

FOREWORD



I am very pleased to present the results of the national monitoring programme for pesticide residues in food carried out in 2008 by the Department of Agriculture, Fisheries and Food (DAFF) Pesticide Control Service (PCS) under the terms of a service contract with the Food Safety Authority of Ireland (FSAI). Food safety is of great importance to all involved in the food chain and, through the results of the residue monitoring programme, consumers can be assured that they are not exposed to unacceptable pesticide residue levels, and that only authorised pesticides are applied to food crops.

I recognise the importance and value of the Irish Agri-food industry to the Irish economy and also the importance of this monitoring programme in underpinning confidence in the safety of the Agri-food industry. I note particularly that the monitoring programme was instrumental in first identifying the presence of polychlorinated biphenyls (PCB) in a routine sample of pork, which resulted in the identification and removal of all contaminated product from the market, thus protecting the Irish and European consumer and allowing trade in Irish pork and beef to recommence.

Samples of food are analysed by the DAFF Pesticide Control Laboratory which is accredited by the Irish National Accreditation Board (INAB) of Ireland to the ISO 17025 standard for the analysis of selected pesticide residues in food of plant and of animal origin. The accreditation status of the laboratory will continue to be extended to cover additional pesticides and food commodities. This report provides detailed information on the results of the sampling and analysis programme for pesticide residues in both imported and domestic food for 2008.

A handwritten signature in black ink that reads "Brendan Smith". The signature is written in a cursive style with a long horizontal flourish extending to the right.

Brendan Smith, T.D.

Minister for Agriculture , Fisheries and Food

Department of Agriculture, Fisheries and Food.

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ABBREVIATIONS

ADI	Acceptable daily intake
ARfD	Acute Reference Dose
CCPR	Codex Committee in Pesticide Residue
CRL	Community Reference Laboratory
DAFF	Department of Agriculture, Fisheries and Food
ECD	Electron capture detection
EC	European Community
EU	European Union
FAO	Food and Agriculture Organisation
FAPAS	Food Analysis Assessment Scheme
FSAI	Food Safety Authority of Ireland
GC	Gas chromatography
GC-MS	Gas chromatography- mass selective detection
GC-MS/MS	Gas chromatography- triple quadrupole mass spectroscopy
HPLC	High Performance Liquid Chromatography
INAB	Irish National Accreditation Board
IUNA	Irish Universities Nutrition Alliance
ISO	International Standard Organisation
LC	Liquid Chromatography
LCL	Lowest Calibration Level
LOD	Limit of Determination
LC-MS/MS	Liquid chromatography with triple quadrupole mass detection
Mg kg ⁻¹	milligram per kilogram
MRL	Maximum Residue Level
MRM	Multi residue methods
MS	Mass Spectrometry
ND	Not detected
NRL	National Reference Laboratory
OJ	Official Journal of the European Union
PCB	Polychlorinated Biphenyl
PCS	Pesticide Control service
PFPD	Pulsed flamed photometric detection
RASFF	Rapid Alert System for Food and Feed
S.I	Statutory Instrument
SRM	Single Residue method for analysing one pesticide
WTO	World Trade Organisation

1 EXECUTIVE SUMMARY

The 2008 annual report of the national monitoring programme for pesticide residues in food, carried out in 2008 by the Department of Agriculture, Fisheries and Food (DAFF), provides details on pesticide residues detected in food, available on the Irish market. Samples of fruit, vegetables, cereal and animal products are analysed to check for compliance with EU and national legislation. EU legislation establishes Maximum Residue Levels (MRLs) to ensure that pesticides are used in accordance with good agriculture practice; that they do not pose an unacceptable risk to consumers and that trade barriers are not created. Exceedance of an MRL does not necessarily imply a food safety concern.

The number and type of food samples taken were in accordance with a planned national monitoring programme. The programme was agreed with the Food Safety Authority of Ireland (FSAI) and complied with the European legislation. The extensive control programme required the sampling of 104 different commodities for up to 292 pesticides. Sampling was conducted at wholesale, mills, retail or at meat plants with both domestic and imported foodstuffs sampled.

In 2008, some 1404 routine samples were analysed. Almost 60% of the fruit and vegetable samples were found to contain residues of one or more pesticides. By comparison, 19% of cereal samples and 9% of food of animal origin contained detectable residues. A small percentage (1.4%), involving 20 out of 1,404 samples, contained residues exceeding the MRL. Toxicological endpoints were exceeded in two samples - table grapes from Chile and from the United States. Notifications, giving sample details, were issued through the Rapid Alert System for Food and Feed (established by the European Commission).

The most frequently occurring pesticide in fruit and vegetables was imazalil which was detected in 16% of the samples analysed, mainly citrus fruits and pears. The most frequently occurring pesticide detected in cereals and food of animal origin were pirimiphos methyl and lindane respectively. Up to 40% of the fruit and vegetables analysed contained two or more pesticides in a single sample.

Ten targeted samples and a statutory sample were taken in an investigations programme as follow up to previous exceedances and/or unauthorised uses of plant protection products in Ireland. No repeat offences were detected and no statutory action was required.

Following the detection of three polychlorinated biphenyls in a routine pork sample, and the subsequent confirmation of the presence of dioxins in that sample, targeted sampling and analysis for polychlorinated biphenyls were carried out on 360 feeds (including biscuit feeds), pork and bovine samples in order to determine the extent of the contamination in Irish pork and beef. The controls identified and removed all contaminated product from the market, thus protecting the Irish and European consumer and allowing trade in Irish pork and beef to recommence.

The DAFF continues to be committed to strengthening of the monitoring programme. By optimising and expanding the analytical methods for pesticide residues, DAFF will continue to pursue a vigorous investigation programme for improper use and violation of legal standards and provide a high level of protection for consumers.

2 INTRODUCTION

The monitoring programme for pesticide residues in food is undertaken by the Pesticide Control Service (PCS) of the Department of Agriculture, Fisheries and Food (DAFF). The programme ensures that consumers are not exposed to unacceptable pesticide residue levels in food, that authorised plant protection products are correctly applied, and that the unauthorised use of pesticides is detected.

The annual monitoring programme is carried out in accordance with contractual arrangements between the DAFF and the Food Safety Authority of Ireland (FSAI)¹ and involves sampling of imported and domestic produce.

Pesticide residue levels in treated crops and in animal products are regulated through the establishment of Maximum Residue Levels (MRLs) in Ireland, MRLs have been established for almost 500 pesticides in fruit and vegetables (including tea), cereals and in food of animal origin, reflected in Regulation (EC) No 396/2005 which became operational on September 1, 2008.

When MRLs are exceeded, officers of the PCS may remove the produce concerned from the market and destroy it at the owner's expense. The Minister may also prosecute offenders or administrative fines can be applied. 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 these evaluations are provided to and independently verified by the FSAI. Where warranted, a Rapid Alert² is issued by the FSAI when the pesticide intake exceeds the toxicological endpoints. Explanations of the various technical terms used in this report are provided in a glossary at the end of this report (Annex III).

2.1 Design of Programmes

The 2008 Irish monitoring programme was carried out by the DAFF.

The programme was designed to take account of the following:

- the current consumption data for Irish adults and children,
- the EU co-ordinated monitoring programme for 2008,
- the percentage of crops containing residues in programmes from previous years,
- the capacity of the laboratory to implement the programme,
- targeting of samples that gave rise to MRL breaches in 2007.

2.2 Sampling personnel, procedures, sampling points

Authorised officers from PCS carried out the sampling of food of plant origin and cereals in accordance with the sampling Directive 2002/63/EC. Authorised officers of the Veterinary Medicine and the Dairy Science Inspectorates carried out sampling of food of animal origin in accordance with Directive 96/23/EC. Samples of food of plant origin are normally taken at wholesale level but occasionally may be taken at retail level. Samples of cereals, dairy products and food of animal origin are normally taken at collection, processing or slaughter premises.

¹ Service Contract between the Food Safety Authority of Ireland and the Department of Agriculture, Fisheries and Food from 2008

² Regulation (EC) No. 178/2002 of the European Parliament and of the Council of 28th of January 2002.

2.3 Enforcement action

Arising from MRL breaches detected in 2007, some 11 enforcement samples were analysed in 2008. No follow up action was required as the samples taken were compliant with legislative requirements.

Two Rapid Alert system for Food and Feeds (RASFF) notifications were made to the European Commission in 2008. The first notification related to table grapes from Chile containing residues of azinphos methyl and the second related to grapes from the USA that contained residues of methomyl. This resulted from the risk assessments carried out using extreme consumption data which gave exceedances of the acute reference dose (ARfDs), indicating potential intake concern to Irish consumers. In both cases, there were no samples remaining on the market during follow up investigations.

2.4 Status of accreditation

The PCS is the National Reference Laboratory for pesticide residues in food. The laboratory is accredited to ISO 17025 standard.

2.5 Analytical methods used

The modified mini Luke and the QuEChERS³ methods were used to extract fruit, vegetable and cereal samples in this programme. Samples were analysed using gas and liquid chromatography. Mass spectrometry is the primary method used for the detection and identification of residues present. In some cases, specific detectors such as electron capture and flame photometric detectors were used for the detection, and confirmation of certain pesticide residues in the samples analysed.

2.6 Participation in proficiency tests

The PCS participated in all of the EU Proficiency tests, organised by the Community Reference Laboratories (CRL) in the pesticide area as well as the FAPAS schemes for fruit, vegetables and cereals. Participation in these tests is used to verify that the laboratory has the capacity and expertise to analyse food samples for the range of pesticide residues controlled by the legislation.

³ QuEChERS (Quick Easy Cheap Easy Rugged Safe) - a rapid analytical method using solid phase extraction

3 MONITORING PROGRAMMES

Monitoring programmes are in place for the three different food groups for which MRLs have been established: i) fruit and vegetables, ii) cereals and iii) food of animal origin.

The monitoring programme for 2008, took into consideration -

- i the programme recommended by the European Commission ⁴,
- ii dietary intake patterns of Irish consumers⁵,
- iii the residue profile of commodities as established from the results of the monitoring programme in previous years,
- iv findings from other Member State programmes and the EU co-ordinated programme,
- v pesticide sales data,
- vi handling/processing of food prior to consumption.

The monitoring programme is the primary means of ensuring that plant protection products (pesticides) are used in accordance with Good Agricultural Practice. The monitoring programme is essential if the misuse of legal products and the use of illegal products are to be eliminated. Authorised plant protection products can be misused in various ways, for example, the 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. illegal uses). When plant protection products are used in accordance with Good Agricultural Practice unacceptable levels of pesticide residues should not occur in treated produce.

In accordance with the European Communities (Prohibition of Certain Active Substances in Plant Protection Products) Regulations, 1981 to 1990, the marketing and use of certain plant protection products are prohibited because of risks to human health or the environment associated with their use. The residue monitoring programme also serves as an indicator of the level of compliance with those provisions.

3.1 Monitoring of Fruit and Vegetables

Routine sampling of 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. This approach ensures that samples taken are representative of consumption patterns and allows action to be taken, where necessary, prior to distribution. Sampling was carried according to the EC sampling method described in Commission Directive 2002/63/EC. Samples are sealed, labelled with a unique sample identity number and brought to the laboratory for analysis.

As part of the violation investigation programme, fruit and vegetables of specific origin are targeted for further special attention. This arises where residues at levels in excess of MRLs have been found following routine sampling. When produce is targeted for statutory sampling, (whether as a result of information generated through routine monitoring or following a Food Alert issued by the FSAI or a Rapid Alert notification to the FSAI from the EU Commission), the sampled lot is detained pending analysis. The analytical results dictate the nature of the action taken with respect to the detained produce. When the results show a clear breach of an MRL, (taking into account the analytical

⁴ Commission Recommendation of 4th of February 2008, concerning a co-ordinated Community monitoring programme for 2008 to ensure compliance with maximum levels of pesticide residues in and on cereals and certain other products of plant origin (2008/369/EC) OJ No L 36/7.

⁵ IUNA, Irish Universities Nutrition Alliance. North South Food Consumption Database, 2001 and National Children's Food Survey 2005.

uncertainty of 50%), follow up action may include removal of the product from the market or the initiation of legal proceedings. In 2008, none of the targeted or statutory samples exceeded an MRL so no further action was required.

3.2 Monitoring of Cereals

The main concern with respect to cereals relates to residues that arise as a result of post-harvest application of plant protection products. The current sampling programme 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 assembly or storage locations by authorised officers of the PCS.

3.3 Monitoring of 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 National Residue Plan organized by the Veterinary Medicine Division of DAFF. Fat samples analysed are from individual animals. Dairy products, eggs and honey are sampled at production plants or points of assembly. Each dairy product sampled is representative of a particular bulk consignment. Authorised officers of the Dairy Science and Veterinary Inspectorates of DAFF carry out the sampling of meat, dairy produce, other foods of animal origin and honey.

3.4 Monitoring of Miscellaneous Products

Complaint or suspect samples are submitted from time to time for analysis by DAFF, other State Services, Local Authorities, consumers and other interested parties.

3.5 Analytical procedures

The analytical methods used in the Pesticide Control Residue laboratory are in most cases multi-residue in nature, an approach that facilitates the maximisation of laboratory output. Samples are analysed using gas or liquid chromatography with selective ion mass spectrometry as the primary method of detection. In some cases, specific detectors such as electron capture or flame photometric detectors are also used to detect and confirm the presence of some pesticide residues in the samples analysed. Annex V provides the list of the pesticide standards sought and the analytical methods used.

References to the analytical methods employed are provided in Annex IV.

3.6 Quality assurance

Routine quality assurance procedures are followed within the laboratory in accordance with the requirements specified to maintain accreditation to the ISO 17025 standard. As the National Reference Laboratory (NRL) for pesticides, the laboratory is required to participate in proficiency tests. In 2008 the laboratory participated in 4 proficiency tests organised on behalf of the EU Commission by the relevant Community Reference Laboratories. The studies were carried out using carrot, butter and 2 cereal matrices. In addition the laboratory participated in 4 proficiency tests (satsuma, citrus, strawberry and vegetable oil), organised by Food Analysis Performance Assessment

Scheme (FAPAS)⁶. Successful participation in these studies is a requirement to maintain the accreditation status of the laboratory.

In 2008 fruit, vegetable, cereal and honey samples were analysed for some 291 pesticides using multi residue analytical methods. The maneb group or ethylenebisdithiocarbamate pesticides (such as mancozeb), were determined in a more limited number of samples (131) using a single residue method. The completion of method development and validation work in 2007, allowed the analytical capacity of the laboratory to increase from 227 pesticides and metabolites in 2007 to 292 in 2008.

Food of animal origin were analysed for 63 pesticides and metabolites as well as for 7 PCBs (polychlorinated biphenyls) congeners. Details of the scope are listed in Annex V.

⁶ FAPAS - an executive agency of the UK Department of the Environment , Food and Rural Affairs (DEFRA)

4 RESULTS

Table 1 summarises the planned number of routine monitoring samples (1338) for the 2008 monitoring programme as agreed with the FSAI. The planned number of samples for food of animal origin (430) was decided in conjunction with the Veterinary Medicine Division of the DAFF as part of the National Residue Plan as required by Directive 96/23/EC.

Officers from the PCS carry out the sampling of food of plant origin and cereals, while members of the Dairy Science and Veterinary Inspectorates of the DAFF carry out the sampling of food of animal origin.

In 2008, 1404 samples were taken, consisting of

- 906 routine fruit and vegetable samples – (832 raw +74 processed samples),
- 97 cereal samples, - (93+4 processed cereal samples),
- 401 samples of food of animal origin.

Table 1: Number of routine fruit and vegetable samples planned and achieved as part of the 2008 monitoring programme

Commodity	Planned	Achieved
Berries and small fruits	70	66
Brassica Vegetables	30	35
Bulb Vegetables	5	9
Cereals	100	97
Citrus Fruits	125	127
Fruiting Vegetables	70	83
Fungi	20	16
Leafy vegetables	77	80
Legume Vegetables	30	26
Miscellaneous fruits	60	61
Oilseeds/Spice	1	1
Pome Fruits	148	139
Potatoes	50	47
Processed Food	65	74
Root and tuber Vegetables	50	61
Stem Vegetables	30	33
Stone Fruits	54	48
Food of animal origin	430	401
Total	1415	1404

4.1 Fruit and vegetable samples

4.1.1 Routine monitoring programme

The results of the 2008 monitoring programme for fruit and vegetables are summarised in Table 2. A total of 906 fruit and vegetable were analysed in 2008. Of these samples, 360 (39.7%) contained no detectable residues, 526 (58.1%) had residues above the detection limit and 20 (2.2%) had residues

above the EU MRL. A large percentage of the samples taken, 83% were imported, mainly from other EU countries and the remainder, 17% were of domestic origin.

Table 2: Summary table to show breakdown of fruit and vegetable samples analysed for pesticide residues in 2008

Commodity	Total number	Number of domestic samples	Number of imported samples	Residues Not Detected	Residues <MRL	Residues >MRL
Apple	102	1	101	21	79	2
Apple (processed)	1	0	1	0	1	0
Apple Juice	9	1	8	8	1	0
Apricot	1	0	1	1	0	0
Asparagus	2	0	2	2	0	0
Aubergine	4	0	4	1	3	0
Avocado	8	0	8	5	3	0
Banana	9	0	9	2	7	0
Basil	2	0	2	0	2	0
Bean with Pod	4	0	4	3	1	0
Bean without Pod	15	1	14	15	0	0
Beetroot	1	0	1	1	0	0
Blackberry	5	1	4	2	3	0
Blackcurrant Juice	1	0	1	1	0	0
Blueberry	8	0	8	6	2	0
Blueberry Juice	1	0	1	1	0	0
Broccoli	10	4	6	8	2	0
Brussels Sprout	1	0	1	1	0	0
Cabbage	15	13	2	10	4	1
Carrot	33	13	20	23	10	0
Carrot (processed)	1	1	0	1	0	0
Carrot Juice	3	0	3	3	0	0
Cauliflower	3	0	3	1	2	0
Celery	23	4	19	8	15	0
Chayote	1	0	1	1	0	0
Cherry	8	0	8	2	6	0
Cherry (processed)	2	0	2	1	1	0
Chinese Cabbage	3	2	1	2	0	1
Chinese Leaves	2	0	2	2	0	0
Clementine	17	0	17	0	17	0
Courgette	8	1	7	4	4	0
Cranberry	1	0	1	0	1	0
Cranberry Juice	2	0	2	2	0	0
Cucumber	14	4	10	8	6	0
Endive	2	1	1	0	2	0
Fennel	1	0	1	1	0	0
Garlic	1	0	1	1	0	0
Ginger	1	0	1	0	1	0
Grape Juice	2	0	2	2	0	0
Grape Table	22	0	22	3	16	3
Grapefruit	10	0	10	0	10	0
Grapefruit (canned)	1	0	1	1	0	0
Grapefruit Juice	2	0	2	1	1	0
Kiwi	24	0	24	7	17	0
Lambs Lettuce	2	1	1	2	0	0

Commodity	Total number	Number of domestic samples	Number of imported samples	Residues Not Detected	Residues <MRL	Residues >MRL
Leek	6	1	5	4	2	0
Lemon	8	0	8	0	8	0
Lettuce	52	28	24	18	33	1
Lime	5	0	5	0	4	1
Mandarin	28	0	28	0	28	0
Mandarin (canned)	1	0	1	0	1	0
Mange tout	4	0	4	2	2	0
Mango	11	0	11	2	7	2
Melon	3	0	3	1	2	0
Minneola	1	0	1	0	1	0
Mushroom	16	11	5	8	8	0
Nectarine	10	0	10	4	6	0
Onion	4	0	4	4	0	0
Onion	1	0	1	1	0	0
Orange	45	0	45	3	39	3
Orange Juice	21	0	21	13	8	0
Parsley	1	1	0	0	0	1
Parsnip	10	8	2	2	8	0
Passion Fruit	1	0	1	0	1	0
Pea without Pod	3	0	3	1	2	0
Peach	8	0	8	1	7	0
Peach (canned)	1	0	1	1	0	0
Peach Juice	1	0	1	0	1	0
Pear	37	0	37	3	33	1
Pear (canned)	3	0	3	3	0	0
Pepper	27	1	26	10	17	0
Physalis	1	0	1	1	0	0
Pineapple	4	0	4	1	3	0
Pineapple (canned)	3	0	3	2	1	0
Pineapple Juice	1	0	1	1	0	0
Plum	21	0	21	7	13	1
Plum (processed)	1	0	1	1	0	0
Pomegranate	3	0	3	0	2	1
Potato (processed)	1	1	0	1	0	0
Potato Ware	47	24	23	34	12	1
Prune Juice	1	0	1	1	0	0
Radish	3	0	3	2	1	0
Raisin	5	0	5	3	2	0
Raspberry	6	0	6	5	1	0
Raspberry (canned)	1	0	1	0	1	0
Red Chard	1	0	1	0	1	0
Rhubarb	2	2	0	2	0	0
Rocket	2	0	2	1	1	0
Satsuma	13	0	13	0	13	0
Scarole	1	1	0	1	0	0
Spinach	16	7	9	11	5	0
Spring Onion	3	1	2	1	2	0
Squash	1	0	1	1	0	0
Strawberry	23	10	13	2	21	0
Strawberry (canned)	2	0	2	2	0	0
Strawberry Juice	1	0	1	1	0	0

Commodity	Total number	Number of domestic samples	Number of imported samples	Residues Not Detected	Residues <MRL	Residues >MRL
Swede	1	1	0	1	0	0
Sweet corn	5	0	5	5	0	0
Sweet Potato	3	0	3	1	2	0
Tatsoi	1	0	1	1	0	0
Tomato	22	2	20	12	10	0
Turnip	8	6	2	7	0	1
Wine	6	0	6	6	0	0
Yam	1	0	1	1	0	0
Total	906	153	753	360	526	20

Details of the pesticide residues detected by the PCS in routine fruit and vegetable samples (excluding the processed and the organic samples) are presented in Table 3.

Table 3: Details of pesticide residues detected in fruit and vegetable sampled routinely in 2008

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
1. Fruit	1.1 Citrus Fruit		1.1.1 Grapefruit	
71045	ISRAEL	bromopropylate	0.16	2
		imazalil	0.98	5
		thiabendazole	1.13	5
71066	SPAIN	imazalil	0.30	5
		chlorpyrifos	0.16	0.3
		pyriproxyfen	0.03	No MRL
71317	TURKEY	prochloraz	1.19	10
		biphenyl	0.09	No MRL
		acetamiprid	0.03	1
		imazalil	1.07	5
		thiabendazole	0.86	5
71405	UNITED STATES	imazalil	0.96	5
		thiabendazole	0.73	5
71539	S AFRICA	imazalil	1.69	5
		imidacloprid	0.03	No MRL
		2,4-D	0.09	1
71553	UNITED STATES	imazalil	0.11	5
		pyraclostrobin	0.07	1
		thiabendazole	0.34	5
71596	S AFRICA	chlorpyrifos	0.02	0.3
		imazalil	1.46	5
		imidacloprid	0.01	No MRL
		pyraclostrobin	0.02	1
71678	S AFRICA	imazalil	0.52	5
		cypermethrin	0.09	2
71830	S AFRICA	imazalil	0.51	5
		trifloxystrobin	0.03	0.3
		2,4-D	0.02	1
72044	ISRAEL	imazalil	3.44	5
		thiabendazole	0.11	5

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
		ortho-phenylphenol	0.31	No MRL
1.1.2 Lemon				
71320	SPAIN	carbendazim	0.03	0.5
		fenhexamid	0.01	0.05
		imazalil	1.66	5
		thiabendazole	0.03	5
71383	SPAIN	chlorpyrifos	0.04	0.2
		dicofol	0.28	2
		imazalil	0.60	5
		quizalofop	0.06	No MRL
71560	S AFRICA	methidathion	0.17	2
		prochloraz	0.66	10
		2,4-D	0.17	1
		imazalil	0.47	5
		imidacloprid	0.02	No MRL
71640	ARGENTINA	imazalil	2.77	5
		thiabendazole	0.36	5
71650	S AFRICA	carbendazim	0.02	0.5
		imazalil	0.53	5
		pyraclostrobin	0.01	1
		thiabendazole	0.33	5
71680	ARGENTINA	imazalil	1.32	5
		pyrimethanil	0.28	10
		thiabendazole	0.04	5
		prochloraz	1.16	10
71989	TURKEY	buprofezin	0.01	No MRL
		imazalil	0.05	5
		chlorpyrifos	0.09	0.2
72036	SPAIN	imazalil	0.70	5
		pyrimethanil	0.92	10
		prochloraz	0.45	10
1.1.3 Lime				
71194	BRAZIL	imazalil	0.51	5
71448	BRAZIL	prochloraz	0.78	10
		carbendazim	0.01	0.5
		imazalil	0.20	5
		2,4-D	0.02	1
71594	BRAZIL	carbendazim	0.01	0.5
		prochloraz	4.30	10
71943	MEXICO	imazalil	1.73	5
		thiabendazole	0.37	5
72043	MEXICO	oxamyl	0.04	0.01
		thiabendazole	0.34	5
		imazalil	0.94	5
1.1.4 Mandarin				
71067	SPAIN	imazalil	0.80	5
		thiabendazole	0.80	5

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
71267	SPAIN	chlorpyrifos	0.11	2
		fenpyroximate	0.02	No MRL
		chlorpyrifos	0.21	2
		myclobutanil	0.84	3
		imazalil	1.36	5
71329	SPAIN	tebufenpyrad	0.02	No MRL
		chlorpyrifos	0.06	2
		malathion	0.22	2
71331	UNITED STATES	imazalil	0.53	5
		imazalil	2.06	5
71350	CYPRUS	thiabendazole	0.74	5
		chlorpyrifos	0.07	2
		bromopropylate	0.29	2
		imazalil	1.10	5
71357	SPAIN	thiabendazole	1.41	5
		imazalil	0.02	5
71626	S AFRICA	bromopropylate	0.02	2
		pyriproxyfen	0.02	No MRL
71639	S AFRICA	imazalil	1.10	5
		2,4-D	0.04	1
		imazalil	0.06	5
		thiabendazole	0.03	5
71641	S AFRICA	2,4-D	0.02	1
		malathion	0.05	2
		imazalil	0.61	5
71675	S AFRICA	thiabendazole	0.08	5
		2,4-D	0.12	1
		2,4-D	0.21	1
		dichlorprop-p	0.02	0.05
		imazalil	2.45	5
71676	S AFRICA	imidacloprid	0.03	No MRL
		thiabendazole	0.02	5
		bromopropylate	0.28	2
		2,4-D	0.11	1
		imazalil	1.05	5
		thiabendazole	0.01	5
		methidathion	0.14	2
71745	URUGUAY	imazalil	1.06	5
		prochloraz	0.04	10
71751	S AFRICA	imazalil	0.44	5
		thiabendazole	0.04	5
		2,4-D	0.10	1
71780	PERU	dichlorprop-p	0.01	0.05
		imazalil	0.57	5
		thiabendazole	0.85	5
71810	PERU	chlorpyrifos	0.04	2
		buprofezin	0.02	No MRL
		imazalil	2.69	5
		pyrimethanil	2.01	10
		thiabendazole	2.17	5

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
71916	SPAIN	2,4-D	0.16	1
		chlorpyrifos	0.09	2
		chlorpyrifos-methyl	0.03	1
		malathion	0.03	2
		imazalil	1.25	5
71940	SPAIN	thiabendazole	0.17	5
		imazalil	0.81	5
		chlorpyrifos	0.02	2
		pyriproxyfen	0.02	No MRL
		dicofol	0.06	2
71958	SPAIN	chlorpyrifos	0.21	2
		chlorpyrifos-methyl	0.19	1
		ortho-phenylphenol	0.19	No MRL
		pyriproxyfen	0.02	No MRL
		imazalil	0.91	5
71962	SPAIN	terbuthylazine	0.04	No MRL
		chlorpyrifos-methyl	0.03	1
		ortho-phenylphenol	0.02	No MRL
		imazalil	0.70	5
		dicofol	0.62	2
71967	SPAIN	imazalil	1.78	5
		thiabendazole	0.70	5
		ortho-phenylphenol	2.02	No MRL
		chlorpyrifos	0.09	2
		imazalil	1.82	5
71990	SPAIN	thiabendazole	1.73	5
		ortho-phenylphenol	0.32	No MRL
		malathion	0.07	2
		dicofol	0.10	2
		chlorpyrifos	0.05	2
71992	SPAIN	imazalil	1.64	5
		pyriproxyfen	0.02	No MRL
		lambda-cyhalothrin	0.04	0.2
		imazalil	1.28	5
		thiabendazole	0.01	5
72022	SENEGAL	ortho-phenylphenol	0.19	No MRL
		chlorpyrifos	0.09	2
		imazalil	1.26	5
		thiabendazole	0.16	5
		imazalil	0.81	5
72042	MOROCCO	pirimiphos-me	0.03	2
		chlorpyrifos	0.06	2
		dicofol	0.07	2
		imazalil	2.91	5
		thiabendazole	0.02	5
72047	SPAIN	chlorpyrifos	0.04	2
		imazalil	2.91	5
		thiabendazole	0.02	5
		chlorpyrifos	0.04	2
		malathion	0.19	2
72048	SPAIN	phosmet	0.02	No MRL
		dicofol	0.08	2
		chlorpyrifos	0.16	2
		chlorpyrifos	0.04	2
		malathion	0.19	2
72050	SPAIN	phosmet	0.02	No MRL
		dicofol	0.08	2
		chlorpyrifos	0.16	2
		chlorpyrifos	0.04	2
		malathion	0.19	2

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
72051	TURKEY	imazalil	0.89	5
		imidacloprid	0.02	No MRL
		thiabendazole	0.04	5
		ortho-phenylphenol	0.02	No MRL
		imazalil	0.90	5
		thiabendazole	0.32	5
1.1.5 Clementine				
71036	SPAIN	imazalil	1.35	5
71065	MOROCCO	malathion	0.02	2
		imazalil	1.29	5
71091	SPAIN	thiabendazole	0.02	5
		chlorpyrifos	0.10	2
		hexythiazox	0.02	No MRL
71134	SPAIN	imazalil	1.52	5
		thiabendazole	1.48	5
		chlorpyrifos	0.04	2
		imazalil	1.81	5
71148	MOROCCO	thiabendazole	4.03	5
		chlorpyrifos	0.10	2
		imazalil	1.45	5
71169	SPAIN	thiabendazole	0.12	5
		chlorpyrifos	0.15	2
		imazalil	2.52	5
71201	MOROCCO	thiabendazole	1.18	5
		imazalil	0.71	5
		chlorpyrifos	0.21	2
71203	MOROCCO	imazalil	0.70	5
		thiabendazole	0.16	5
71212	MOROCCO	imazalil	0.36	5
		thiabendazole	0.02	5
		fluvalinate-tau-l	0.05	No MRL
71282	MOROCCO	imazalil	2.10	5
		thiabendazole	0.14	5
71283	SPAIN	malathion	0.94	2
		imazalil	2.35	5
71382	SPAIN	malathion	0.97	2
		imazalil	0.96	5
71572	S AFRICA	imazalil	1.50	5
		2,4-D	0.09	1
71590	ARGENTINA	imazalil	0.99	5
		thiabendazole	0.44	5
		2,4-D	0.06	1
		malathion	0.13	2
		prochloraz	0.88	10
71591	S AFRICA	malathion	0.02	2
		imazalil	1.24	5
		thiabendazole	2.13	5
71685	S AFRICA	2,4-D	0.03	1
		2,4-D	0.12	1

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
72006	SPAIN	imazalil	0.58	5
		thiabendazole	0.43	5
		chlorpyrifos	0.05	2
		imazalil	0.51	5
1.1.6 Satsuma				
71336	ARGENTINA	imazalil	1.22	5
		pyraclostrobin	0.05	1
		thiabendazole	0.60	5
71367	ARGENTINA	chlorpyrifos	0.12	2
		malathion	0.07	2
		prochloraz	1.35	10
		2,4-D	0.13	1
		imazalil	1.17	5
		thiabendazole	1.12	5
		imazalil	3.13	5
71408	ARGENTINA	pyraclostrobin	0.01	1
		thiabendazole	0.77	5
		2,4-D	0.06	1
		prochloraz	0.75	10
		imazalil	0.64	5
71416	S AFRICA	imidacloprid	0.04	No MRL
		thiabendazole	0.24	5
		2,4-D	0.18	1
		methidathion	0.22	2
		chlorpyrifos	0.12	2
		myclobutanil	0.57	3
71445	ARGENTINA	prochloraz	0.76	10
		imazalil	0.86	5
		thiabendazole	4.95	5
		carbendazim	0.09	0.5
		difenoconazole	0.01	No MRL
		imazalil	3.89	5
		2,4-D	0.03	1
71465	URUGUAY	chlorpyrifos	0.04	2
		malathion	0.03	2
		prochloraz	0.48	10
		imazalil	1.43	5
		2,4-D	0.08	1
		malathion	0.03	2
71469	S AFRICA	pyriproxyfen	0.04	No MRL
		imazalil	2.58	5
		pyrimethanil	1.68	10
		thiabendazole	1.45	5
		2,4-D	0.32	1
71550	PERU	chlorpyrifos	0.06	2
		methidathion	0.23	2
		2,4-D	0.05	1
		imazalil	0.78	5
71554	S AFRICA	fenpropathrin	0.05	No MRL
		imazalil	0.78	5
		fenpropathrin	0.05	No MRL

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
		2,4-D	0.06	1
		triflumuron	0.04	No MRL
		imazalil	1.76	5
71595	PERU	pyriproxyfen	0.03	No MRL
		imazalil	1.74	5
		pyrimethanil	2.10	10
		thiabendazole	0.82	5
		2,4-D	0.14	1
71895	PERU	chlorpyrifos	0.06	2
		2,4-D	0.13	1
		imazalil	2.55	5
		pyrimethanil	0.15	10
		thiabendazole	0.99	5
71954	SPAIN	imazalil	0.58	5
		thiabendazole	0.03	5
		chlorpyrifos	0.11	2
		dicofol	0.53	2
1.1.7 Minneola				
71882	PERU	clofentezine	0.01	0.5
		imazalil	1.56	5
		thiabendazole	0.08	5
		2,4-D	0.07	1
1.1.8 Orange				
71040	SPAIN	imazalil	1.24	5
		thiabendazole	0.10	5
		chlorpyrifos	0.21	0.3
		malathion	0.09	2
71041	SPAIN	imazalil	0.51	5
		thiabendazole	0.62	5
		malathion	0.10	2
71050	SPAIN	chlorpyrifos	0.05	0.3
		imazalil	0.37	5
71068	MOROCCO	imazalil	1.03	5
71090	MOROCCO	imazalil	1.27	5
		thiabendazole	0.22	5
71129	ITALY	dicofol	0.06	2
		imazalil	3.09	5
71130	MOROCCO	imazalil	1.91	5
		thiabendazole	0.02	5
71162	MOROCCO	imazalil	1.39	5
71163	MOROCCO	methidathion	0.20	2
		imazalil	0.47	5
71192	SPAIN	chlorpyrifos	0.10	0.3
		dicofol	0.18	2
		imazalil	0.72	5
		thiabendazole	1.47	5
71202	MOROCCO	imazalil	0.76	5
		chlorpyrifos	0.04	0.3

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
71214	SPAIN	thiabendazole	7.30	5
		chlorpyrifos	0.07	0.3
		dicofol	0.05	2
		imazalil	2.83	5
71236	SPAIN	imazalil	0.33	5
71286	MOROCCO	chlorpyrifos	0.16	0.3
		imazalil	1.02	5
71353	MOROCCO	imazalil	1.44	5
71358	MOROCCO	imazalil	2.00	5
71384	MOROCCO	chlorpyrifos	0.32	0.3
		thiabendazole	0.02	5
		imazalil	0.47	5
		dicofol	0.05	2
71385	ISRAEL	bromopropylate	0.56	2
		imazalil	1.86	5
		thiabendazole	2.20	5
		2,4-D	0.06	1
71400	SPAIN	imazalil	1.04	5
71412	MOROCCO	thiabendazole	3.44	5
		chlorpyrifos	0.05	0.3
71478	MOROCCO	imazalil	0.35	5
71540	MOROCCO	chlorpyrifos	0.21	0.3
		imazalil	0.89	5
		thiabendazole	1.29	5
71555	MOROCCO	chlorpyrifos	0.08	0.3
		imazalil	0.12	5
		thiabendazole	2.40	5
71576	SPAIN	pirimiphos-me	0.04	1
		chlorpyrifos	0.03	0.3
		thiabendazole	0.28	5
		imazalil	2.73	5
71615	MOROCCO	imazalil	2.05	5
		thiabendazole	0.03	5
		chlorpyrifos	0.06	0.3
71643	MOROCCO	imazalil	1.86	5
		chlorpyrifos	0.04	0.3
71686	S AFRICA	imazalil	0.40	5
71746	S AFRICA	imazalil	1.93	5
		pyraclostrobin	0.04	1
		thiabendazole	2.08	5
		2,4-D	0.13	1
		pyriproxyfen	0.02	No MRL
71753	S AFRICA	imazalil	1.94	5
		thiabendazole	0.37	5
		2,4-D	0.07	1
		bromopropylate	0.62	2
		malathion	0.03	2
71784	ITALY	dimethoate	0.05	0.02
		methidathion	0.11	2
		carbendazim	0.05	0.5

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
71789	BRAZIL	imazalil	0.73	5
		pyraclostrobin	0.03	1
		thiabendazole	0.26	5
		ortho-phenylphenol	0.05	No MRL
		methidathion	0.10	2
		ortho-phenylphenol	0.02	No MRL
		carbendazim	0.03	0.5
		imazalil	0.97	5
		pyraclostrobin	0.04	1
71790	S AFRICA	thiabendazole	0.08	5
		imazalil	0.65	5
		imidacloprid	0.05	No MRL
71803	S AFRICA	2,4-D	0.09	1
		imazalil	0.89	5
		pyraclostrobin	0.01	1
71811	S AFRICA	2,4-D	0.06	1
		imazalil	0.92	5
71831	S AFRICA	2,4-D	0.04	1
71841	S AFRICA	imazalil	0.88	5
		pyraclostrobin	0.01	1
		imazalil	0.91	5
		thiabendazole	0.07	5
71848	RUSSIA	bromopropylate	0.21	2
		pyriproxyfen	0.03	No MRL
		imazalil	0.98	5
		thiabendazole	0.58	5
71864	S AFRICA	2,4-D	0.11	1
		2,4-D	0.04	1
		imazalil	1.19	5
		thiabendazole	0.52	5
71879	S AFRICA	imazalil	0.77	5
		imidacloprid	0.02	No MRL
		thiabendazole	1.33	5
		2,4-D	0.06	1
71918	S AFRICA	2,4-D	0.24	1
		imazalil	1.37	5
		imidacloprid	0.02	No MRL
71939	S AFRICA	carbendazim	0.03	0.5
		imazalil	0.74	5
		pyraclostrobin	0.02	1
		2,4-D	0.05	1
		methidathion	0.02	2
71972	SPAIN	2,4-D	0.04	1
		imazalil	0.48	5
		pyraclostrobin	0.03	1
71052	1.3 Pome Fruit FRANCE	carbendazim	0.14	0.2
71061	PORTUGAL	thiophanate-methyl	0.01	0.5
		Diazinon	0.03	0.01

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
		diphenylamine	0.16	5
		captan	0.06	3
		chlorpyrifos	0.02	0.5
		imazalil	0.08	5
		methomyl	0.02	0.2
		thiabendazole	0.37	5
		thiacloprid	0.03	0.3
71063	FRANCE	thiabendazole	0.04	5
		diphenylamine	0.03	5
71064	FRANCE	thiabendazole	0.34	5
		pirimicarb	0.03	No MRL
		propargite	1.33	No MRL
71093	FRANCE	propargite	0.30	No MRL
71135	HOLLAND	maneb group	0.12	3
		methoxyfenozide	0.02	2
71136	ITALY	maneb group	0.18	3
		chlorpyrifos	0.04	0.5
		captan	0.37	3
		imidacloprid	0.01	No MRL
		thiabendazole	0.02	5
		thiacloprid	0.02	0.3
		methoxyfenozide	0.04	2
71137	CHINA	carbendazim	0.01	0.2
71147	FRANCE	diphenylamine	0.08	5
		chlorpyrifos	0.03	0.5
		phosmet	0.02	No MRL
		carbendazim	0.12	0.2
		thiophanate-methyl	0.02	0.5
71164	FRANCE	chlorpyrifos	0.03	0.5
		thiabendazole	0.82	5
		fludioxonil	0.04	No MRL
		diphenylamine	0.52	5
71184	PORTUGAL	imazalil	0.21	5
		captan + folpet	0.08	3
		diphenylamine	0.05	5
71205	FRANCE	diphenylamine	0.83	5
		thiabendazole	0.23	5
		captan	0.04	3
		pirimicarb	0.02	No MRL
71207	FRANCE	diphenylamine	0.96	5
		chlorpyrifos	0.04	0.5
		carbendazim	0.04	0.2
		thiabendazole	0.30	5
		pirimicarb	0.02	No MRL
71208	FRANCE	carbendazim	0.08	0.2
		thiacloprid	0.01	0.3
71215	FRANCE	thiabendazole	0.03	5
		diphenylamine	0.03	5
71237	FRANCE	diphenylamine	1.15	5
71259	BELGIUM	carbendazim	0.14	0.2

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
		difenoconazole	0.01	No MRL
		pyraclostrobin	0.04	0.3
		thiophanate-methyl	0.01	0.5
		pirimicarb	0.07	No MRL
71262	FRANCE	carbendazim	0.12	0.2
		fludioxonil	0.04	No MRL
		diphenylamine	2.37	5
71263	ITALY	captan	0.03	3
71280	FRANCE	captan	0.07	3
		fludioxonil	0.02	No MRL
71288	FRANCE	diphenylamine	0.65	5
		chlorpyrifos	0.17	0.5
		carbendazim	0.03	0.2
		thiabendazole	0.91	5
		fludioxonil	0.04	No MRL
71291	FRANCE	diphenylamine	0.72	5
		chlorpyrifos	0.06	0.5
		carbendazim	0.13	0.2
		thiabendazole	0.72	5
		thiophanate-methyl	0.02	0.5
71318	FRANCE	captan	0.03	3
		carbendazim	0.01	0.2
71321	FRANCE	acetamiprid	0.02	0.1
		carbendazim	0.04	0.2
71327	BRAZIL	phosmet	0.06	No MRL
71348	FRANCE	diphenylamine	0.37	5
71349	FRANCE	captan	0.05	3
		diphenylamine	0.23	5
		carbendazim	0.09	0.2
		thiophanate-methyl	0.09	0.5
71352	BRAZIL	carbendazim	0.05	0.2
71359	BELGIUM	chlorpyrifos	0.02	0.5
		captan	0.02	3
		carbendazim	0.02	0.2
71389	FRANCE	chlorpyrifos	0.03	0.5
		captan	0.02	3
		diphenylamine	0.36	5
		thiabendazole	0.65	5
71391	FRANCE	diphenylamine	0.99	5
		carbendazim	0.04	0.2
		thiabendazole	0.28	5
71398	FRANCE	carbendazim	0.06	0.2
		fludioxonil	0.01	No MRL
		captan	0.04	3
71420	BRAZIL	carbendazim	0.04	0.2
		maneb group	0.14	5
71421	S AFRICA	thiacloprid	0.02	0.3
71440	S AFRICA	diphenylamine	0.09	5
		indoxacarb	0.03	0.5
71441	ARGENTINA	thiophanate-methyl	0.72	0.5

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
		carbendazim	0.08	0.2
		thiacloprid	0.02	0.3
		captan	0.03	3
71449	ITALY	diphenylamine	1.69	5
71470	FRANCE	thiabendazole	0.22	5
		fludioxonil	0.02	No MRL
		diphenylamine	1.00	5
71474	BRAZIL	pyraclostrobin	0.02	0.3
		chlorpyrifos	0.04	0.5
		folpet	0.04	3
71538	FRANCE	diphenylamine	0.41	5
		thiabendazole	0.68	5
		fludioxonil	0.03	No MRL
71547	S AFRICA	diphenylamine	1.13	5
71565	S AFRICA	diphenylamine	2.65	5
		maneb group	0.30	5
		azinphos-me	0.24	0.5
71567	BRAZIL	captan	0.04	3
		carbendazim	0.06	0.2
71571	CHILE	diphenylamine	0.29	5
		chlorpyrifos	0.03	0.5
		thiabendazole	0.45	5
		methoxyfenozide	0.01	2
71598	UNITED KINGDOM	carbendazim	0.02	0.2
		diphenylamine	0.09	5
71600	UNITED KINGDOM	carbendazim	0.02	0.2
		diphenylamine	0.36	5
		metalaxyl	0.02	1
71620	CHILE	thiabendazole	0.06	5
71642	NEW ZEALAND	captan	0.04	3
71671	NEW ZEALAND	carbendazim	0.01	0.2
71687	S AFRICA	diphenylamine	1.44	5
		azinphos-me	0.09	0.5
71740	CHILE	thiabendazole	0.72	5
		methoxyfenozide	0.01	2
71741	S AFRICA	diphenylamine	0.03	5
71742	FRANCE	acetamiprid	0.02	1
		thiacloprid	0.02	0.3
		chlorpyrifos	0.05	0.5
71749	S AFRICA	diphenylamine	0.69	5
71752	BRAZIL	carbendazim	0.02	0.2
		phosmet	0.03	No MRL
71754	FRANCE	chlorpyrifos	0.05	0.5
71757	FRANCE	pirimicarb	0.06	No MRL
71782	FRANCE	thiacloprid	0.02	0.3
		chlorpyrifos	0.06	0.5
		captan	0.02	3
71786	FRANCE	thiacloprid	0.03	0.3
		chlorpyrifos	0.03	0.5
71794	FRANCE	thiacloprid	0.11	0.3

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
71796	S AFRICA	thiacloprid	0.01	0.3
		diphenylamine	0.05	5
71814	FRANCE	chlorpyrifos	0.02	0.5
		propargite	0.20	No MRL
		fludioxonil	0.01	No MRL
71832	FRANCE	propargite	0.19	No MRL
71839	PORTUGAL	maneb group	0.38	5
		chlorpyrifos	0.09	0.5
		propargite	0.24	No MRL
		captan	0.07	3
71845	FRANCE	diphenylamine	1.85	5
		propargite	0.29	No MRL
71846	FRANCE	chlorpyrifos	0.03	0.5
71849	FRANCE	chlorpyrifos	0.04	0.5
		thiacloprid	0.03	0.3
71854	FRANCE	propargite	0.15	No MRL
71881	FRANCE	captan	0.06	3
		fenoxycarb	0.01	No MRL
		thiacloprid	0.02	0.3
		fludioxonil	0.03	No MRL
71917	FRANCE	propargite	0.14	No MRL
		boscalid	0.02	2
		carbendazim	0.03	0.2
		thiophanate-methyl	0.02	0.5
71938	FRANCE	boscalid	0.05	2
		pyraclostrobin	0.05	0.3
		captan	0.03	3
71941	FRANCE	thiacloprid	0.02	0.3
		pirimicarb	0.05	No MRL
		captan	0.02	3
		propargite	0.87	No MRL
71960	HOLLAND	captan	0.16	3
71961	FRANCE	diphenylamine	0.12	5
		carbendazim	0.03	0.2
		thiabendazole	0.59	5
		thiacloprid	0.01	0.3
		pirimicarb	0.02	No MRL
71966	FRANCE	fludioxonil	0.02	No MRL
71993	ITALY	boscalid	0.03	2
		pyraclostrobin	0.02	0.3
		iprodione	0.03	5
71995	FRANCE	carbendazim	0.02	0.2
		thiacloprid	0.01	0.3
		fludioxonil	0.04	No MRL
		diphenylamine	0.07	5
		propargite	1.71	No MRL
		chlorpyrifos	0.04	0.5
		fluvalinate-tau-l	0.08	No MRL
72004	FRANCE	captan	0.15	3
		diphenylamine	0.03	5

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
72005	FRANCE	chlorpyrifos	0.07	0.5
		carbendazim	0.02	0.2
		thiacloprid	0.02	0.3
		diphenylamine	0.15	5
		chlorpyrifos	0.04	0.5
72046	FRANCE	thiabendazole	0.59	5
		thiabendazole	0.11	5
		captan	0.02	3
72053	FRANCE	diphenylamine	1.12	5
		boscalid	0.06	2
		pyraclostrobin	0.02	0.3
		fludioxonil	0.05	No MRL
	1.3 Pome Fruit		1.3.2 Pear	
71033	CHINA	chlorpyrifos	0.04	0.5
71034	HOLLAND	captan	0.03	3
71039	PORTUGAL	phosmet	0.03	No MRL
		captan	0.13	3
71046	PORTUGAL	diphenylamine	0.04	10
		diphenylamine	0.23	10
		malathion	0.03	0.5
		folpet	0.10	3
71051	HOLLAND	imazalil	0.16	5
		captan	0.11	3
		carbendazim	0.16	0.2
		pyraclostrobin	0.03	0.3
		thiophanate-methyl	0.05	0.5
71132	PERU	maneb group	0.19	3
		malathion	0.05	0.5
		folpet	1.60	3
		phosmet	0.05	No MRL
		diphenylamine	0.52	10
		imazalil	0.61	5
		teflubenzuron	0.02	No MRL
71193	PORTUGAL	folpet	2.21	3
		phosmet	0.28	No MRL
		diphenylamine	2.28	10
		malathion	0.23	0.5
		imazalil	0.29	5
71213	BELGIUM	carbendazim	0.04	0.2
		diethofencarb	0.02	No MRL
		imazalil	0.01	5
		thiabendazole	0.03	5
71261	PORTUGAL	thiophanate-methyl	0.01	0.5
		imazalil	0.25	5
		chlorpyrifos	0.10	0.5
		phosmet	0.16	No MRL
		folpet	0.04	3
		teflubenzuron	0.02	No MRL
		diphenylamine	0.43	10

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
71273	PORTUGAL	captan + folpet	0.24	3
		diphenylamine	0.53	10
		imazalil	0.62	5
71289	HOLLAND	captan	0.08	3
		carbendazim	0.06	0.2
		indoxacarb	0.01	0.3
		pyraclostrobin	0.04	0.3
		thiophanate-methyl	0.01	0.5
71333	PORTUGAL	phosmet	0.06	No MRL
		captan + folpet	0.31	3
		diphenylamine	2.07	10
		imazalil	0.24	5
		thiabendazole	0.18	5
71370	PORTUGAL	thiacloprid	0.02	0.3
		maneb group	0.20	5
		phosmet	0.08	No MRL
		diphenylamine	1.00	10
		imazalil	0.17	5
71390	S AFRICA	thiacloprid	0.02	0.3
71411	HOLLAND	carbendazim	0.02	0.2
		pyraclostrobin	0.01	0.3
		captan	0.05	3
71457	CHILE	diphenylamine	1.03	10
		thiabendazole	2.10	5
71541	HOLLAND	captan	0.11	3
71546	S AFRICA	pyraclostrobin	0.02	0.3
		iprodione	0.02	5
71570	HOLLAND	methoxyfenozide	0.91	2
		carbendazim	0.03	0.2
		diethofencarb	0.02	No MRL
		pyraclostrobin	0.03	0.3
		diflubenzuron	0.02	No MRL
71645	S AFRICA	methoxyfenozide	0.01	2
		azinphos-me	0.18	0.5
		diphenylamine	0.05	10
71672	S AFRICA	diphenylamine	0.06	10
		azinphos-me	0.12	0.5
71755	S AFRICA	azinphos-me	0.06	0.5
		diphenylamine	1.65	10
71756	FRANCE	thiacloprid	0.02	0.3
71781	FRANCE	chlorpyrifos	0.19	0.5
		captan	0.02	3
71795	FRANCE	captan	0.02	3
		phosmet	0.02	No MRL
		tebufenozide	0.03	No MRL
71815	ITALY	maneb group	0.15	5
		captan	0.06	3
		triflumuron	0.03	No MRL
71816	PORTUGAL	maneb group	0.38	5
		trifloxystrobin	0.02	0.5

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
		captan	0.37	3
		diphenylamine	0.14	10
71838	CHINA	teflubenzuron	0.01	No MRL
		carbendazim	0.02	0.2
		chlorpyrifos	0.03	0.5
71861	PORTUGAL	maneb group	0.10	5
		trifloxystrobin	0.02	0.5
		chlorpyrifos	0.06	0.5
		captan	0.03	3
71913	S AFRICA	iprodione	0.09	5
71959	PORTUGAL	phosmet	0.09	No MRL
		diphenylamine	0.06	10
		teflubenzuron	0.03	No MRL
		imazalil	0.02	5
		thiabendazole	1.35	5
71963	PORTUGAL	dimethoate	0.02	0.02
		diphenylamine	0.26	10
		imazalil	0.07	5
		thiacloprid	0.01	0.3
		captan +folpet	0.08	3
		phosmet	0.03	No MRL
71997	PORTUGAL	imazalil	0.07	5
		imidacloprid	0.03	No MRL
		thiacloprid	0.02	0.3
		teflubenzuron	0.03	No MRL
		diphenylamine	0.84	10
		tebuconazole	0.02	No MRL
		folpet	0.32	3
		lambda-cyhalothrin	0.03	0.1
72035	PORTUGAL	imazalil	0.25	5
		trifloxystrobin	0.02	0.5
		diphenylamine	0.93	10
		captan +folpet	0.28	3
		malathion	0.03	0.5
		phosmet	0.56	No MRL
	1.4 Stone Fruit			
	1.4.2 Cherry			
71092	CHILE	iprodione	1.11	3
71157	CHILE	iprodione	0.57	3
71211	CHILE	thiabendazole	0.01	0.05
		iprodione	0.27	3
71623	GREECE	tebuconazole	0.02	No MRL
		dimethoate	0.07	1
		omethoate	0.06	1
		iprodione	0.09	3
71824	CANADA	iprodione	0.06	3
		myclobutanil	0.03	1
		imidacloprid	0.04	No MRL
72045	CHILE	acetamiprid	0.03	0.2
		iprodione	0.73	3

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
1.4.3 Peach				
71689	FRANCE	phosmet	0.03	No MRL
71730	SPAIN	iprodione	0.27	3
		tebuconazole	0.02	No MRL
		lambda-cyhalothrin	0.03	0.2
		cyprodinil	0.02	No MRL
71787	FRANCE	iprodione	0.03	3
		tebuconazole	0.03	No MRL
		fenbuconazole	0.05	No MRL
		cyprodinil	0.04	No MRL
		spinosad	0.04	No MRL
		thiacloprid	0.02	0.3
		fludioxonil	0.04	No MRL
71812	ITALY	chlorpyrifos	0.05	0.2
		etofenprox	0.03	0.5
71842	FRANCE	iprodione	0.67	3
71853	FRANCE	cyprodinil	0.06	No MRL
		spinosad	0.03	No MRL
		thiacloprid	0.02	0.3
		fludioxonil	0.05	No MRL
		fenazaquin	0.02	0.5
71994	ITALY	cyprodinil	0.01	No MRL
		etofenprox	0.03	0.5
		fenhexamid	0.40	5
		tebuconazole	0.03	No MRL
		cyfluthrin	0.03	0.3
1.4.4 Nectarine				
71038	AUSTRALIA	iprodione	0.41	3
		bifenthrin	0.05	0.2
71328	CHILE	fenhexamid	0.04	5
		iprodione	0.74	3
71387	CHILE	iprodione	0.48	3
		fenhexamid	0.01	5
71549	SPAIN	acetamiprid	0.03	0.1
71673	SPAIN	imidacloprid	0.01	No MRL
		spinosad	0.01	No MRL
71843	SPAIN	iprodione	0.26	3
1.4.5 Plum				
71206	S AFRICA	iprodione	0.03	3
71287	S AFRICA	iprodione	0.16	3
71386	CHILE	iprodione	1.28	3
71438	CHILE	iprodione	0.28	3
71450	CHILE	fenhexamid	0.11	1
		iprodione	0.30	3
71472	CHILE	iprodione	1.72	3
71556	UNITED STATES	pyraclostrobin	0.03	0.1
		fludioxonil	0.53	No MRL

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
71785	UNITED STATES	spirodiclofen	0.03	0.05
		myclobutanil	0.02	0.5
71851	FRANCE	cyprodinil	0.03	No MRL
71914	SPAIN	tebuconazole	0.03	No MRL
		propargite	0.45	No MRL
71944	ITALY	tebuconazole	0.08	No MRL
		acrinathrin	0.02	No MRL
71969	ITALY	cyprodinil	0.02	No MRL
		etofenprox	0.02	1
		tebuconazole	0.02	No MRL
71970	UNITED STATES	methoxyfenozide	0.07	0.02
		fludioxonil	0.03	No MRL
71991	ITALY	cyprodinil	0.01	No MRL
		etofenprox	0.04	1
		fenhexamid	0.24	1
		tebuconazole	0.03	No MRL
		phosmet	0.03	No MRL
		1.5 Berries and small fruits		
		1.5.1.1 Table grape		
71049	S AFRICA	azoxystrobin	0.11	2
		cyprodinil	0.01	No MRL
71131	S AFRICA	penconazole	0.02	0.2
71210	S AFRICA	cyprodinil	0.02	No MRL
		iprodione	0.92	10
71260	CHILE	tebuconazole	0.03	No MRL
71266	CHILE	cyprodinil	0.01	No MRL
		myclobutanil	0.02	1
71347	INDIA	chlorpyrifos	0.05	0.5
71377	S AFRICA	fenhexamid	0.02	5
		iprodione	0.05	10
71410	INDIA	carbendazim	0.02	0.3
		chlorpyrifos	0.02	0.5
71471	CHILE	cyprodinil	0.08	No MRL
		fenhexamid	0.28	5
		pyraclostrobin	0.02	1
		fludioxonil	0.09	No MRL
		iprodione	0.27	10
		chlorpyrifos	0.04	0.5
71509	INDIA	spinosad	0.01	No MRL
71551	CHILE	azinphos-me	0.21	0.05
		fludioxonil	0.49	No MRL
		cyprodinil	0.70	No MRL
		fenhexamid	0.64	5
71564	CHILE	fludioxonil	0.04	No MRL
		cyprodinil	0.02	No MRL
		fenhexamid	0.11	5
71628	EGYPT	imidacloprid	0.01	No MRL
71638	EGYPT	iprodione	0.22	10
71750	EGYPT	fludioxonil	0.02	No MRL
		cyprodinil	0.03	No MRL

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
		imidacloprid	0.04	No MRL
71822	SPAIN	iprodione	0.23	10
		trifloxystrobin	0.08	5
		famoxadone	0.02	2
71823	GREECE	chlorpyrifos	0.03	0.5
		phosmet	0.05	No MRL
		myclobutanil	0.04	1
		methoxyfenozide	0.20	1
71965	UNITED STATES	methomyl	0.10	0.05
		cyprodinil	0.02	No MRL
		pyraclostrobin	0.03	1
		boscalid	0.09	5
71973	UNITED STATES	methomyl	0.07	0.05
		boscalid	0.03	5
1.5.2 Strawberry				
71200	EGYPT	fludioxonil	0.03	No MRL
		cyprodinil	0.05	No MRL
71229	SPAIN	myclobutanil	0.10	1
		cyprodinil	0.69	No MRL
		fludioxonil	0.42	No MRL
71232	SPAIN	hexythiazox	0.01	No MRL
		pyraclostrobin	0.08	0.5
		fenhexamid	1.06	5
71233	EGYPT	myclobutanil	0.03	1
		iprodione	0.31	15
		fenhexamid	0.47	5
71239	SPAIN	fludioxonil	0.12	No MRL
		clofentezine	0.39	2
71381	SPAIN	azoxystrobin	0.20	2
		spinosad	0.03	No MRL
71464	HOLLAND	thiacloprid	0.05	0.5
71504	IRELAND	myclobutanil	0.05	1
		azoxystrobin	0.14	2
		iprodione	0.35	15
		fenhexamid	0.25	5
		mepanipyrim	0.11	2
		thiacloprid	0.22	0.5
71535	IRELAND	iprodione	0.04	15
71537	IRELAND	fenhexamid	0.09	5
		pyrimethanil	0.04	5
		mepanipyrim	0.21	2
71602	HOLLAND	mepanipyrim	0.09	2
		pyraclostrobin	0.08	0.5
71618	IRELAND	mepanipyrim	0.02	2
		pyraclostrobin	0.02	0.5
		pyrimethanil	0.38	5
		azoxystrobin	0.20	2
		pirimicarb	0.08	No MRL
71624	IRELAND	iprodione	0.27	15

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
71625	IRELAND	bupirimate	0.01	No MRL
		fenhexamid	0.05	5
		quinoxifen	0.02	0.3
		myclobutanil	0.02	1
		azoxystrobin	0.17	2
		pirimicarb	0.09	No MRL
		mepanipyrim	0.01	2
71698	HOLLAND	pyrimethanil	0.20	5
		captan	0.23	3
		boscalid	0.05	10
71701	HOLLAND	fenhexamid	0.07	5
		Boscalid	0.11	10
		bupirimate	0.04	No MRL
71712	IRELAND	fenhexamid	0.26	5
		pyraclostrobin	0.01	0.5
		myclobutanil	0.02	1
		boscalid	0.02	10
71747	IRELAND	fenhexamid	0.37	5
		mepanipyrim	0.36	2
		pyraclostrobin	0.12	0.5
		quinoxifen	0.03	0.3
		myclobutanil	0.06	1
		boscalid	0.64	10
		azoxystrobin	0.06	2
71821	IRELAND	bifenthrin	0.05	0.5
		fenhexamid	0.40	5
		mepanipyrim	0.02	2
		iprodione	0.07	15
		thiacloprid	0.01	0.5
		pirimicarb	0.02	No MRL
		bupirimate	0.01	No MRL
71833	IRELAND	fenhexamid	0.62	5
		mepanipyrim	0.99	2
		thiacloprid	0.02	0.5
		pyraclostrobin	0.19	0.5
		myclobutanil	0.09	1
		azoxystrobin	0.45	2
		boscalid	0.93	10
		pyrimethanil	0.80	5
		quinoxifen	0.03	0.3
		71228	MEXICO	1.5.3.1 Blackberry
captan	0.20			3
azoxystrobin	0.06			3
iprodione	0.24			10
bifenthrin	0.02			0.3
71748	IRELAND	spinosad	0.07	No MRL
		fenhexamid	2.14	10
		thiacloprid	0.06	1
		iprodione	0.35	10

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
71819	HOLLAND	fenhexamid	0.20	10
		iprodione	0.46	10
1.5.3.2 Blueberry				
71820	POLAND	iprodione	0.06	10
		cyprodinil	0.06	No MRL
		thiacloprid	0.01	1
		fludioxonil	0.04	No MRL
71825	POLAND	iprodione	0.08	10
		fenhexamid	0.05	5
1.5.3.3 Raspberry				
71225	SPAIN	fenhexamid	0.09	10
1.5.3.4 Cranberry				
72052	CANADA	tebufenozide	0.04	No MRL
1.6 Miscellaneous Fruit			1.6.1 Avocado	
71454	S AFRICA	carbendazim	0.02	0.1
71462	PERU	thiabendazole	0.26	15
71818	PERU	tebufenozide	0.05	No MRL
			1.6.2 Banana	
71145	HONDURAS	azoxystrobin	0.18	2
		imazalil	0.06	2
71279	BELIZE	azoxystrobin	0.07	2
		fenpropimorph	0.02	2
		imazalil	0.08	2
71425	HONDURAS	chlorpyrifos	0.04	3
71728	HONDURAS	thiabendazole	0.50	5
		bifenthrin	0.02	0.1
		imazalil	0.46	2
71893	GUATEMALA	bitertanol	0.15	3
		imazalil	0.23	2
71942	COLOMBIA	imazalil	0.13	2
		thiabendazole	0.04	5
72007	BELIZE	azoxystrobin	0.07	2
		chlorpyrifos	0.03	3
		fenpropimorph	0.01	2
			1.6.3 Kiwi	
71047	ITALY	fenhexamid	1.08	10
71138	ITALY	diphenylamine	0.03	0.05
		fenhexamid	3.50	10
71268	ITALY	fenhexamid	4.62	10
71285	ITALY	fenhexamid	0.01	10
71290	ITALY	fenhexamid	4.99	10
71319	ITALY	iprodione	0.10	5
		fenhexamid	8.67	10
71354	ITALY	buprofezin	0.52	No MRL

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
71356	ITALY	fenhexamid	3.08	10
71369	ITALY	fenhexamid	5.15	10
71376	ITALY	fenhexamid	2.19	10
71399	ITALY	fenhexamid	4.06	10
71442	ITALY	fenhexamid	3.29	10
71548	NEW ZEALAND	chlorpyrifos	0.25	2
71566	ITALY	fenhexamid	6.86	10
71592	CHILE	thiabendazole	0.02	0.05
71844	CHILE	methoxyfenozone	0.09	1
71937	NEW ZEALAND	iprodione	0.03	5
1.6.4 Mango				
71053	BRAZIL	thiabendazole	1.23	5
71165	EQUADOR	thiabendazole	0.07	5
71209	BRAZIL	prochloraz	0.37	5
		thiabendazole	1.55	5
71323	BRAZIL	prochloraz	0.02	5
71444	BRAZIL	prochloraz	0.95	5
		thiabendazole	0.36	5
71453	BRAZIL	prochloraz	5.95	5
71694	SENEGAL	prochloraz	0.70	5
71724	SENEGAL	thiophanate-methyl	0.13	0.1
71915	BRAZIL	prochloraz	0.07	5
1.6.5 Passion fruit				
71855	ISRAEL	imidacloprid	0.04	No MRL
1.6.6 Pineapple				
71062	COSTA RICA	triadimefon	0.16	3
71731	COSTA RICA	triadimefon	0.04	3
71817	IVORY COAST	prochloraz	0.04	5
		triadimefon	0.05	3
				3
1.6.7 Pomegranate				
71183	TURKEY	acetamiprid	0.02	0.01
		thiabendazole	0.01	0.05
71629	INDIA	carbendazim	0.01	0.1
72015	EGYPT	methomyl	0.01	0.05
2. Vegetables				
2.1 Root and tuber vegetables				
2.1.2 Carrot				
71160	SPAIN	metalaxyl	0.06	0.1
71223	IRELAND	linuron	0.04	0.2
71346	SPAIN	linuron	0.02	0.2
71371	IRELAND	linuron	0.02	0.2
71429	IRELAND	linuron	0.01	0.2
71583	IRELAND	chlorfenvinphos	0.08	0.5
		linuron	0.01	0.2
71587	FRANCE	linuron	0.03	0.2
71631	FRANCE	linuron	0.02	0.2
71654	FRANCE	linuron	0.03	0.2

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
71709	IRELAND	linuron	0.02	0.2
2.1.7 Parsnip				
71088	IRELAND	trifluralin	0.17	No MRL
		tebuconazole	0.05	No MRL
		linuron	0.01	0.2
71372	IRELAND	trifluralin	0.05	No MRL
71401	IRELAND	trifluralin	0.06	No MRL
71428	IRELAND	chlorfenvinphos	0.02	0.5
		tebuconazole	0.02	No MRL
		trifluralin	0.10	No MRL
71485	IRELAND	linuron	0.01	0.2
		tebuconazole	0.20	No MRL
		trifluralin	0.04	No MRL
71588	UNITED KINGDOM	tebuconazole	0.03	No MRL
		iprodione	0.02	0.5
71764	IRELAND	chlorpyrifos	0.02	0.05
71768	IRELAND	metalaxyl	0.02	0.1
2.1.9 Radish				
71116	HOLLAND	iprodione	0.07	0.3
2.1.11 Sweet potato				
71204	UNITED STATES	fludioxonil	0.02	No MRL
		dichloran	0.07	No MRL
71573	UNITED STATES	dichloran	0.12	No MRL
2.1.13 Turnip				
71605	IRELAND	chlorpyrifos	0.06	0.05
2.2 Bulb vegetables				
71216	MEXICO	chlorothalonil	0.02	5
71486	IRELAND	iprodione	0.05	3
		chlorothalonil	0.04	5
2.3 Fruiting vegetables				
2.3.1 Solanacea				
2.3.1.1 Tomato				
71069	CANARY ISLANDS	triadimefon	0.04	0.3
71133	SPAIN	maneb group	0.14	3
		iprodione	0.10	5
		buprofezin	0.04	No MRL
71198	SPAIN	iprodione	0.05	5
		cyprodinil	0.01	No MRL
71257	SPAIN	bifenthrin	0.03	0.2
		chlorothalonil	0.07	2
		kresoxim methyl	0.02	0.5
		pyriproxyfen	0.02	No MRL
71264	SPAIN	pyrimethanil	0.03	No MRL
		chlorothalonil	0.04	2
		tetraconazole	0.02	No MRL
71340	SPAIN	triadimefon	0.03	0.3

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
71403	FRANCE	thiabendazole	0.01	0.05
71627	IRELAND	chlorothalonil	0.06	2
		azoxystrobin	0.11	2
71769	IRELAND	iprodione	0.16	5
		azoxystrobin	0.19	2
72009	HOLLAND	teflubenzuron	0.03	No MRL
2.3.1.2 Pepper				
71044	SPAIN	imidacloprid	0.03	No MRL
71085	SPAIN	imidacloprid	0.01	No MRL
71095	SPAIN	chlorothalonil	0.02	2
		triadimefon	0.03	0.5
		thiacloprid	0.02	1
71144	SPAIN	pyrimethanil	0.01	No MRL
71256	SPAIN	iprodione	0.05	5
		triadimefon	0.04	0.5
71270	SPAIN	triadimefon	0.02	0.5
71278	SPAIN	triadimefon	0.02	0.5
71295	TURKEY	endosulfan	0.07	1
		imidacloprid	0.15	No MRL
71351	SPAIN	chlorothalonil	0.02	2
71418	SPAIN	chlorpyrifos-methyl	0.10	0.5
71480	UNKNOWN	acetamiprid	0.04	0.3
		imidacloprid	0.10	No MRL
		methiocarb	0.03	No MRL
		endosulfan	0.13	1
		iprodione	0.02	5
71607	HOLLAND	methoxyfenozide	0.03	1
71647	HOLLAND	methoxyfenozide	0.09	1
71897	HOLLAND	boscalid	0.34	2
		indoxacarb	0.02	0.3
		pyraclostrobin	0.02	0.5
71898	HOLLAND	methoxyfenozide	0.01	1
		indoxacarb	0.05	0.3
72000	HOLLAND	pymetrozine	0.05	1
72001	SPAIN	imidacloprid	0.01	No MRL
		flutriafol	0.01	No MRL
2.3.1.3 Aubergine				
71054	SPAIN	pyriproxyfen	0.02	No MRL
71197	SPAIN	pyriproxyfen	0.02	No MRL
		cyprodinil	0.01	No MRL
		pyrimethanil	0.08	No MRL
71355	SPAIN	iprodione	0.02	5
		cyprodinil	0.01	No MRL
		imidacloprid	0.04	No MRL
		pyrimethanil	0.02	1
2.3.2 Cucurbits edible peel			2.3.2.1 Cucumber	
71057	SPAIN	imidacloprid	0.02	No MRL

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
71087	SPAIN	dimethomorph	0.02	No MRL
		dimethomorph	0.04	No MRL
		oxamyl oxime	0.02	No MRL
71094	SPAIN	chlorothalonil	0.15	1
		metalaxyl	0.04	0.5
		buprofezin	0.02	No MRL
71217	SPAIN	carbendazim	0.05	0.1
		thiophanate-methyl	0.05	0.1
		chlorothalonil	0.07	1
71606	HOLLAND	pymetrozine	0.09	0.5
		procymidone	0.20	1
71652	HOLLAND	procymidone	0.09	1
2.3.2.3 Courgette				
71048	SPAIN	imidacloprid	0.01	No MRL
71343	SPAIN	imidacloprid	0.03	No MRL
71516	SPAIN	imidacloprid	0.02	No MRL
71662	SPAIN	imidacloprid	0.01	No MRL
2.3.3 Cucurbits inedible peel				
2.3.3.1 Melon				
71060	BRAZIL	procymidone	0.04	1
		imazalil	0.01	2
71569	SPAIN	triadimefon	0.04	0.1
		pyridaben	0.06	No MRL
		dimethomorph	0.02	No MRL
2.4.1 Flowering brassica				
2.4.1.1 Broccoli				
71269	SPAIN	diclofluanid	0.04	5
71375	SPAIN	chlorothalonil	0.14	3
2.4.1.2 Cauliflower				
71614	POLAND	chlorpyrifos	0.03	0.05
2.4 Brassica				
2.4.2 Head brassica				
2.4.2.1 Cabbage				
71710	IRELAND	deltamethrin	0.12	0.1
71143	SPAIN	iprodione	0.61	5
		fluazifop	0.04	No MRL
71373	IRELAND	difenoconazole	0.03	No MRL
71558	IRELAND	chlorthal-dimethyl	0.05	No MRL
71613	IRELAND	difenoconazole	0.01	No MRL
		lambda-cyhalothrin	0.02	0.2
2.4.3 Leafy brassica				
2.4.3.1 Chinese cabbage				
71083	IRELAND	chlorothalonil	1.24	0.01
		pymetrozine	0.12	0.2
2.5 Leafy vegetables & fresh herbs				
2.5.1 Lettuce and similar				
2.5.1.3 Lettuce				
71072	SPAIN	azoxystrobin	0.51	3
		iprodione	0.04	10

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
		propryzamide	0.03	1
71115	SPAIN	imidacloprid	0.02	No MRL
71117	SPAIN	dimethoate	0.03	0.5
		dimethomorph	0.02	No MRL
		metalaxyl	0.04	2
71141	SPAIN	dimethoate	0.03	0.5
		thiabendazole	0.02	0.05
71142	SPAIN	cyprodinil	0.07	No MRL
		difenoconazole	0.03	No MRL
		dimethomorph	0.03	No MRL
		fludioxonil	0.06	No MRL
		imidacloprid	0.03	No MRL
		methomyl	0.02	0.3
71158	SPAIN	cypermethrin	0.17	2
		dimethomorph	0.13	No MRL
		imidacloprid	0.07	No MRL
71159	SPAIN	carbendazim	0.16	0.1
		cypermethrin	0.08	2
		imidacloprid	0.10	No MRL
		cyfluthrin	0.05	0.5
		methomyl	0.02	0.3
71172	SPAIN	azoxystrobin	0.22	3
		chlorthal-dimethyl	0.06	No MRL
		dimethomorph	0.13	No MRL
		imidacloprid	0.18	No MRL
		maneb group	1.01	5
		propryzamide	0.03	1
71195	IRELAND	iprodione	0.07	10
71251	SPAIN	imidacloprid	0.09	No MRL
71253	SPAIN	dimethomorph	0.02	No MRL
		imidacloprid	0.05	No MRL
71272	SPAIN	diclofluanid	0.03	10
		difenoconazole	0.54	No MRL
		dimethomorph	0.31	No MRL
		fluvalinate-tau-1	0.05	No MRL
		imidacloprid	0.15	No MRL
71344	SPAIN	imidacloprid	0.03	No MRL
71345	IRELAND	cypermethrin	0.10	2
		iprodione	0.94	10
		tolclofos-methyl	0.04	No MRL
71366	IRELAND	pyraclostrobin	0.03	2
71397	IRELAND	acetamiprid	0.06	5
		iprodione	0.02	10
		tolclofos-methyl	0.34	No MRL
71458	SPAIN	thiabendazole	0.01	0.05
71461	IRELAND	cypermethrin	0.11	2
		pymetrozine	0.12	2
		tolclofos-methyl	0.89	No MRL
71487	IRELAND	acetamiprid	0.03	5
71517	IRELAND	acetamiprid	0.05	5

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)		
71633	IRELAND	azoxystrobin	0.36	3		
		acetamiprid	0.09	5		
		lambda-cyhalothrin	0.06	0.5		
71715	IRELAND	acetamiprid	0.13	5		
		azoxystrobin	0.09	3		
		boscalid	0.01	10		
71761	IRELAND	chlorpropham	0.02	0.05		
71806	IRELAND	boscalid	0.70	10		
		iprodione	0.25	10		
		propyzamide	0.03	1		
		pymetrozine	0.02	2		
		pyraclostrobin	0.06	2		
		71807	IRELAND	propyzamide	0.04	1
		71834	IRELAND	acetamiprid	0.81	5
propyzamide	0.20			1		
pymetrozine	0.60			2		
tolclofos-methyl	0.03			No MRL		
71862	IRELAND	acetamiprid	0.02	5		
		boscalid	0.07	10		
		propyzamide	0.03	1		
71912	IRELAND	boscalid	0.10	10		
		iprodione	0.06	10		
		pyraclostrobin	0.01	2		
		71925	IRELAND	acetamiprid	0.01	5
71955	IRELAND	tolclofos-methyl	0.03	No MRL		
		tolclofos-methyl	0.02	No MRL		
71957	SPAIN	imidacloprid	0.03	No MRL		
71996	SENEGAL	azoxystrobin	0.10	3		
71999	SPAIN	boscalid	0.05	10		
72021	SPAIN	dimethomorph	0.01	No MRL		
2.5.1.4 Endive						
71255	SPAIN	bifenthrin	0.18	2		
		lambda-cyhalothrin	0.06	1		
		pirimicarb	0.04	No MRL		
71396	IRELAND	pymetrozine	0.02	2		
		iprodione	0.04	10		
2.5.1.6 Rocket						
71252	SPAIN	iprodione	0.04	10		
2.5.2 Spinach & similar						
2.5.2.1 Spinach						
71123	UNKNOWN	deltamethrin	0.12	0.5		
71140	SPAIN	lambda-cyhalothrin	0.03	0.5		
71380	IRELAND	captan	0.09	0.1		
71460	SPAIN	imidacloprid	0.10	No MRL		
		thiabendazole	0.01	0.05		
		quizalofop	0.01	No MRL		
71974	ITALY	cypermethrin	0.09	0.5		

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
2.5.2.2 Red chard				
71888	UNITED KINGDOM	boscalid	0.01	0.5
2.5.5.3 Parsley				
71379	IRELAND	azoxystrobin	4.36	3
		linuron	0.40	1
		cypermethrin	1.41	2
		propyzamide	0.03	1
2.5.5 Herbs				
2.5.5.5 Basil				
71299	UNITED KINGDOM	azoxystrobin	0.48	3
		cypermethrin	0.05	2
		cyprodinil	0.27	No MRL
		fludioxonil	0.42	No MRL
71483	UNKNOWN	tebuconazole	0.05	No MRL
2.6 Legume vegetables				
2.6.1 Bean with pod				
71124	UNKNOWN	vinclozolin	0.19	2
2.6.3 Mangetout				
71035	KENYA	dimethoate	0.05	1
		omethoate	0.02	1
71852	KENYA	dimethoate	0.05	1
		omethoate	0.03	1
2.6.4 Pea without pod				
71127	UNKNOWN	procymidone	0.08	0.3
71128	UNKNOWN	procymidone	0.22	0.3
2.7 Stem vegetables				
2.7.3 Celery				
71084	SPAIN	methiocarb	0.03	No MRL
		malathion	0.03	3
		imidaclorid	0.02	No MRL
71098	SPAIN	difenoconazole	0.01	No MRL
		chlorothalonil	0.72	10
71196	SPAIN	chlorothalonil	0.19	10
71339	SPAIN	difenoconazole	0.04	No MRL
71395	SPAIN	difenoconazole	0.05	No MRL
		imidaclorid	0.02	No MRL
71407	SPAIN	malathion	0.04	3
71459	SPAIN	linuron	0.01	0.1
71491	SPAIN	linuron	0.02	0.1
71610	UNITED KINGDOM	linuron	0.01	0.1
71630	SPAIN	imidaclorid	0.02	No MRL
71655	SPAIN	imidaclorid	0.02	No MRL
		linuron	0.02	0.1
71703	IRELAND	chlorothalonil	0.05	10
		linuron	0.01	0.1
71716	IRELAND	chlorothalonil	0.49	10
71805	IRELAND	linuron	0.01	0.1

Sample No	Country of Origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
71835	IRELAND	difenoconazole	0.06	No MRL
		difenoconazole	0.08	No MRL
		azoxystrobin	0.05	5
2.7.6 Leek				
71426	HOLLAND	kresoxim methyl	0.02	5
71670	FRANCE	methiocarb	0.05	No MRL
2.8 Fungi		2.8.1 Cultivated mushroom		
71292	HOLLAND	carbendazim	0.01	0.1
		fenhexamid	0.01	0.05
71414	IRELAND	prochloraz	0.18	2
71601	IRELAND	prochloraz	0.05	2
71612	IRELAND	prochloraz	0.08	2
71696	IRELAND	prochloraz	0.03	2
72034	IRELAND	diflubenzuron	0.03	No MRL
		prochloraz	0.02	2
5. Potatoes		5.1 Ware Potato		
71432	IRELAND	chlorpropham	0.98	10
71434	UNITED KINGDOM	pencycuron	0.02	No MRL
		chlorpropham	0.04	10
71488	CYPRUS	pencycuron	0.01	No MRL
71512	UNITED KINGDOM	chlorpropham	3.44	10
71513	UNITED KINGDOM	chlorpropham	7.14	10
71514	UNITED KINGDOM	tecnazene	1.08	0.05
71515	UNITED KINGDOM	chlorpropham	1.89	10
		chlorpropham	7.38	10
71586	IRELAND	chlorpropham	0.12	10
71682	UNITED KINGDOM	pencycuron	0.03	No MRL
71684	IRELAND	chlorpropham	0.08	10
71828	IRELAND	etofenprox	0.03	0.5
71924	FRANCE	chlorpropham	0.04	10
71986	IRELAND	chlorpropham	0.12	10
6. Spice		6.1. Ginger		
71368	THAILAND	tebufenpyrad	0.26	No MRL

4.1.2 Countries of origin

The 906 samples taken in 2008 comprised 153 (17%) domestic origin, 414 (46%) imported from other EU countries, 280 (31%) imported from countries outside of the EU and a further 59 (6%) of unknown origin (Table 4). Most of the samples of unknown origin were processed products. As in previous years, Spain was a major source of fruits and vegetables sampled and analysed by the PCS.

Table 4: Details of the source of the fruit and vegetables sampled by the PCS in 2008

Countries of origin in EU	Number	Countries of origin outside EU		Countries of origin outside EU		Countries of origin outside EU	
		Number	EU	Number	EU	Number	EU
Spain	177	South Africa	64	New Zealand	9	Colombia	2
Ireland	153	Unknown	59	Kenya	6	Dominican	2
France	74	Morocco	25	Mexico	6	Ecuador	2
Italy	47	Chile	25	China	5	Ghana	1
Holland	42	United States	23	India	4	Guatemala	1
United Kingdom	35	Brazil	19	Senegal	4	Ivory Coast	1
Portugal	18	Canada	12	Honduras	3	Pakistan	1
Cyprus	6	Peru	11	Costa Rica	3	Russia	1
Belgium	5	Argentina	10	Australia	2	Swaziland	1
Poland	4	Israel	10	Belize	2	Vietnam	1
Greece	4	Turkey	10	Thailand	2		
Germany	2	Egypt	10	Uruguay	2		
Total from EU	567					Outside EU	339
						Overall	906

4.1.3 Pesticides most frequently found

During 2008, 906 fruit and vegetable samples were analysed for the residues of 292 pesticides during 2008. Table 5 summarises the most frequently occurring pesticide residues detected (i.e. found in more than 10 samples). The fungicides thiabendazole and imazalil were the most commonly found pesticides in fruits, particular citrus and pome fruits. The most commonly detected organophosphorus pesticides were chlorpyrifos and iprodione the former frequently detected in citrus and pome fruits, and the latter detected in a variety of fruits and vegetables such as berries, stone fruits and leafy vegetables. Ethylenebisdithiocarbamate or the maneb group was detected in a limited number of commodities, (apples, lettuce, berries and cereal samples). In 2008, 12 (9.2%) out of 131 samples were found to contain the maneb group residue expressed as carbon disulphide.

Table 5: Summary of the most frequently detected pesticide residues (i.e. in > 10 samples)

Pesticide	Frequency	Pesticide	Frequency	Pesticide	Frequency
imazalil	147 (16.2%)	fludioxonil	28 (3.1%)	propargite	13 (1.4%)
thiabendazole	113 (12.5%)	prochloraz	25 (2.8%)	methoxyfenozide	12 (1.3%)
chlorpyrifos	82 (9.1%)	cyprodinil	23 (2.5%)	pirimicarb	12 (1.3%)
iprodione	59 (6.5%)	malathion	22 (2.4%)	pyriproxyfen	12 (1.3%)
carbendazim	54 (6.0%)	azoxystrobin	21 (2.3%)	thiophanate-methyl	12 (1.3%)
diphenylamine	54 (6.0%)	boscalid	18 (2.0%)	chlorpropham	11 (1.2%)
imidacloprid	42 (4.6%)	linuron	18 (2.0%)	maneb group*	12 (9.2%)
fenhexamid	38 (4.2%)	phosmet	17 (1.9%)	dicofol	11 (1.2%)
2,4 D	37 (4.1%)	chlorothalonil	15 (1.7%)	difenoconazole	11 (1.2%)
captan	35 (3.9%)	pyrimethanil	15 (1.7%)	ortho-phenylphenol	11 (1.2%)
pyraclostrobin	35 (3.9%)	tebuconazole	15 (1.7%)		
thiacloprid	31 (3.4%)	myclobutanil	13 (1.4%)		

* Maneb analysed in a limited number of commodities

4.1.4 *Multiple Residues*

Of the 906 fruit and vegetable samples analysed in 2008, 346 samples (38%) contained two or more pesticides in a single sample (Table 6). A domestic strawberry sample (71833) was found to contain the highest number of pesticides detected in a single sample (9) - bifenthrin, fenhexamid, iprodione, mepanipyrim, myclobutanil, pirimicarb, pymetrozine, pyraclostrobin and thiaclopyrid. However the residues were below their respective MRLs.

Three samples contained residues of 8 pesticides: an apple (71061), strawberry (71747) and a pear (71997). Seven samples contained residues of 7 pesticides - a pear sample (71132), apple samples (71136) and (71995), an orange (71784), 2 mandarin samples (71465) and (72050) and a peach sample (71787). Details of the residues found in these samples are in Table 3.

Table 6: Frequency of multiple pesticide residues detected in raw fruit and vegetable samples

Number of samples with 2 or more pesticide residues	Frequency	Percentage
2	126	13.9%
3	98	10.8%
4	58	6.4%
5	38	4.2%
6	15	1.7%
7	7	0.8%
8	3	0.3%
9	1	0.1%
Total	346	38.2%

4.1.5 Targeted and statutory sampling of fruit and vegetables in 2008

Targeted sampling of produce found 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. The repeated occurrence of excessive residue levels in particular food commodities, which would result in consumer safety being compromised, is clearly unacceptable. The violation investigation programme is geared to eliminate any such abuses. The programme is also designed to ensure that incidents, where MRLs are exceeded, are not repeated.

Targeted samples (10) of fruit and vegetables were taken during 2008 as a follow up to MRL breaches that occurred in 2007. A statutory sample was taken following unauthorised use detected in a routine sample in 2008. Table 7 lists the targeted and statutory samples taken in 2008.

For the 10 targeted samples, 5 were found to have no detectable residue and 5 samples to have pesticide residues above the LCL (lowest calibration level). No targeted sample was found to have exceeded the MRL and no further follow up action was required.

Table 7: Details of targeted and statutory samples taken in 2008

Targeted Commodity	Sample Number	Country Origin	Pesticide detected	Residue mg kg ⁻¹	MRL	MRL breaches/ unauthorised uses in 2007 and 2008 - sample number-pesticide(s) detected
Strawberry	71617	IRELAND	mepanipyrim	0.03	2	70471-pymetrozine
			pyrimethanil	0.08	5	
			pirimicarb	0.08	No MRL	
Spinach	71224	IRELAND	non detected			70639-chlorothalonil
Broccoli	71298	GUATEMALA	chlorpyrifos	0.03	0.05	70247-dimethoate
Mandarin	71284	CYPRUS	bromopropylate	0.13	2	70113-imazalil/thiabendazole
			imazalil	1.73	5	
			thiabendazole	1.65	5	
Apple	71792	UK	captan	0.13	3	70583-carbendazim
			carbendazim	0.04	0.2	
			paclobutrazol	0.01	No MRL	
			tebufenpyrad	0.04	No MRL	
Celery	71139	SPAIN	none			70097-fenitrothion/thiophanate me
Celery	71258	SPAIN	none			70144-fenitrothion

Targeted Commodity	Sample Number	Country Origin	Pesticide detected	Residue mg kg ⁻¹	MRL	MRL breaches/ unauthorised uses in 2007 and 2008 - sample number-pesticide(s) detected
Carrot	71413	SPAIN	none			70498-ethion
Pear	71335	BELGIUM	carbendazim	0.04	0.2	70372-thiophanate me
			diethofencarb	0.02	No MRL	
			pyraclostrobin	0.05	0.3	
Pear	71443	S AFRICA	none			70332-methomyl
Statutory						
Commodity						
Parsnip	71883	IRELAND	none			71764-chlorpyrifos (2008)

Two targeted samples, from domestically grown produce, were the result of unauthorised uses. The strawberry sample (71617) was a follow up to the presence of unauthorised use of pymetrozine in a sample taken in 2007. Residues found in this targeted sample, (taken from the same grower in 2008), were below the MRL and indicated no unauthorised use of plant protection products. The targeted spinach sample (71224) was a follow up to the detection of chlorothalonil in a sample taken in 2007. No plant protection product containing chlorothalonil is permitted for use on spinach in Ireland. No pesticide residue was detected in this targeted sample in 2008. The remaining targeted samples were imported and there was no repeat of the MRL exceedances.

Following the detection of chlorpyrifos in a routine sample of parsnip (71883) in 2008, which indicated unauthorised use of a plant protection product containing chlorpyrifos on parsnip, a follow up statutory sample (71883) was taken from the same grower. No pesticide residue was detected in the sample, so no further up statutory action was required.

4.2 CEREAL SAMPLES

4.2.1 Routine monitoring programme

In 2008, 93 routine cereal samples (wheat, barley, oats and rice) and 4 processed cereal samples were analysed for 292 pesticides. Of the cereal samples analysed, 66% were of Irish origin, 15% from other EU countries, 9% from third countries and 10% were of unknown origin. The majority of cereal samples analysed (81%), contained no detectable pesticide residues, some 19% contained residues less than the MRL (Table 8). In 2008 no MRL breaches were detected in the cereal samples analysed in 2008.

The most commonly found pesticide in cereal was pirimiphos methyl, which was detected in 16 cereal samples with values ranging from 0.02 to 0.6 mg kg⁻¹. The highest level detected was in a rice sample where pirimiphos methyl was present at a level of 0.60 mg kg⁻¹. Three samples contained pesticide residues not detected in previous monitoring programmes: bendiocarb, metribuzin and piperonyl butoxide. No residues of malathion were detected in cereal samples in 2008 (Table 9). This contrasted with 2007 where 8 out of 100 samples analysed were found to contain malathion.

Table 8: Summary of cereal samples taken in 2008

Commodity	Number of samples	Number of domestic samples	Number of imported samples	Residue not detected	Residue < MRL	Residue > MRL
Barley	26	26	0	21	5	0
Oats	30	30	0	24	6	0
Rice	17	0	17	16	1	0
Wheat	20	6	14	14	6	0
Processed						
Oat flakes	1	1	0	1	0	0
Wheat flakes	3	0	3	3	0	0
Total	97	63	34	79	18	0

Table 9: Cereal samples with detected pesticide residues in 2008

Commodity	Sample Number	Country of Origin	Pesticide detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
BARLEY	71103	IRELAND	pirimiphos-me	0.03	5
	71105	IRELAND	pirimiphos-me	0.03	5
	71106	IRELAND	pirimiphos-me	0.03	5
	71107	IRELAND	pirimiphos-me	0.02	5
	71241	IRELAND	pirimiphos-me	0.04	5
OAT	71867	IRELAND	pirimiphos-me	0.02	5
	71869	IRELAND	pirimiphos-me	0.02	5
	71870	IRELAND	pirimiphos-me	0.06	5
	71872	IRELAND	pirimiphos-me	0.02	5
	71950	IRELAND	pirimiphos-me	0.02	5
	71952	IRELAND	pirimiphos-me	0.06	5
RICE	71151	UNKNOWN	pirimiphos-me	0.60	5
WHEAT	71242	IRELAND	pirimiphos-me	0.04	5

Commodity	Sample Number	Country of Origin	Pesticide detected	Residue (mg kg⁻¹)	MRL (mg kg⁻¹)
	71521	UNITED KINGDOM	bendiocarb	0.01	No MRL
			pirimiphos-me	0.13	5
	71522	UNITED KINGDOM	pirimiphos-me	0.27	5
	72010	FRANCE	pirimiphos-me	0.06	5
			piperonyl butoxide	0.38	No MRL
	72012	CANADA	metribuzin	0.08	0.1
	72014	UNITED KINGDOM	piperonyl butoxide	0.18	No MRL

4.2.2 Targeted sampling programme

There was no targeted sampling in 2008 – (no MRL breaches occurred for cereal samples in 2007).

4.3 FOOD OF ANIMAL ORIGIN

The monitoring programme for food of animal origin in 2008 involved the analysis of bovine, porcine, ovine, poultry, equine and venison kidney fat samples; and milk, honey and eggs as part of the control programme under Directive 96/23 EC. The animal fat, milk and egg samples were analysed for residues of 63 pesticides including the 7 polychlorinated biphenyl (PCBs) marker congeners, PCB 28, 52, 101, 118, 138, 153 and 180. These 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 as marker substances in the residue monitoring programme because of concerns associated with their presence in food and their association with polychlorinated dibenzodioxins and furans.

4.3.1 Routine monitoring programme

The planned number of samples of food of animal origin to be analysed for organochlorine and organophosphorous compounds was calculated in accordance with Directive 96/23/EC as part of the National Residue Plan for Ireland and agreed with the Veterinary Medicine Division of DAFF (Table 10). Samples of food of animal origin were sampled by officers of the Veterinary Medicine Division in the case of the fat, eggs and honey, and by officers of the Dairy Science Division in the case of milk. The animal fat samples were taken at meat plants; milk, eggs and honey samples were taken at production plants or at points of assembly. In addition 2 samples of honey were sampled at the Border Inspection Post at Dublin Port.

Table 10: Number of samples planned and achieved for organochlorine and organophosphorous analysis in accordance the National Residue Plan for Ireland in 2008

Commodity	Planned number for Organochlorine compounds	Planned number for Organophosphorous compounds	Achieved number for organochlorine and organophosphorous compounds
Bovine fat	60	60	119
Equine fat	4	4	9
Ovine fat	40	40	81
Pork fat	30	30	62
Poultry fat	25	0	19
Venison	12	0	12
Eggs	10	0	18
Milk	53	53	69
Honey	9	0	12
Total	243	187	401

All 401 samples of food of animal origin were analysed for both organochlorine, which includes the PCB congeners, and organophosphorous. Of the samples analysed in 2008, all but 2 samples were of domestic origin. Only 21 samples (5%) had detectable residues but none breached MRLs (Table 11). Milk samples were analysed for both classes of compounds thus meeting the required number of analysis to be carried out in the National Residue Plan. Annex V details the compounds sought for in the food of animal origin. Note that the 12 honey samples were also analysed for other pesticides using the multi residue methods for the fruit and vegetable samples.

Table 11: Summary of food of animal origin samples in the 2008 routine programme

Commodity	Number of samples	Number of domestic samples	Number of imported samples	Residues not detected	Residues <MRL	Residues >MRL
Beef fat	119	119	0	115	4	0
Equine fat	9	9	0	8	1	0
Ovine fat	81	81	0	69	12	0
Pork fat	62	62	0	60	2	0
Poultry fat	19	19	0	17	2	0
Venison fat	12	12	0	12	0	0
Eggs	18	18	0	18	0	0
Milk	69	69	0	69	0	0
Honey	12	10	2	12	0	0
Total	401	399	2	380	21	0

4.3.2 Animal fat samples

Of the 302 animal fat samples analysed in 2008, 21 samples contained detectable residues of pesticides (Table 12). For the 119 bovine samples, 4 (3%), contained residues of the organochlorine pesticides (pp'-dde, a metabolite of DDT, dieldrin or lindane) with levels ranging from 0.005 to 0.007 mg kg⁻¹. These POPs (persistent organic pollutants) are considered to have resulted from background levels in soil as a consequence of former use or from intake of trace levels in feed.

One of the 9 equine samples analysed contained detectable residues of dieldrin at 0.01 mg kg⁻¹.

Twelve out of 81 ovine samples contained detectable residues of pp'-dde, (hcb), dieldrin, lindane, diazinon, dicofol or β-hch. Diazinon may have resulted from sheep dipping and dicofol may have originated from animal feeds, while the low levels of the other substances are likely to have derived from trace contamination in the soil or feed.

Detectable residues were found in 2 of 62 pork samples analysed in 2008. One pork sample contained trace levels of pp'-ddt which may have resulted from ddt use, rather than exposure to environmental contamination. As there was no MRL breach, no follow up action was taken. A further porcine sample (no 79545) contained 3 PCB marker congeners, PCB 138, 153 and 180, at levels which were regarded as indicative of dioxin contamination. These findings triggered the ongoing investigation into the presence of dioxins in Irish pork. A total of 360 samples of feed, porcine and bovine samples were analysed for PCBs. Based on the results of dioxin analyses obtained from other laboratories, the effectiveness of using the PCB markers as screening for the presence of dioxins was confirmed.

Of the 19 poultry samples analysed, one contained residues of lindane and another contained PCB 153 at 0.007 mg kg⁻¹. The PCB finding was not regarded as significant since the level found was very low and only 1 PCB marker was present.

There was no pesticide residue detected in the 12 venison samples analysed in 2008.

Table 12: Residues detected in food of animal origin samples in 2008

Commodity	Sample Number	Country of origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
BEEF	79461	IRELAND	pp'-dde	0.007	1
	79474	IRELAND	dieldrin	0.005	0.2
	79464	IRELAND	lindane	0.005	0.02
	79577	IRELAND	lindane	0.007	0.02
EQUINE	79629	IRELAND	dieldrin	0.01	0.2
OVINE	79352	IRELAND	dicofol	0.009	0.05
			β-hch	0.011	0.3
	79382	IRELAND	dieldrin	0.026	0.2
	79388	IRELAND	dicofol	0.011	0.05
	79418	IRELAND	hcb	0.011	0.2
	79419	IRELAND	hcb	0.007	0.2
			lindane	0.007	0.02
	79424	IRELAND	lindane	0.006	0.02
	79428	IRELAND	hcb	0.007	0.2
	79429	IRELAND	hcb	0.009	0.2
	79488	IRELAND	pp'-dde	0.005	1
	79618	IRELAND	diazinon	0.106	0.7
	79650	IRELAND	pp'-dde	0.005	1
	79687	IRELAND	pp'-dde	0.005	1
	PORCINE	79745	IRELAND	pcb138	0.1
pcb153				0.1	No MRL
pcb180				0.06	No MRL
	79411	IRELAND	pp'-ddt	0.007	1
POULTRY	79353	IRELAND	lindane	0.005	0.02
	79412	IRELAND	pcb153	0.007	No MRL

4.3.3 Other foods of animal origin

No residue above the LCL was detected in egg, milk or honey samples.

4.4 MISCELLANEOUS SAMPLES

Five samples were submitted for analysis based on consumer concerns that the products may have contained unacceptable levels of pesticides residues. A sample of parsnip from Spain contained two pesticides below the MRL while the other 4 samples contained no detectable residues. In all cases, the persons submitting the samples were informed of the results and no further action was required.

Table 13: Summary of miscellaneous samples with detected residue submitted by the public

Commodity	Sample number	Country of Origin	Pesticide detected	Residue(mg kg ⁻¹)	MRL (mg kg ⁻¹)
PARSNIP	71563	SPAIN	fluazifop	0.01	No MRL
			pp'-dde	0.03	0.05

4.5 ORGANIC PRODUCTS

As part of the routine monitoring programme of fruit and vegetables, organic products may be sampled randomly when encountered at retail and wholesaler premises, by officers of the PCS.

In 2008, 59 samples of fruit, vegetables and cereals, labelled as organic, were analysed for pesticide residues. Four were of domestic origin and 55 samples were imported. Of the 59 samples analysed, 54 (92%) had no detectable pesticide residues and five (9%) contained pesticide residues. This compared favourably to the percentage of organic labelled samples found to contain pesticides in 2006 (16%) and in 2007 (9%). The presence of these pesticide residues suggests either the use of some plant protection products early in the growing cycle of these crops, or that the samples were contaminated in some way with pesticides. In any case the residues found, while raising questions about the production systems used, presented no risk to consumers. The details for the organically labelled samples are presented in Tables 14 and 15. These results were forwarded to the DAFF unit which regulates organic produce.

Table 14: Summary of organic samples analysed in 2008

Commodity	Number of samples	Number of domestic samples	Number of imported samples	Residues not detected	Residues <MRL	Residues >MRL
Apple	7	1	6	7	0	0
Apple Juice	1	0	1	1	0	0
Avocado	1	0	1	1	0	0
Banana	2	0	2	2	0	0
Blueberry	1	0	1	1	0	0
Broccoli	2	0	2	2	0	0
Carrot	6	3	3	6	0	0
Carrot Juice	3	0	3	3	0	0
Cauliflower	1	0	1	0	1	0
Celery	3	0	3	3	0	0
Cucumber	1	0	1	1	0	0
Fennel	1	0	1	1	0	0
Kiwi	4	0	4	4	0	0
Leek	1	1	0	1	0	0
Mushroom	2	0	2	0	2	0
Onion	1	1	0	1	0	0
Orange	3	0	3	3	0	0
Orange Juice	2	0	2	1	1	0
Pear	1	0	1	1	0	0
Pepper	3	0	3	3	0	0
Potato	2	0	2	2	0	0
Rice	2	0	2	2	0	0
Rocket	1	0	1	1	0	0
Strawberry	2	0	2	1	1	0
Strawberry Juice	1	0	1	1	0	0
Sweet corn	1	0	1	1	0	0
Tomato	4	0	4	4	0	0
Total	59	4	55	54	5	0

Table 15: Details of organic produce with pesticide residues detected in 2008

Commodity	Sample Number	Country of origin	Pesticide	Residue (mg kg⁻¹)	MRL(mg kg⁻¹)
Cauliflower	71059	ITALY	fluazifop	0.04	No MRL
Mushroom	71199	UNITED KINGDOM	carbendazim	0.02	0.1
	71363	UNITED KINGDOM	prochloraz	0.07	2
Orange juice	71713	UNKNOWN	imazalil	0.04	5
Strawberry	71826	UNITED STATES	pirimicarb	0.04	No MRL

4.6 PROCESSED PRODUCTS (FRUIT, VEGETABLES AND CEREALS)

In 2008, 74 samples of processed fruit and vegetables were analysed as part of the monitoring programme. Fifty-three samples comprised fruit or vegetable juices, the remainder being tinned fruit or vegetables. Analytical results show the majority of the samples (76%), contained no detectable pesticide residues, while 24% of the samples were found to contain detectable residues of eight different pesticides, ranged in concentration from 0.01 to 0.44 mg kg⁻¹. The MRLs for the raw commodities are currently applied to the processed commodities. There was no MRL exceedance for the processed commodities.

The details for processed samples of fruit and vegetables are presented in Tables 16 and 17.

Table 16: Summary of processed fruit and vegetable samples analysed in 2008

Processed commodities	Number of samples	Number of domestic samples	Number of imported samples	Residues not detected	Residues < MRL	Residues > MRL
Apple (processed)	1	0	1	0	1	0
Apple Juice	9	1	8	8	1	0
Blackcurrant Juice	1	0	1	1	0	0
Blueberry Juice	1	0	1	1	0	0
Carrot (canned)	1	1	0	1	0	0
Carrot Juice	3	0	3	3	0	0
Cherry (processed)	2	0	2	1	1	0
Cranberry Juice	2	0	2	2	0	0
Grape Juice	2	0	2	2	0	0
Grapefruit (canned)	1	0	1	1	0	0
Grapefruit Juice	2	0	2	1	1	0
Mandarin (canned)	1	0	1	0	1	0
Orange Juice	21	0	21	13	8	0
Peach (canned)	1	0	1	1	0	0
Peach Juice	1	0	1	0	1	0
Pear (canned)	3	0	3	3	0	0
Pineapple (canned)	3	0	3	2	1	0
Pineapple Juice	1	0	1	1	0	0
Plum (canned)	1	0	1	1	0	0
Potato (processed)	1	1	0	1	0	0
Prune Juice	1	0	1	1	0	0
Raisins	5	0	5	3	2	0
Raspberry (canned)	1	0	1	0	1	0
Strawberry Juice	1	0	1	1	0	0
Strawberry(canned)	2	0	2	2	0	0
Wine	6	0	6	6	0	0
Total	74	3	71	56	18	0

Table 17: Details of processed samples with pesticide residues detected in 2008

Commodity	Sample Number	Country of origin	Residue detected	Residue (mg kg ⁻¹)	MRL (mg kg ⁻¹)
APPLE (processed)	71953	FRANCE	thiacloprid	0.02	0.3
			fludioxonil	0.03	No MRL
			diphenylamine	0.03	5
			propargite	0.44	No MRL
			chlorpyrifos	0.03	0.5
APPLE JUICE	71857	IRELAND	carbendazim	0.02	0.2
			pyrimethanil	0.07	5
CHERRY (processed)	71928	UNITED STATES	carbaryl	0.03	0.05
GRAPEFRUIT JUICE	71178	UNKNOWN	thiabendazole	0.01	5
MANDARIN (processed)	71931	SPAIN	ortho-phenylphenol	0.02	No MRL
			imazalil	0.03	5
			thiabendazole	0.01	5
ORANGE JUICE	71080	UNKNOWN	carbendazim	0.02	0.5
			imazalil	0.09	5
			thiabendazole	0.04	5
ORANGE JUICE	71177	UNKNOWN	imazalil	0.01	5
			thiabendazole	0.01	5
ORANGE JUICE	71307	UNKNOWN	carbendazim	0.01	0.5
ORANGE JUICE	71312	UNKNOWN	carbendazim	0.01	0.5
ORANGE JUICE	71314	UNKNOWN	carbendazim	0.02	0.5
ORANGE JUICE	71732	UNKNOWN	carbendazim	0.02	0.5
ORANGE JUICE	71859	SPAIN	imazalil	0.01	5
ORANGE JUICE *	71713	UNKNOWN	imazalil	0.04	5
PEACH JUICE	71739	UNKNOWN	fenhexamid	0.05	5
PINEAPPLE (processed)	71936	UNKNOWN	ortho-phenylphenol	0.02	No MRL
RAISINS	71446	UNITED STATES	propargite	0.05	No MRL
	71899	UNITED STATES	iprodione	0.12	10
RASPBERRY (processed)	71947	UNKNOWN	iprodione	0.03	10

* Also listed in Table 15 as organic produce

5 DISCUSSION

An evaluation of the routine monitoring data for 2008, shows that 819 (58%) of all 1404 routine samples, contained no detectable pesticide residues, the remainder 585 (42%) being found to contain pesticide residues. The majority of the residues detected were in fruit and vegetables, compared to cereal and food of animal origin samples.

5.1 Fruit and vegetables

Of the 906 fruit and vegetable samples analysed, 360 (39.7%) contained no detectable pesticide residue, 526 (58.1%) contained one or more detectable residues and 20 (2.2%) contained residues in excess of EU MRLs.

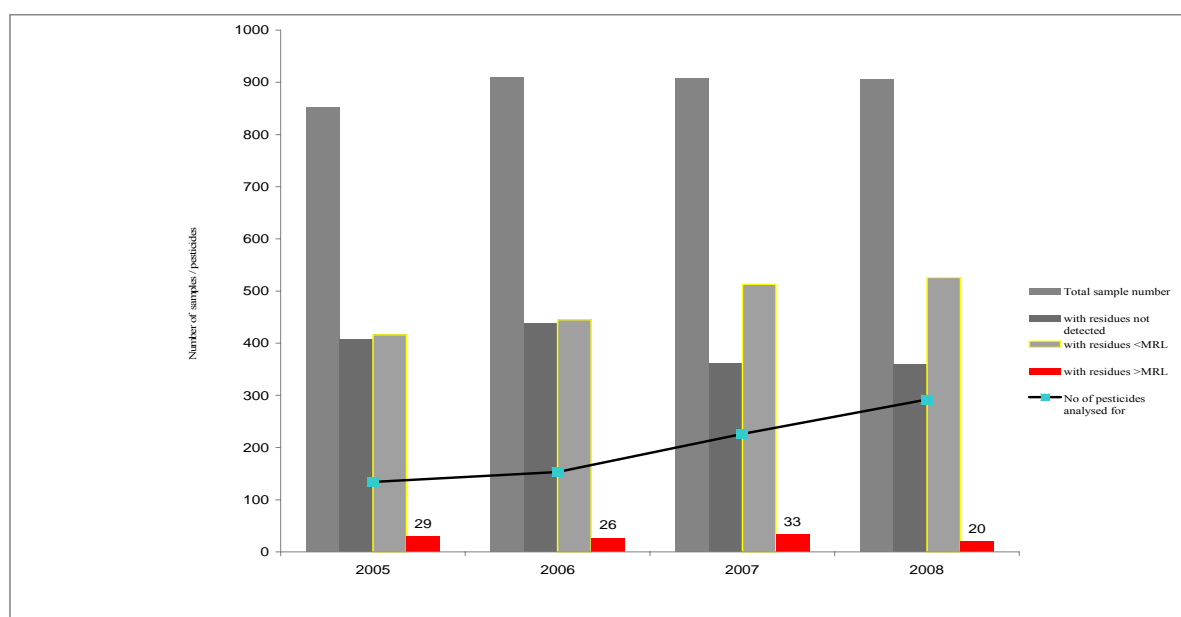


Figure 1: Comparison of the number of fruit and vegetable samples (2005 to 2008) with residue not detected (ND), detected below the MRL (<MRL), above the MRL (>MRL) and the number of pesticides analysed.

Since 2005 the routine monitoring programmes for the fruit and vegetables showed an increase in the number of samples with detectable residues and a decrease in the number of samples with non detectable residues. The general trend is the increase in the frequency of samples with residues detected, in line with the increased laboratory analytical capacity to analyse for 148, 153, 226, and 292 pesticides in 2005, 2006, 2007 and 2008 respectively.

Aside from the 33 MRL breaches in 2007, indications suggest a downward trend in the number of MRL breaches between 2005 and 2008. Even allowing for the increase in the pesticide scope, the number of MRL breaches has decreased from 33 in 2007 to 20 in 2008. However results from further programmes are required to confirm this trend.

Since its introduction into the programme in mid-2006, imazalil replaced thiabendazole as the most commonly found pesticide in fruit and vegetable samples (Table 18). Iprodione, chlorpyrifos, carbendazim are other pesticides that have been found consistently over the last 4 years. Imazalil is found mainly on citrus fruits, thiabendazole on citrus and apples, chlorpyrifos mainly on apples and

citrus fruits, and iprodione on a variety of commodities such as strawberries and other berries, table-grapes, lettuce, pears and nectarines. Carbendazim is found mainly on pome fruits and citrus; diphenylamine on pome fruits; imidacloprid on lettuce, celery and pepper; fenhexamid on kiwi and berries; 2,4-D on citrus and captan on pome fruits.

The number of different pesticides detected in fruit and vegetable routine samples during 2008 was 102 (35% of the number of pesticides sought). When compared to 2007, 104 different pesticides were detected (46% of the pesticides sought in 2007).

Table 18: The 10 most commonly pesticides detected from 2005 to 2008 in fruit and vegetable samples

2005	2006	2007	2008
thiabendazole	thiabendazole	imazalil	imazalil
carbendazim	iprodione	thiabendazole	thiabendazole
chlorpyrifos	chlorpyrifos	iprodione	chlorpyrifos
captan	diphenylamine	chlorpyrifos	iprodione
malathion	captan	carbendazim	carbendazim
cyprodinil	prochloraz	diphenylamine	diphenylamine
procymidone	carbendazim	captan	imidacloprid
tolyfluanid	imazalil	fenhexamid	fenhexamid
cypermethrin	malathion	malathion	2,4 D
methidathion	procymidone	prochloraz	captan

5.2 Cereals

The same analytical pesticide scope is used for the cereal samples as for the fruit and vegetable samples. Of the four different pesticides detected in cereal samples, pirimiphos methyl was the most commonly detected. (Table 19). No MRL exceedance occurred in 2008. The percentage of cereal samples containing pesticide residues peaked in 2006 at 36% due to the unusual occurrences of diazinon and chlorpropham in oat samples. Overall the percentage of samples with detected residues in 2008 at 19% is in line with the level found in 2005 at 17% (Figure 2).

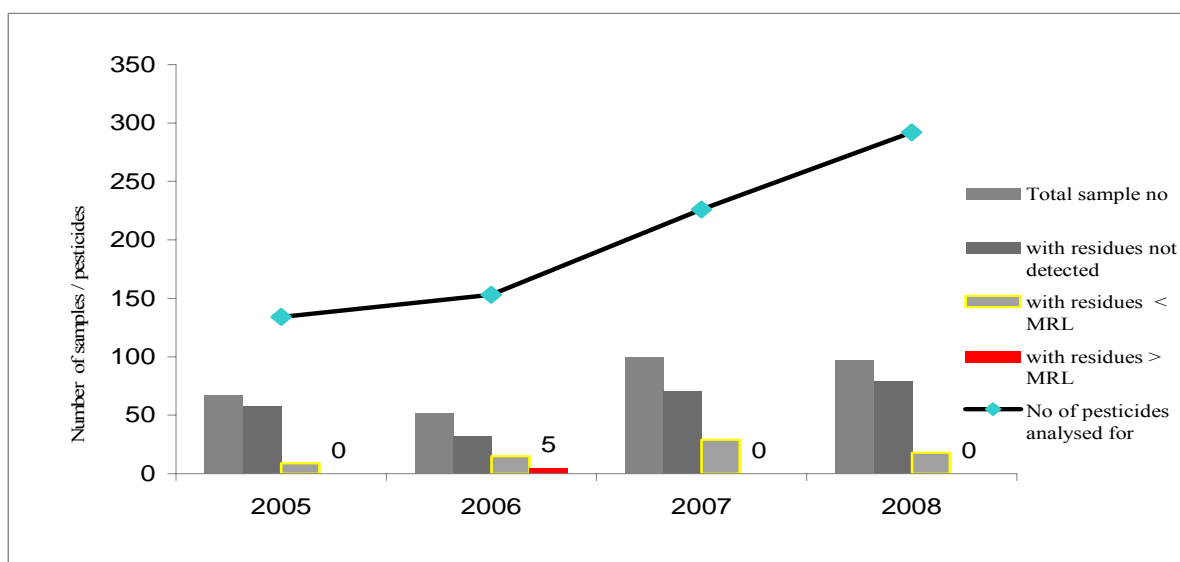


Figure 2: Comparison of the number of cereal samples (2005 to 2008) with residue not detected (ND), detected below the MRL (<MRL), above the MRL (>MRL) and number of pesticides in the analytical methods.

Table 19: Pesticides detected in cereal samples from 2005 – 2008 in order of frequency

2005	2006	2007	2008
chlorpyrifos me	diazinon	pirimiphos me	pirimiphos me
pirimiphos me	pirimiphos me	malathion	piperonyl butoxide
malathion	malathion	chlorpyrifos	bendiocarb
permethrin	permethrin	deltamethrin	metribuzin
deltamethrin	chlorpropham	tebuconazole	
	chlorpyrifos me	spiroxamine	
	deltamethrin	picoxystrobin	
		triazophos	
		imazalil	

5.3 Food of Animal Origin

The analytical scope did not change over the period 2005 - 2008. Over this period, the percentage of animal kidney fat samples containing pesticide residues varied from 6.5, 5.9, 9.0 and 7.9% in 2005, 2006, 2007 and 2008 respectively (Figure 3). Pesticide residues were not detected in milk, egg and honey samples. Lindane was the most frequently occurring pesticide residue detected in animal fat samples during 2008 compared with pp'-dde in previous years (Table 20).

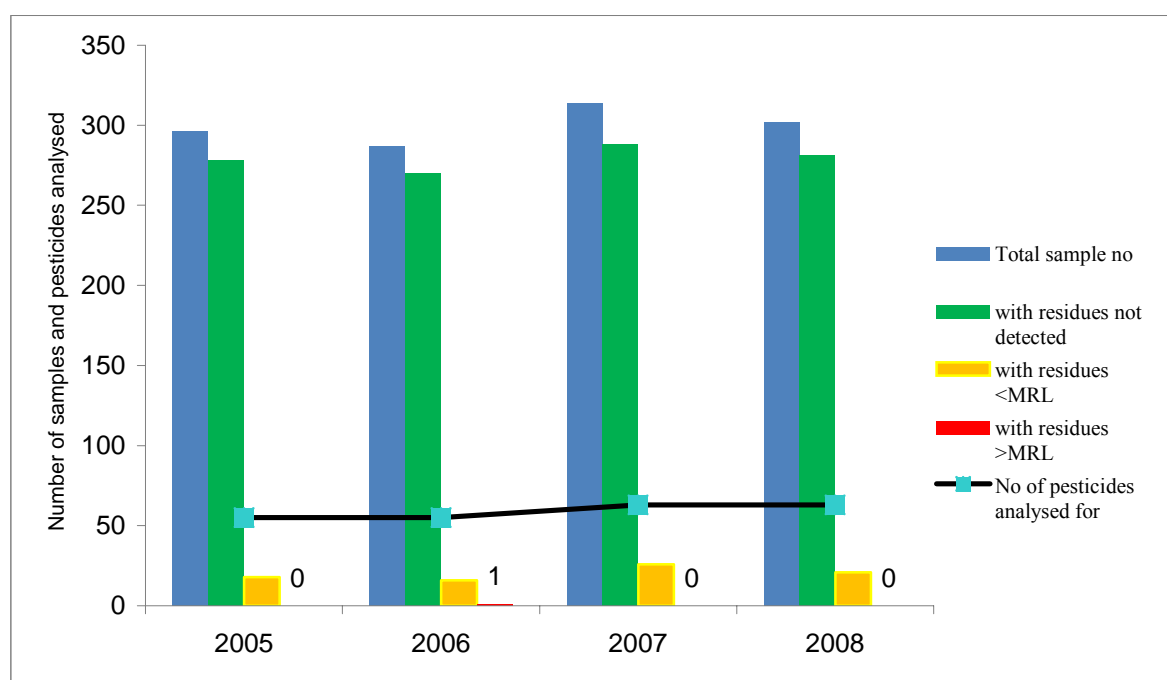


Figure 3: Comparison of the number of food of animal origin samples (kidney sample only) taken between 2005 and 2008, with residue not detected (ND), detected below the MRL (<MRL), above the MRL (>MRL) and number of pesticides in analytical methods.

Table 20: Pesticides detected in food of animal origin samples from 2005 – 2008 in order of frequency

2005	2006	2007	2008
pp'-dde	pp'-dde	pp'-dde	lindane
dicofol	lindane	pp'-ddt	hcb
dieldrin	dieldrin	dieldrin	pp'-dde
pcb 153	diazinon	lindane	dieldrin
	dicofol	diazinon	pcb 153
		hcb	dicofol
		pcb 153	pp'-ddt
			pcb 138
			pcb 180
			β-hch

5.4 MRL breaches

In 2008 some 20 routine samples of fruit and vegetables were found to contain pesticide residues in excess of an MRL. Four samples were of Irish origin, 6 other EU countries and the remaining 10 samples originating from non-EU countries (Table 21).

Table 21 Summary of samples with MRL exceedances

Sample No	Commodity	Country of origin	Pesticide	EU MRL mg kg ⁻¹	Residue found mg kg ⁻¹
71083	Chinese caage	Ireland	chlorothalonil	0.01*	1.24
71379	Parsley	Ireland	azoxystrobin	3.0	4.36
71605	Turnip	Ireland	chlorpyrifos	0.05*	0.06
71710	Cabbage	Ireland	deltamethrin	0.1	0.12
71784	Orange	Italy	dimethoate	0.02*	0.05
71061	Apple	Portugal	diazinon	0.01*	0.03
71963	Pear	Portugal	dimethoate	0.02*	0.02
71159	Lettuce	Spain	carbendazim	0.1*	0.16
71214	Orange	Spain	thiabendazole	5.0	7.30
71514	Potatoes	UK	tecnazene	0.05*	1.08
71441	Apple	Argentina	thiophanate	0.5	0.72
71453	Mango	Brazil	prochloraz	5.0	5.95
71551	Table grape	Chile	azinphos-methyl	0.05*	0.21
72043	Lime	Mexico	oxamyl	0.02*	0.04
71384	Orange	Morocco	chlorpyrifos	0.3	0.32
71724	Mango	Senegal	thiophanate	0.1*	0.13
71183	Pomegranate	Turkey	acetamiprid	0.01*	0.02
71965	Table grape	USA	Methomyl	0.05*	0.09
71970	Plums	USA	methoxyfenozide	0.02*	0.07
71973	Table grape	USA	methomyl	0.05*	0.06

* MRL at limit of determination

In the cases of the four samples of Irish origin, follow up official investigations were carried out by inspectors from the PCS. Three of the four non-compliances were the result of unauthorised uses of plant protection products. The remaining breach resulted from the application of a plant protection product, containing *deltamethrin* on cabbage at a rate higher than that recommended on the label. In all four cases, the producers of these crops will be subjected to targeted sampling in 2009. In addition, and where relevant, cross-reporting was made under the single farm payment scheme.

Regarding the imported samples with MRL breaches, it is not possible to know the reasons for breaches without having details on the authorised pesticide uses in these countries. Where an imported product contained a residue in excess of an MRL, the authorities in the country of origin, along with 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 action.

Codex MRLs, which are higher than EU MRLs, have been established for a number of these samples, e.g. prochloraz on mango, methomyl on grapes and chlorpyrifos on oranges. A number of the samples with breaches of the EU MRLs were in compliance with Codex limits. Such anomalies are due to differences between the EU and Codex in the interpretation of the toxicological and residue data and should be resolved in due course by the World Trade Organisation (WTO) and by continuing co-operation between the EU and producer groups in third countries at the Codex Committee in Pesticide Residues (CCPR).

5.5 Consumer Risk Assessment

When samples exceed the MRLs, which indicate incorrect or unauthorised use of plant protection products, risk assessments are carried out to assess the impact of such intake on consumers. In assessing the impact for consumers of exposure through diet to pesticide residues, it is appropriate to consider the effects of both acute exposure and chronic exposure. The dietary intake assessment for chronically toxic pesticides was carried out using mean consumption data over an extended period, while the intake assessment for the acutely toxic pesticides was carried out using consumption data over a short period of up to 1 day.

5.5.1 Acute Risk Assessment

For the purposes of assessing the effects of acute exposure, the highest levels of exposure likely (97.5th percentile exposure) over a single day and the effects on health of such exposure must be considered. For commodities consisting of large sized units (e.g. melons) or medium sized units (e.g. citrus and pome fruit), it is necessary to apply a variability factor so that the residues in individual commodity units be taken into account. In assessing the effects of acute exposure, the level of exposure must be considered in relation to the acute reference dose (ARfD) established for individual pesticides. ARfD values, which are a measure of the maximum level of intake over a day, judged to result in no adverse toxicological effects, include a safety factor to ensure that the elderly, infants and children and those whose systems are under stress because of illness are protected. As some pesticides do not exhibit acute toxicity ARfD values have not been established for all pesticides. .

Assessments are based on the conservative deterministic or point estimate⁷ which is generally accepted within the EU as providing a major overestimation of the actual risk to consumers. Through the use of such calculation and intake figures, all but the most extreme intake figures likely to arise have been taken into account in estimating the acute dietary impact of these residues on Irish consumers.. At present the PCS is working on the development of a more refined risk assessment model using a probabilistic approach to more accurately estimate the exposure of Irish consumers.

In 2008 there were two circumstances where the risk assessment indicated that consumer exposure would exceed one or other of the toxicological endpoints (Table 22):

- Grapes from Chile contained azinphos methyl at a level of 0.21 mg kg⁻¹. The risk assessment indicated a potentially unacceptable intake concern for children with a 108% exceedance of the ARfD. A RASFF information notification (2008.0814), was issued for this sample to inform other EU Member States of this situation.
- Samples of table grapes from the United States contained methomyl at 0.09 and 0.06 mg kg⁻¹ respectively. A potential intake concern of up to 200% of the ARfD was indicated for

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

children. A follow up investigation on the distribution of the grapes showed that both samples were from the same consignment. Following consultation with the FSAI, a RASFF information notification (2009.58), was issued.

An additional refinement was made to the consumer risk assessment relating to a mango sample from Brazil which contained prochloraz at 5.95 mg kg^{-1} . Prochloraz is used in post-harvest treatments and as such 95% of the residues have been shown to reside on the inedible peel. The refined risk assessment estimated that the short term intake for children as 8.5% instead of an original value of 170% of the ARfD.

5.5.2 Chronic risk assessment

For the purposes of assessing the effects of chronic exposure, the level of exposure over a lifetime and the likely effects on health of such exposure must be considered. The techniques necessary for such assessments are well developed and involve consideration of the mean levels of the likely exposure in relation to the acceptable daily intake (ADI) values established for individual pesticides. ADI values, which are a measure of the maximum level of intake over a lifetime adjudged to result in no adverse toxicological effects, include a safety factor to ensure that the elderly, infants and children, and those whose systems are under stress because of illness are protected.

An assessment of the relationship between ADIs and the level of residues present in routine samples, exceeding MRLs (Table 22), demonstrates the risk to Irish consumers (adult and children), associated with dietary intake of such residues. The intake figures used for individual commodities are derived from the 1996-1998 IUNA dietary survey for adults and the 2003-2005 IUNA survey for children.

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 of time. In Table 22, the calculation of the chronic exposure assessment is based on the conservative assumption of daily consumption of the food with the MRL breaches over an extended period and so is regarded as an overestimate of the real exposure to pesticides. There was no exceedance of the ADI, leading to an unacceptable chronic intake, for the 20 samples with MRL breaches.

Nevertheless, the fact that abuses occur and that residue levels in excess of the MRL continue to be detected, points to the need for the continuation and strengthening of the monitoring and violation investigation programmes. The PCS urges users of plant protection products to observe *Good Agricultural Practice* when applying them, in order to ensure that unacceptable levels of pesticide residues do not occur in treated produce.

Table 22 Relationship between MRL breaches and the ADI and ARfD for Irish adults and children

Sample No	Commodity	IUNA Adult/Child	Country of origin	Pesticide	EU MRL (mg kg ⁻¹)	Residue found (mg kg ⁻¹)	Mean consumption (kg/bw/day)	ADI (mg kg ⁻¹ bw/day)	Intake (%ADI)	97.5 %ile consumption (mg/bw/day)	ARfD (mg kg ⁻¹ bw/day)	Intake (% ARfD)
71061	Apple	adult	Portugal	diazinon	0,01*	0.03	0.001	0.0002	9.2%	0.003	0.025	0.9%
		child					0.005		62.4%	0.009		3.4%
71083	Chinese cabbage	adult	Ireland	chlorothalonil	0,01*	1.24	0.000	0.015	0.0%	0.001	0.6	0.0%
		child					0.000		1.2%	0.001		0.5%
71159	Lettuce	adult	Spain	carbendazim	0,1*	0.16	0.000	0.02	0.1%	0.000	0.02	1.2%
		child					0.001		0.4%	0.002		6.4%
71183	Pomegranate	adult	Turkey	acetamiprid	0,01*	0.02	0.000	0.07	0.0%	0.000	0.1	0.0%
		child					0.000		0.0%	0.000		0.0%
71214	Orange	adult	Spain	thiabendazole	5	7.30	0.002	0.1	14.6%	0.004	1	6.5%
		child					0.004		32.1%	0.011		22.5%
71379	Parsley	adult	Ireland	zoxystrobin	3	4.36	0.000	0.1	0.0%		n.r	
		child					0.000		0.1%		n.r	
71384	Orange	adult	Morocco	chlorpyrifos	0.3	0.32	0.002	0.01	6.4%	0.004	0.1	2.8%
		child					0.004		14.1%	0.011		9.9%
71441	Apple	adult	Argentina	thiophanate methyl	0.5	0.72	0.001	0.08	0.6%	0.003	0.2	3.1%
		child					0.005		4.3%	0.009		11.7%
71453	Mango	adult	Brazil	prochloraz	5	5.95	0.000	0.01	0.8%	0.002	0.1	3.0%
		child					0.003		7.4%	0.010		8.5%
71514	Potatoes	adult	UK	tecnazene	0,05*	1.08	0.003	0.02	17.8%	0.010	n.r	
		child					0.011		56.7%	0.000	n.r	
71551	Table grape	adult	Chile	azinphos-methyl	0.05*	0.21	0.000	0.005	1.3%	0.002	0.01	21.0%
		child					0.003		12.6%	0.010		108.2%
71605	Turnip	adult	Ireland	chlorpyrifos	0,05*	0.06	0.002	0.01	1.3%	0.001	0.1	0.2%
		child					0.002		1.2%	0.006		1.7%
71710	Cabbage	adult	Ireland	deltamethrin	0.1	0.12	0.000	0.01	0.4%	0.001	0.01	5.7%
		child					0.001	0.015	1.0%	0.004		25.2%

Sample No	Commodity	IUNA Adult/Child	Country of origin	Pesticide	EU MRL (mg kg ⁻¹)	Residue found (mg kg ⁻¹)	Mean consumption (kg/bw/day)	ADI (mg kg ⁻¹ bw/day)	Intake (%ADI)	97.5 %ile consumption (mg/bw/day)	ARfD (mg kg ⁻¹ bw/day)	Intake (% ARfD)
71724	Mango	adult	Senegal	thiophanate methyl	0,1*	0.13	0.000	0.08	0.0%	0.002	0.2	0.7%
		child					0.003		0.4%	0.010		3.3%
71784	Orange	adult	Italy	dimethoate	0,02*	0.05	0.002	0.001	10.6%	0.004	0.01	4.7%
		child					0.004	0.001	23.3%	0.011		16.3%
71963	Pear	adult	Portugal	dimethoate	0,02*	0.02	0.001	0.001	1.4%	0.002	0.01	2.1%
		child					0.004	0.001	8.0%	0.008		5.5%
71965	Table grape	adult	USA	methomyl	0,05*	0.09	0.000	0.0025	0.9%	0.002	0.0025	33.5%
		child					0.003		11.4%	0.010		201.9%
71970	Plums	adult	USA	methoxyfenozide	0,02*	0.07	0.000	0.1	0.0%	0.002	0.03	1.2%
		child					0.004		0.3%	0.007		3.3%
71973	Table grape	adult	USA	methomyl	0,05*	0.06	0.000	0.0025	0.7%	0.002	0.0025	25.7%
		child					0.003		8.0%	0.010		142.1%
72043	Lime	adult	Mexico	oxamyl	0,02*	0.04	0.000	0.001	0.2%	0.000	0.001	1.0%
		child					0.001		1.8%	0.001		8.8%

* MRL at limit of determination

5.6 Violation investigation programme

Targeted sampling of produce found to be in breach of established MRLs is the prime means of determining whether detected violations are the result of the systematic misuse of pesticides or are isolated incidents. The repeated occurrence of excessive residue levels in particular food commodities, which would result in consumer safety being compromised, is clearly unacceptable. The violation investigation programme is geared to eliminate any such abuses. The programme is also designed to ensure that incidents where MRLs are exceeded, are not repeated.

From the 11 targeted and statutory samples resulting from MRL breaches in 2007, 6 were found not to have detectable residues and 5 samples had pesticide residues above the limit of determination. In all cases there was no residue in excess of the MRL and no further follow up action was required.

5.7 Concluding remarks

The DAFF and the FSAI continue to be committed to the strengthening of the pesticide residue monitoring programmes in food, insofar as pesticide residues are concerned, ensuring the safety of food for consumers and ensuring the quality of produce offered for sale.

The PCS of the DAFF and the FSAI will continue to have an ongoing dialogue, as part of the service contract between both organisations, with a view to optimising the annual monitoring programme for pesticide residues in food and assessing the possible risk of such residues for consumers. This 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 the focus of the PCS will be to further increase the capacity of the laboratory to determine an ever increasing number of pesticide residues in food samples and to achieve a flexible scope of accreditation.

This report was compiled through the efforts of J. Acton, J. Garvey, F. O Regan, D. Sheridan and D. O'Sullivan. P. Carey, P. Killarney, M. B. Dolan, K. Armstrong, T Myles and members of the Dairy Science and Veterinary Inspectorates effected the sampling and violation investigation programme. The analytical results were generated by F. O Regan, J. Garvey, J. McGannon, F. Morrin, T. Walsh, M. Kelly, D. Smyth, E. Connolly, J. Coloe, W. Cummins, M. Graham, A. Ryan, C.O Connor, T.O Hara and D. Harris.

6 ANNEXES

6.1 ANNEX I Regulations fixing maximum levels for pesticide residues in agriculture produce

- 1 European Communities (Pesticide Residues) (Fruit and Vegetables) Regulations 1989, S.I. No. 105 of 1989
- 2 European Communities (Pesticide Residues) (Fruit and Vegetables) (Amendment) Regulations 1997, S.I. No. 218 of 1997
- 3 European Communities (Pesticide Residues) (Fruit and Vegetables) (Amendment) Regulations 1998, S.I. No. 563 of 1998
- 4 European Communities (Pesticide Residues) (Fruit and Vegetables) (Amendment) Regulations 2002, S.I. No. 526 of 2002
- 5 European Communities (Pesticide Residues) (Fruit and Vegetables) (Amendment) Regulations 2003, S.I. No. 356 of 2003
- 6 European Communities (Pesticide Residues) (Fruit and Vegetables) (Amendment) Regulations 2004, S.I. No. 120 of 2004
- 7 European Communities (Pesticide Residues) (Feeding stuffs) Regulations 1992, S.I. No. 40 of 1992
- 8 European Communities (Pesticide Residues) (Products of Plant Origin, including Fruit and Vegetables) Regulations 1999, S.I. No. 179 of 1999
- 9 European Communities (Pesticide Residues) (Products of Plant Origin, including Fruit and Vegetables) (Amendment) Regulations 1999, S.I. No. 458 of 1999
- 10 European Communities (Pesticide Residues) (Products of Plant Origin, including Fruit and Vegetables) (Amendment) Regulations 2000, S.I. No. 461 of 2000.
- 11 European Communities (Pesticide Residues) (Products of Plant Origin, including Fruit and Vegetables) (Amendment) Regulations 2000, S.I. No. 462 of 2000.
- 12 European Communities (Pesticide Residues) (Products of Plant Origin, including Fruit and Vegetables) (Amendment) Regulations 2001, S.I. No. 256 of 2001.
- 13 European Communities (Pesticide Residues) (Products of Plant Origin, including Fruit and Vegetables) (Amendment) Regulations 2001, S.I. No. 621 of 2001
- 14 European Communities (Pesticide Residues) (Products of Plant Origin, including Fruit and Vegetables) (Amendment) Regulations 2002, S.I. No. 535 of 2002
- 15 European Communities (Pesticide Residues) (Products of Plant Origin, including Fruit and Vegetables) (Amendment) Regulations 2003, S.I. No. 271 of 2003
- 16 European Communities (Pesticide Residues) (Products of Plant Origin, including Fruit and Vegetables) (Amendment) Regulations 2003, S.I. No. 384 of 2003
- 17 European Communities (Pesticide Residues) (Products of Plant Origin, including Fruit and Vegetables) (Amendment) Regulations 2004, S.I. No. 134 of 2004

- 18 European Communities (Pesticide Residues) (Products of Plant Origin, including Fruit and Vegetables) (Amendment) Regulations 2004, S.I. No. 231 of 2004
- 19 European Communities (Pesticide Residues) (Products of Plant Origin, including Fruit and Vegetables) (Amendment) Regulations 2005, S.I. No. 173 of 2005
- 20 European Communities (Pesticide Residues) (Products of Plant Origin, including Fruit and Vegetables) (Amendment) Regulations 2005, S.I. No. 551 of 2005
- 21 European Communities (Pesticide Residues) (Products of Plant Origin, including Fruit and Vegetables) (Amendment) Regulations 2005, S.I. No. 696 of 2005
- 22 European Communities (Pesticide Residues) (Products of Plant Origin, including Fruit and Vegetables) (Amendment) Regulations 2005, S.I. No. 266 of 2006
- 23 European Communities (Pesticide Residues) (Products of Plant Origin, including Fruit and Vegetables) (Amendment) Regulations 2005, S.I. No. 464 of 2006
- 24 European Communities (Pesticide Residues) (Products of Plant Origin, including Fruit and Vegetables) (Amendment) Regulations 2005, S.I. No. 107 of 2006
- 25 European Communities (Pesticide Residues) (Foodstuffs of Animal Origin) Regulations 1999, S.I. No. 180 of 1999
- 26 European Communities (Pesticide Residues) (Foodstuffs of Animal Origin) (Amendment) Regulations 1999, S.I. No. 460 of 1999
- 27 European Communities (Pesticide Residues) (Foodstuffs of Animal Origin) (Amendment) Regulations 2000, S.I. No. 460 of 2000
- 28 European Communities (Pesticide Residues) (Foodstuffs of Animal Origin) (Amendment) Regulations 2000, S.I. No. 249 of 2001.
- 29 European Communities (Pesticide Residues) (Foodstuffs of Animal Origin) (Amendment) Regulations 2000, S.I. No. 620 of 2001
- 30 European Communities (Pesticide Residues) (Foodstuffs of Animal Origin) (Amendment) Regulations 2002, S.I. No. 534 of 2002
- 31 European Communities (Pesticide Residues) (Foodstuffs of Animal Origin) (Amendment) Regulations 2003, S.I. No. 270 of 2003
- 32 European Communities (Pesticide Residues) (Foodstuffs of Animal Origin) (Amendment) Regulations 2003, S.I. No. 385 of 2003
- 33 European Communities (Pesticide Residues) (Foodstuffs of Animal Origin) (Amendment) Regulations 2004, S.I. No. 118 of 2004
- 34 European Communities (Pesticide Residues) (Foodstuffs of Animal Origin) (Amendment) Regulations 2004, S.I. No. 239 of 2004
- 35 European Communities (Pesticide Residues) (Foodstuffs of Animal Origin) (Amendment) Regulations 2005, S.I. No. 698 of 2005
- 36 European Communities (Pesticide Residues) (Foodstuffs of Animal Origin) (Amendment) Regulations 2005, S.I. No. 106 of 2006
- 37 European Communities (Pesticide Residues) (Foodstuffs of Animal Origin) (Amendment) Regulations 2005, S.I. No. 259 of 2006
- 38 European Communities (Pesticide Residues) (Foodstuffs of Animal Origin) (Amendment) Regulations 2005, S.I. No. 489 of 2006
- 39 European Communities (Pesticide Residues) (Cereals) Regulations 1999, S.I. No. 181 of 1999

- 40 European Communities (Pesticide Residues) (Cereals) (Amendment) Regulations 1999, S.I. No. 459 of 1999
- 41 European Communities (Pesticide Residues) (Cereals) (Amendment) Regulations 2000, S.I. No. 459 of 2000
- 42 European Communities (Pesticide Residues) (Cereals) (Amendment) Regulations 2001, S.I. No. 250 of 2001.
- 43 European Communities (Pesticide Residues) (Cereals) (Amendment) Regulations 2001, S.I. No. 622 of 2001
- 44 European Communities (Pesticide Residues) (Cereals) (Amendment) Regulations 2002, S.I. No. 533 of 2002.
- 45 European Communities (Pesticide Residues) (Cereals) (Amendment) Regulations 2003, S.I. No. 386 of 2003.
- 46 European Communities (Pesticide Residues) (Cereals) (Amendment) Regulations 2004, S.I. No. 119 of 2004
- 47 European Communities (Pesticide Residues) (Cereals) (Amendment) Regulations 2004, S.I. No. 240 of 2004
- 48 European Communities (Pesticide Residues) (Cereals) (Amendment) Regulations 2005, S.I. No. 552 of 2005
- 49 European Communities (Pesticide Residues) (Cereals) (Amendment) Regulations 2005, S.I. No. 697 of 2005
- 50 European Communities (Pesticide Residues) (Cereals) (Amendment) Regulations 2005, S.I. No. 108 of 2006
- 51 European Communities (Pesticide Residues) (Cereals) (Amendment) Regulations 2005, S.I. No. 260 of 2006
- 52 European Communities (Pesticide Residues) (Cereals) (Amendment) Regulations 2005, S.I. No. 492 of 2006
- 53 European Communities (Pesticide Residues) Regulations 2005, S.I. No. 654 of 2006
- 54 European Communities (Pesticide Residues) (Amendments) Regulations 2007, S.I. No. 104 of 2007
- 55 European Communities (Pesticide Residues) (Amendments) (No.2) Regulations 2007, S.I. No. 685 of 2007
- 56 European Communities (Pesticide Residues) (Amendments) (No.3) Regulations 2007, S.I. No. 817 of 2007

The above legislations were consolidated into

- | | | |
|----|-----------------------------|----------------------|
| 57 | Regulation (EC) No.396/2005 | OJ L70 of 16.04.2005 |
| 58 | Regulation (EC) No 299/2008 | OJ L76 of 19.03.2008 |

This regulation 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 and 86/363 were repealed.

For Annex I

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|----|--|----------------------|
| 59 | Commission Regulation (EC) No 178/2006 | OJ L29 of 16.03.2006 |
|----|--|----------------------|

For Annexes II, III and IV

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|----|--|-------------------------|
| 60 | Commission Regulation (EC) No 149/2008 | OJ L58 of 01.03.2008 |
| 61 | Corrigendum to Commission Regulation (EC) 149/2008 | OJ L240/9 of 09.09.2008 |
| 62 | Commission Regulation (EC) 839/2008 | OJ L234 of 30.08.2008 |

For Annex VII

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|----|-------------------------------------|----------------------|
| 63 | Commission Regulation (EC) 260/2008 | OJ L76 of 19.03.2008 |
|----|-------------------------------------|----------------------|

6.2 ANNEX II EC Directives fixing maximum levels for pesticide residues in agriculture produce

- 1 Council Directive of 23 November 1976 relating to the fixing of maximum levels for pesticide residues in and on fruit and vegetables. (76/895/EEC) OJ No. L340 of 9.12.1976
and amending Directives -
- | | |
|--|---------------------------|
| 79/700/EEC of 24 July 1979 | OJ No. L207 of 15.8.1979 |
| 80/428/EEC of 28 March 1980 | OJ No. L102 of 19.4.1980 |
| 81/36/EEC of 9 February 1981 | OJ No. L46 of 19.2.1981 |
| 82/528/EEC of 19 July 1982 | OJ No. L234 of 9.8.1982 |
| 88/298/EEC of 16 May 1988 | OJ No. L126 of 20.5.1988 |
| 89/186/EEC of 6 March 1989 | OJ No. L66 of 10.3.1989 |
| 93/58/EEC of 29 June 1993 | OJ No. L211 of 23.8.1993 |
| Corrigendum to 93/58/EEC | OJ No. L219 of 24.8.1994 |
| 96/32/EC of 21 May 1996 | OJ No. L144 of 18.6.1996 |
| 97/41/EC of 25 June 1997 | OJ No. L184 of 12.7.1997 |
| 2000/24/EC of 28 of April 2000 | OJ No. L107 of 04.05.2000 |
| 2000/42/EC of 22 of June 2000 | OJ No. L158 of 30.06.2000 |
| 2000/48/EC of 25 of July 2000 | OJ No. L197 of 03.08.2000 |
| 2000/57/EC of 22 of Sept 2000 | OJ No. L244 of 29.09.2000 |
| 2000/82/EC of 20 of Dec. 2000 | OJ No. L3 of 06.01.2001 |
| 2002/66/EC of 16 of July 2002 | OJ No. L192 of 20.07.2002 |
| 2002/71/EC of 19 of August 2002 | OJ No. L225 of 22.08.2002 |
| 2002/79/EC of 02 of October 2002 | OJ No. L291 of 28.10.2002 |
| 2003/60/EC of 18 of June 2003 | OJ No. L155 of 24.06.2003 |
| 2003/118/EC of 05 of Dec 2003 | OJ No. L324 of 11.12.2003 |
| 2005/37/EC of 03 of June 2005 | OJ No. L141 of 04.06.2005 |
| 2005/46/EC of 08 of July 2005 | OJ No. L177 of 09.07.2005 |
| 2005/70/EC of 20 of Oct 2005 | OJ No. L276 of 21.10.2005 |
| 2006/59/EC of 28 of Jun 2006 | OJ No. L175 of 29.06.2006 |
| 2006/62/EC of 12 of July 2006 | OJ No. L206 of 27.07.2006 |
| 2006/92/EC of 09 of Nov 2006 | OJ No. L311 of 10.11.2006 |
| 2007/8/EC of 20 of Feb 2007 | OJ No L63 of 01.03.2007 |
| 2007/55/EC of 17 of Sep 2007 (from 18.04.2008) | OJ No.L243 of 18.09.2007 |
| 2007/57/EC of 17 of Sep 2007 | OJ No. L243 of 18.09.2007 |
- 2 Council Directive of 24 July 1986 on the fixing of maximum levels for pesticide residues in and on cereals. (86/362/EEC) OJ No. 221 of 7.8.1986
and amending Directives -
- | | |
|------------------------------|---------------------------|
| 88/298/EEC of 16 May 1988 | OJ No. L126 of 20.5.1988 |
| 93/57/EEC of 29 June 1993 | OJ No. L211 of 23.8.1993 |
| 94/29/EC of 23 June 1994 | OJ No. L189 of 23.7.1994 |
| 95/39/EC of 17 July 1995 | OJ No. L197 of 22.8.1995 |
| Corrigendum to 95/39/EC | OJ No. L164 of 3.7.1996 |
| 96/33/EC of 21 May 1996 | OJ No. L144 of 18.6.1996 |
| 97/41/EC of 25 June 1997 | OJ No. L184 of 12.7.1997 |
| 97/71/EC of 15 December 1997 | OJ No. L347 of 18.12.1997 |
| 98/82/EC of 27 October 1998 | OJ No. L290 of 29.10.1998 |

1999/65/EC of 24 June 1999	OJ No. L172 of 8.7.1999
1999/71/EC of 14 July 1999	OJ No. L194 of 27.7.1999
2000/24/EC of 28 of April 2000	OJ No. L107 of 04.05.2000
2000/42/EC of 22 of June 2000	OJ No. L158 of 30.06.2000
2000/48/EC of 25 of July 2000	OJ No. L197 of 03.08.2000
2000/58/EC of 22 of Sept 2000	OJ No. L244 of 29.09.2000
2000/82/EC of 20 of Dec 2000	OJ No. L3 of 06.01.2001
2001/39/EU of 23 of May 2001	OJ No. L148 of 01.05.2001
2001/48/EU of 28 of June 2001	OJ No. L180 of 03.07.2001
2001/57/EU of 25 of July 2001	OJ No. L208 of 01.08.2001
2002/23/EU of 26 of Feb 2002	OJ No. L64 of 07.03.2002
2002/42/EU of 17 of May 2002	OJ No. L134 of 22.05.2002
2002/66/EU of 16 of July 2002	OJ No. L192 of 20.07.2002
2002/71/EC of 19 of August 2002	OJ No. L225 of 22.08.2002
2002/76/EC of 06 of September 2002	OJ No. L240 of 07.09.2002
2002/79/EC of 02 of October 2002	OJ No. L291 of 28.10.2002
2002/97/EC of 16 of December 2002	OJ No. L343 of 18.12.2002
2003/60/EC of 18 of June 2003	OJ No. L155 of 24.06.2003
2003/62/EC of 20 of June 2003	OJ No. L154 of 21.06.2003
2003/69/EC of 11 of July 2003	OJ No. L175 of 15.07.2003
2003/113/EC of 3 of December 2003	OJ No. L324 of 11.12.2003
2003/118/EC of 5 of December 2003	OJ No. L327 of 16.12.2003
2004/2/EC of 9 of January 2004	OJ No. L014 of 21.01.2004
2004/61/EU of 26 of April 2005	OJ No. L127 of 29.04.2004
2005/46/EU of 08 of July 2005	OJ No. L177 of 09.07.2005
2005/48/EC of 23 of August 2005	OJ No. L219 of 24.8.2005
2005/70/EC of 20 of Oct 2005	OJ No. L276 of 21.10.2005
2005/76/EC of 08 of Nov 2005	OJ No. L293 of 09.11.2005
2006/4/EC of 26 of Jan 2006	OJ No. L23 of 27.01.2006
2006/30/EC of 13 of Mar 2006	OJ No. L75 of 14.03.2006
2006/59/EC of 28 of Jun 2006	OJ No. L175 of 29.06.2006
2006/61/EC of 07 of July 2006	OJ No. L206 of 27.07.2006
2006/62/EC of 12 of July 2006	OJ No. L206 of 27.07.2006
2006/92/EC of 09 of Nov 2006	OJ No. L311 of 10.11.2006
2007/7/EC of 14 of Feb 2007	OJ No. L43 of 15.02.2007
2007/8/EC of 20 of Feb 2007	OJ No. L63 of 01.03.2007
2007/11/EC of 21 of Feb 2007	OJ No. L63 of 01.03.2007
2007/27/EC of 15 of May 2007 corrigenda	OJ No. L140 of 01.06.2007
2007/55/EC of 17 of Sep 2007	OJ No. L243 of 18.09.2007
2007/56/EC of 17 of Sep 2007 (from 05.04.2008)	OJ No. L243 of 18.09.2007
2007/57/EC of 17 of Sep 2007 (from 05.04.2008)	OJ No. L243 of 18.09.2007
2007/62/EC of 04 of Oct 2007 (from 15.06.2008)	OJ No. L260 of 05.10.2007
2007/73/EC of 13 of Dec 2007	OJ No. L329 of 14.12.2007
3 Council Directive of 24 July 1986 on the fixing of maximum levels for pesticide residues in and on foodstuffs of animal origin. (86/363/EEC) OJ No. L221 of 7.8.1986	
and amending Directives -	
93/57/EEC of 29 June 1993	OJ No. L211 of 23.8.1993
94/29/EC of 23 June 1994	OJ No. L189 of 23.7.1994
95/39/EC of 17 July 1995	OJ No. L197 of 22.8.1995

Corrigendum of 95/39/EC	OJ No. L164 of 3.7.1996
96/33/EC of 21 May 1996	OJ No. L144 of 18.6.1996
97/41/EC of 25 June 1997	OJ No. L184 of 12.7.1997
97/71/EC of 15 December 1997	OJ No. L347 of 18.12.1997
98/82/EC of 27 October 1998	OJ No. L290 of 29.10.1998
1999/71/EC of 14 July 1999	OJ No. L194 of 27.7.1999
2000/24/EC of 28 of April 2000	OJ No. L107 of 04.05.2000
2000/42/EC of 22 of June 2000	OJ No. L158 of 30.06.2000
2000/58/EC of 22 of Sept 2000	OJ No. L244 of 29.09.2000
2000/82/EC of 20 of Dec 2000	OJ No. L3 of 06.01.2001
2001/39/EU of 23 of May 2001	OJ No. L148 of 01.05.2001
2001/57/EU of 25 of July 2001	OJ No. L208 of 01.08.2001
2002/23/EU of 26 of Feb 2002	OJ No. L64 of 07.03.2002
2002/42/EU of 17 of May 2002	OJ No. L134 of 22.05.2002
2002/66/EU of 16 of July 2002	OJ No. L192 of 20.07.2002
2002/71/EC of 19 of August 2002	OJ No. L225 of 22.08.2002
2002/79/EC of 02 of October 2002	OJ No. L291 of 28.10.2002
2002/97/EC of 16 of December 2002	OJ No. L343 of 18.12.2002
2003/60/EC of 18 of June 2003	OJ No. L155 of 24.06.2003
2003/113/EC of 3 of December 2003	OJ No. L324 of 11.12.2003
2003/118/EC of 5 of December 2003	OJ No. L327 of 16.12.2003
2004/2/EC of 9 of January 2004	OJ No. L014 of 21.01.2004
2004/61/EU of 26 of April 2005	OJ No. L127 of 29.04.2004
2004/95/EU of 24 of Sept 2004	OJ No. L301 of 28.09.2004
2005/46/EU of 08 of July 2005	OJ No. L177 of 09.07.2005
2005/48/EC of 23 of August 2005	OJ No. L219 of 24.8.2005
2005/70/EC of 20 of Oct 2005	OJ No. L276 of 21.10.2005
2006/30/EC of 13 of Mar 2006	OJ No. L75 of 14.03.2006
2006/59/EC of 28 of Jun 2006	OJ No. L175 of 29.06.2006
2006/61/EC of 07 of July 2006	OJ No. L206 of 27.07.2006
2006/62/EC of 12 of July 2006	OJ No. L206 of 27.07.2006
2006/92/EC of 09 of Nov 2006	OJ No. L311 of 10.11.2006
2007/11/EC of 21 of Feb 2007	OJ No. L63 of 01.03.2007
2007/27/EC of 15 of May 2007corrigenda	OJ No. L140 of 01.06.2007
2007/28/EC of 25 of May 2007	OJ No. L135 of 26.05.2007
2007/56/EC of 17 of Sep 2007	OJ No. L243 of 18.09.2007
2007/55/EC of 17 of Sep 2007 (from 18.04.2008)	OJ No. L243 of 18.09.2007
2007/57/EC of 17 of Sep 2007	OJ No. L243 of 18.09.2007
4 Council Directive of 27 November 1990 on the fixing of maximum levels for pesticide residues in an on certain products of plant origin, including fruit and vegetables. (90/642/EEC) OJ No. L350 of 14.12.1990	
and amending Directives -	
93/58/EEC of 29 June 1993	OJ No. L211 of 23.8.1993
Corrigendum to 93/58 EEC	OJ No. L219 of 24.8.1994
94/30/EC of 23 June 1994	OJ No. L189 of 23.7.1994
95/38/EC of 17 July 1995	OJ No. L197 of 22.8.1995
Corrigendum to 95/38/EEC	OJ No. L155 of 28.6.1996
95/61/EC of 29 November 1995	OJ No. L292 of 7.12.1995
96/32/EC of 21 May 1996	OJ No. L144 of 18.6.1996

97/41/EC of 25 June 1997	OJ No. L184 of 12.7.1997
97/71/EC of 15 December 1997	OJ No. L347 of 18.12.1997
98/82/EC of 27 October 1998	OJ No. L290 of 29.10.1998
1999/65/EC of 24 June 1999	OJ No. L172 of 8.7.1999
1999/71/EC of 14 July 1999	OJ No. L194 of 27.7.1999
2000/24/EC of 28 of April 2000	OJ No. L107 of 04.05.2000
2000/42/EC of 22 of June 2000	OJ No. L158 of 30.06.2000
2000/48/EC of 25 of July 2000	OJ No. L197 of 03.08.2000
2000/57/EC of 22 of Sept 2000	OJ No. L244 of 29.09.2000
2000/58/EC of 22 of Sept 2000	OJ No. L244/78 of 29.09.2000
2000/82/EC of 20 of Dec 2000	OJ No. L3/18 of 06.01.2001
2001/35/EU of 11 of May 2001	OJ No. L136 of 18.05.2001
2001/39/EU of 23 of May 2001	OJ No. L148 of 01.05.2001
2001/48/EU of 28 of June 2001	OJ No. L180 of 03.07.2001
2001/57/EU of 25 of July 2001	OJ No. L208 of 01.08.2001
2002/5/EU of 30 of Jan 2002	OJ No. L34 of 05.02.2002
2002/23/EU of 26 of Feb 2002	OJ No. L64 of 07.03.2002
2002/42/EU of 17 of May 2002	OJ No. L134 of 22.05.2002
2002/66/EU of 16 of July 2002	OJ No. L192 of 20.07.2002
2002/71/EC of 19 of August 2002	OJ No. L225 of 22.08.2002
2002/76/EC of 06 of September 2002	OJ No. L240 of 07.09.2002
2002/79/EC of 02 of October 2002	OJ No. L291 of 28.10.2002
2002/97/EC of 16 of December 2002	OJ No. L343 of 18.12.2002
2003/60/EC of 18 of June 2003	OJ No. L155 of 24.06.2003
2003/62/EC of 20 of June 2003	OJ No. L154 of 21.06.2003
2003/69/EC of 11 of July 2003	OJ No. L175 of 15.07.2003
2003/113/EC of 3 of December 2003	OJ No. L324 of 11.12.2003
2003/118/EC of 5 of December 2003	OJ No. L327 of 16.12.2003
2004/2/EC of 9 of January 2004	OJ No. L014 of 21.01.2004
2004/59/EC of 23 of April 2004	OJ No. L120 of 24.04.2004
2004/61/EU of 26 of April 2004	OJ No. L127 of 29.04.2004
2004/95/EU of 24 of September 2004	OJ No. L301 of 28.09.2004
2005/37/EU of 03 of June 2005	OJ No. L141 of 04.06.2005
2005/46/EU of 08 of July 2005	OJ No. L177 of 09.07.2005
2005/48/EC of 23 of August 2005	OJ No L219 of 24.8.2005
2005/70/EC of 20 of Oct 2005	OJ No. L276 of 21.10.2005
2005/74/EC of 25 of Oct 2005	OJ No. L282 of 26.10.2005
2005/76/EC of 08 of Nov 2005	OJ No. L293 of 09.11.2005
2006/4/EC of 26 of Jan 2006	OJ No. L23 of 27.01.2006
2006/9/EC of 23 of Jan 2006	OJ No. L22 of 26.01.2006
2006/30/EC of 13 of Mar 2006	OJ No. L75 of 14.03.2006
2006/53/EC of 07 of Jun 2006	OJ No. L154 of 08.06.2006
2006/59/EC of 28 of Jun 2006	OJ No. L175 of 29.06.2006
2006/60/EC of 07 of July 2006	OJ No. L206 of 27.07.2006
2006/61/EC of 07 of July 2006	OJ No. L206 of 27.07.2006
2006/62/EC of 12 of July 2006	OJ No. L206 of 27.07.2006
2006/92/EC of 09 of Nov 2006	OJ No. L311 of 10.11.2006
2007/7/EC of 14 of Feb 2007	OJ No L43 of 15.02.2007
2007/8/EC of 20 of Feb 2007	OJ No. L63 of 01.03.2007
2007/9/EC of 20 of Feb 2007	OJ No. L63 of 01.03.2007

2007/11/EC of 21 of Feb 2007	OJ No. L63 of 01.03.2007
2007/27/EC of 15 of May 2007	OJ No. L128 of 16.05.2007
2007/28/EC of 25 of May 2007	OJ No. L135 of 26.05.2007
2007/39/EC of 26 of June 2007	OJ No. L165 of 27.06.2007
2007/56/EC of 17 of Sep 2007	OJ No. L243 of 18.09.2007
2007/55/EC of 17 of Sep 2007 (from 18.04.2008)	OJ No. L243 of 18.09.2007
2007/57/EC of 17 of Sep 2007	OJ No. L243 of 18.09.2007
2007/62/EC of 04 of Oct 2007 (from 05.04.2008)	OJ No. L260 of 05.10.2007
2007/73/EC of 13 of Dec 2007	OJ No. L329 of 14.12.2008

- 5 Council Directive of 4 March 1991, amending Directive 74/63/EEC on undesirable substances and products in animal nutrition. (91/132/EEC) OJ No. L66 of 13.3.1991.

6.3 ANNEX III Glossary of terms

Acceptable Daily Intake (ADI)	<p>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.</p> <p>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.</p> <p>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.</p>
Acute Reference Dose (ARfD)	<p>An ARfD is similar in nature to an ADI but it relates to intake of residues at one meal or on one day.</p> <p>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.</p> <p>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.</p>
CODEX	<p>The Codex Alimentarius Commission was created in 1963 by AO and WHO to develop food standards, guidelines and related texts such as codes of practice under the Joint FAO/WHO Food Standards Programme. The main purposes of this Programme are protecting health of the consumers and ensuring fair trade practices in the food trade, and promoting coordination of all food standards work</p>

undertaken by international governmental and non-governmental organizations.

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.
Lowest Calibrated Level (LCL)	The lowest concentration of a pesticide residue with which the detection system is calibrated for the purposes of determining the presence or absence of measurable residues. It normally also serves to define the reporting limit for individual pesticide residues.
Limit of Determination (LOD)	The LOD 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>An 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>
No-adverse-effect Level	The no-adverse-effect level is the highest level of continual exposure to a chemical that causes no significant adverse effect on morphology, biochemistry, functional capacity, growth, development, or life span of individuals of the target species that may be animal or human.

Pesticide Residue

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.

6.4 ANNEX IV Analytical methods and procedures employed for the determination of pesticide residues in foodstuffs

Multi residue method 1, *Analytical Methods for Pesticide Residues in Foodstuffs*, 6th edition, 1996, General Inspectorate for Health Problems, Ministry of Public Health, Welfare and Sport, The Netherlands. The method is used to determine residues of organophosphorous, organochlorine and benzimidazole pesticides in food of plant origin.

Note: A variation of the method is used. The variation involves addition of sodium sulphate at the time of sample extraction to facilitate the extraction of polar organophosphorous pesticides.

Multi residue method 1, *Analytical Methods for Pesticide Residues in Foodstuffs*, 6th edition, 1996, General Inspectorate for Health Problems, Ministry of Public Health, Welfare and Sport, The Netherlands. The variation of the method uses ethyl acetate as the extraction solvent and is used for the analysis of residues of organophosphorous, organochlorine and benzimidazole pesticides in cereals.

The Becker method, *A multi residue method for the simultaneous determination of plant protection chemicals in plant material*, Dtsch. Lebensm. Rundsch. 75, 148-152, 1979, using a gel permeation column instead of the silica gel/activated charcoal column specified,

The method in use for the determination of organochlorine and organophosphorous residues in samples of fat is based on clean-up method number 5 of the German Manual of Pesticide Residue Analysis (Volume 1 of 1987) and involves extraction with a mixture of acetonitrile and acetone, followed by clean-up using gel permeation chromatography column and alumina/silver nitrate micro columns (for organochlorine pesticides only).

Michelangelo Anastassiades, Steven J. Lehotay, Darinka Štajnbaher, Frank J. Schenck, *Fast and Easy Multiresidue Method Employing Acetonitrile Extraction/Partitioning and Dispersive Solid-Phase Extraction for the Determination of Pesticide Residues in Produce*, J AOAC International, 2003, vol. 86(22), pp.412-431.

Residues of dithiocarbamates are determined as CS₂ following acid digestion degradation with tin chloride and hydrochloric acid. This method is based on the work carried out in the CSL York UK Project FD 98/46 and involves liquid liquid extraction with trimethyl pentane.

6.5 ANNEX V Analytical scope and methods used in various foodstuffs

Pesticide	Technique(s)	Food of plant origin	LCL mg kg ⁻¹	Fat samples	LCL mg kg ⁻¹	Milk and eggs	LCL mg kg ⁻¹	Honey	LCL mg kg ⁻¹
2,4 DB	LC-MS/MS	✓	0.01					✓	0.01
2,4-D	LC-MS/MS	✓	0.02					✓	0.02
Acephate	GC-MS	✓	0.05					✓	0.05
Acetamiprid	LC-MS/MS	✓	0.01					✓	0.01
Aclonifen	GC-MS	✓	0.02					✓	0.02
Acrinathrin	GC-MS	✓	0.02					✓	0.02
Alachlor	GC-MS	✓	0.02					✓	0.02
Aldicarb (R)	LC-MS/MS	✓	0.01					✓	0.01
Ametryn	LC-MS/MS	✓	0.01					✓	0.01
Amidosulfuron	LC-MS/MS	✓	0.01					✓	0.01
Aminocarb	LC-MS/MS	✓	0.01					✓	0.01
Asulam	LC-MS/MS	✓	0.02					✓	0.02
Atrazine	GC-MS	✓	0.02					✓	0.02
Azaconazole	GC-MS	✓	0.02					✓	0.02
Azamephos	GC-MS	✓	0.02					✓	0.02
Azinphos-ethyl	GC-MS /-PFPD	✓	0.02	✓	0.2	✓	0.20	✓	0.02
Azinphos-methyl	GC-MS /-PFPD	✓	0.05	✓	0.06	✓	0.06	✓	0.05
Azoxystrobin	GC-MS	✓	0.05					✓	0.05
Benalaxyl	GC-MS	✓	0.02					✓	0.02
Bendiocarb	LC-MS/MS	✓	0.01					✓	0.01
Bentazone	LC-MS/MS	✓	0.01					✓	0.01
Bifenthrin	GC-MS	✓	0.02					✓	0.02
Binapacryl	GC-MS	✓	0.02					✓	0.02
Biphenyl	GC-MS	✓	0.02					✓	0.02
Bitertanol	GC-MS	✓	0.02					✓	0.02
Boscalid	LC-MS/MS	✓	0.01					✓	0.01
Bromacil	LC-MS/MS	✓	0.01					✓	0.01
Bromophos	GC-MS/-PFPD	✓	0.02	✓	0.07	✓	0.07	✓	0.02
Bromophos-ethyl	GC-MS/-PFPD	✓	0.02	✓	0.07	✓	0.07	✓	0.02
Bromopropylate	GC-MS	✓	0.02					✓	0.02
Bromoxynil	LC-MS/MS	✓	0.01					✓	0.01
Bromuconazole	LC-MS/MS	✓	0.01					✓	0.01
Bupirimate	LC-MS/MS	✓	0.01					✓	0.01
Buprofezin	LC-MS/MS	✓	0.02					✓	0.02
Butocarboxim-	LC-MS/MS	✓	0.01					✓	0.01
Butoxycarboxim	LC-MS/MS	✓	0.01					✓	0.01
Cadusafos	GC-MS	✓	0.02					✓	0.02
Captafol	GC-MS	✓	0.02					✓	0.02
Captan/Folpet	GC-MS	✓	0.02					✓	0.02
Carbaryl	GC-MS	✓	0.02					✓	0.02
Carbendazim	LC-MS/MS	✓	0.01					✓	0.01
Carbofuran	LC-MS/MS	✓	0.02					✓	0.02
Carbosulfan	LC-MS/MS	✓	0.01					✓	0.01
Carboxin	LC-MS/MS	✓	0.01					✓	0.01
Chlorbromuron	LC-MS/MS	✓	0.01					✓	0.01
Chlordane, cis-	GC-MS/-ECD	✓	0.02	✓	0.005	✓	0.005	✓	0.02

Pesticide	Technique(s)	Food of plant origin	LCL mg kg ⁻¹	Fat samples	LCL mg kg ⁻¹	Milk and eggs	LCL mg kg ⁻¹	Honey	LCL mg kg ⁻¹
Chlordane, trans-	GC-MS/-ECD	✓	0.02	✓	0.005	✓	0.005	✓	0.02
Chlorfenapyr	GC-MS	✓	0.02					✓	0.02
Chlorfenvinphos	GC-MS/-PFPD	✓	0.02	✓	0.06	✓	0.06	✓	0.02
Chlorfluazuron	LC-MS/MS	✓	0.01					✓	0.01
Chlorobenzilate	GC-MS/-ECD	✓	0.02	✓	0.005	✓	0.05	✓	0.02
Chlorothalonil	GC-MS	✓	0.02					✓	0.02
Chlorpropham	GC-MS	✓	0.02					✓	0.02
Chlorpyrifos	GC-MS/-PFPD	✓	0.02	✓	0.05	✓	0.05	✓	0.02
Chlorpyrifos-methyl	GC-MS/-PFPD	✓	0.02	✓	0.05	✓	0.05	✓	0.02
Chlorthal-dimethyl	GC-MS	✓	0.02					✓	0.02
Chlozolate	GC-MS	✓	0.02					✓	0.02
Clethodim	LC-MS/MS	✓	0.01					✓	0.01
Clofentezine	LC-MS/MS	✓	0.01					✓	0.01
Clothianidin	LC-MS/MS	✓	0.01					✓	0.01
Coumaphos	GC-MS	✓	0.02					✓	0.02
Cyanazine	LC-MS/MS	✓	0.01					✓	0.01
Cyanofenphos	GC-MS	✓	0.02					✓	0.02
Cyanophos	GC-MS	✓	0.05					✓	0.05
Cyazofamid	LC-MS/MS	✓	0.01					✓	0.01
Cyclanilide	LC-MS/MS	✓	0.01					✓	0.01
Cycloxydim	LC-MS/MS	✓	0.05					✓	0.05
Cyfluthrin (R)	GC-MS	✓	0.02					✓	0.02
Cymoxanil	LC-MS/MS	✓	0.01					✓	0.01
Cypermethrin (R)	GC-MS/-ECD	✓	0.05	✓	0.05	✓	0.05	✓	0.05
Cyproconazole	GC-MS	✓	0.05					✓	0.05
Cyprodinil	LC-MS/MS	✓	0.01					✓	0.01
DDT (R)	GC-MS/-ECD	✓	0.02	✓	0.005	✓	0.005	✓	0.02
Deltamethrin	GC-MS	✓	0.05					✓	0.05
Demeton-S-Methyl	LC-MS/MS	✓	0.01					✓	0.01
Diazinon	GC-MS/-PFPD	✓	0.02	✓	0.05	✓	0.05	✓	0.02
Dichlobenil	GC-MS	✓	0.02					✓	0.02
Dichlofluanid	GC-MS	✓	0.02					✓	0.02
Dichlorobenzopheno	GC-MS	✓	0.02					✓	0.02
Dichlorprop	LC-MS/MS	✓	0.01					✓	0.01
Dichlorvos	GC-MS/-PFPD	✓	0.02	✓	0.05	✓	0.05	✓	0.02
Diclobutrazol	LC-MS/MS	✓	0.01					✓	0.01
Dicloran	GC-MS	✓	0.05					✓	0.05
Dicofol	GC-MS/-ECD	✓	0.05	✓	0.005	✓	0.005	✓	0.05
Dieldrin+Aldrin	GC-MS/-ECD	✓	0.02	✓	0.005	✓	0.005	✓	0.02
Diethofencarb	LC-MS/MS	✓	0.01					✓	0.01
Difenoconazole	LC-MS/MS	✓	0.01					✓	0.01
Diflubenzuron	LC-MS/MS	✓	0.01					✓	0.01
Dimethenamid	LC-MS/MS	✓	0.01					✓	0.01
Dimethoate	GC-MS/-PFPD	✓	0.02	✓	0.05	✓	0.05	✓	0.02
Dimethomorph	LC-MS/MS	✓	0.01					✓	0.01
Diniconazole	LC-MS/MS	✓	0.01					✓	0.01
Dinoseb	LC-MS/MS	✓	0.01					✓	0.01
Dinoterb	LC-MS/MS	✓	0.01					✓	0.01

Pesticide	Technique(s)	Food of plant origin	LCL mg kg ⁻¹	Fat samples	LCL mg kg ⁻¹	Milk and eggs	LCL mg kg ⁻¹	Honey	LCL mg kg ⁻¹
Diphenylamine	GC-MS	✓	0.02					✓	0.02
Dithiocarbamates	GC-MS	✓	0.1					✓	0.1
Diuron	LC-MS/MS	✓	0.01					✓	0.01
DMSA	GC-MS	✓	0.02					✓	0.02
DMST	GC-MS	✓	0.02					✓	0.02
DNOC	LC-MS/MS	✓	0.01					✓	0.01
Endosulfan (R)	GC-MS/-ECD	✓	0.02	✓	0.005	✓	0.005	✓	0.02
Endrin	GC-MS/-ECD	✓	0.02	✓	0.005	✓	0.005	✓	0.02
EPN	GC-MS	✓	0.02					✓	0.02
Epoxiconazole	LC-MS/MS	✓	0.05					✓	0.05
Ethiofencarb (R)	LC-MS/MS	✓	0.01					✓	0.01
Ethion	GC-MS/-PFPD	✓	0.02	✓	0.05	✓	0.05	✓	0.02
Ethofumesate	LC-MS/MS	✓	0.01					✓	0.01
Ethoprophos	GC-MS	✓	0.02					✓	0.02
Etofenprox	LC-MS/MS	✓	0.01					✓	0.01
Etoxazole	GC-MS	✓	0.02					✓	0.02
Etridiazole	GC-MS	✓	0.02					✓	0.02
Etrimfos	GC-MS	✓	0.02					✓	0.02
Famoxadone	GC-MS	✓	0.02					✓	0.02
Fenamidone	GC-MS	✓	0.02					✓	0.02
Fenamiphos	LC-MS/MS	✓	0.01					✓	0.01
Fenarimol	GC-MS	✓	0.02					✓	0.02
Fenazaquin	GC-MS	✓	0.02					✓	0.02
Fenbuconazole	GC-MS	✓	0.05					✓	0.05
Fenchlorphos	GC-MS/-PFPD	✓	0.02	✓	0.05	✓	0.05	✓	0.02
Fenhexamid	LC-MS/MS	✓	0.01					✓	0.01
Fenitrothion	GC-MS	✓	0.02					✓	0.02
Fenoxycarb	LC-MS/MS	✓	0.01					✓	0.01
Fenpiclonil	LC-MS/MS	✓	0.01					✓	0.01
Fenpropathrin	GC-MS	✓	0.02					✓	0.02
Fenpropidin	LC-MS/MS	✓	0.01					✓	0.01
Fenpropimorph	LC-MS/MS	✓	0.01					✓	0.01
Fenpyroximate	LC-MS/MS	✓	0.01					✓	0.01
Fenthion (R)	GC-MS	✓	0.02					✓	0.02
Fenvalerate and	GC-MS	✓	0.02					✓	0.02
Fipronil (R)	LC-MS/MS	✓	0.01					✓	0.01
Flamprop-M-	GC-MS	✓	0.02					✓	0.02
Flazasulfuron	LC-MS/MS	✓	0.01					✓	0.01
Florasulam	LC-MS/MS	✓	0.01					✓	0.01
Fluazifop	LC-MS/MS	✓	0.01					✓	0.01
Fluazinam	LC-MS/MS	✓	0.01					✓	0.01
Flucythrinate	GC-MS	✓	0.02					✓	0.02
Fluidioxonil	LC-MS/MS	✓	0.01					✓	0.01
Flufenacet	LC-MS/MS	✓	0.01					✓	0.01
Flufenoxuron	LC-MS/MS	✓	0.01					✓	0.01
Fluquinconazole	LC-MS/MS	✓	0.01					✓	0.01
Flurtamone	GC-MS	✓	0.02					✓	0.02
Flusilazole	GC-MS	✓	0.02					✓	0.02

Pesticide	Technique(s)	Food of plant origin	LCL mg kg ⁻¹	Fat samples	LCL mg kg ⁻¹	Milk and eggs	LCL mg kg ⁻¹	Honey	LCL mg kg ⁻¹
Flutolanil	GC-MS	✓	0.02					✓	0.02
Flutriafol	LC-MS/MS	✓	0.01					✓	0.01
Folpet	GC-MS	✓	0.02					✓	0.02
Fonofos	GC-MS/-PFPD	✓	0.05	✓	0.06	✓	0.06	✓	0.05
Fuberidazole	LC-MS/MS	✓	0.01					✓	0.01
Furalaxyl	GC-MS	✓	0.02					✓	0.02
Furathiocarb	LC-MS/MS	✓	0.01					✓	0.01
Furmecyclox	LC-MS/MS	✓	0.01					✓	0.01
Haloxypop	LC-MS/MS	✓	0.02					✓	0.02
HCH (R)	GC-MS/-ECD	✓	0.02	✓	0.005	✓	0.005	✓	0.02
Heptachlor (R)	GC-MS/-ECD	✓	0.02	✓	0.005	✓	0.005	✓	0.02
Heptenophos	GC-MS	✓	0.02					✓	0.02
Hexachlorobenzene	GC-MS/-ECD	✓	0.02	✓	0.005	✓	0.005	✓	0.02
Hexaconazole	GC-MS	✓	0.02					✓	0.02
Hexaflumuron	LC-MS/MS	✓	0.01					✓	0.01
Hexythiazox	LC-MS/MS	✓	0.01					✓	0.01
Imazalil	LC-MS/MS	✓	0.01					✓	0.01
Imidacloprid	LC-MS/MS	✓	0.01					✓	0.01
Indoxacarb	LC-MS/MS	✓	0.01					✓	0.01
Iodosulfuron-methyl	LC-MS/MS	✓	0.01					✓	0.01
Ioxynil	LC-MS/MS	✓	0.01					✓	0.01
Iprodione	GC-MS	✓	0.02					✓	0.02
Iprovalicarb	GC-MS	✓	0.02					✓	0.02
Isazofos	GC-MS	✓	0.02					✓	0.02
Isodrin	GC-MS	✓	0.02					✓	0.02
Isofenphos	GC-MS/-PFPD	✓	0.05	✓	0.1	✓	0.1	✓	0.05
Isofenphos-Methyl	GC-MS	✓	0.02					✓	0.02
Isoproturon	LC-MS/MS	✓	0.01					✓	0.01
Jodfenphos	GC-MS	✓	0.02					✓	0.02
Kresoxim-methyl	GC-MS	✓	0.02					✓	0.02
Lambda-Cyhalothrin	GC-MS/-ECD	✓	0.02	✓	0.005	✓	0.005	✓	0.02
Lenacil	GC-MS	✓	0.05					✓	0.05
Lindane	GC-MS/-ECD	✓	0.02	✓	0.005	✓	0.005	✓	0.02
Linuron	LC-MS/MS	✓	0.01					✓	0.01
Lufenuron	LC-MS/MS	✓	0.01					✓	0.01
Malathion (R)	GC-MS/-PFPD	✓	0.02	✓	0.05	✓	0.05	✓	0.02
MCPA and MCPB	LC-MS/MS	✓	0.01					✓	0.01
Mecarbam	GC-MS	✓	0.02					✓	0.02
Mecoprop	LC-MS/MS	✓	0.01					✓	0.01
Mepanipyrim	LC-MS/MS	✓	0.01					✓	0.01
Mephosfolan	LC-MS/MS	✓	0.01					✓	0.01
Mepronil	LC-MS/MS	✓	0.01					✓	0.01
Mesosulfuron-	LC-MS/MS	✓	0.01					✓	0.01
Metalaxyl	GC-MS	✓	0.02					✓	0.02
Metamitron	LC-MS/MS	✓	0.01					✓	0.01
Metazachlor	GC-MS	✓	0.02					✓	0.02
Metconazole	LC-MS/MS	✓	0.01					✓	0.01
Methacrifos	GC-MS	✓	0.02					✓	0.02

Pesticide	Technique(s)	Food of plant origin	LCL mg kg ⁻¹	Fat samples	LCL mg kg ⁻¹	Milk and eggs	LCL mg kg ⁻¹	Honey	LCL mg kg ⁻¹
Methamidophos	GC-MS	✓	0.05					✓	0.05
Methidathion	GC-MS/-PFPD	✓	0.02	✓	0.04	✓	0.04	✓	0.02
Methiocarb	GC-MS	✓	0.02					✓	0.02
Methomyl	LC-MS/MS	✓	0.01					✓	0.01
Methoxychlor	GC-MS	✓	0.02					✓	0.02
Methoxyfenozide	LC-MS/MS	✓	0.01					✓	0.01
Metobromuron	LC-MS/MS	✓	0.01					✓	0.01
Metolachlor	GC-MS	✓	0.02					✓	0.02
Metribuzin	GC-MS	✓	0.02					✓	0.02
Mevinphos	GC-MS/-PFPD	✓	0.02	✓	0.05	✓	0.05	✓	0.02
Mirex	GC-MS	✓	0.02					✓	0.02
Molinate	GC-MS	✓	0.02					✓	0.02
Monocrotophos	GC-MS	✓	0.02					✓	0.02
Myclobutanil	GC-MS	✓	0.02					✓	0.02
Napropamide	GC-MS	✓	0.02					✓	0.02
Nitenpyram	LC-MS/MS	✓	0.01					✓	0.01
Nonachlor-Trans	GC-MS	✓	0.02					✓	0.02
Nuarimol	GC-MS	✓	0.02					✓	0.02
Orthophenylphenol	GC-MS	✓	0.02					✓	0.02
Oxadixyl	GC-MS	✓	0.02					✓	0.02
Omethoate	GC-MS/-PFPD	✓	0.02	✓	0.05	✓	0.05	✓	0.02
Oxamyl	LC-MS/MS	✓	0.01					✓	0.01
Paclbutrazol	GC-MS	✓	0.05					✓	0.05
Parathion (R)	GC-MS/-PFPD	✓	0.02	✓	0.1	✓	0.1	✓	0.02
Parathion-methyl	GC-MS/-PFPD	✓	0.02	✓	0.05	✓	0.05	✓	0.02
PCB 28	GC-ECD			✓	0.01	✓	0.01	✓	0.01
PCB 52	GC-ECD			✓	0.01	✓	0.01	✓	0.01
PCB 101	GC-ECD			✓	0.01	✓	0.01	✓	0.01
PCB 118	GC-ECD			✓	0.01	✓	0.01	✓	0.01
PCB 138	GC-ECD			✓	0.01	✓	0.01	✓	0.01
PCB 153	GC-ECD			✓	0.01	✓	0.01	✓	0.01
PCB 180	GC-ECD			✓	0.01	✓	0.01	✓	0.01
Penconazole	GC-MS	✓	0.02					✓	0.02
Pencycuron	LC-MS/MS	✓	0.01					✓	0.01
Pendimethalin	GC-MS	✓	0.02					✓	0.02
Permethrin	GC-MS/-ECD	✓	0.02	✓	0.04	✓	0.04	✓	0.02
Phenthoate	GC-MS	✓	0.02					✓	0.02
Phorate-Sulfoxid	LC-MS/MS	✓	0.01					✓	0.01
Phosalone	GC-MS/-PFPD	✓	0.02	✓	0.13	✓	0.13	✓	0.02
Phosmet	GC-MS	✓	0.02					✓	0.02
Phosphamidon	GC-MS	✓	0.02					✓	0.02
Picoxystrobin	LC-MS/MS	✓	0.01					✓	0.01
Piperonyl Butoxide	GC-MS	✓	0.02					✓	0.02
Pirimicarb	GC-MS	✓	0.02					✓	0.02
Pirimiphos-Ethyl	GC-MS/-PFPD	✓	0.02	✓	0.07	✓	0.07	✓	0.02
Pirimiphos-methyl	GC-MS/-PFPD	✓	0.02	✓	0.05	✓	0.05	✓	0.02
Prochloraz	GC-MS	✓	0.02					✓	0.02
Procymidone	GC-MS	✓	0.02					✓	0.02

Pesticide	Technique(s)	Food of plant origin	LCL mg kg ⁻¹	Fat samples	LCL mg kg ⁻¹	Milk and eggs	LCL mg kg ⁻¹	Honey	LCL mg kg ⁻¹
Profenofos	GC-MS	✓	0.02					✓	0.02
Prometryn	LC-MS/MS	✓	0.01					✓	0.01
Propachlor	GC-MS	✓	0.02					✓	0.02
Propanil	GC-MS	✓	0.02					✓	0.02
Propargite	GC-MS	✓	0.02					✓	0.02
Propetamphos	GC-MS/-PFPD	✓	0.02	✓	0.05	✓	0.05	✓	0.02
Propham	GC-MS	✓	0.05					✓	0.05
Propiconazole	GC-MS	✓	0.02					✓	0.02
Propoxur	GC-MS	✓	0.02					✓	0.02
Propoxycarbazone	LC-MS/MS	✓	0.01					✓	0.01
Propyzamide	GC-MS	✓	0.02					✓	0.02
Prothioconazole	LC-MS/MS	✓	0.01					✓	0.01
Prothiofos	GC-MS	✓	0.02					✓	0.02
Pymetrozine	LC-MS/MS	✓	0.01					✓	0.01
Pyraclostrobin	LC-MS/MS	✓	0.01					✓	0.01
Pyrazophos	GC-MS	✓	0.02					✓	0.02
Pyridaben	GC-MS	✓	0.02					✓	0.02
Pyridaphenthion	LC-MS/MS	✓	0.01					✓	0.01
Pyrifenoxy	GC-MS	✓	0.05					✓	0.05
Pyrimethanil	LC-MS/MS	✓	0.01					✓	0.01
Pyriproxyfen	GC-MS	✓	0.02					✓	0.02
Quinalphos	GC-MS	✓	0.02					✓	0.02
Quinoxifen	LC-MS/MS	✓	0.01					✓	0.01
Quintozone	GC-MS/-ECD	✓	0.02	✓	0.005	✓	0.005	✓	0.02
Quizalofop	LC-MS/MS	✓	0.01					✓	0.01
Rimsulfuron	LC-MS/MS	✓	0.01					✓	0.01
Rotenone	LC-MS/MS	✓	0.01					✓	0.01
Simazine	GC-MS	✓	0.02					✓	0.02
Spinosad	LC-MS/MS	✓	0.01					✓	0.01
Spirodiclofen	GC-MS	✓	0.02					✓	0.02
Spiroxamine	LC-MS/MS	✓	0.01					✓	0.01
Sulfentrazone	LC-MS/MS	✓	0.01					✓	0.01
tau-Fluvalinate	GC-MS	✓	0.02					✓	0.02
Tebuconazole	GC-MS	✓	0.02					✓	0.02
Tebufenozide	LC-MS/MS	✓	0.01					✓	0.01
Tebufenpyrad	LC-MS/MS	✓	0.01					✓	0.01
Tecnazene	GC-MS/-ECD	✓	0.02	✓	0.005	✓	0.005	✓	0.02
Teflubenzuron	LC-MS/MS	✓	0.01					✓	0.01
Terbutylazine	GC-MS	✓	0.02					✓	0.02
Tetraconazole	GC-MS	✓	0.02					✓	0.02
Tetradifon	GC-MS	✓	0.05					✓	0.05
Thiabendazole	LC-MS/MS	✓	0.01					✓	0.01
Thiacloprid	LC-MS/MS	✓	0.01					✓	0.01
Thiamethoxam	LC-MS/MS	✓	0.01					✓	0.01
Thiofanox-Sulfoxid	LC-MS/MS	✓	0.01					✓	0.01
Thiophanate-Ethyl	LC-MS/MS	✓	0.01					✓	0.01
Thiophanate-methyl	LC-MS/MS	✓	0.01					✓	0.01
Tolclofos-methyl	GC-MS	✓	0.02					✓	0.02

Pesticide	Technique(s)	Food of plant origin	LCL mg kg ⁻¹	Fat samples	LCL mg kg ⁻¹	Milk and eggs	LCL mg kg ⁻¹	Honey	LCL mg kg ⁻¹
Tolylfluanid	GC-MS	✓	0.02					✓	0.02
Triadimefon (R)	GC-MS	✓	0.02					✓	0.02
Triazophos	GC-MS/-PFPD	✓	0.02	✓	0.05	✓	0.05	✓	0.02
Triclopyr	LC-MS/MS	✓	0.01					✓	0.01
Trifloxystrobin	GC-MS	✓	0.02					✓	0.02
Triflumizole	GC-MS	✓	0.02					✓	0.02
Triflumuron	LC-MS/MS	✓	0.01					✓	0.01
Trifluralin	GC-MS	✓	0.02					✓	0.02
Triflusulfuron-	LC-MS/MS	✓	0.01					✓	0.01
Triticonazole	GC-MS	✓	0.05					✓	0.05
Vamidothion	LC-MS/MS	✓	0.01					✓	0.01
Vinclozolin	GC-MS	✓	0.02					✓	0.02
Zoxamide	GC-MS	✓	0.02					✓	0.02

Note: (R) denotes the metabolites and isomers that were sought as part of the residue definitions.

Aldicarb:	aldicarb sulphoxide, aldicarb sulphone
Cyfluthrin	β cyfluthrin
Cypermethrin	α- cypermethrin
DDT	pp'-ddt, op'-ddt, pp'-dde, op'-dde, pp'-ddd, op'-dde
Demeton S methyl	demeton S methyl sulphoxide, Demeton S methyl sulphoxide
Endosulphan	α-endosulphan., β-endosulphan, endosulphan sulphone
Ethiofencarb	ethiofencarb sulphoxide, ethiofencarb sulphone
Fenthion	Fenthion sulphoxide, Fenthion sulphone
Fipronil	fipronil desulfinyl, fipronil sulphide, fipronil sulphone
HCH	α-HCH, β-HCH, δ-HCH
Heptachlor	heptachlor exo-epoxide
Malathion	malaoxon
MCPA	MCPA methyl ester
Parathion methyl	paraoxon methyl
Triadimefon	triadimenol

The pesticides in the scope of the accreditation may be viewed on the Irish National Accreditation Board website at www.inab.ie.

The PCS registration number is 121T.

Results included in the above report were generated by the
**Pesticide Control Service,
Department of Agriculture, Fisheries and Food Laboratories,
Backweston,
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The results in this report relate only to samples tested.

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