
			Fenhexamid	0.22	40	
	Ireland	76001	Azoxystrobin	0.02	3	
			Boscalid	0.02	30	
			Iprodione	0.34	10	
			Mandipropamid	0.04	25	
		76040	Tolclofos-methyl	0.02	2	
			Acetamiprid	0.11	5	
			Boscalid	0.35	30	
			Cypermethrin	0.20	2	
		76062	Propyzamide	0.02	1	
			Pyraclostrobin	0.01	2	
			Iprodione	0.10	10	
			Mandipropamid	0.01	25	
		76174	Azoxystrobin	0.22	3	
			Cypermethrin	0.07	2	
		76220	Boscalid	0.03	30	
			Imidacloprid	0.01	2	
			Mandipropamid	0.02	25	
		76221	Acetamiprid	0.08	5	
			Boscalid	0.24	30	
			Cypermethrin	0.05	2	
			Metalaxyl	0.01	3	
		76289	Propyzamide	0.08	1	
			Pyraclostrobin	0.02	2	
			Boscalid	0.01	30	
			Acetamiprid	0.03	5	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
		76318	Boscalid	0.01	30	
		76345	Boscalid	0.75	30	
			Cypermethrin	0.04	2	
			Mandipropamid	0.05	25	
			Propyzamide	0.03	1	
			Pyraclostrobin	0.03	2	
		76547	Boscalid	0.39	30	
			Cypermethrin	0.02	2	
			Propyzamide	0.14	1	
			Pyraclostrobin	0.01	2	
		76603	Azoxystrobin	0.14	3	
			Boscalid	0.47	30	
			Cypermethrin	0.09	2	
			Propyzamide	0.02	1	
			Pyraclostrobin	0.03	2	
	Italy	75715	Boscalid	6.59	30	
			Dimethomorph	0.05	10	
			Pyraclostrobin	0.89	2	
	Spain	75496	Acetamiprid	0.04	5	
			Cyprodinil	0.05	10	
			Fludioxonil	0.04	10	
			Pirimethanil	0.01	20	
		75497	Boscalid	0.02	30	
			Dimethomorph	0.01	10	
			Imidacloprid	0.05	2	
		75526	Acetamiprid	0.02	5	
			Boscalid	0.01	30	
			Cypermethrin	0.02	2	
			Dimethomorph	0.09	10	
			Imazalil	0.01	0.05	
			Lambda-cyhalothrin	0.10	0.5	
			Metalaxyl	0.05	2	
		75551	Acetamiprid	0.04	5	
			Boscalid	0.02	30	
			Cyprodinil	0.04	10	
			Fludioxonil	0.06	10	
			Imidacloprid	0.01	2	
		75587	Boscalid	0.25	30	
			Difenoconazole	0.01	3	
			Imidacloprid	0.02	2	
			Pyraclostrobin	0.01	2	
		75589	Azoxystrobin	0.21	3	
			Cyfluthrin	0.01	1	
			Cyprodinil	0.01	10	
			Dimethomorph	0.29	10	
			Imidacloprid	0.06	2	
			Lambda-cyhalothrin	0.13	0.5	
			Thiametoxam	0.10	5	
		75719	Imidacloprid	0.05	2	
		75726	Difenoconazole	0.09	3	
			Propyzamide	0.03	1	
		75768	Chlorthal-dimethyl	0.02	0.5	
			Imidacloprid	0.10	2	
		75798	Imidacloprid	0.06	2	
		75824	Azoxystrobin	1.08	3	
			Boscalid	0.02	30	
			Chlorthal-dimethyl	0.08	0.5	
			Deltamethrin	0.03	0.5	
			Imidacloprid	0.33	2	
			Propyzamide	0.02	1	
			Pymetrozine	0.03	2	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
		75867	Acetamiprid	0.02	5	
			Folpet	0.65	2	
			Imidacloprid	0.05	2	
			Propyzamide	0.03	1	
		75873	Acetamiprid	0.16	5	
			Azoxystrobin	0.15	3	
			Cypermethrin	0.31	2	
			Imidacloprid	0.88	2	
		75885	Thiametoxam	0.01	5	
		75886	Imidacloprid	0.07	2	
			Spinosad	0.02	10	
		75914	Imidacloprid	0.02	2	
			Spinosad	0.01	10	
		76463	Acetamiprid	0.10	5	
			Chlorantraniliprole	0.12	20	
			Clothianidin	0.02	5	
			Cyprodinil	0.12	10	
			Fenhexamid	0.07	40	
			Fludioxonil	0.23	10	
			Iprodione	0.01	10	
			Thiametoxam	0.05	5	
			Thiametoxam and clothianidin	0.06	5	
		76502	Fenhexamid	0.01	40	
		76503	Boscalid	0.02	30	
			Iprodione	0.02	10	
			Mandipropamid	0.01	25	
		76563	Boscalid	3.48	30	
			Chlorantraniliprole	0.90	20	
			Deltamethrin	0.07	0.5	
			Dimethomorph	0.28	10	
			Pendimethalin	0.04	0.05	
			Propyzamide	0.14	1	
			Pyraclostrobin	0.17	2	
		76565	Boscalid	0.01	30	
		76567	Chlorantraniliprole	0.05	20	
			Deltamethrin	0.01	0.5	
			Dimethomorph	0.02	10	
			Propyzamide	0.02	1	
Scarole	France	75646	Acetamiprid	0.45	1.5	
	Spain	75872	Acetamiprid	0.46	1.5	
			Boscalid	2.11	10	
			Cyfluthrin	0.50	1	
			Flutriafol	0.02	0.05	
			Imidacloprid	0.09	1	
			Pyraclostrobin	0.27	2	
		76562	Acetamiprid	0.34	1.5	
			Chlorantraniliprole	0.03	20	
			Cyprodinil	0.89	10	
			Fludioxonil	0.68	10	
			Propyzamide	0.03	1	
Rocket	Italy	75673	Boscalid	0.10	30	
			Cyprodinil	1.27	10	
			Fludioxonil	2.37	10	
			Mandipropamid	2.28	25	
			Pyraclostrobin	0.01	2	
		76564	Imidacloprid	0.02	2	
			Spinosad	0.03	10	
		76589	Boscalid	0.03	30	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
Spinach	Ireland	75911	Spinosad	0.02	10	
			Lambda-cyhalothrin	0.06	0.5	
	Italy	76046	Lambda-cyhalothrin	0.03	0.5	
		75717	Pencycuron	0.03	0.05	
		76505	Boscalid	0.09	30	
	Senegal	76566	Spinosad	2.71	10	
			Indoxacarb	0.08	2	
Parsley	Spain	75856	Lambda-cyhalothrin	0.02	0.5	
	France	75680	Azoxystrobin	0.03	70	
			Binapacryl	0.02	0.05	
			Dichloroaniline, 3,5-	0.01	0.05	
Celery leaves	Ireland	76081	Difenoconazole	0.16	10	Breach
			Linuron	0.05	1	
			Methiocarb	0.01	1	
			Vinclozolin	0.02	0.05	
			Chlorpyrifos	0.16	0.05	
			Pendimethalin	0.02	2	
			Pirimicarb	0.02	5	
Basil	United Kingdom	75869	Prochloraz	0.03	5	
Beans (with pods)	Not known	75566	Chlorothalonil	0.06	5	Raw, frozen
			Cypermethrin	0.04	2	Raw, frozen
Peas (with pods)	Not known	76532	Haloxifop	0.09	0.1	
			Tebuconazole	0.02	2	
Peas (without pods)	Guatamala	75665	Deltamethrin	0.01	0.2	Parent Metabolite Summed residue breach
		75689	Chlorothalonil	0.04	2	
	Kenya	76194	Chlorothalonil	0.08	2	
			Dimethoate	0.03	0.02	
			Omethoate	0.01	0.02	
			Dimethoate (sum)	0.04	0.02	
			Metalaxyl	0.01	0.05	
			Tebuconazole	0.05	2	
Peas (without pods)	France	76478	Pyrimethanil	0.03	0.2	
	Ireland	76263	Boscalid	0.02	3	
	Not known	76452	Thiophanate-methyl	0.01	0.1	
		76477	Boscalid	0.02	1	
		76497	Fluazifop (free acid)	0.11	1	
			Iprodione	0.01	0.3	
	76498	76500	Pyrimethanil	0.01	0.2	
			Pyrimethanil	0.04	0.2	
			Iprodione	0.02	0.3	
Celery	Spain	75494	Boscalid	0.01	7	
			Chlorothalonil	0.02	10	
			Difenoconazole	0.08	5	
			Imidacloprid	0.01	2	
			Indoxacarb	0.02	2	
			Lambda-cyhalothrin	0.03	0.3	
			Cypermethrin	0.02	0.05	
			Difenoconazole	0.02	5	
			Azoxystrobin	0.02	5	
			Imidacloprid	0.02	2	
Celery	Spain	75672	Lambda-cyhalothrin	0.01	0.3	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
		75679	Linuron	0.02	0.1	
			Chlorothalonil	0.13	10	
			Difenoconazole	0.04	5	
		75721	Imidacloprid	0.01	2	
			Azoxystrobin	0.02	5	
			Chlorothalonil	1.08	10	
		75736	Flutriafol	0.01	0.05	
			Imidacloprid	0.01	2	
			Difenoconazole	0.01	5	
		75762	Difenoconazole	0.11	5	
		75825	Imidacloprid	0.04	2	
			Azoxystrobin	0.02	5	
			Imidacloprid	0.08	2	
		75853	Linuron	0.02	0.1	
Leek	Ireland	75536	Tebuconazole	0.01	1	
		75722	Chlorothalonil	0.01	10	
	Netherlands	75957	Tebuconazole	0.01	1	
			Chlorothalonil	0.15	10	
		76058	Cypermethrin	0.06	0.5	
Mushroom	Ireland	76137	Boscalid	0.02	5	
			Prochloraz	0.03	3	
			Prochloraz	0.01	3	
		76461	Prochloraz	0.05	3	
			Trichlorophenol, 2,4,6-	0.01	3	
			Prochloraz (sum)	0.05	3	
		76571	Prochloraz	0.04	3	
		76579	Carbendazim	0.10	1	
		76606	Prochloraz	0.03	3	
			Carbendazim	0.19	1	
Ginger	China	75576	Diflubenzuron	0.02	2	
			Benalaxyl	0.01	0.1	

4.1.3 Cereal samples taken for the surveillance strategy of the control programme

A total of 103 samples of cereals were analysed for up to 353 pesticide substances and metabolites and 7 PCB congeners using the multi-methods. In addition, a selected number of samples were analysed for up to 17 pesticides and metabolites using single residue methods: 17 samples were analysed for dithiocarbamates, 40 for glyphosate and glufosinate and 52 for chlormequat, cyromazine, daminozide, diquat, ethephon, mepiquat and paraquat. Of the 103 cereal samples selected from various grain assembly and distribution points around the country, 84 (81.6%) were of domestic origin, 15 (9.7%) were from other EEA countries and 4 (3.9%) samples were of unknown origin. All the cereal samples were in compliance with the MRL regulations, with 57 (55.3%) containing residues above the LOQ and 46 (44.7%) with no detected residues above the LOQ.

A summary of the cereal commodities sampled in the surveillance strategy of the control programme, their residues and origin is provided in Table 7.

Table 7: Residues and origin of cereal samples taken for the surveillance strategy of the control programme

Group	Commodity	Residues				Origin			
		Total	>MRL	<MRL	<LOQ	Irish	EEA	TC	UNK
Cereal	Barley	29	0	15	14	29	0	0	0
	Oats	23	0	18	5	22	1	0	0
	Rice	10	0	8	2	0	0	6	4
	Wheat	41	0	16	25	33	8	0	0
Total		103	0	57	46	84	9	6	4
Total %		100	0	55.3	44.7	81.6	8.7	5.8	3.9

Details of the levels of the pesticide residues detected in the cereal samples above the LOQ together with sample identification numbers, country of origin (where known), the relevant MRL for each substance detected and notes on the results are presented in Table 8.

Results are expressed in mg kg⁻¹. There is no definitive MRL in the case of the synergist, piperonyl butoxide, as this compound is not included in the list of substances in Annexes II or III of Regulation (EC) No 396/2005.

Table 8: Details of cereal samples with detected residues > LOQ in the surveillance strategy of the control programme.

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
Barley	Ireland	75618	Glyphosate	1.30	20	
		75619	Chlormequat	0.16	2	
			Glyphosate	2.40	20	
			Mepiquat	0.25	3	
		75620	Chlormequat	0.06	2	
		75621	Chlormequat	0.08	2	
			Glyphosate	0.59	20	
		75622	Glyphosate	1.30	20	
		75624	Glyphosate	0.16	20	
			Mepiquat	0.13	3	
		75625	Chlormequat	0.12	2	
			Cyprodinil	0.01	3	
			Glyphosate	1.40	20	
		75626	Chlormequat	0.13	2	
			Glyphosate	0.61	20	
		75627	Chlormequat	0.28	2	
		75628	Mepiquat	0.06	3	
		75629	Chlormequat	0.10	2	
		75692	Chlormequat	0.11	2	
		75694	Glyphosate	1.35	20	
Oats	Ireland	76206	Chlormequat	0.04	2	
			Glyphosate	1.26	20	
		76237	Chlorothalonil	0.09	0.3	
		76204	Chlormequat	3.80	5	
			Chlorpyrifos-methyl	0.04	3	
			Glyphosate	1.90	20	
			Pirimiphos-methyl	0.01	5	
		76207	Chlormequat	2.64	5	
			Glyphosate	1.07	20	
			Pyraclostrobin	0.02	0.3	
		76210	Chlormequat	2.18	5	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
Rice	India	76212	Boscalid	0.02	3	
			Chlormequat	2.99	5	
			Epoxiconazole	0.01	1.5	
			Glyphosate	1.42	20	
			Pyraclostrobin	0.01	0.3	
			Tebuconazole	0.01	2	
		76213	Chlormequat	0.63	5	
			Glyphosate	1.15	20	
		76214	Chlormequat	3.96	5	
		76215	Chlormequat	2.73	5	
		76240	Pyraclostrobin	0.01	0.3	
		76356	Chlormequat	3.47	5	
			Fenpropidin	0.03	0.5	
		76387	Chlormequat	1.61	5	
			Pyraclostrobin	0.01	0.3	
		76389	Chlormequat	0.77	5	
		76390	Chlormequat	1.21	5	
		76391	Chlormequat	1.48	5	
		76392	Chlormequat	1.40	5	
		76393	Chlormequat	1.92	5	
		76394	Chlormequat	0.96	5	
		76395	Chlormequat	3.05	5	
		76396	Chlormequat	2.41	5	
		76398	Buprofezin	0.03	0.5	
			Isoprothiolane	0.13	5	
			Propiconazole	0.02	0.7	
			Tricyclazole	0.05	1	
Wheat	United States Not known	76399	Isoprothiolane	0.02	5	
		76401	Buprofezin	0.02	0.5	
			Tricyclazole	0.02	1	
		76400	Diphenylamine	0.01	0.05	
		76403	Buprofezin	0.02	0.5	
			Tricyclazole	0.01	1	
		76404	Tricyclazole	0.01	1	
		76405	Buprofezin	0.02	0.5	
			Tricyclazole	0.012	1	
		76406	Buprofezin	0.07	0.5	
			Isoprothiolane	0.04	5	
			Piperonyl Butoxide	0.04	No MRL	
			Propiconazole	0.01	0.7	
			Tricyclazole	0.04	1	
		76475	Diphenylamine	0.01	0.05	
			Piperonyl Butoxide	0.01	No MRL	
Wheat	Ireland	76471	Piperonyl Butoxide	0.04	No MRL	
		75623	Chlormequat	0.35	2	
		75630	Chlormequat	0.35	2	
			Glyphosate	0.57	10	
		75659	Boscalid	0.01	0.5	
			Chlormequat	0.20	2	
			Glyphosate	0.28	10	
		75660	Glyphosate	0.27	10	
		75661	Chlormequat	0.16	2	
			Glyphosate	0.87	10	
		75663	Chlormequat	0.07	2	
		75690	Chlormequat	0.13	2	
			Glyphosate	0.13	10	
		75691	Boscalid	0.02	0.5	
			Chlormequat	0.15	2	
			Glyphosate	0.10	10	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
		75693	Chlormequat	0.24	2	
			Glyphosate	0.11	10	
		75695	Chlormequat	0.25	2	
			Mepiquat	0.08	2	
		76205	Chlormequat	0.08	2	
		76208	Chlormequat	0.17	2	
		76209	Chlormequat	0.02	2	
		76217	Ethephon	0.07	1	
			Glyphosate	0.31	10	
			Mepiquat	0.16	2	

4.1.4 Food of animal origin samples taken for the surveillance strategy of the control programme

A total of 401 samples of unprocessed food of animal origin, comprising kidney fats, milk and eggs were analysed for up to 348 pesticide substances and 7 PCB congeners, while honey samples were tested for the presence of 353 pesticide substances and metabolites and 7 PCB congeners using multi-residue methods. With the exception of 2 samples of unknown origin, all the samples of food of animal origin analysed in 2012 were of domestic origin. The majority of the samples, 385 (96.0%) contained no detectable residues and the remaining 16 (4.0%) contained detectable residues were in compliance with the Regulation (EC) No. 396/2005 and Commission Implementation Regulation (EU) No. 1186/2012. Since no sample contained residues which exceeded an MRL, no enforcement or consumer risk assessments were triggered.

A summary of the food of animal origin commodities sampled in the surveillance strategy of the control programme, their residues and origin is provided in Table 9.

Table 9: Summary of food of animal origin taken for the surveillance strategy of the control programme

Group	Commodity	Residues				Origin			
		Total	>MRL	<MRL	<LOQ	Irish	EEA	TC	UNK
FAO	Swine Fat	59	0	1	58	59	0	0	0
	Bovine Fat	121	0	2	119	121	0	0	0
	Sheep Fat	85	0	6	79	85	0	0	0
	Horse Fat	8	0	2	6	8	0	0	0
	Poultry Fat	24	0	2	22	24	0	0	0
	Deer Fat	9	0	1	8	9	0	0	0
	Milk	68	0	0	68	68	0	0	0
	Eggs Chicken	15	0	1	14	15	0	0	0
	Honey	12	0	1	11	10	0	0	2
Total		401	0	16	385	399	0	0	2
Total %		100	0.0	4.0	96.0	99.5	0.0	0.0	0.5

Details of the levels, expressed in mg kg⁻¹, of the pesticide residues detected in the food of animal origin samples above the LOQ together with sample identification numbers, country of origin (where known), the relevant MRL for each substance detected and notes on the results are presented in Table 10.

Metabolites, breakdown products of the pesticides, where detected, are also reported as part of the EU residue definitions for the parent pesticides.

Table 10: Details of all food of animal origin samples with detected residues > LOQ in the surveillance strategy of the control programme

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
Swine Fat	Ireland	800676	DDE, p,p-	0.01	1	Metabolite
			DDT	0.01	1	As residue definition
Bovine Fat	Ireland	800408	DDT	0.01	1	As residue definition
			DDT, p,p-	0.01	1	Metabolite
		800477	DDE, p,p-	0.01	1	Metabolite
			DDT	0.01	1	As residue definition
			Diazinon	0.01	0.05	
Sheep Fat	Ireland	800407	DDT	0.01	1	As residue definition
			DDT, p,p-	0.01	1	Metabolite
		800501	DDE, p,p-	0.01	1	Metabolite
			DDT	0.01	1	As residue definition
		800683	Cypermethrin	0.08	0.2	
		800689	DDE, p,p-	0.01	1	Metabolite
			DDT, p,p-	0.01	1	Metabolite
			DDT (sum)	0.01	1	As summed residue definition
Horses Fat	Ireland	800692	Diazinon	0.13	0.7	
		800782	Diazinon	0.05	0.05	
Horses Fat	Ireland	800473	Hexachlorobenzene	0.01	0.2	
		800570	Dieldrin	0.03	0.2	
Poultry Fat	Ireland	800510	Dieldrin	0.02	0.2	
			Lindane	0.01	0.02	
		800775	Tebuconazole	0.01	0.1	
Deer Fat	Ireland	800616	Epoxiconazole	0.01	0.01	
Eggs	Ireland	76577	PCB 118	0.01	0.005	Regulation (EU) No 1259/2011
Honey	Not known	800499	Imazalil	0.01	0.05	

4.1.5 Processed food samples taken for the surveillance strategy of the control programme

A total of 113 samples of processed commodities, such as fruit juices, olive and rapeseed oil, wine, canned, dried fruits, flaked cereal and butter, were analysed for up to 353 pesticide substances and metabolites using the multi-residue methods. Of the 113 samples analysed, over half, 66 (58.4%) contained no detected residue and the remaining 47 (41.6%) samples contained residues less than the MRLs set for the raw commodities. Specific MRLs for processed commodities have yet to be established in the Regulation (EC) No. 396/2005. Since it is not always possible to establish, with certainty, the origin of the raw commodities used in the processed produce, nearly half, 54 (47.8%) were classified as of unknown origin. Of the remaining processed commodity samples, 16 (14.2%) were of domestic origin, 24 (21.2%) were from within the EEA and 19 (16.8%) samples were from third countries.

A summary of processed commodities sampled in the surveillance strategy of the control programme, their residues and origin is provided in Table 11.

Table 11: Summary of all processed food taken for the surveillance strategy of the control programme

Group	Commodity	Residues				Irish	Origin		
		Total	>MRL	<MRL	<LOQ		EEA	TC	UNK
Processed	Grapefruit juice	2	0	0	2	0	0	0	2
	Grapefruit canned	2	0	0	2	0	0	1	1
	Orange juice	20	0	6	14	0	1	0	19
	Mandarin juice	1	0	1	0	0	0	0	1
	Mandarin canned	1	0	0	1	0	1	0	0
	Strawberry canned	1	0	1	0	0	0	1	0
	Cranberries dried	1	0	0	1	0	0	1	0
	Apple juice	10	0	4	6	1	1	0	8
	Pears canned	3	0	0	3	0	0	2	1
	Apricot dried	1	0	1	0	0	0	1	0
	Cherries canned	1	0	1	0	0	0	0	1
	Peaches canned	5	0	2	3	0	0	2	3
	Prune juice	2	0	0	2	0	0	1	1
	Plum (dried)	4	0	2	2	0	0	0	4
	Pineapple juice	4	0	0	4	0	0	1	3
	Pineapple canned	3	0	0	3	0	0	2	1
	Wine	10	0	7	3	0	4	6	0
	Sultana	1	0	1	0	0	0	1	0
	Tomato juice	1	0	0	1	0	0	0	1
	Rhubarb canned	1	0	0	1	0	0	0	1
	Olive oil	15	0	15	0	0	11	0	4
	Rape seed oil	6	0	3	3	3	0	0	3
	Barley flakes	1	0	0	1	0	1	0	0
	Wheat flakes	2	0	2	0	0	2	0	0
	Butter	15	0	1	14	12	3	0	0
Total		113	0	47	66	16	24	19	54
Total %		100	0.0	41.6	58.4	14.2	21.2	16.8	47.8

Details of the levels, expressed in mg kg⁻¹, of the pesticide residues detected in the the processed samples above the LOQ together with sample identification numbers, country of origin (where known), the relevant MRL for each substance detected and notes on the results are presented in Table 12.

There is no definitive MRL in the case of the synergist, piperonyl butoxide, as this compound is not included in the list of substances in Annexes II or III of Regulation (EC) No 396/2005.

Table 12: Details of all processed food samples with detected residues > LOQ in the surveillance strategy of the control programme

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
Processed Orange	Not known	75876	4-Phenylphenol	0.45	5	Juice
			Imazalil	0.34	5	
			Thiabendazole	0.36	5	
		75921	Carbendazim	0.02	0.2	Juice
		76526	Imazalil	0.15	5	Juice
			Imidacloprid	0.02	1	
			Thiabendazole	0.24	5	
		76531	Carbendazim	0.02	0.2	Juice
		76535	Carbendazim	0.02	0.2	Juice
		75528	Imazalil	0.06	5	Juice
			Thiabendazole	0.02	5	
Mandarins	Not known	75532	Imazalil	0.10	5	Juice
Strawberries	China	76430	Pyrimethanil	0.01	5	Canned
Apples	Not known	76527	Diphenylamine	0.01	5	Juice
		76529	Pirimicarb	0.01	2	Juice
		75877	Pyrimethanil	0.01	5	Juice
			Boscalid	0.01	2	
			Diphenylamine	0.01	5	
			Pirimicarb	0.01	2	
			Pyrimethanil	0.05	5	
	Italy	75529	Iprodione	0.01	5	Juice
Apricots	Turkey	76365	Chlorothalonil	0.03	1	Died
			Cypermethrin	0.03	2	
			Dodine	0.11	5	
Cherries	Not known	76427	Boscalid	0.03	4	Canned
			Carbaryl	0.02	0.05	Canned
Peaches	Argentina	75774	Bifenthrin	0.02	0.2	Canned
			Boscalid	0.02	3	
			Dithiocarbamates	0.13	2	
			Iprodione	0.05	3	
			Lambda-cyhalothrin	0.02	0.2	
			Tebuconazole	0.01	1	
			Carbendazim	0.03	0.2	
	China	76269	Carbendazim	0.03	0.2	Canned
Plum	Not known	75614	Imidacloprid	0.01	0.3	Dried
		76432	Iprodione	0.05	3	Dried
Wine Grapes	Australia	76484	Iprodione	0.01	10	Wine
	Chile	76548	Tebuconazole	0.01	2	Wine
	Spain	76481	Carbendazim	0.03	0.5	Wine
			Metalaxyl	0.01	1	
			Pyrimethanil	0.02	5	
			Thiophanate-methyl	0.02	3	
			Metalaxyl	0.02	1	
			Pyrimethanil	0.02	5	
			Thiophanate-methyl	0.03	3	
	France	76533	Boscalid	0.01	5	Wine
			Iprodione	0.02	10	
			Thiophanate-methyl	0.09	3	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Notes
Table grape	Italy	76482	Metalaxyl	0.02	1	Wine
	United States	76544	Methoxyfenozide	0.04	1	Wine
	Turkey	76364	Cyprodinil	0.13	5	Dried (sultana)
			Fludioxonil	0.03	2	
			Indoxacarb	0.10	2	
			Metalaxyl	0.05	2	
			Metalaxyl	0.05	2	
			Methoxyfenozide	0.17	1	
			Pyrimethanil	0.03	5	
Rape seed	Ireland	75784	Tebuconazole	0.01	0.5	Oil
		75878	Chlorpyrifos-methyl	0.13	0.25	Oil
			Pirimiphos-methyl	0.01	0.05	
			Tebuconazole	0.03	0.5	
	Not known	75879	Boscalid	0.02	1	Oil
Olive oil	Spain	75744	Phosmet	0.01	2	Oil
		75917	Terbuthylazine	0.05	0.05	Oil
		76078	Chlorpyrifos	0.01	0.05	Oil
			Terbuthylazine	0.02	0.05	Oil
	Greece	75745	Buprofezin	0.04	5	Oil
			Chlorpyrifos	0.01	0.05	Oil
		76079	Chlorpyrifos	0.01	0.05	Oil
			Chlorpyrifos	0.01	0.05	Oil
	Italy	76373	Chlorpyrifos	0.01	0.05	Oil
		75746	Chlorpyrifos	0.01	0.05	Oil
		75916	Terbuthylazine	0.01	0.05	Oil
		76157	Chlorpyrifos	0.05	0.05	Oil
			Phosmet	0.01	3	
			Chlorpyrifos	0.01	0.05	Oil
		76158	Terbuthylazine	0.03	0.05	
			Buprofezin	0.03	5	Oil
	Not known	76367	Carbaryl	0.04	0.05	
			Chlorpyrifos	0.05	0.25	
			Phosmet	0.07	3	
			Chlorpyrifos	0.01	0.05	Oil
			Chlorpyrifos	0.01	0.05	Oil
			Terbuthylazine	0.02	0.05	Oil
			Terbuthylazine	0.01	0.05	Oil
Wheaten meal	Great Britain	76362	Piperonyl Butoxide	0.08	No MRL	Flaked
		76363	Chlormequat	0.18	2	Flaked
Butter	Great Britain	76370	DDE, p,p-	0.02	0.05	Metabolite
			DDT	0.02	0.05	As residue definition
			Piperonyl Butoxide	0.03	No MRL	

4.1.6 *Infant formula and cereal-based babyfood samples for the surveillance strategy of the control programme*

All of the 40 infant formula samples were of domestic origin, while 24 of the 25 cereal-based baby food samples were of unknown origin and 1 originated from outside the EU. The samples were analysed for up to 353 pesticides and metabolites and 7 PCB congeners using the multi-methods and the dithiocarbamates using the single residue method. No residues above the LOQ were detected in any of the samples analysed.

A summary of babyfoods sampled in the surveillance strategy of the control programme, their residues and origin is provided in Table 13.

Table 13: Summary of baby food samples taken for the surveillance strategy of the control programme

Group	Commodity	Residues				Irish	Origin		
		Total	>MRL	<MRL	<LOQ		EEA	TC	UNK
Baby food	Infant formula	40	0	0	40	40	0	0	0
	Cereal based	25	0	0	25	0	0	1	24
Total		65	0	0	65	40	0	1	24

4.2 Results of enforcement strategy

In contrast to the surveillance strategy, which does not specify the origin of the produce to be sampled, the enforcement strategy is targeted at the producers of specific commodities as follow up to detected MRL breaches, non-registered uses detected in domestic samples and import controls carried out under Commission Regulation (EC) No 669/2009.

The enforcement strategy requires that the sampled consignment be detained while the sample is being analysed. Further actions are determined by the result of the analysis. Consignments of products shown to be non-compliant are removed from the market and legal or administrative proceedings are initiated.

A total of 40 samples were taken in 2012, 24 import controls samples in accordance with Commission Regulation (EC) No 669/2009 and 15 samples as follow-up to previous non-compliances in 2011 and 2012 and 1 sample as a result of follow-up to an invalid use detected in 2011.

4.2.1 *Enforcement sampling of food of plant origin*

Controls on imports into the EU from specified third countries, listed in the Annex to Regulation (EC) No 669/2009, resulted in the sampling of 11 consignments of oranges and 10 consignments of strawberries from Egypt; 2 consignments of peppers from Turkey and 1 consignment of grapefruits from China. There were 2 MRL breaches in 2012, both relating to oranges from Egypt. One consignment, with residues exceeding the MRL when taking the harmonised 50% uncertainty into account, was rejected at the port and returned to the country of origin. A RASFF notification, 2012 BIY, was issued for information regarding this border rejection. The other consignment was allowed onto the market as it did not breach the MRL, taking into account the harmonised 50% uncertainty factor and, with an estimated intake of less than 1% of the ARfD, the acute risk to the consumers was acceptable. The harmonised uncertainty factor of 50% is based on the results of proficiency studies carried out by official laboratories within the EEA in the area of pesticide residue control and is applied across the EU.

Some 15 samples were taken as a follow-up to the MRL breaches detected in 2011 and 2012. Fourteen samples related to the planned targeting of non-compliances from the 2011 programme. The remaining sample related to a breach detected in 2012. This sample was taken as part of an investigation into a consignment of oranges from South Africa and confirmed that the breach, which had an acute intake concern, was confined to a sub-lot of a larger consignment from one grower. As there were no repeated non-compliances detected, no further actions were required.

Regarding the 11 non-registered uses on Irish produce detected during the 2011 surveillance programme, one consignment that was available on the market was targeted for sampling and analysed. There was no repeated non-compliance detected and no further action was required.

A summary of the results of the 40 targeted samples of food of plant origin taken in 2012, with details of origin, residues detected, the relevant MRL and the reasons for the targeting, are provided in Table 14.

Table 14: Summary of results and origin from the enforcement programme

Group	Commodity	Residues				Irish	Origin		
		Total	>MRL	<MRL	<LOQ		EEA	TC	UNK
Fruits	Grapefruit	1	0	1	0	0	0	1	0
	Oranges	12	2	9	1	0	0	12	0
	Mandarins	2	0	2	0	0	1	1	0
	Cherries	1	0	1	0	0	0	1	0
	Persimmon	1	0	1	0	0	1	0	0
	Guava	1	0	1	0	0	0	1	0
	Strawberries	10	0	8	2	0	0	10	0
Vegetables	Swedes	1	0	1	0	1	0	0	0
	Peppers	2	0	0	2	0	0	2	0
	Pumpkins	1	0	0	1	0	0	1	0
	Head cabbage	1	0	1	0	1	0	0	0
	Lettuce	2	0	1	1	2	0	0	0
	Spinach	1	0	0	1	1	0	0	0
	Beans (with pods)	1	0	0	1	0	0	1	0
	Celery	1	0	1	0	1	0	0	0
	Fungi	1	0	1	0	1	0	0	0
Cereal	Oats	1	0	1	0	1	0	0	0
Total		40	2	29	9	8	2	30	0
Total %		100	5.0	72.5	22.5	20.0	5.0	75.0	

Details of the results, expressed in mg kg⁻¹, of the analysis for pesticide residues in the 40 samples taken under the enforcement programme, together with sample identification numbers, country of origin, the relevant MRL for each substance detected and notes on the results, are presented in Table 15.

Table 15: Details of all enforcement samples taken in 2012

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Reasons and Notes
Grapefruit	China	76536	Buprofezin	0.03	1	Regulation (EC) No 669/2009
			Chlorpyrifos	0.06	0.3	
			Cypermethrin	0.02	2	
			Difenoconazole	0.02	0.1	
			famoxadone	0.01	0.02	
			Methylation	0.01	5	
			Myclobutanil	0.09	3	
			Prochloraz	0.06	10	
			Trichlorophenol, 2,4,6-Prochloraz (sum)	0.01 0.06	10 10	
Oranges	Egypt	75550	4-Phenylphenol	1.95	5	Regulation (EC) No 669/2009
			Chlorpyrifos	0.06	0.3	
			Imazalil	0.13	5	
			Thiabendazole	0.3	5	
		75595	2,4-D	0.04	1	Regulation (EC) No 669/2009
			Imazalil	2.25	5	
			Thiabendazole	1.21	5	
		75664	2,4-D	0.03	1	Regulation (EC) No 669/2009
			Chlorpyrifos	0.04	0.3	
			Imazalil	2.60	5	
		75697	Thiabendazole	1.17	5	Regulation (EC) No 669/2009
			2,4-D	0.04	1	
			Imazalil	2.80	5	
		75766	Thiabendazole	1.39	5	Regulation (EC) No 669/2009
			4-Phenylphenol	0.02	5	
			Buprofezin	0.04	1	
		75785	Chlorpyrifos-methyl	0.20	0.5	Regulation (EC) No 669/2009
			Imazalil	0.92	5	
			Thiabendazole	0.13	5	
		75843	4-Phenylphenol	2.41	5	Regulation (EC) No 669/2009
			Chlorpyrifos	0.06	0.3	
			Imazalil	0.41	5	
		75899	Pyriproxyfen	0.05	0.6	Regulation (EC) No 669/2009
			Thiabendazole	0.06	5	
			Chlorpyrifos	0.04	0.3	
		75900	Imazalil	1.97	5	Regulation (EC) No 669/2009
			Pyrimethanil	1.35	10	
			Thiabendazole	0.92	5	
		75982	Imazalil	1.79	5	Regulation (EC) No 669/2009
			Pyrimethanil	1.79	10	
			Thiabendazole	0.03	5	
		76004	Imazalil	0.84	5	Regulation (EC) No 669/2009
			Pyrimethanil	0.65	10	
			Pyriproxyfen	0.02	0.6	
		75982	Thiabendazole	0.02	5	Regulation (EC) No 669/2009
			4-Phenylphenol	2.25	5	
			Chlorpyrifos	0.05	0.3	
		75982	Fenitrothion	0.03	0.01	Breach with 50% uncertainty
			Imazalil	4.44	5	
			Lambda-cyhalothrin	0.02	0.2	
		75982	Pyriproxyfen	0.01	0.6	Regulation (EC) No 669/2009
			Thiabendazole	4.90	5	
			4-Phenylphenol	0.50	5	
		76004	Dimethoate	0.03	0.02	Regulation (EC) No 669/2009
			Omethoate	0.01	0.02	
			Dimethoate (sum)	0.04	0.02	
		76004	Imazalil	1.06	5	Breach but <50% uncertainty
			Imazalil	1.06	5	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Reasons and Notes
Strawberries	S Africa	76285	Thiabendazole	1.07	5	Follow up to 2012 breach 76185
			None detected			
	Egypt	75540	Boscalid	0.07	10	Regulation (EC) No 669/2009
			Captan	0.05	3	
			Etoxazole	0.01	0.2	
			Pyraclostrobin	0.03	1	
			Teflubenzuron	0.02	0.2	
		75583	None detected			Regulation (EC) No 669/2009
		75565	Iprodione	0.16	15	Regulation (EC) No 669/2009
		75617	None detected			Regulation (EC) No 669/2009
		76594	Boscalid	0.29	10	Regulation (EC) No 669/2009
			Iprodione	0.11	15	
			Pyraclostrobin	0.09	1	
		76607	Carbendazim	0.05	0.1	Regulation (EC) No 669/2009
		76608	Boscalid	0.09	10	Regulation (EC) No 669/2009
			Iprodione	0.42	15	
			Metalaxyl	0.01	0.5	
			Pyraclostrobin	0.03	1	
			Spinosad	0.02	0.3	
		76619	Boscalid	0.09	10	Regulation (EC) No 669/2009
			Bupirimate	0.08	1	
			Ethirimol	0.02	0.2	
			Iprodione	0.39	15	
			Pyraclostrobin	0.02	1	
			Spinosad	0.01	0.3	
		76620	Iprodione	0.02	15	Regulation (EC) No 669/2009
		76621	Boscalid	0.15	10	Regulation (EC) No 669/2009
			Bupirimate	0.17	1	
			Ethirimol	0.02	0.2	
			Iprodione	1.15	15	
			Myclobutanil	0.01	1	
			Pyraclostrobin	0.04	1	
			Spinosad	0.02	0.3	
Peppers	Turkey	75875	None detected			Regulation (EC) No 669/2009
		76338	None detected			Regulation (EC) No 669/2009
Mandarins	Peru	76188	Imazalil	0.93	5	Follow up to 2011 breach 74996
			Thiabendazole	0.58	5	
	Spain	76418	4-Phenylphenol	0.03	5	Follow up to 2011 breach 75202
			Chlorpyrifos	0.05	2	
			Imazalil	1.60	5	
Cherry	Turkey	76106	Cypermethrin	0.24	2	Follow up to 2011 breach 74971
Persimmon	Spain	76352	Boscalid	0.02	0.05	Follow up to 2011 breach 75231
Guava	Vietnam	76313	Difenoconazole	0.03	0.1	Follow up to 2011 breach 75233
Pumpkins	Costa Rica	76292	None detected			Follow up to 2011 breach 74950
Head cabbage	Ireland	75999	Deltamethrin		0.1	Follow up to 2011 breach 74608
			Indoxacarb		3	
Swedes	Ireland	76044	Chlorpyrifos		0.05	Follow up to 2011 breach 74922
Beans with pods	Morocco	75821	None detected			Follow up to 2011 breach 74608
Celery	Ireland	76115	Azoxystrobin	0.17	5	Follow up to 2011 breach 74868
			Difenoconazole	0.02	5	

Commodity	Country of origin	Sample ID	Residues detected	Level mg kg ⁻¹	MRL	Reasons and Notes
Lettuce	Ireland	76080	None detected			Follow up to 2011 breach 74863
	Ireland	76296	None detected			Follow up to 2011 breach 75152
Spinach	Ireland	76340	None detected			Follow up to 2011 breach 74941
Fungi	Ireland	75860	4-Phenylphenol	0.01	0.05	Follow up to 2011 Invalid use 74642
Oats	Ireland	76388	Chlormequat	2.7	5	Follow up to 2011 breach 75041

The most commonly detected pesticides in the targeted samples were Imazalil in 13 samples, followed by Thiabendazole in 12 samples and Chlorpyrifos in 8 samples.

4.2.2 *Enforcement sampling of food of animal origin*

There was no targeted sampling required for food of animal origin relating to pesticide residues in 2012, because no MRL breach was detected in food of animal origin in 2011 or 2012 and there was no requirement for sampling such products under the Commission Regulation (EC) No 669/2009.

5 DISCUSSION

The total number of samples analysed in the Pesticide Control Laboratory increased from 1,329 samples in 2009 to 1,540 samples in 2012. The number of pesticides in the analytical screens has remained relatively constant since 2010, with up to 370 pesticide substances and metabolites and 7 PCB congeners being applied to the various sample matrices. As indicated in Figure 1, the percentage of samples with detected residues above the limit of quantitation (LOQ) increased from 38.1% in 2009 to 46.4% over the same period. In 2012, the increased sensitivity of new equipment, and associated validation work, permitted a reduction in the limit of quantitation to 0.01 mg kg⁻¹ for many pesticides. This is considered to be a factor in the increase in the number of samples with detected residues. The proportion of samples with residues exceeding the MRLs was 0.8% in 2009, 2.1% in 2010, 2.2% in 2011 and 0.8% in 2012 while the proportion of samples with detectable residues was 37.3% in 2009, 38.1% in 2010, 42.6% in 2011 and 44.3% in 2012.

Details of the scopes and the limits of quantitation for the different analytical methods used in the Pesticide Control Laboratory (PCL) listing pesticides, contaminants and metabolites are provided in Annex IV of this report.

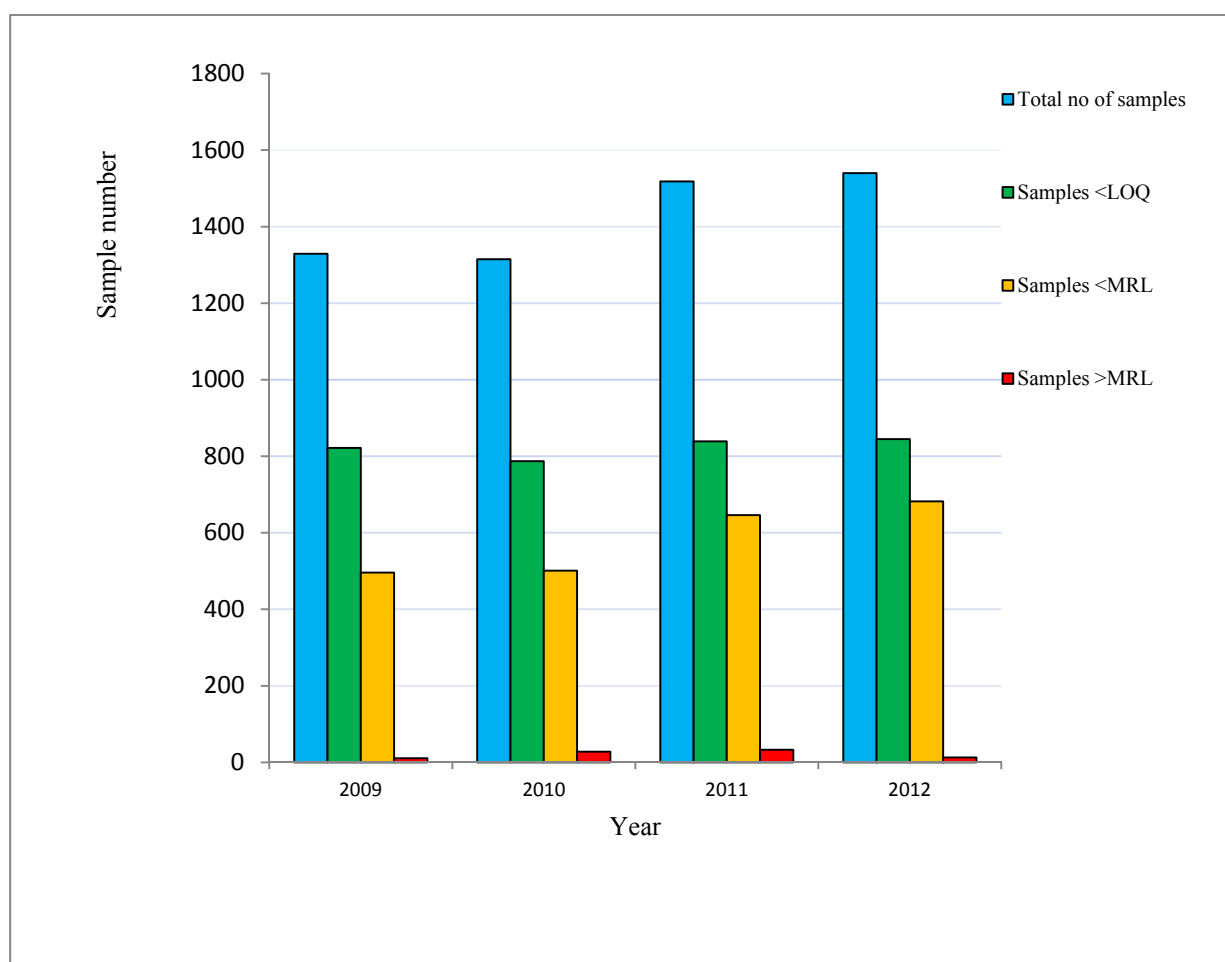


Figure 1: Number of samples of all commodities analysed per annum from 2009-2012 and number of samples with residues <LOQ, <MRL and >MRL.

5.1 Fruit and vegetables

Pesticide residues were most frequently detected in samples of raw and processed fruit and vegetables. Since 2009, the percentage of samples with detected residues above the LOQ increased from 60% in 2009 and 2010 to 65% in 2011 and 66.6% in 2012. Over the same period, the percentage of samples of fruit and vegetables with MRL breaches was 1.3% in 2009, 3.3% in both 2010 and 2011 and 1.2% in 2012. Many MRLs have changed during that period. Some MRLs have been decreased to the limit of detection, particularly where uses previously authorised are no longer supported. Other MRLs have been increased, for example, where new or modified uses were authorised in the EU or where import tolerances for authorised uses outside the EU were granted. Overall, MRLs for many pesticides are being set to lower levels following reviews of existing MRLs under Article 12 of Regulation (EC) No. 396/2005. This may be a factor in explaining the variation in the breaches over the last 4 years.

A sample from an imported consignment of pears, which was labelled as ‘organic’, was found to contain diphenylamine. The levels detected were likely to be the result of possible contamination from bins previously used for treated apples or pears. The remaining 48 ‘organic’ samples contained no detected residues. Results above the LOQ were forwarded, through the Organic Unit of DAFM, to the EU Organic Farming Information System with a view to follow up investigations being carried out in the country of origin.

Figure 2 provides a graphic display of the number of samples of fruit and vegetables analysed from 2009-2012 and the residues detected below the LOQ, below the MRL and above the MRL.

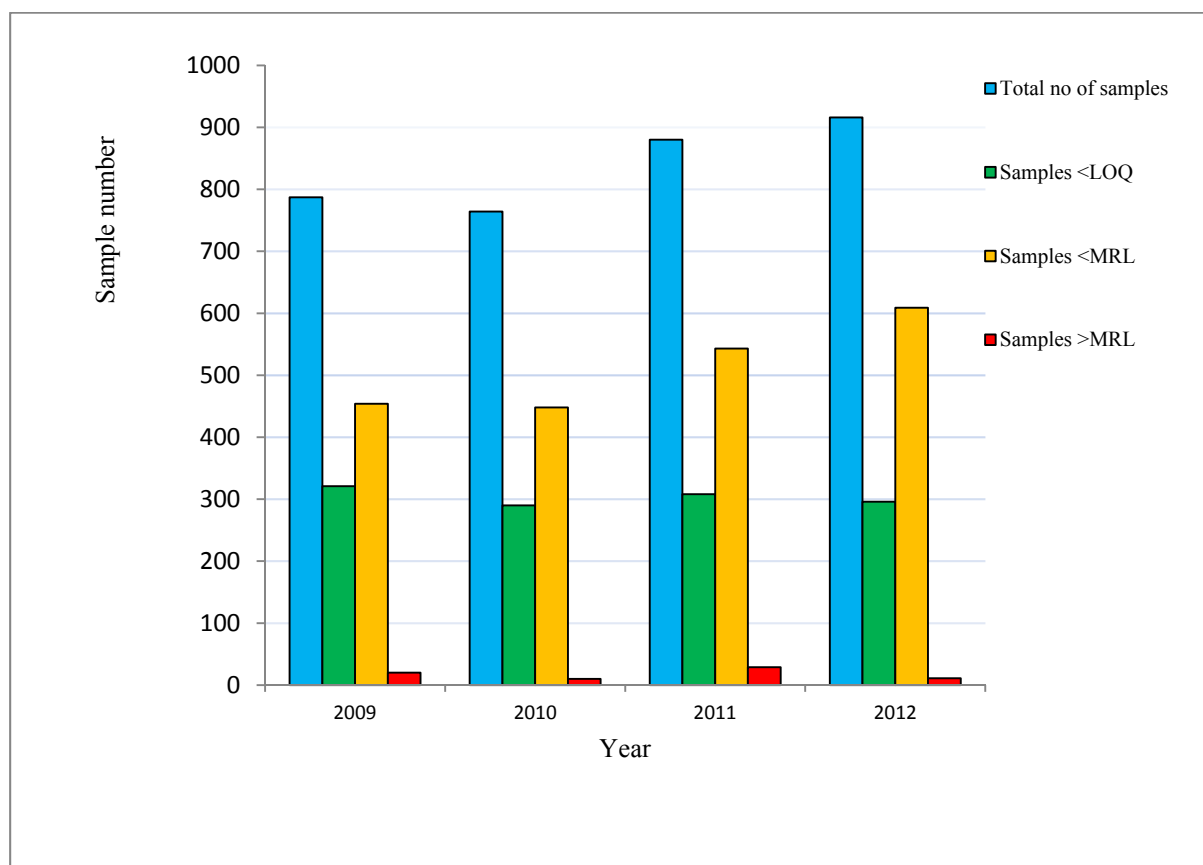


Figure 2: Number of fruit and vegetables with residues <LOQ, <MRL and >MRL from 2009 to 2012

5.1.1 Most frequently found pesticides in the routine fruit & vegetables

Table 16 identifies, in order of frequency, the 10 most frequently detected pesticides in the 916 raw and processed fruit and vegetables samples taken in 2012 and the fruit and vegetable commodities on which they are most frequently found.

Table 16: Ten most frequently detected pesticides in fruit and vegetables

Pesticide	Frequency no	% Frequency	Commodities detected in
Imazalil	161	17.6%	Citrus and pome fruits
Chlorpyrifos	126	13.7%	Citrus and pome fruits
Thiabendazole	106	11.6%	Citrus, pome and miscellaneous fruits
Boscalid	96	10.5%	Pome, strawberries table grapes, and lettuce
Fludioxonil	70	7.6%	Pome fruits and strawberries
Iprodione	59	6.4%	Strawberries and stone fruits
Pyrimethanil	58	6.3%	Citrus, miscellaneous fruits and strawberries
Diphenylamine	57	6.2%	Pome fruits
Azoxystrobin	56	6.1%	Banana and strawberries
Cyprodinil	53	5.8%	Pome fruits and strawberries

The majority of pesticides were detected on pome and citrus fruits. The most frequently detected pesticide was the fungicidal substance, imazalil, (17.6% of samples), which are used mainly in post-harvest treatments and was found in/on citrus fruit and, to a lesser extent, on pome fruits.

The most commonly detected insecticide was the organophosphorous pesticide, chlorpyrifos, (13.7% of samples), which was detected mainly in citrus and, to a lesser extent, in pome fruit.

Another fungicide, thiabendazole, (11.6% of samples), which is also used in post-harvest treatments, was found frequently on citrus, pome and miscellaneous fruits.

Boscalid was most commonly detected pesticide in apples, lettuce, strawberries and table grapes. Iprodione and fludioxonil were found on a variety of commodities, such as pome, stone fruits and strawberries.

5.1.2 Countries of origin

The raw and processed fruit and vegetable samples taken as part of the surveillance strategy consists of 142 (15.5%) domestic samples, 417 (45.5%) EEA samples, 290 (31.7%) non EEA countries and 67 (7.3%) of samples of unknown origin. Table 17 provides a breakdown of the main countries of origin of the consignments sampled and the number and percentage of samples taken in 2012 from those sources. As in previous years, Spain was the main source of fruit and vegetables sampled in the 2012 surveillance programme.

Table 17: Main sources of fruit and vegetables samples in the 2012 programme

	Countries of origin	No of samples	% of fruit & vegetable samples
Domestic	Ireland	142	15.5%
EEA Countries	Spain	201	21.9%
	Italy	51	5.6%
	France	46	5.0%
	Netherlands	44	4.8%
	United Kingdom	26	2.8%
Outside EEA	Chile	36	3.9%
	Egypt	32	3.5%
	Brazil	28	3.1%
	Costa Rica	20	2.2%
	Peru	20	2.2%

5.1.3 Multiple Residues

Of the 916 raw and processed fruit and vegetable samples analysed, 610 (66.6%) samples contained residues greater than the LOQ. Multiple pesticides of 2 or more different pesticides were detected in 405 (44.2%) samples.

Table 18 provides a breakdown of the frequency of multiple residues and the commodities with eight or more different pesticides in a single sample. Strawberries from Ireland and pears from Portugal frequently contained high numbers of multiple residues with eight or more different pesticides. A domestic sample of strawberries was found to contain 14 different pesticides - the highest number of multiple pesticides detected in a single sample during 2012 – but none of the residues found in the sample exceeded an MRL.

Table 18: Details of fruit and vegetable samples with 8 and more different pesticides

No of pesticides	Sample ID	Commodity	Country of origin
8	75712	Strawberries	Malta
	76232	Strawberries	Ireland
	75910	Mandarins	S Africa
	76316	Pears	Portugal
	76175	Cabbage	Ireland
9	76119	Strawberries	Ireland
	76382	Pears	Portugal
	75928	Pears	Portugal
	76335	Mandarins	Peru
	76444	Table grapes	Lebenon
10	76040	Strawberries	Ireland
	76038	Strawberries	Ireland
	76083	Strawberries	Ireland
	76178	Strawberries	Ireland
	75729	Pears	Portugal
	75518	Pears	Portugal

No of pesticides	Sample ID	Commodity	Country of origin
11	75590	Pears	Portugal
	75771	Apples	France
	76121	Strawberries	Ireland
	76290	Strawberries	Belgium
14	76086	Strawberries	Ireland

5.2 Cereals

Pesticide residues were found in 57 (55.3%) of the 103 cereal samples taken for the surveillance programme. This is a higher frequency than that found in previous years – 38.7% in 2009, 25% in 2010 and 53.8% in 2011. This, in part, is due to the increase in the analytical scope for the single residue methods and the decrease in the LOQs for several pesticides in the multiresidue methods. No cereal sample from consignments destined for human consumption was found to exceed the MRLs.

Figure 3 provides a graphic display of the number of samples of cereals analysed from 2009 to 2012 and a summary of the findings.

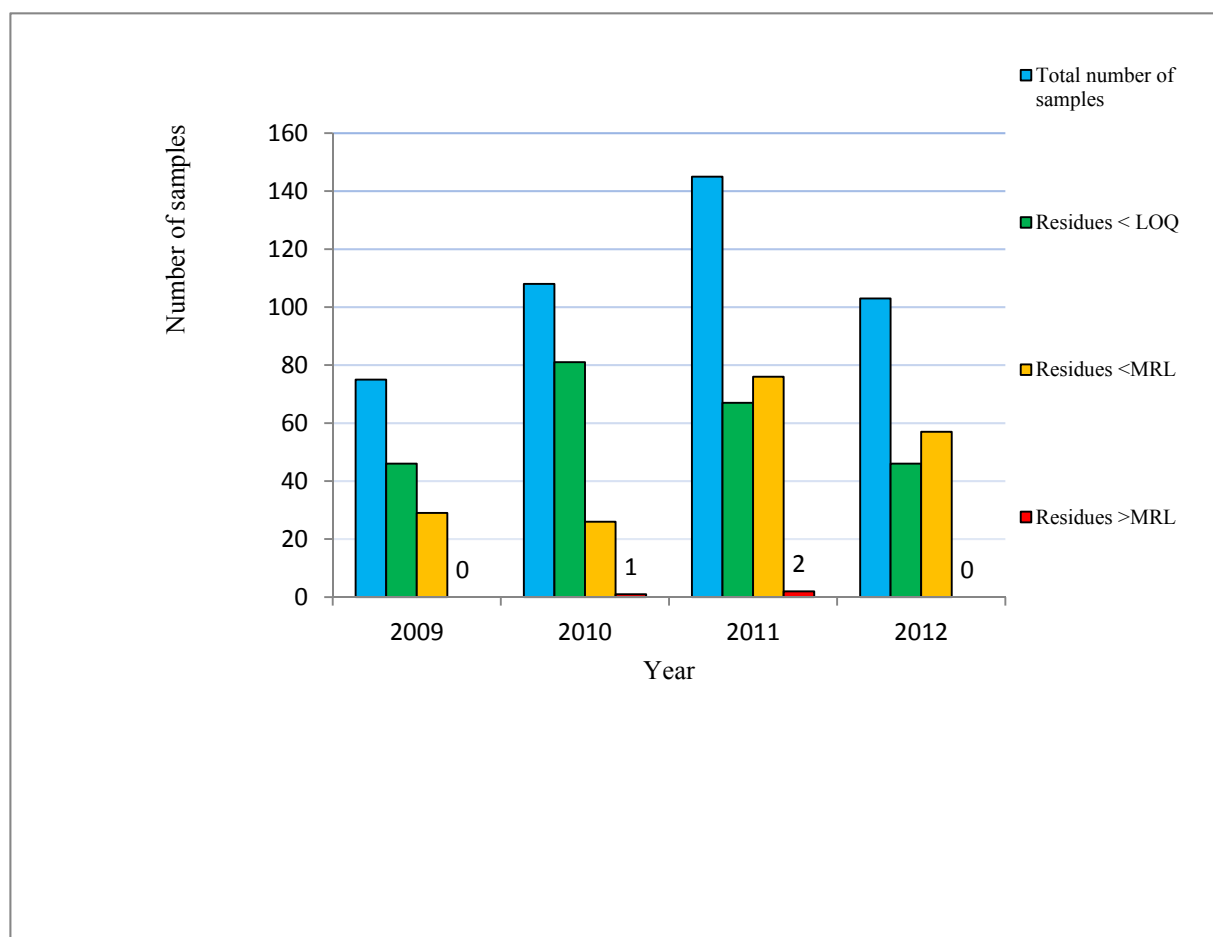


Figure 3: Number of of cereal samples analysed and number of samples with residues <LOQ, <MRL and >MRL from 2009 to 2012

Table 19 identifies the top 5 frequently detected pesticides in the cereal samples in 2012, the number of samples analysed for those pesticides and the frequency of detection of residues.

Table 19: Top 5 most frequently detected pesticides in cereal samples in 2012

Pesticide	No. samples analysed	Frequency no	% Frequency
Chlormequat	51	39	76.5%
Glyphosate	39	21	53.8%
Mepiquat	51	5	9.8%
Tricylcazone	103	6	5.8%
Buprofezin	103	5	4.9%

Chlormequat, authorised as a growth regulator, was the most frequently detected pesticide and was detected in 39 out of 51 cereal samples which were analysed for chlormequat and other “quat” compounds, such as mepiquat. Glyphosate was detected in 21 out of 39 samples analysed using the selective method for glyphosate. Most of the cereal samples were of domestic origin (80.3%).

5.3 Food of animal origin

Of the 401 food of animal origin samples analysed in 2012, 385 (96%) contained no residue greater than the LOQ. The remaining 16 samples containing residues comprised 14 kidney fat sample, 1 egg sample and 1 honey sample. The kidney fat samples were sampled randomly at abattoirs and meat plants as part of the National Residue Plan for food of animal origin under Directive 96/23/EC. No sample contained residues in excess of an MRL.

The persistent organic pollutants (POPs) - DDT, Aldrin, Dieldrin, Lindane and Hexachlorobenzene - were mainly found only in the kidney fat samples, with DDT being the most commonly detected contaminant.

One sample of eggs was found to contain PCB 118, one of the marker PCBs in the residue screen. The sample was forwarded to the State Laboratory for specific dioxin analysis. The dioxin content reported, at 1.17 ng kg⁻¹, was below the limit value of 2.5 ng kg⁻¹ for fat in eggs. A follow-up investigation established that the eggs were from free range hens that were being fed on a diet rich in fish oil to increase the Omega 3 content of the eggs. Fish oil has naturally occurring elevated levels of PCBs and dioxins.

No residue was detected in the 68 milk samples which taken directly from selected dairy plants around the country.

5.4 Infant formula and cereal-based baby food

No pesticide residue was detected in any of the 40 infant formula or the 25 cereal-based baby food samples analysed in 2012, which provide confidence on the quality of babyfoods on the Irish market.

5.5 Enforcement and follow up

5.5.1 MRL breaches

Thirteen (0.84%) of all 1540 samples taken in 2012 contained residues above the legal limit (MRL) set in Regulation (EC) No 396/2005 and Commission Regulation (EU) No 37/2010. Two samples were of domestic origin, 3 were from other EU countries and the remaining 8 samples originated from non-EU countries. The majority (11) of the breaches were found in fruit and vegetable samples taken as part of the surveillance programme and 2 were taken as part of the enforcement strategy for imported produce in accordance with Regulation (EU) No 669/2009.

In the case of each of the 2 breaches of the MRLs involving commodities/produce of domestic origin, inspections of the growers' premises and pesticide use records are carried out, the grower was interviewed and recommendations were made for corrective action. Produce from the growers concerned was listed for further targeted sampling for a 12-month period.

Regarding the MRL breaches in imported samples, it was not possible to establish the reasons for breaches in the absence of details on the pesticides authorised for use in the countries of origin. Where an imported product contained a residue in excess of an MRL, the authorities in the country of origin and the Irish importer were informed of the MRL breach. They were also informed that further produce from the same source encountered on the Irish market, would be targeted for special analysis and, if necessary, subjected to statutory actions.

Overall, 9 of the 13 MRL breaches related to commodity/substance combinations where the MRL were set to the LOQ, and the nature of the breaches suggests either non-registered use, cross contamination or the absence of an import tolerance for a registered use outside the EU.

A summary of the reasons for the breaches exceeding the MRLs is provided in Table 20 below.

Table 20: Summary of MRL exceedances in 2012 with reasons for breaches (if known)

Sampling Type	Commodity	Sample No.	Country of Origin	Pesticide	Residue found (mg/kg) ²	MRL (mg/kg)	Reason for breach
Surveillance	Brussels sprout	76385	Ireland	Chlorpyrifos	0.075	0.05*	Incorrect GAP followed. No residue expected with drench treatment.
Surveillance	Carrot	75823	Spain	Linuron	0.26	0.2	Reason for non-compliance not established.
Surveillance	Carrot	76020	Israel	Iprodione	1.65	0.5	Reason for non-compliance not established.
Surveillance	Courgette	75556	Spain	Chlorothalonil	0.02	0.01*	Reason for non-compliance not established.
Enforcement	Orange	75982	Egypt	Fenitrothion	0.03	0.01*	Reason for non-compliance not established.
Enforcement	Orange	76004	Egypt	Dimethoate (sum)	0.04	0.02*	Reason for non-compliance not established.
Surveillance	Orange	76185	S Africa	Carbendazim	1.19	0.2	Reason for non-compliance not established.
Surveillance	Parsley	76081	Ireland	Chlorpyrifos	0.16	0.05*	Spray drift from adjacent crop.
Surveillance	Passion fruit	76071	Colombia	Boscalid	0.10	0.05*	Reason for non-compliance not established.
Surveillance	Peas with pods	76194	Kenya	Dimethoate (sum)	0.04	0.02*	Reason for non-compliance not established.
Surveillance	Pear	76553	Portugal	Phosmet	0.49	0.2	Reason for non-compliance not established.
Surveillance	Star fruit	76203	Malaysia	Dimethoate	0.02	0.02*	Reason for non-compliance not established.
Surveillance	Sweet potato	75786	Honduras	Fipronil	0.03	0.005*	Reason for non-compliance not established. GAP records indicated that Fipronil was used.

* MRL at limit of quantitation. This is equivalent to the term limit of determination used in the Regulation (EC) No 396/2005

5.5.2 Non registered uses

In 2012, 12 samples of produce of domestic origin contained residues, while less than the relevant MRL, indicating that non-registered uses of pesticides by Irish producers had taken place. While the levels detected indicated that there was no unacceptable risk to consumers, inspections of the growers' premises and pesticide use records were carried out, the growers were interviewed and recommendations were made for corrective action. Produce from the growers concerned was listed for further targeted sampling for a 12-month period.

5.6 Consumer assessments of MRL breaches

5.6.1 Risk assessment - acute

An acute risk assessment for Irish consumers, adult and children, was conducted for each MRL exceedance detected in 2012. The highest acute intake, expressed as a percentage of the ARfD, was identified in a sample of oranges from South Africa containing a residue of 2.58 mg kg⁻¹ carbendazim. Based on studies carried out on the distribution of carbendazim in citrus pulp and peel¹⁰, the consumer risk assessment was refined by a factor of 0.46 to correct for peeling and showed consumer intakes, without peel, of 111% and 114% of the ARfD for adults and children respectively. The assessment was based on consumption of oranges from all dietary sources of over 435 g day⁻¹ and 204 g day⁻¹ by adults and children respectively, levels reached by only 1.9% of adults and 0.3% of children. It was further

¹⁰ EFSA Scientific Report 2009, 1-29 Refined assessment regarding certain MRLs of concern for active substances Carbendazim and Thiophanatemethyl

noted that EFSA has concluded that carbendazim is not acutely toxic¹¹. Follow-up investigations with the importer traced the sample to a small consignment, imported into Ireland only, and established that no oranges from the consignment remained on the market.

Table 21 provides a summary of the acute risk assessments for each MRL breach detected in 2012.

Table 21: Acute risk assessments for samples exceeding the MRL in 2012

Commodity	ID	Origin	Pesticide	Residue	MRL	Consumer	ARfD	Short term Intake as % of ARfD
Brussels sprout	76385	Ireland	Chlorpyrifos	0.08	0.05	adult child	0.1	0.40% 1.4%
Carrot	75823	Spain	Linuron	0.26	0.2	adult child	0.03	6.6% 24.9%
Carrot	76020	Israel	Iprodione	1.65	0.5	adult child	0.06	20.9% 79.1%
Courgette	75556	Spain	Chlorothalonil	0.02	0.01	adult child	0.6	0.0% 0.0%
Orange	75982	Egypt	Fenitrothion	0.03	0.01	adult child	0.013	4.2% 14.2%
Orange	76004	Egypt	Dimethoate	0.03	0.02	adult child	0.01	5.4% 18.4%
			Omethoate	0.01	0.02	adult child	0.002	9.9% 31.9%
			Dimethoate(sum)			adult		15.3%
			Dimethoate(sum)			child		50.3%
Orange	76185	South Africa	Carbendazim	2.58	0.2	adult	0.02	111%*
						child		114%*
Parsley	76081	Ireland	Chlorpyrifos	0.16	0.05	adult child	0.1	0.0% 1.4%
Passion fruit	76071	Colombia	Boscalid	0.10	0.05	adult child	0.04	2.4% 5.3%
Pea with pods	76194	Kenya	Dimethoate	0.03	0.02	adult child	0.01	0.5% 0.1%
			Omethoate	0.01	0.02	adult child	0.002	0.8% 0.2%
			Dimethoate(sum)			adult		1.3%
			Dimethoate(sum)			child		0.3%
Pear	76553	Portugal	Phosmet	0.49	0.2	adult child	0.045	15.1% 47.9%
Star fruit	76203	Malaysia	Dimethoate	0.02	0.02	adult child	0.01	2.4% 4.9%
Sweet potato	75786	Honduras	Fipronil	0.03	0.005	adult child	0.009	7.0% 0.0%

*Assessment refined by applying peel:pulp factor of 0.46

¹¹ EFSA Journal 2010; 8(5):1598: Conclusion on the peer review of the pesticide risk assessment of the active substance carbendazim

5.6.2 Risk assessment - chronic

A chronic risk assessment for Irish consumers, adult and children, was also conducted for each MRL exceedance. The calculation of the chronic exposure assessment is based on the assumption that the commodities which breached the MRL were consumed on a daily basis, with the same levels of pesticides, over a lifetime. Therefore, the estimate was regarded as an overestimate of the real exposure to pesticides. The highest chronic intake, expressed as a percentage of the ADI, was a sample of oranges containing dimethoate and omethoate. The assessments were summed to give a total chronic intake of 6% of the ADIs for adults.

Table 22 provides details of the estimated chronic intake by adults and children of the 13 samples containing pesticides exceeding the MRLs.

Table 22: Chronic risk assessments of samples exceeding the MRL in 2012

Commodity	ID	Origin	Pesticide	Residue	MRL	Consumer	ADI	Chronic Intake as % of ADI ³	
Brussels sprout	76385	Ireland	Chlorpyrifos	0.08	0.01	adult	0.1	0.2%	
						child		0.2%	
Carrot	75823	Spain	Linuron	0.26	0.2	adult	0.003	3.0%	
						child		5.0%	
Carrot	76020	Israel	Iprodione	1.65	0.5	adult	0.06	1.0%	
						child		1.6%	
Courgette	75556	Spain	Chlorothalonil	0.02	0.01	adult	0.015	0.2%	
						child		0.1%	
Orange	75982	Egypt	Fenitrothion	0.03	0.01	adult	0.005	0.5%	
						child		0.4%	
Orange	76004	Egypt	Dimethoate	0.03	0.02	adult	0.001	2.8%	
			Omethoate	0.01	0.02	child		1.9%	
						adult		0.0003	3.2%
						child			2.2%
						Dimethoate(sum) Dimethoate(sum)			adult child
Orange	76185	South Africa	Carbendazim	2.58	0.2	adult	0.02	5.7%*	
						child		3.9%*	
Parsley	76081	Ireland	Chlorpyrifos	0.16	0.05	adult	0.01	0.006%	
						child		0.3%	
Passion fruit	76071	Colombia	Boscalid	0.10	0.05	adult	0.04	0.1%	
						child		0.8%	
Pea with pods	76194	Kenya	Dimethoate	0.03	0.02	adult	0.001	0.3%	
			Omethoate	0.01	0.02	child		0.1%	
						adult		0.0003	0.4%
						child			0.7%
						Dimethoate(sum) Dimethoate(sum)			adult child
Pear	76553	Portugal	Phosmet	0.49	0.2	adult	0.01	2.4%	
						child		5.4%	
Star fruit	76203	Malaysia	Dimethoate	0.024	0.02	adult	0.001	0.9%	
						child		1.4%	
Sweet potato	75786	Honduras	Fipronil	0.03	0.005	adult	0.003	3.0%	
						child		0.0%	

*Assessment refined by applying peel:pulp factor of 0.46

The Pesticide Control Laboratory and Pesticide Registration and Control Division of DAFM and the FSAI continue to have an on-going dialogue, as part of the service contract between both organisations, with a view to optimising the control programme for pesticide residues in food and assessing the possible risk of such residues for consumers. The programme will continue to take account of the opinion of the European Commission with respect to the range of crops and pesticides to be included in the programme.

For the immediate future, DAFM will focus on further increasing the capacity of the laboratory to enforce the MRL legislation as effectively as possible by increasing the number of pesticides using multi and single residue methods and to reduce the turnaround time for samples taken under Regulation (EU) No 669/2010.

The analytical results were generated by J. Garvey, F. O Regan, T. Walsh, M. Kelly, D. Smyth, J. Coloe, W. Cummins, M. Graham, A. Ryan, C.O Connor, T.O Hara, M. O Connor and D. Harris of the Pesticide Control Laboratory.

P. Carey and P. Killarney carried out the sampling; D McGilloway effected the violation investigations.

This report was compiled through the efforts of T. Medlycott, D. Sheridan and J. Acton

6 ANNEXES

6.1 ANNEX I Regulations fixing maximum levels for pesticide residues

Regulation (EC) No 396/2005 came into force on 01.09.2008, 6 months after publication of the last of the Regulations establishing Annexes I, II, III and IV. On the same date, Council Directives 76/895/EEC, 86/362/EEC and 86/363/EEC were repealed.

Regulation (EC) No 396/2005	OJ L70 of 16.03.2005
Regulation (EC) No 299/2008	OJ L97 of 09.04.2008

For Annex I of Regulation (EC) No 396/2005

Commission Regulation (EC) No 178/2006	OJ L29 of 02.02.2006
Commission Regulation (EC) No 600/2010	OJ L184 of 09.07.2010

For Annexes II, III and IV of Regulation (EC) No 396/2005

Commission Regulation (EC) No 149/2008	OJ L58 of 01.03.2008
Corrigendum to Commission Regulation (EC) No 149/2008	OJ L240 of 09.09.2008
Commission Regulation (EC) No 839/2008	OJ L234 of 30.08.2008
Commission Regulation (EC) No 256/2009	OJ L81 of 27.03.2009
Commission Regulation (EC) No 822/2009	OJ L329 of 10.09.2009
Commission Regulation (EC) No 1050/2009	OJ L290 of 06.11.2009
Commission Regulation (EC) No 1097/2009	OJ L301 of 17.11.2009
Commission Regulation (EU) No 304/2010	OJ L94 of 15.04.2010
Commission Regulation (EU) No 459/2010	OJ L129 of 28.05.2010
Commission Regulation (EU) No 750/2010	OJ L220 of 21.08.2010
Commission Regulation (EU) No 893/2010	OJ L266 of 09.10.2010
Commission Regulation (EU) No 310/2011	OJ L86 of 01.04.2011
Commission Regulation (EU) No 460/2011	OJ L124 of 13.05.2011
Commission Regulation (EU) No 508/2011	OJ L137 of 25.05.2011
Commission Regulation (EU) No 520/2011	OJ L140 of 27.05.2011
Commission Regulation (EU) No 524/2011	OJ L142 of 28.05.2011
Commission Regulation (EU) No 559/2011	OJ L152 of 11.06.2011
Commission Regulation (EU) No 812/2011	OJ L208 of 13.08.2011
Commission Regulation (EU) No 813/2011	OJ L208 of 13.08.2011
Commission Regulation (EU) No 978/2011	OJ L258 of 04.10.2011
Commission Regulation (EU) No. 270/2012	O.J. No.L89 of 27.03.2012,
Commission Regulation (EU) No.322/2012	O.J. No.L105 of 17.04.2012
Commission Regulation (EU) No. 441/2012	O.J No.L135 of 25.05.2012
Commission Regulation (EU) No 473/2012	O.J. No.L144 of 05.06.2012,
Commission Regulation (EU) No 556/2012	O.J. No.L166 of 27.06.2012
Commission Regulation (EU) No 592/2012	O.J. No.L176 of 06.07.2012
Commission Regulation (EU) No 897/2012	O.J. No.L266 2.10.2012
Commission Regulation (EU) No. 899/2012	O.J. No. L273 of 06.10.2012,

For Annex VII of Regulation (EC) No 396/2005

Commission Regulation (EC) No 260/2008	OJ L76 of 19.03.2008
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Irish Legislation

The regulation and its amendments were transposed into Irish legislation with the following statutory instruments:

S.I. 565/2008
S.I 302/2011
S.I 202/2012
S.I 497/2012

Veterinary medicinal products in food of animal origin

Directive 96/23/EC	OJ L125 of 26.05.1996
Council Regulation (EC) No 37/2010	OJ L15/1 of 20.1.2010
Commission Implementing Regulation (EU) No 1186/2012	OJ L 338 of 12.12.2012

Baby food legislation

Commission Directive 2006/125/EC
Commission Directive 2006/141/EC

OJ L339 of 06.12.2006
OJ L401 of 30.12.2006

6.2 ANNEX II Analytical methods used

Multi residue method 1 in food of plant and animal origin

Extraction method based on *Analytical Methods for Pesticide Residues in Foodstuffs*, 6th edition, 1996, Ministry of Public Health, Welfare and Sport, The Netherlands.

Detection GC/MSD.

Multiresidue method 2 in food of animal origin

Extraction based on clean-up method No. 5 of the *Manual of Pesticide Residue Analysis* DFG Deutsche Forschungsgemeinschaft, Volume 1, 1987 which involves the extraction with acetonitrile and acetone, clean-up using gel permeation chromatography column and alumina/silver nitrate micro columns (for organochlorine pesticides only).

Detection GC /MSD

Multi residue method 3 in food of plant and animal origin

S.J. Lehotay, K. Mastovska, A.R. Lightfield, *Use of Buffer and Other Means to Improve Results of Problematic Pesticides in a Fast and Easy Method for Residue Analysis of Fruits and Vegetables*, JAOAC-Int., 88(2): 615-629. 2005.

Detection HPLC/MS/MS.

Single residue method 1: Chlormequat and mepiquat in food of plant origin

The method is available on the EU Community Reference Laboratory (CRL) Website at http://www.crl-pesticides.eu/library/docs/srm/meth_ChlormequatMepiquat_CrlSrm.pdf.

Detection by HPLC-MS/MS.

Single residue method 2: Dithiocarbamates in food of plant origin

Residues of dithiocarbamates are determined as CS₂ following acid digestion degradation with tin chloride and hydrochloric acid. and liquid liquid extraction with trimethyl pentane. CSL York UK Project FD 98/46.

Detection by GC/MSD.

Single residue method 3: Amitraz in food of plant and animal origin

Screening and confirmation of amitraz and its metabolites in food of plant origin is based on the S.J. Lehotay, K. Mastovska, A.R. Lightfield,, JAOAC-Int., 88(2): 615-629. 2005.

Detection by LC-MS/MS.

6.3 ANNEX III Analytical scopes of multiresidue methods used

Fruit and Vegetables	LOQ	Cereal and Honey	LOQ	Milk, Eggs, Baby food	LOQ	Animal Fat	LOQ
2,4-D	0.02	2,4-D	0.02	2,4-D	0.02	2-Phenylphenol	0.01
2,4-DB	0.05	2,4-DB	0.05	2,4-DB	0.05	Acephate	0.05
2-Phenylphenol	0.01	2-Phenylphenol	0.01	2-Phenylphenol	0.01	Acetamiprid	0.01
Acephate	0.01	Acephate	0.01	Acephate	0.01	Aclonifen	0.02
Acetamiprid	0.01	Acetamiprid	0.01	Acetamiprid	0.01	Acrinathrin	0.01
Aclonifen	0.01	Aclonifen	0.01	Aclonifen	0.02	Alachlor	0.01
Acrinathrin	0.01	Acrinathrin	0.01	Acrinathrin	0.005	Aldicarb	0.01
Alachlor	0.01	Alachlor	0.01	Alachlor	0.005	Aldicarb-Sulfone	0.01
Aldicarb	0.02	Aldicarb	0.02	Aldicarb	0.02	Aldicarb-Sulfoxide	0.02
Aldicarb-Sulfone	0.01	Aldicarb-Sulfone	0.01	Aldicarb-Sulfone	0.01	Aldrin	0.005
Aldicarb-Sulfoxide	0.02	Aldicarb-Sulfoxide	0.02	Aldicarb-Sulfoxide	0.02	Ametryn	0.01
Aldrin	0.01	Aldrin	0.01	Aldrin	0.005	Amidosulfuron	0.01
Ametryn	0.01	Ametryn	0.01	Ametryn	0.01	Aminocarb	0.01
Amidosulfuron	0.01	Amidosulfuron	0.01	Amidosulfuron	0.01	Amitrole	0.02
Aminocarb	0.01	Aminocarb	0.01	Aminocarb	0.01	Asulam	0.01
Amitrole	0.02	Amitrole	0.02	Amitrole	0.02	Atrazine	0.01
Asulam	0.02	Asulam	0.02	Asulam	0.02	Azaconazole	0.01
Atrazine	0.01	Atrazine	0.01	Atrazine	0.01	Azamethiphos	0.01
Azaconazole	0.01	Azaconazole	0.01	Azaconazole	0.01	Azinphos-ethyl	0.005
Azamethiphos	0.01	Azamethiphos	0.01	Azamethiphos	0.01	Azinphos-methyl	0.01
Azinphos-ethyl	0.01	Azinphos-ethyl	0.01	Azinphos-ethyl	0.005	Azoxystrobin	0.01
Azinphos-methyl	0.01	Azinphos-methyl	0.01	Azinphos-methyl	0.01	Benalaxyl	0.01
Azoxystrobin	0.01	Azoxystrobin	0.01	Azoxystrobin	0.01	Bendiocarb	0.02
Benalaxyl	0.01	Benalaxyl	0.01	Benalaxyl	0.01	Bifenthrin	0.005
Bendiocarb	0.01	Bendiocarb	0.01	Bendiocarb	0.01	Binapacryl	0.005
Bentazone	0.01	Bentazone	0.01	Bentazone	0.01	Biphenyl	0.01
Bifenthrin	0.01	Bifenthrin	0.01	Bifenthrin	0.005	Bitertanol	0.01
Binapacryl	0.01	Binapacryl	0.01	Binapacryl	0.005	Bixafen	0.01
Biphenyl	0.01	Biphenyl	0.01	Biphenyl	0.01	Boscalid	0.01
Bitertanol	0.01	Bitertanol	0.01	Bitertanol	0.01	Bromacil	0.02
Bixafen	0.01	Bixafen	0.01	Bixafen	0.01	Bromophos	0.005
Boscalid	0.01	Boscalid	0.01	Boscalid	0.01	Bromophos-ethyl	0.005
Bromacil	0.01	Bromacil	0.01	Bromacil	0.01	Bromopropylate	0.01
Bromophos	0.01	Bromophos	0.01	Bromophos	0.005	Bromuconazole	0.02
Bromophos-ethyl	0.01	Bromophos-ethyl	0.01	Bromophos-ethyl	0.005	Bupirimate	0.01
Bromopropylate	0.01	Bromopropylate	0.01	Bromopropylate	0.01	Buprofezin	0.01
Bromoxynil	0.01	Bromoxynil	0.01	Bromoxynil	0.01	Butocarboxim-Sulfoxid	0.05
Bromuconazole	0.01	Bromuconazole	0.01	Bromuconazole	0.01	Butoxycarboxim	0.01
Bupirimate	0.01	Bupirimate	0.01	Bupirimate	0.01	Cadusafos	0.005
Buprofezin	0.01	Buprofezin	0.01	Buprofezin	0.01	Captafol	0.01
Butocarboxim-Sulfoxid	0.01	Butocarboxim-Sulfoxid	0.01	Butocarboxim-Sulfoxid	0.01	Captan	0.01
Butoxycarboxim	0.01	Butoxycarboxim	0.01	Butoxycarboxim	0.01	Carbaryl	0.01
Cadusafos	0.01	Cadusafos	0.01	Cadusafos	0.005	Carbendazim	0.01
Captafol	0.01	Captafol	0.01	Captafol	0.02	Carbofuran	0.01
Captan	0.01	Captan	0.01	Captan	0.01	Carbofuran, 3-hydroxy	0.01
Carbaryl	0.01	Carbaryl	0.01	Carbaryl	0.01	Carbosulfan	0.01
Carbendazim	0.02	Carbendazim	0.02	Carbendazim	0.02	Carboxin	0.02
Carbofuran	0.01	Carbofuran	0.01	Carbofuran	0.01	Chlorantraniliprole	0.01
Carbofuran, 3-hydroxy	0.01	Carbofuran, 3-hydroxy	0.01	Carbofuran, 3-hydroxy	0.01	Chlorbromuron	0.01
Carbosulfan	0.01	Carbosulfan	0.01	Carbosulfan	0.01	Chlorobufam	0.005
Carboxin	0.01	Carboxin	0.01	Carboxin	0.01	Chlordane, cis-	0.005
Chlorantraniliprole	0.01	Chlorantraniliprole	0.01	Chlorbromuron	0.01	Chlordane, trans-	0.005
Chlorbromuron	0.01	Chlorbromuron	0.01	Chlorbufam	0.005	Chlorfenapyr	0.02
Chlorbufam	0.01	Chlorbufam	0.01	Chlordane, cis-	0.005	Chlorfenvinphos	0.005
Chlordane, cis-	0.01	Chlordane, cis-	0.01	Chlordane, trans-	0.005	Chlorflazuron	0.01
Chlordane, trans-	0.01	Chlordane, trans-	0.01	Chlorfenapyr	0.02	Chloroaniline, 3-	0.01
Chlorfenapyr	0.01	Chlorfenapyr	0.01	Chlorfenvinphos	0.005	Chlorobenzilate	0.01
Chlorfenvinphos	0.01	Chlorfenvinphos	0.01	Chlorflazuron	0.01	Chlorothalonil	0.005
Chlorflazuron	0.01	Chlorflazuron	0.01	Chloroaniline, 3-	0.01	Chlorpropham	0.01
Chloroaniline, 3-	0.01	Chloroaniline, 3-	0.01	Chlorobenzilate	0.005	Chlorpyrifos	0.005
Chlorobenzilate	0.01	Chlorobenzilate	0.01	Chlorothalonil	0.005	Chlorpyrifos-methyl	0.005
Chlorothalonil	0.01	Chlorothalonil	0.01	Chlorpropham	0.01	Chlorthal-dimethyl	0.01
Chlorpropham	0.01	Chlorpropham	0.01	Chlorpyrifos	0.005	Chlozolinate	0.005
Chlorpyrifos	0.01	Chlorpyrifos	0.01	Chlorpyrifos-methyl	0.005	Clethodim	0.01
Chlorpyrifos-methyl	0.01	Chlorpyrifos-methyl	0.01	Chlorthal-dimethyl	0.010	Clofentezine	0.01
Chlorthal-dimethyl	0.01	Chlorthal-dimethyl	0.01	Chlozolinate	0.005	Clopyralid	0.05

Fruit and Vegetables	LOQ	Cereal and Honey	LOQ	Milk, Eggs, Baby food	LOQ	Animal Fat	LOQ
Chlozolinate	0.01	Chlozolinate	0.01	Clethodim	0.01	Clothianidin	0.01
Clethodim	0.01	Clethodim	0.01	Clofentezine	0.01	Coumaphos	0.01
Clofentezine	0.01	Clofentezine	0.01	Clothianidin	0.01	Cyanazine	0.01
Clopyralid	0.05	Clopyralid	0.05	Coumaphos	0.01	Cyanofenphos	0.01
Clothianidin	0.01	Clothianidin	0.01	Cyanazine	0.01	Cyanophos	0.01
Coumaphos	0.01	Coumaphos	0.01	Cyanofenphos	0.010	Cyazofamid	0.01
Cyanazine	0.01	Cyanazine	0.01	Cyanophos	0.01	Cymoxanil	0.01
Cyanofenphos	0.01	Cyanofenphos	0.01	Cyazofamid	0.01	Cyfluthrin	0.01
Cyanophos	0.02	Cyanophos	0.02	Cyclanilide	0.01	Cyproconazole	0.01
Cyazofamid	0.01	Cyazofamid	0.01	Cycloxydim	0.1	Cypermethrin	0.02
Cyclanilide	0.01	Cyclanilide	0.01	Cymoxanil	0.01	Cyprodinil	0.01
Cycloxydim	0.1	Cycloxydim	0.1	Cyfluthrin	0.01	DDD, o,p-	0.005
Cyfluthrin	0.01	Cyfluthrin	0.01	Cyproconazole	0.01	DDD, p,p-	0.005
Cymoxanil	0.01	Cymoxanil	0.01	Cypermethrin	0.01	DDE, o,p-	0.005
Cypermethrin	0.02	Cypermethrin	0.02	Cyprodinil	0.01	DDE, p,p-	0.005
Cyproconazole	0.01	Cyproconazole	0.01	DDD, o,p-	0.005	DDT, o,p-	0.005
Cyprodinil	0.01	Cyprodinil	0.01	DDD, p,p-	0.005	DDT, p,p-	0.005
DDD, o,p-	0.01	DDD, o,p-	0.01	DDE, o,p-	0.005	Deltamethri	0.02
DDD, p,p-	0.01	DDD, p,p-	0.01	DDE, p,p-	0.005	Demeton-S-Methylsulfone	0.01
DDE, o,p-	0.01	DDE, o,p-	0.01	DDT, o,p-	0.005	Desmethyl Pirimicarb	0.01
DDE, p,p-	0.01	DDE, p,p-	0.01	DDT, p,p-	0.01	Diazinon	0.005
DDT, o,p-	0.01	DDT, o,p-	0.01	Deltamethri	0.02	Dichlobenil	0.005
DDT, p,p-	0.01	DDT, p,p-	0.01	Demeton-S-Methylsulfone	0.01	Dichlofluanid	0.005
Deltamethri	0.01	Deltamethri	0.01	Desmethyl Pirimicarb	0.01	Dichloroaniline, 3,5-	0.01
Demeton-S-Methylsulfone	0.01	Methylsulfone	0.01	Diazinon	0.005	Dichlorobenzophenone, 4,4-	0.005
Desmethyl Pirimicarb	0.01	Desmethyl Pirimicarb	0.01	Dichlobenil	0.005	Dichlorvos	0.005
Diazinon	0.01	Diazinon	0.01	Dichlofluanid	0.005	Diclobutrazol	0.01
Dichlobenil	0.01	Dichlobenil	0.01	Dichloroaniline, 3,5-	0.01	Dicloran	0.01
Dichlofluanid	0.01	Dichlofluanid	0.01	Dichlorobenzophenone, 4,4-	0.005	Dicrotophos	0.01
Dichloroaniline, 3,5-	0.01	Dichloroaniline, 3,5-	0.01	Dichlorprop-p	0.01	Dieldrin	0.01
Dichlorobenzophenone, 4,4-	0.02	4,4-	0.02	Dichlorvos	0.005	Diethofencarb	0.01
Dichlorprop-p	0.01	Dichlorprop-p	0.01	Diclobutrazol	0.01	Difenoconazole	0.01
Dichlorvos	0.01	Dichlorvos	0.01	Dicloran	0.01	Dimethenamid-p	0.01
Diclobutrazol	0.01	Diclobutrazol	0.01	Dicrotophos	0.01	Dimethoate	0.005
Dicloran	0.01	Dicloran	0.01	Dieldrin	0.01	Dimethomorph	0.01
Dicofol	0.01	Dicofol	0.01	Diethofencarb	0.01	Dimoxystrobin	0.01
Dicrotophos	0.01	Dicrotophos	0.01	Difenoconazole	0.01	Diniconazole	0.01
Dieldrin	0.01	Dieldrin	0.01	Diflubenzuron	0.01	Diphenylamine	0.01
Diethofencarb	0.01	Diethofencarb	0.01	Dimethenamid-p	0.01	Diuron	0.01
Difenoconazole	0.01	Difenoconazole	0.01	Dimethoate	0.005	DMSA	0.005
Diflubenzuron	0.01	Diflubenzuron	0.01	Dimethomorph	0.01	DMST	0.005
Dimethenamid-p	0.01	Dimethenamid-p	0.01	Dimoxystrobin	0.01	Dodine	0.01
Dimethoate	0.01	Dimethoate	0.01	Diniconazole	0.01	Endosulfan, alpha-	0.01
Dimethomorph	0.01	Dimethomorph	0.01	Dinoseb	0.02	Endosulfan, beta-	0.01
Dimoxystrobin	0.01	Dimoxystrobin	0.01	Dinoterb	0.02	Endosulfansulfate	0.02
Diniconazole	0.01	Diniconazole	0.01	Diphenylamine	0.01	Endrin	0.01
Dinoseb	0.02	Dinoseb	0.02	Diuron	0.01	EPN	0.01
Dinoterb	0.02	Dinoterb	0.02	DMSA	0.005	Epoxiconazole	0.005
Diphenylamine	0.01	Diphenylamine	0.01	DMST	0.005	Ethiofencarb	0.01
Diuron	0.01	Diuron	0.01	DNOC	0.01	Ethiofencarb-Sulfon	0.05
DMSA	0.02	DMSA	0.02	Dodine	0.01	Ethiofencarb-Sulfoxid	0.05
DMST	0.02	DMST	0.02	Endosulfan, alpha-	0.01	Ethion	0.005
DNOC	0.01	DNOC	0.01	Endosulfan, beta-	0.01	Ethirimol	0.01
Dodine	0.01	Dodine	0.01	Endosulfansulfate	0.02	Ethofumesate	0.01
Endosulfan, alpha-	0.01	Endosulfan, alpha-	0.01	Endrin	0.01	Ethoprophos	0.01
Endosulfan, beta-	0.01	Endosulfan, beta-	0.01	EPN	0.01	Etofenprox	0.02
Endosulfansulfate	0.02	Endosulfansulfate	0.02	Epoxiconazole	0.01	Etiofazole	0.005
Endrin	0.01	Endrin	0.01	Ethiofencarb	0.01	Etridiazole	0.005
EPN	0.01	EPN	0.01	Ethiofencarb-Sulfon	0.02	Etrimfos	0.005
Epoxiconazole	0.01	Epoxiconazole	0.01	Ethiofencarb-Sulfoxid	0.02	Famoxadone	0.05
Ethiofencarb	0.01	Ethiofencarb	0.01	Ethion	0.005	Fenamidone	0.005
Ethiofencarb-Sulfon	0.02	Ethiofencarb-Sulfon	0.02	Ethirimol	0.01	Fenamiphos	0.01
Ethiofencarb-Sulfoxid	0.02	Ethiofencarb-Sulfoxid	0.02	Ethofumesate	0.01	Fenarimol	0.005
Ethion	0.01	Ethion	0.01	Ethoprophos	0.01	Fenazaquin	0.01
Ethirimol	0.01	Ethirimol	0.01	Etofenprox	0.01	Fenbuconazole	0.01
Ethofumesate	0.01	Ethofumesate	0.01	Etiofazole	0.005	Fenbutatin oxide	0.01
Ethoprophos	0.01	Ethoprophos	0.01	Etridiazole	0.005	Fenchlorphos	0.005

Fruit and Vegetables	LOQ	Cereal and Honey	LOQ	Milk, Eggs, Baby food	LOQ	Animal Fat	LOQ
Etofenprox	0.01	Etofenprox	0.01	Etrimfos	0.005	Fenhexamid	0.01
Ettoxazole	0.01	Ettoxazole	0.01	Famoxadone	0.01	Fenitrothion	0.01
Etridiazole	0.01	Etridiazole	0.01	Fenamidone	0.005	Fenoxycarb	0.01
Etrimfos	0.01	Etrimfos	0.01	Fenamiphos	0.01	Fenpiclonil	0.01
Famoxadone	0.01	Famoxadone	0.01	Fenarimol	0.005	Fenpropathrin	0.01
Fenamidone	0.01	Fenamidone	0.01	Fenazaquin	0.01	Fenpropidin	0.02
Fenamiphos	0.01	Fenamiphos	0.01	Fenbuconazole	0.005	Fenpropimorph	0.05
Fenarimol	0.01	Fenarimol	0.01	Fenbutatin oxide	0.01	Fenpyroximate	0.01
Fenazaquin	0.01	Fenazaquin	0.01	Fenchlorphos	0.005	Fenthion	0.01
Fenbuconazole	0.01	Fenbuconazole	0.01	Fenhexamid	0.01	Fenthion-Sulfon	0.01
Fenbutatin oxide	0.01	Fenbutatin oxide	0.01	Fenitrothion	0.01	Fenthion-Sulfoxide	0.01
Fenchlorphos	0.01	Fenchlorphos	0.01	Fenoxycarb	0.01	Fenvalerate	0.01
Fenhexamid	0.01	Fenhexamid	0.01	Fenpiclonil	0.01	Flamprop-M-Isopropyl	0.01
Fenitrothion	0.01	Fenitrothion	0.01	Fenpropathrin	0.01	Flazasulfuron	0.01
Fenoxycarb	0.01	Fenoxycarb	0.01	Fenpropidin	0.01	Florasulam	0.01
Fenpiclonil	0.01	Fenpiclonil	0.01	Fenpropimorph	0.01	Flucythrinate	0.01
Fenpropathrin	0.01	Fenpropathrin	0.01	Fenpyroximate	0.01	Fludioxonil	0.01
Fenpropidin	0.01	Fenpropidin	0.01	Fenthion	0.01	Flufenacet	0.01
Fenpropimorph	0.01	Fenpropimorph	0.01	Fenthion-Sulfon	0.01	Flufenoxuron	0.02
Fenpyroximate	0.01	Fenpyroximate	0.01	Fenthion-Sulfoxide	0.01	Fluopyram	0.01
Fenthion	0.01	Fenthion	0.01	Fenvalerate	0.01	Fluquinconazole	0.01
Fenthion-Sulfon	0.01	Fenthion-Sulfon	0.01	Fipronil	0.01	Flurtamone	0.01
Fenthion-Sulfoxide	0.01	Fenthion-Sulfoxide	0.01	Fipronil-Desulfinyl	0.01	Flusilazole	0.005
Fenvalerate	0.01	Fenvalerate	0.01	Fipronil-Sulfide	0.01	Flutolanil	0.01
Fipronil	0.01	Fipronil	0.01	Fipronil-Sulfone	0.01	Flutriafol	0.01
Fipronil-Desulfinyl	0.01	Fipronil-Desulfinyl	0.01	Flamprop-M-Isopropyl	0.01	Folpet	0.01
Fipronil-Sulfide	0.01	Fipronil-Sulfide	0.01	Flazasulfuron	0.01	Fonofos	0.005
Fipronil-Sulfone	0.01	Fipronil-Sulfone	0.01	Florasulam	0.01	Formothion	0.01
Flamprop-M-Isopropyl	0.01	Flamprop-M-Isopropyl	0.01	Fluazifop (free acid)	0.02	Fosthiazate	0.01
Flazasulfuron	0.01	Flazasulfuron	0.01	Fluazinam	0.01	Fuberidazole	0.01
Florasulam	0.01	Florasulam	0.01	Flucythrinate	0.01	Furalaxyl	0.005
Fluazifop (free acid)	0.02	Fluazifop (free acid)	0.02	Fludioxonil	0.01	Furathiocarb	0.01
Fluazinam	0.01	Fluazinam	0.01	Flufenacet	0.01	Furmecyclox	0.01
Flucythrinate	0.01	Flucythrinate	0.01	Flufenoxuron	0.01	HCH, delta-	0.01
Fludioxonil	0.01	Fludioxonil	0.01	Fluopyram	0.01	Heptachlor	0.005
Flufenacet	0.01	Flufenacet	0.01	Fluquinconazole	0.01	Heptachlor epoxide	0.01
Flufenoxuron	0.01	Flufenoxuron	0.01	Flurtamone	0.01	Heptenophos	0.005
Fluopyram	0.01	Fluopyram	0.01	Flusilazole	0.005	Hexachlorobenzene	0.005
Fluquinconazole	0.01	Fluquinconazole	0.01	Flutolanil	0.01	Hexachlorocyclohexane, alpha	0.005
Flurtamone	0.01	Flurtamone	0.01	Flutriafol	0.01	Hexachlorocyclohexane, beta	0.005
Flusilazole	0.01	Flusilazole	0.01	Folpet	0.01	Hexaconazole	0.01
Flutolanil	0.01	Flutolanil	0.01	Fonofos	0.005	Hexaflumuron	0.01
Flutriafol	0.01	Flutriafol	0.01	Formothion	0.01	Hexythiazox	0.01
Folpet	0.01	Folpet	0.01	Fosthiazate	0.01	Imazalil	0.01
Fonofos	0.01	Fonofos	0.01	Fuberidazole	0.01	Imazaquin	0.01
Formothion	0.01	Formothion	0.01	Furalaxyl	0.01	Imidacloprid	0.01
Fosthiazate	0.01	Fosthiazate	0.01	Furathiocarb	0.01	Indoxacarb	0.01
Fuberidazole	0.01	Fuberidazole	0.01	Furmecyclox	0.01	Iodosulfuron-methyl	0.01
Furalaxyl	0.01	Furalaxyl	0.01	Haloxypop	0.02	Iodofenphos	0.005
Furathiocarb	0.01	Furathiocarb	0.01	HCH, delta-	0.01	Iprodione	0.005
Furmecyclox	0.01	Furmecyclox	0.01	Heptachlor	0.005	Iprovalicarb	0.02
Haloxypop	0.02	Haloxypop	0.02	Heptachlor epoxide	0.005	Isazofos	0.01
HCH, delta-	0.01	HCH, delta-	0.01	Heptenophos	0.005	Isocarbophos	0.01
Heptachlor	0.01	Heptachlor	0.01	Hexachlorobenzene	0.005	Isodrin	0.01
Heptachlor epoxide	0.01	Heptachlor epoxide	0.01	Hexachlorocyclohexane, alpha	0.005	Isufenphos	0.005
Heptenophos	0.01	Heptenophos	0.01	Hexachlorocyclohexane, beta	0.005	Isufenphos-methyl	0.005
Hexachlorobenzene	0.01	Hexachlorobenzene	0.01	Hexaconazole	0.01	Isufenphos-oxon	0.005
Hexachlorocyclohexane, alpha	0.01	Hexachlorocyclohexane, alpha	0.01	Hexaflumuron	0.01	Isoprocab	0.01
Hexachlorocyclohexane, beta	0.01	Hexachlorocyclohexane, beta	0.01	Hexythiazox	0.01	Isoprothiolane	0.01
Hexaconazole	0.01	Hexaconazole	0.01	Imazalil	0.01	Isoproturon	0.01
Hexaflumuron	0.01	Hexaflumuron	0.01	Imazaquin	0.01	Kresoxim-methyl	0.01
Hexythiazox	0.01	Hexythiazox	0.01	Imidacloprid	0.01	Lambda-Cyhalothrin	0.005
Imazalil	0.01	Imazalil	0.01	Indoxacarb	0.01	Lenacil	0.01
Imazaquin	0.01	Imazaquin	0.01	Iodofenphos	0.005	Lindane	0.005

Fruit and Vegetables	LOQ	Cereal and Honey	LOQ	Milk, Eggs, Baby food	LOQ	Animal Fat	LOQ
Imidacloprid	0.01	Imidacloprid	0.01	Iodosulfuron-methyl	0.01	Linuron	0.01
Indoxacarb	0.01	Indoxacarb	0.01	Iprodione	0.005	Lufenuron	0.05
Iodofenphos	0.01	Iodosulfuron-methyl	0.01	Iprovalicarb	0.02	Malaoxon	0.01
Iodosulfuron-methyl	0.01	Iodofenphos	0.01	Isazofos	0.01	Malathion	0.005
Ioxynil	0.01	Ioxynil	0.01	Isodrin	0.01	Mandipropamid	0.01
Iprodione	0.01	Iprodione	0.01	Isofenphos	0.02	MCPA-methyl	0.01
Iprovalicarb	0.01	Iprovalicarb	0.01	Isofenphos-methyl	0.005	Mecarbam	0.01
Isazofos	0.01	Isazofos	0.01	Isofenphos-oxon	0.005	Mepanipyrim	0.01
Isocarbophos	0.01	Isocarbophos	0.01	Isoprocarb	0.01	Mephosfolan	0.01
Isofenphos	0.02	Isofenphos	0.02	Isoprothiolane	0.01	Mepronil	0.01
Isofenphos-methyl	0.01	Isofenphos-methyl	0.01	Isoproturon	0.01	Mesosulfuron-methyl	0.01
Isofenphos-oxon	0.01	Isofenphos-oxon	0.01	Kresoxim-methyl	0.01	Metalaxyl	0.005
Isoprocarb	0.01	Isoprocarb	0.01	Lambda-Cyhalothrin	0.005	Metamitron	0.01
Isoprothiolane	0.01	Isoprothiolane	0.01	Lenacil	0.01	Metazachlor	0.01
Isoproturon	0.01	Isoproturon	0.01	Lindane	0.005	Metconazole	0.02
Kresoxim-methyl	0.01	Kresoxim-methyl	0.01	Linuron	0.01	Methacrifos	0.005
Lambda-Cyhalothrin	0.01	Lambda-Cyhalothrin	0.01	Lufenuron	0.01	Methamidophos	0.005
Lenacil	0.01	Lenacil	0.01	Malaoxon	0.01	Methidathion	0.005
Lindane	0.01	Lindane	0.01	Malathion	0.005	Methiocarb	0.01
Linuron	0.01	Linuron	0.01	Mandipropamid	0.01	Methiocarb-Sulfon	0.01
Lufenuron	0.01	Lufenuron	0.01	MCPA-methyl	0.02	Methiocarb-Sulfoxid	0.01
Malaoxon	0.01	Malaoxon	0.01	MCPB	0.01	Metholachlor	0.02
Malathion	0.01	Malathion	0.01	MCPB-P	0.01	Methomyl	0.01
Mandipropamid	0.01	Mandipropamid	0.01	Mecarbam	0.01	Methoxychlor	0.02
MCPA	0.01	MCPA	0.01	Mepanipyrim	0.01	Methoxyfenozide	0.05
MCPA-methyl	0.01	MCPA-methyl	0.01	Mephosfolan	0.01	Metobromuron	0.01
MCPB	0.01	MCPB	0.01	Mepronil	0.01	Metribuzin	0.01
Mecarbam	0.02	Mecarbam	0.02	Mesosulfuron-methyl	0.01	Mevinphos	0.01
Mepanipyrim	0.01	Mepanipyrim	0.01	Metalaxyl	0.005	Mirex	0.01
Mephosfolan	0.01	Mephosfolan	0.01	Metamitron	0.01	Molinate	0.02
Mepronil	0.02	Mepronil	0.02	Metazachlor	0.01	Monocrotophos	0.005
Mesosulfuron-methyl	0.01	Mesosulfuron-methyl	0.01	Metconazole	0.01	Myclobutanil	0.01
Metalaxyl	0.01	Metalaxyl	0.01	Methacrifos	0.005	Napropamide	0.02
Metamitron	0.01	Metamitron	0.01	Methamidophos	0.005	Nitenpyram	0.01
Metazachlor	0.01	Metazachlor	0.01	Methidathion	0.005	Nitrofen	0.02
Metconazole	0.01	Metconazole	0.01	Methiocarb	0.01	Nonachlor-Trans	0.01
Methacrifos	0.01	Methacrifos	0.01	Methiocarb-Sulfon	0.01	Nuarimol	0.01
Methamidophos	0.01	Methamidophos	0.01	Methiocarb-Sulfoxid	0.01	Omethoate	0.005
Methidathion	0.01	Methidathion	0.01	Metholachlor	0.005	Oxadixyl	0.01
Methiocarb	0.01	Methiocarb	0.01	Methomyl	0.01	Oxamyl	0.01
Methiocarb-Sulfon	0.01	Methiocarb-Sulfon	0.01	Methoxychlor	0.02	Oxychlordane	0.01
Methiocarb-Sulfoxid	0.01	Methiocarb-Sulfoxid	0.01	Methoxyfenozide	0.01	Paclobutrazol	0.01
Metholachlor	0.01	Metholachlor	0.01	Metobromuron	0.01	Paraaxon	0.005
Methomyl	0.01	Methomyl	0.01	Metribuzin	0.005	Paraaxon-Methyl	0.005
Methoxychlor	0.02	Methoxychlor	0.02	Mevinphos	0.01	Parathion	0.005
Methoxyfenozide	0.01	Methoxyfenozide	0.01	Mirex	0.01	Parathion-methyl	0.005
Metobromuron	0.01	Metobromuron	0.01	Molinate	0.02	PCB-101	0.01
Metribuzin	0.01	Metribuzin	0.01	Monocrotophos	0.005	PCB-118	0.01
Mevinphos	0.01	Mevinphos	0.01	Myclobutanil	0.01	PCB-138	0.01
Mirex	0.01	Mirex	0.01	Napropamide	0.02	PCB-153	0.01
Molinate	0.01	Molinate	0.01	Nitenpyram	0.01	PCB-180	0.01
Monocrotophos	0.02	Monocrotophos	0.02	Nitrofen	0.02	PCB-28	0.01
Myclobutanil	0.01	Myclobutanil	0.01	Nonachlor-Trans	0.01	PCB-52	0.01
Napropamide	0.01	Napropamide	0.01	Nuarimol	0.01	Penconazole	0.01
Nitenpyram	0.01	Nitenpyram	0.01	Omethoate	0.005	Pencycuron	0.01
Nitrofen	0.01	Nitrofen	0.01	Oxadixyl	0.01	Pendimethalin	0.01
Nonachlor-Trans	0.01	Nonachlor-Trans	0.01	Oxamyl	0.01	Pentachloroaniline	0.005
Nuarimol	0.01	Nuarimol	0.01	Oxychlordane	0.01	Permethrin	0.01
Omethoate	0.01	Omethoate	0.01	Paclobutrazol	0.01	Phenmedipham	0.01
Oxadixyl	0.01	Oxadixyl	0.01	Paraaxon	0.005	Phenthoate	0.005
Oxamyl	0.01	Oxamyl	0.01	Paraaxon-Methyl	0.005	Phorate-Sulfoxid	0.01
Oxychlordane	0.01	Oxychlordane	0.01	Parathion	0.005	Phosalone	0.005
Paclobutrazol	0.01	Paclobutrazol	0.01	Parathion-methyl	0.005	Phosmet	0.005
Paraaxon	0.01	Paraaxon	0.01	PCB-101	0.01	Phosphamidon	0.01
Paraaxon-Methyl	0.01	Paraaxon-Methyl	0.01	PCB-118	0.01	Ploxim	0.01
Parathion	0.01	Parathion	0.01	PCB-138	0.01	Picoxystrobin	0.01
Parathion-methyl	0.01	Parathion-methyl	0.01	PCB-153	0.01	Piperonyl Butoxide	0.01
Penconazole	0.01	PCB-101	0.01	PCB-180	0.01	Pirimicarb	0.01

Fruit and Vegetables	LOQ	Cereal and Honey	LOQ	Milk, Eggs, Baby food	LOQ	Animal Fat	LOQ
Pencycuron	0.01	PCB-118	0.01	PCB-28	0.01	Pirimiphos-Ethyl	0.005
Pendimethalin	0.01	PCB-138	0.01	PCB-52	0.01	Pirimiphos-methyl	0.005
Pentachloroaniline	0.01	PCB-153	0.01	Penconazole	0.01	Prochloraz	0.01
Permethrin	0.01	PCB-180	0.01	Pencycuron	0.01	Procymidone	0.005
Phenmedipham	0.01	PCB-28	0.01	Pendimethalin	0.01	Profenofos	0.01
Phenthoate	0.01	PCB-52	0.01	Pentachloroaniline	0.005	Prometryn	0.01
Phorate-Sulfoxid	0.01	Penconazole	0.01	Permethrin	0.01	Propachlor	0.01
Phosalone	0.01	Pencycuron	0.01	Phenmedipham	0.01	Propanil	0.01
Phosmet	0.01	Pendimethalin	0.01	Phenthoate	0.005	Propargite	0.01
Phosphamidon	0.01	Pentachloroaniline	0.01	Phorate-Sulfoxid	0.01	Propetamphos	0.005
Phoxim	0.01	Permethrin	0.01	Phosalone	0.005	Propham	0.01
Picoxystrobin	0.01	Phenmedipham	0.01	Phosmet	0.005	Propiconazole	0.01
Piperonyl Butoxide	0.01	Phenthoate	0.01	Phosphamidon	0.01	Propoxur	0.01
Pirimicarb	0.01	Phorate-Sulfoxid	0.01	Phoxim	0.01	Propoxycarbazon sodium	0.01
Pirimiphos-Ethyl	0.01	Phosalone	0.01	Picoxystrobin	0.01	Propyzamide	0.005
Pirimiphos-methyl	0.01	Phosmet	0.01	Piperonyl Butoxide	0.01	Prothioconazole	0.01
Prochloraz	0.01	Phosphamidon	0.01	Pirimicarb	0.01	Prothiofos	0.005
Procymidone	0.01	Phoxim	0.01	Pirimiphos-Ethyl	0.005	Pymetrozine	0.01
Profenofos	0.01	Picoxystrobin	0.01	Pirimiphos-methyl	0.005	Pyraclostrobin	0.01
Prometryn	0.01	Piperonyl Butoxide	0.01	Prochloraz	0.01	Pyrazophos	0.01
Propachlor	0.01	Pirimicarb	0.01	Procymidone	0.005	Pyridaben	0.01
Propanil	0.01	Pirimiphos-Ethyl	0.01	Profenofos	0.01	Pyridaphenthion	0.01
Propargite	0.01	Pirimiphos-methyl	0.01	Prometryn	0.01	Pyrifeno	0.01
Propetamphos	0.01	Prochloraz	0.01	Propachlor	0.01	Pyrimethanil	0.01
Propham	0.01	Procymidone	0.01	Propanil	0.01	Pyriproxyfen	0.01
Propiconazole	0.01	Profenofos	0.01	Propargite	0.01	Quinalphos	0.01
Propoxur	0.01	Prometryn	0.01	Propetamphos	0.005	Quinoxyfen	0.02
Propoxycarbazon sodium	0.01	Propachlor	0.01	Propham	0.01	Quintozone	0.01
Propyzamide	0.01	Propanil	0.01	Propiconazole	0.01	Quizalofop	0.01
Prothioconazole-desthio	0.01	Propargite	0.01	Propoxur	0.01	Rimsulfuron	0.01
Prothiofos	0.01	Propetamphos	0.01	Propoxycarbazon sodium	0.01	Rotenone	0.02
Pymetrozine	0.01	Propham	0.01	Propyzamide	0.005	Silthiofam	0.005
				Prothioconazole			
Pyraclostrobin	0.01	Propiconazole	0.01	(prothioconazole-Desthio)	0.01	Simazine	0.01
Pyrazophos	0.01	Propoxur	0.01	Prothiofos	0.005	Spinosad	0.01
		Propoxycarbazon sodium					
Pyrethrin	0.05	Propyzamide	0.01	Pymetrozine	0.02	Spirodiclofen	0.02
Pyridaben	0.01			Pyraclostrobin	0.01	Spiromesifen	0.01
						Spiroxamine carboxylic acid	
Pyridaphenthion	0.01	Prothioconazole-desthio	0.01	Pyrazophos	0.01	expressed as spiroxamine	0.02
Pyrifeno	0.02	Prothiofos	0.01	Pyridaben	0.01	tau-Fluvalinate	0.02
Pyrimethanil	0.01	Pymetrozine	0.01	Pyridaphenthion	0.01	Tebuconazole	0.005
Pyriproxyfen	0.01	Pyraclostrobin	0.01	Pyrifeno	0.01	Tebufenozide	0.05
Quinalphos	0.01	Pyrazophos	0.01	Pyrimethanil	0.01	Tebufenpyrad	0.02
Quinoxyfen	0.01	Pyrethrin	0.05	Pyrimidifen	0.01	Tecnazene	0.005
Quintozone	0.01	Pyridaben	0.01	Quinalphos	0.01	Tefluthrin	0.005
Quizalofop	0.02	Pyridaphenthion	0.01	Quinoxyfen	0.01	Terbuthylazine	0.01
Rimsulfuron	0.01	Pyrifeno	0.02	Quintozone	0.01	Tetraconazole	0.01
Rotenone	0.01	Pyrimethanil	0.01	Quizalofop	0.02	Tetradifon	0.005
Silthiofam	0.01	Pyriproxyfen	0.01	Rimsulfuron	0.01	Tetramethrin	0.02
Simazine	0.01	Quinalphos	0.01	Rotenone	0.01	Thiabendazole	0.01
Spinosad	0.01	Quinoxyfen	0.01	Silthiofam	0.005	Thiacloprid	0.01
Spirodiclofen	0.01	Quintozone	0.01	Simazine	0.01	Thiametoxam	0.01
Spiromesifen	0.01	Quizalofop	0.02	Spinosad	0.01	Thiofanox-Sulfoxid	0.01
Spiroxamine	0.01	Rimsulfuron	0.01	Spirodiclofen	0.02	Thiophanate-Ethyl	0.01
Sulfentrazone	0.01	Rotenone	0.01	Spiromesifen	0.01	Thiophanate-methyl	0.01
				Spiroxamine carboxylic acid			
tau-Fluvalinate	0.01	Silthiofam	0.01	expressed as spiroxamine	0.01	Tolclofos-methyl	0.005
Tebuconazole	0.01	Simazine	0.01	Sulfentrazone	0.01	Tolyfluanid	0.005
Tebufenozide	0.01	Spinosad	0.01	tau-Fluvalinate	0.02	Triadimefon	0.01
Tebufenpyrad	0.01	Spirodiclofen	0.01	Tebuconazole	0.005	Triadimenol	0.02
Tecnazene	0.01	Spiromesifen	0.01	Tebufenozide	0.01	Triazophos	0.005
Teflubenzuron	0.01	Spiroxamine	0.01	Tebufenpyrad	0.01	Trichlorfon	0.02
Tefluthrin	0.01	Sulfentrazone	0.01	Tecnazene	0.005	Trichlorophenol, 2,4,6-	0.01
Terbuthylazine	0.01	tau-Fluvalinate	0.01	Teflubenzuron	0.01	Tricyclazole	0.01
Tetraconazole	0.01	Tebuconazole	0.01	Tefluthrin	0.005	Trifloxystrobin	0.005
Tetradifon	0.01	Tebufenozide	0.01	Terbuthylazine	0.01	Triflumizole	0.01
Tetramethrin	0.02	Tebufenpyrad	0.01	Tetraconazole	0.01	Trifluralin	0.01

Fruit and Vegetables	LOQ	Cereal and Honey	LOQ	Milk, Eggs, Baby food	LOQ	Animal Fat	LOQ
Thiabendazole	0.01	Tecnazene	0.01	Tetradifon	0.005	Triflusulfuron-Methyl	0.01
Thiacloprid	0.01	Teflubenzuron	0.01	Tetramethrin	0.02	Triticonazole	0.01
Thiametoxam	0.01	Tefluthrin	0.01	Thiabendazole	0.01	Vamidothion	0.01
Thiofanox-Sulfoxid	0.01	Terbutylazine	0.01	Thiacloprid	0.02	Vinclozolin	0.005
Thiophanate-Ethyl	0.01	Tetraconazole	0.01	Thiametoxam	0.01	Zoxamide	0.005
Thiophanate-methyl	0.01	Tetradifon	0.01	Thiofanox-Sulfoxid	0.01		
Tolclofos-methyl	0.01	Tetramethrin	0.02	Thiophanate-Ethyl	0.01		
Tolylfluanid	0.01	Thiabendazole	0.01	Thiophanate-methyl	0.01		
Triadimefon	0.01	Thiacloprid	0.01	Tolclofos-methyl	0.005		
Triadimenol	0.01	Thiametoxam	0.01	Tolylfluanid	0.005		
Triazophos	0.01	Thiofanox-Sulfoxid	0.01	Triadimefon	0.01		
Trichlorfon	0.02	Thiophanate-Ethyl	0.01	Triadimenol	0.02		
Trichlorophenol, 2,4,6-	0.01	Thiophanate-methyl	0.01	Triazophos	0.005		
Triclopyr	0.01	Tolclofos-methyl	0.01	Trichlorfon	0.02		
Tricyclazole	0.01	Tolylfluanid	0.01	Trichlorophenol, 2,4,6-	0.005		
Trifloxystrobin	0.01	Triadimefon	0.01	Triclopyr	0.01		
Triflumizole	0.01	Triadimenol	0.01	Tricyclazole	0.01		
Triflumuron	0.01	Triazophos	0.01	Trifloxystrobin	0.005		
Trifluralin	0.01	Trichlorfon	0.02	Triflumizole	0.02		
Triflusulfuron-Methyl	0.01	Trichlorophenol, 2,4,6-	0.01	Triflumuron	0.01		
Triticonazole	0.01	Triclopyr	0.01	Trifluralin	0.01		
Vamidothion	0.01	Tricyclazole	0.01	Triflusulfuron-Methyl	0.01		
Vinclozolin	0.01	Trifloxystrobin	0.01	Triticonazole	0.01		
Zoxamide	0.01	Triflumizole	0.01	Vamidothion	0.01		
		Triflumuron	0.01	Vinclozolin	0.005		
		Trifluralin	0.01	Zoxamide	0.005		
		Triflusulfuron-Methyl	0.01				
		Triticonazole	0.01				
		Vamidothion	0.01				
		Vinclozolin	0.01				
		Zoxamide	0.01				

6.4 ANNEX IV Analytical scopes of single residue methods used

Pesticide name	LOQ
Amitraz	0.01
Amitraz metabolit DMPF	0.01
Amitraz metabolite DMF	0.01
Amitraz metabolite DMA	0.03
Dithiocarbamates	0.05
Chlormequat	0.02
Cyromazine	0.01
Daminozide	0.02
Diquat	0.02
Ethephon	0.04
Glufosinate ammonium	0.08
Glufosinate NAG	0.08
Glufosinate AMPA	0.08
Glufosinate MPPA	0.08
Glyphosate	0.08
Mepiquat	0.02
Paraquat	0.05

6.5 ANNEX V Glossary of terms

Acceptable Daily Intake (ADI)	An ADI is an estimate of the amount of a residue in food or drinking water, expressed on a body weight basis that can be ingested daily over a lifetime without appreciable health risk.
	The particular vulnerability of infants, children, the elderly and those whose systems are under stress because of ill-health, are taken into account, through application of a safety factor, when ADI values are established.
	ADI values are based on the no-adverse-effect level in the most sensitive animal species used in the toxicological experiments, or if appropriate data are available, in humans. Invariably, a safety factor to account for inter-species and intra-species variations is applied. Studies used as a basis for the identification of the relevant no-adverse-effect levels and hence for deriving ADI values, are conducted using active substance as manufactured. Accordingly the toxicological effects of impurities present in active substances are included in the assessment. Account is also taken of metabolites that may influence the toxicological significance of the residue reaching the consumer.
Acute Reference Dose (ARfD)	An ARfD is similar in nature to an ADI but it relates to intake of residues at one meal or on one day.
	The particular vulnerability of infants, children, the elderly and those whose systems are under stress because of ill-health, are taken into account, through application of a safety factor, when ARfD values are established.
	ARfD values are based on the no-adverse effect level in the most sensitive animal species used in the toxicological experimentation, or if appropriate data are available, in humans. ARfD values are derived from the results of those toxicological studies that are most relevant to short term exposure.
Good Agricultural Practice (GAP)	GAP in the use of a plant protection product (pesticide) includes authorised use under practical conditions necessary for effective control of harmful organisms. It encompasses a range of levels of application up to the highest level authorised, applied in a manner that leaves a residue that is the smallest amount practicable.
Limit of Quantitation (LOQ)	The LOQ is the lowest concentration of a pesticide residue or contaminant that can be identified and quantitatively measured in specified food, agricultural commodity or animal feed, with an acceptable degree of certainty by a method of analysis.

Maximum Residue Level (MRL)	<p>MRL is the maximum concentration of a pesticide residue, expressed in milligrams per kilogram, legally permitted in or on food commodities and animal feeds. MRLs are based on supervised residues trials data that reflect Good Agricultural Practice (GAP). MRLs established for particular food commodities are such that potential consumer exposure to residues is judged to be toxicologically acceptable.</p> <p>MRLs are fixed at or about the limit of determination, where there are no approved uses.</p> <p>MRLs are established on the basis of sound scientific knowledge. They are only established for those pesticides for which acceptable daily intake (ADI) values exist.</p>
Pesticide Residue	<p>Any trace of a pesticide found in a sample, including any specified derivatives such as degradation and conversion products, metabolites and impurities, which are considered to be of toxicological significance and are included in the residue definition</p>

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