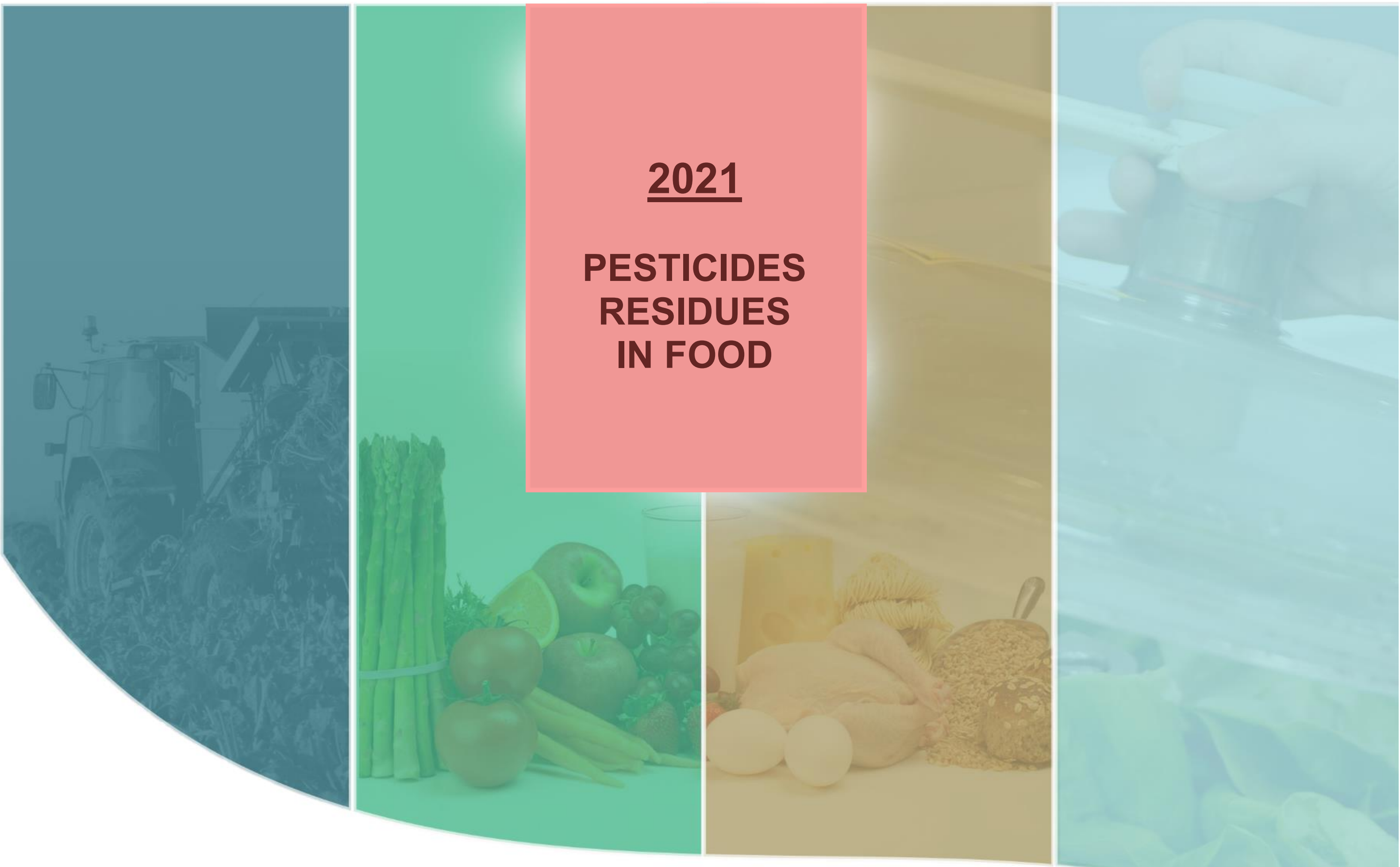
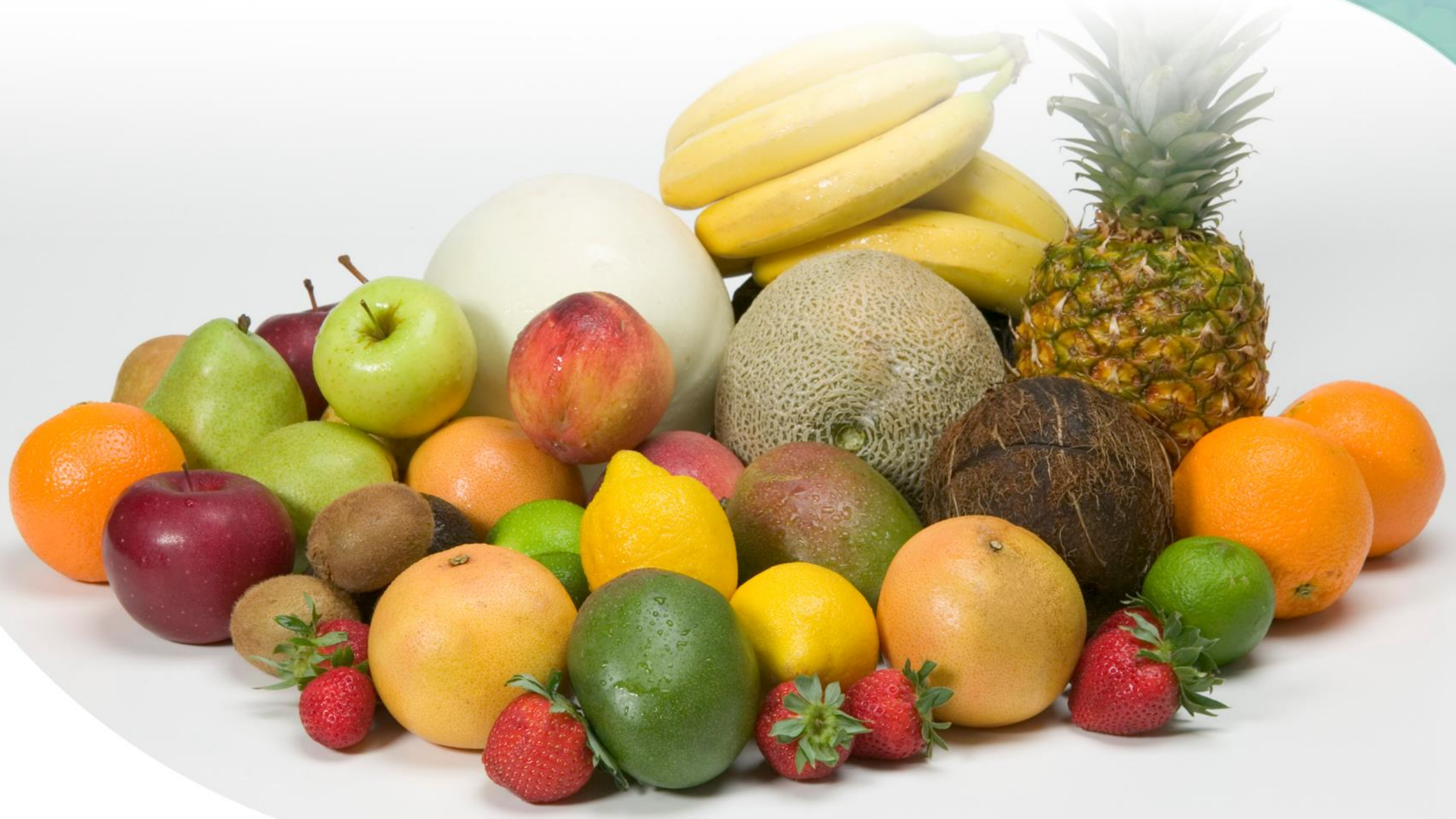


2021

PESTICIDES RESIDUES IN FOOD



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Report of the National Pesticide Residues Control Programme

2021

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1. SUMMARY REPORT

This report on the National Pesticide Residues Control Programme, carried out in 2021 by the Department of Agriculture, Food and the Marine (DAFM), provides details on pesticide residues detected in food commodities available on the Irish market. The Programme enforces EU legislation establishing the maximum permitted concentration of pesticide residues in food, or Maximum Residue Levels (MRLs), and aims to ensure that consumers are not exposed to unacceptable risks from pesticide residues.

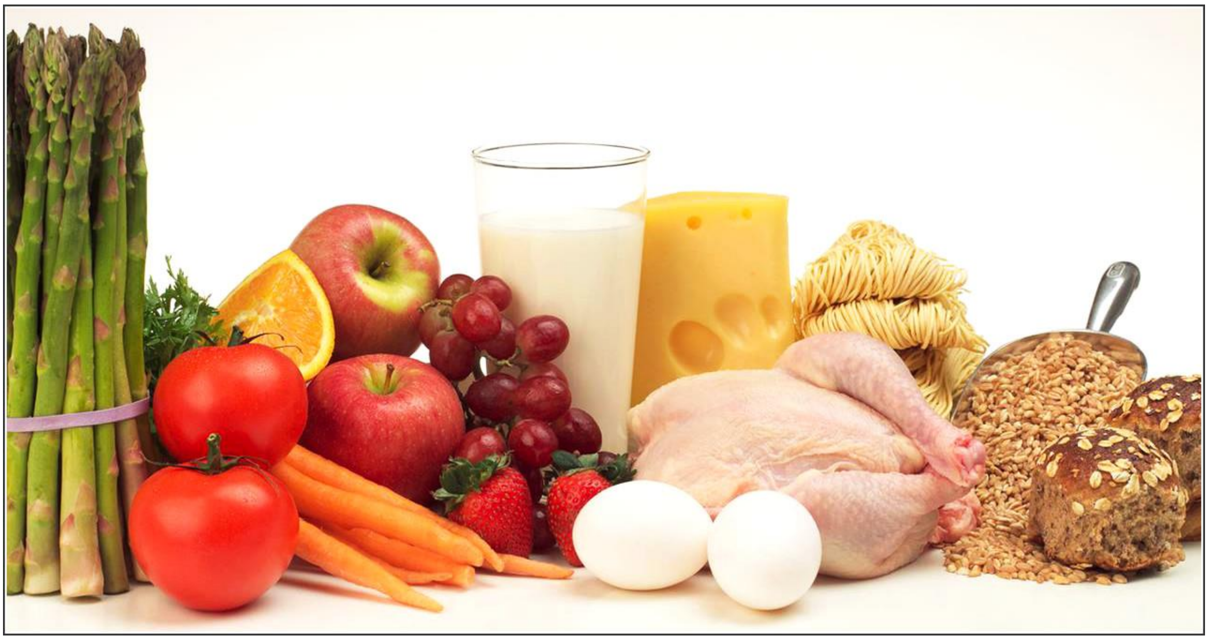

Figure 1: A wide range of food samples are targeted and sampled for pesticide residue analysis.

The Programme for 2021 planned for the analysis of 1,596 consignments of fruit, vegetables, cereal, animal products and baby foods for up to 498 pesticides and metabolites, including 7 PCB marker compounds, to check for compliance with EU and national legislation for plant protection and veterinary products. Additional residue analysis of ethylene oxide in sesame seed samples [arising from 2020 RASSF notification and subsequent coordinated action across Member States on unauthorised ethylene oxide in sesame seeds] was performed at a commercial laboratory operated by Eurofins in Germany. The programme consisted of 2 strategies: a *surveillance strategy* consisting of the random sampling of food commodities; and an *enforcement strategy* involving the sampling of food commodities from specific sources where non-compliance with pesticide legislation was suspected or had been detected previously.

The Programme was agreed with the Food Safety Authority of Ireland and sent to the EU Commission as required by European legislation. Sampling of domestic and imported foodstuffs was conducted at wholesalers, retailers, grain mills or at meat plants.

The 1,629 samples taken in 2021 were greater than the planned number. For the co-ordinated EU monitoring programme 94% of the samples were analysed. The samples, comprising of 1039 fruits and vegetables, 86 cereals, 446 foods of animal origin and 58 baby foods, were taken and analysed for pesticide and chemical residues at the Food Chemistry Division in Backweston Campus, County Kildare. The laboratory has continued to maintain and extend its accreditation status with the Irish National Accreditation Board.

Figure 2: The Pesticide Residues Laboratory is part of the Agrilabs Building at Backweston Campus.

Overall, 96.3% of the 1,629 samples analysed were free of quantifiable residues or contained residues within the legally permitted levels. No residues were detected in 58.3% of the samples, another 38.0% of samples contained quantified residues below the MRLs and 3.7% (61 samples) contained residues exceeding the MRLs. Considering the analytical measurement uncertainty, 1.9% of the samples (31 samples) clearly exceeded these legal limits (non-compliance).

In 2021, 14.3% of the fruit and vegetable samples analysed were of domestic origin and the rest were imported from the EU and elsewhere. 94.7% of the fruit and vegetables samples either contained no residues or contained residues within the legally permitted levels (40.8% contained no residues and 53.9% of samples contained residues at levels which were in compliance with the EU legislation). The remaining 5.3% contained residues exceeding the MRLs. When measurement uncertainty (50%) is taken into account this reduces to 3.0%.

In the case of the cereal samples, 34.9% were of domestic origin. No residues were detected in 67.4% of the samples and 25.6% of the cereal samples had residues in compliance with the EU legislation. The remaining 7.0% contained residues exceeding the MRLs and none were non-compliant when measurement uncertainty (50%) is taken into account.

All the food of animal origin samples originated domestically. No residues were detected in 91.7% of the samples, 8.3% of the samples had residues in compliance with the EU legislation.

No pesticide residues were detected in any of the infant formula or baby food samples.

In 2021, 66 samples were taken under EU Regulations dealing with increased inspection of targeted food commodities from certain countries. No residues were detected in 53.0% of these samples and 28.8% of the samples had residues in compliance with the EU legislation.

In all cases where non-compliant residues are detected, consumer risk assessments, based on the residue level found and national food consumption data are carried out to estimate the risk to consumers and to guide the follow-up action to be taken. In 2021, no consumer health risks were identified for the majority of MRL breaches. A number of these non-compliant commodities related to the detection of chlorpyrifos or its metabolite, chlorpyrifos-methyl. These detections occurred in samples of grapefruit, orange, chive and rice. In such instances, a consumer health risk assessment is not possible due to the absence of toxicological reference values (i.e. ADI, ARfD) that are not set due to insufficient data. All breaches involving produce of domestic origin were investigated to establish the reasons for the breaches and for appropriate follow-up. In addition, all produce with MRL breaches, both domestic and imported, were listed for targeted sampling as part of the follow-up enforcement strategy. During 2021, a total of 3 such targeted samples were identified and taken.

2. BACKGROUND

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

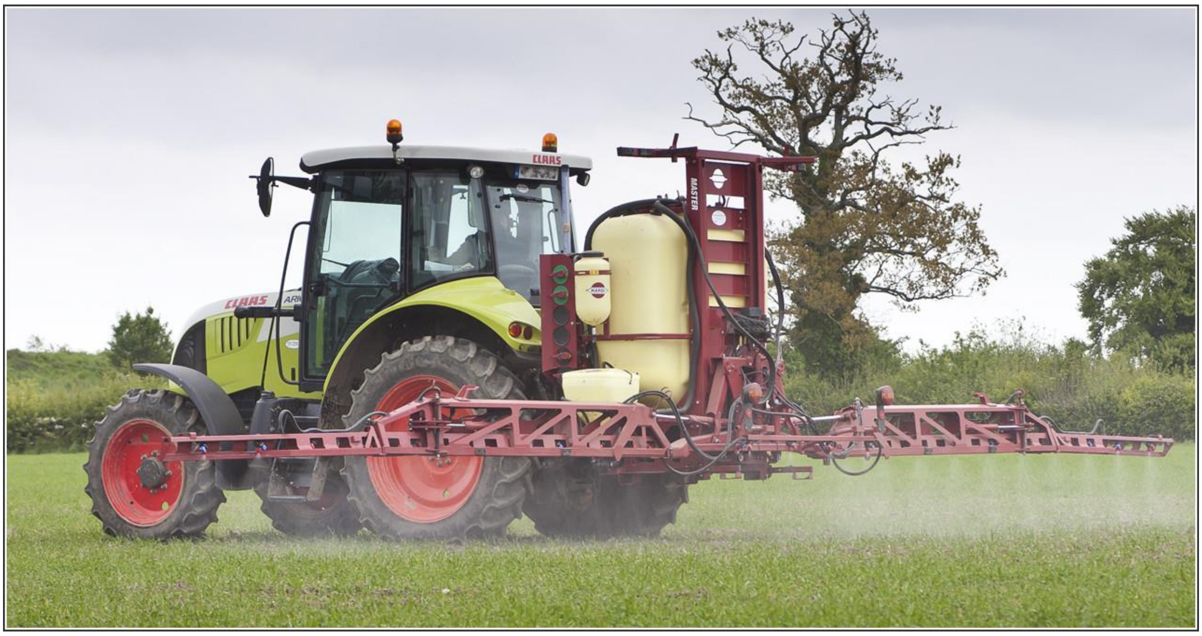

Figure 3: The application of plant protection products to a growing crop.

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

Pesticide residues are regulated in Ireland through the implementation of European legislation, Regulation (EC) No. 396/2005, which establishes EU Maximum Residue Levels (MRLs) for all pesticides in and on fruit and vegetables, cereals and in food of animal origin. MRLs are the maximum permissible level of pesticide residue allowed in or on a crop. Where crops have been treated in line with good agricultural practice (GAP) MRLs are unlikely to be exceeded. Regulation (EC) No. 37/2010 establishes other MRLs for certain pesticides used as veterinary products. Commission Directives 2006/125/EC and 2006/141/EC establish certain MRLs for food intended for babies and young infants.

Pesticides are further controlled through legislation implementing Regulation (EC) No. 1107/2009, which requires that all plant protection products must be registered before being placed on the market. The Irish registration system specifies the timing, frequency, rates and the crops on which the pesticide may be used. Use of non-registered pesticides is an offence.

Figure 4: Department of Agriculture officer collecting fruit samples for pesticide residue analysis.

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

All European Union (EU) countries are required to have their own national monitoring plans and to publish their results. The '*Report of the National Pesticide Residues Control Programme 2021'* provides details of the results obtained during 2021 from a national programme monitoring for the presence of pesticide residues in and on food. The results were also sent to the European Food Safety Authority and will be used as part of an EU wide annual report.

3 PLANNING THE PROGRAMME

The National Pesticide Residue Control Programme for pesticide residues is undertaken by the PCD (Pesticide Controls Division) with laboratory support provided by the Food Chemistry Division of the Department of Agriculture, Food and Marine. The programme implements the requirements of Regulation (EC) No. 396/2005, and takes into account the requirements set out in the EU *"coordinated multi-annual Community control programme for 2020, 2021 and 2022 to ensure compliance with maximum levels of, and to assess the consumer exposure to pesticide residues in and on food of plant and animal origin"*, (Commission Implementing Regulation (EU) No. 2021/601). The requirement of the monitoring of food of animal origin for Directive 96/23/EC is also taken into consideration with respect to the determination of organochlorine and organophosphorus pesticides.

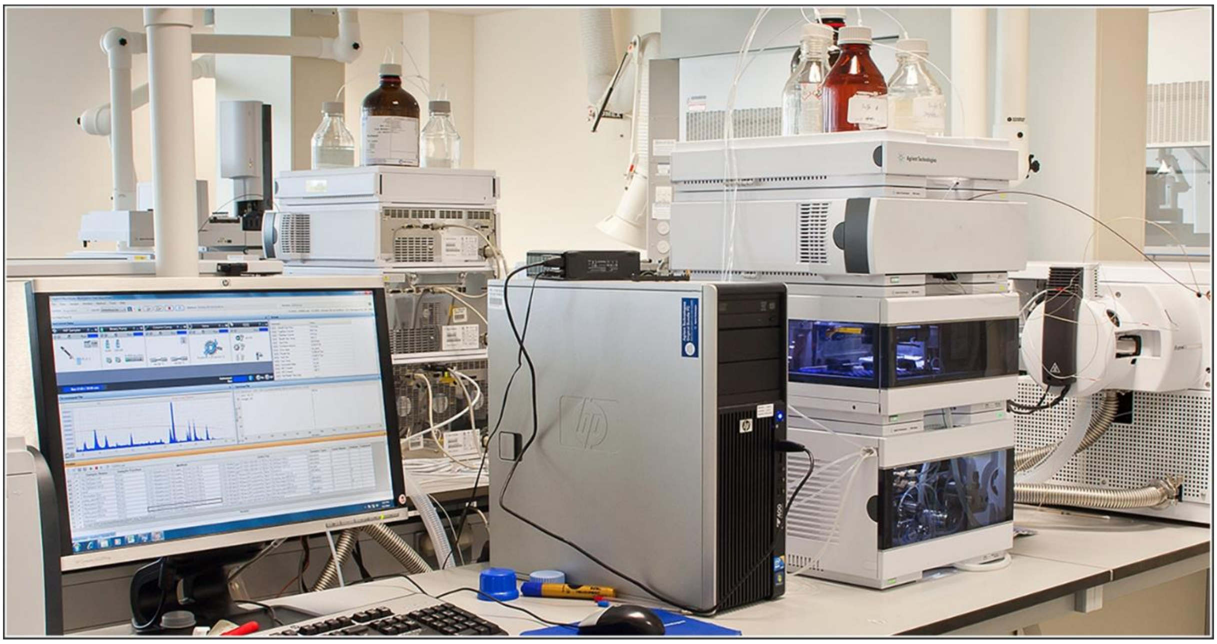

Figure 5: Pesticide Control Laboratory with liquid chromatographic systems for sample analysis.

The annual control programme is carried out in accordance with contractual arrangements between the DAFM and the FSAI[1] and involves sampling of imported and domestic produce.

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

[1] Service Contract from 2016 between the Food Safety Authority of Ireland and the Department of Agriculture, Food and the Marine

3.1 Programme design

The programme is designed to monitor different food groups for which MRLs have been established: fruit and vegetables, cereals, food of animal origin and baby food. It involves sampling of produce at distribution outlets, collection, storage, processing or slaughter premises and the analysis of those samples for the presence of residues of up to 498 pesticides and metabolites as well as 7 PCB congeners.

Figure 6: The monitoring programme covers several food groups: fruit and vegetables, cereals, food of animal origin and baby food.

The planned number of samples for the 2021 control programme was agreed with the FSAI. The programme is the primary means of ensuring that plant protection products (pesticides) are used in accordance with *Good Agricultural Practice* and is essential if the misuse of registered products and the use of non-registered products are to be eliminated. Plant protection products, registered under Regulation (EC) No. 1107/2009, can be misused in various ways, e.g. use of excessive dose rates, failure to respect the minimum periods specified between last application and harvest (i.e. pre-harvest intervals) and use for purposes for which they are not authorised (i.e. non-registered uses). When plant protection products are used in accordance with *Good Agricultural Practice*, unacceptable levels of residues should not occur in treated produce.

The pesticide residue monitoring programme for Ireland takes account of the following:

i. the co-ordinated EU monitoring programme

ii. the dietary importance of the foodstuff from a consumer point of view
iii. the residue history of different sample types
iv. monitoring results obtained by other Member States
v. the manner in which the food is handled/processed prior to consumption
vi. the monitoring programme for food business operators
vii. the capacity of the laboratory to analyse samples.

4 SAMPLING

4.1 Food of plant origin

Samples were taken using the sampling method outlined in a Commission Directive[2] on the sampling of products of plant origin for the official control of pesticide residues.

The sampling programme consists of 2 strategies, as follows:

- *Surveillance sampling* of fruit and vegetables processed and organically labelled products.
  The surveillance sampling strategy involves sampling of the food commodities that are available on the Irish market in an objective manner and independent of their origin.
- *Enforcement sampling* of targeted items from import controls and follow up to non-compliant samples, such as MRL breaches.

The enforcement sampling strategy involves sampling of food commodities from specific sources where non-compliance with pesticide legislation is suspected or has been detected previously. It includes Import Controls Regulation (EC) No. 2019/1793 which lists commodities and countries of origin for additional targeted sampling.

Figure 7: Department of Agriculture officer tagging fruit samples as part of the enforcement sampling strategy.

[2] Commission Directive 2002/63(EC)

Authorised officers from the Pesticide Controls Division (PCD) carry out the sampling of targeted and follow-up enforcement samples of food of plant origin and cereals in accordance with the Commission Sampling Directive 2002/63/EC, while officers of the DAFM Import Controls Operation Division take samples subject to controls at Border Control Points (BCP). This Directive for instance, describes that a minimum of 1 kg or 10 units of a food commodity be taken from a consignment which then constitutes a laboratory sample. The samples are sealed with unique sample identity numbers and brought to the laboratory for analysis.

4.2 Food of animal origin

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

In the case of milk, representative samples of particular bulk consignments from milk dairies were taken by officers of the Dairy Inspectorate.

The planned number of samples for food of animal origin was decided in conjunction with the Veterinary Medicine Unit of DAFM, as part of the National Residue Plan required under Directive 96/23/EC[3].

Bovine fat and chicken eggs were sampled to meet the requirements of the EU multiannual control programme for 2021.

4.3 Infant formula

The samples were taken by officers of the Dairy Science Laboratory of DAFM. The legislation and the MRLs governing these infant samples are set in Commission Directive 2006/141/EC[4] with MRLs different to those established for the foods of plant and animal origin.

[3] Council Directive 96/23/EC 29 April 1999 OJ No L125/10

[4] Commission Directive 2006/141/EC of 22 December 2006 on infant formulae and follow-on formulae, 30.12.2006 OJ No L 401

Figure 8: Feeding time with baby infant formula.

5 TESTING FOR PESTICIDE RESIDUES

5.1 Analytical procedures

All the samples are brought to the Food Chemistry Division Laboratory which is based at the DAFM Laboratory campus in Backweston, Co. Kildare.

On receipt, the samples are logged into the laboratory system and prepared for residue analysis. The fruit and vegetable samples are frozen to -80 ^{o}C in an ultra-low temperature (ULT) freezer and are blended or ground into a fine homogenate. They are transferred into labelled sample bags and stored in a freezer at -18 ^{o}C prior to extraction and analysis.

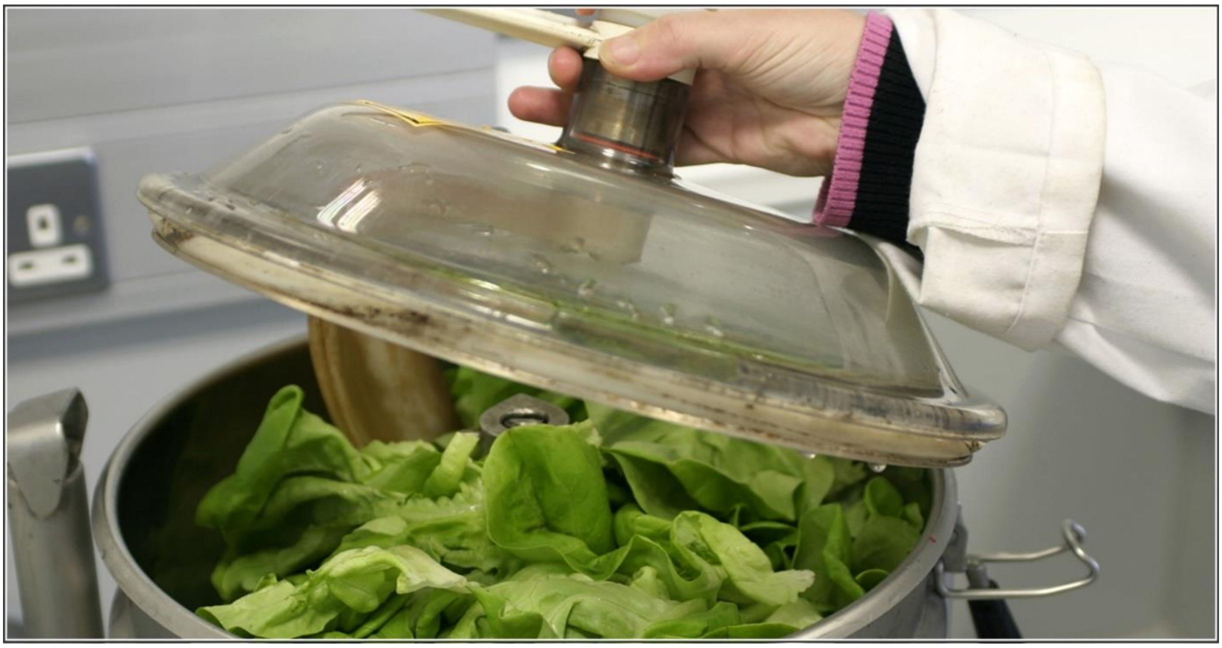

Figure 9: Lettuce sample prior to chopping and blending.

At the extraction stage, the ground sample is removed from storage and a measured amount is extracted with organic solvents, cleaned up if required and injected into two chromatographic systems- GC/MS/MS (gas chromatography with tandem mass spectrometry) and LC/MS/MS (liquid chromatography with tandem mass spectrometry).

Figure 10: Frozen laboratory samples.

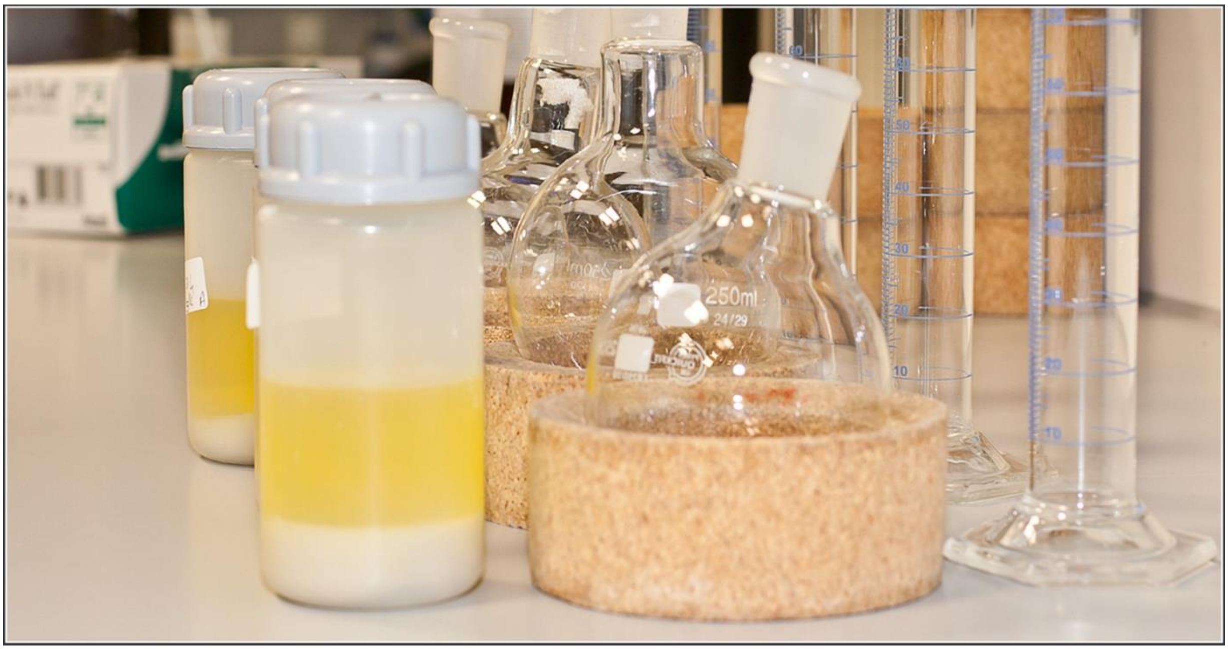

Figure 11: Sample material following the first chemical extraction, ready for clean-up steps.

These analytical techniques allow a large number of pesticide residues to be analysed at the same time. For these multi-residue methods (MRM), mixes containing many pesticide standards are injected onto the chromatographic columns and the details of the individual standards eluting from the columns are recorded as unique mass spectral data.

Figure 12: Glass vials containing samples for automated injection onto analytical equipment.

When a residue in a laboratory sample is identified by matching the retention time and the mass spectrum pattern with a standard, the amount of the residue in the sample is then quantified by running it against a series of standard mixtures of known concentrations. A select number of samples are also analysed for other pesticides which cannot be analysed using the multi-residue methods outlined above. These single residue methods (SRM) which may employ different extraction methods are used to analyse such pesticides as amitraz, glyphosate, paraquat and dithiocarbamates.

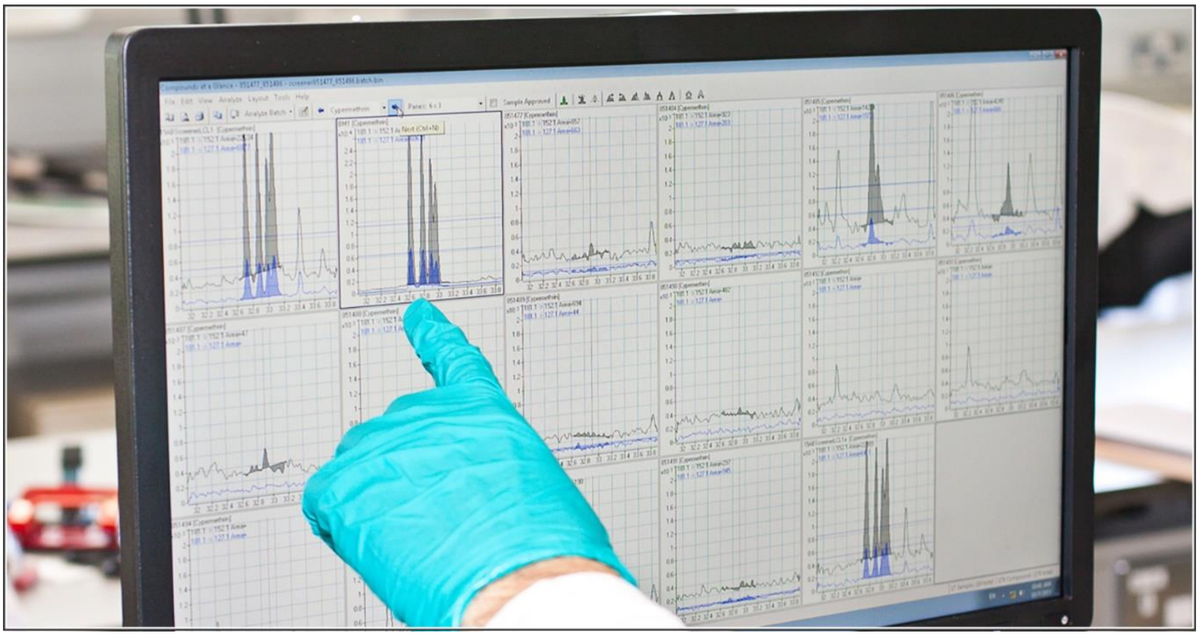

Figure 13: Sample chromatograms being compared with pesticide standards.

References to the analytical methods used in the laboratory are provided in Annex I of this report.

Some pesticides break down to give metabolites. In several cases, these are summed to give a combined residue result and compared against the MRL using the residue definition established in legislation. An example is DDT which can consist of up to 6 breakdown products: o,p'-DDD, p,p'-DDD, o,p'-DDE, p,p'-DDE, o,p'-DDT and p,p'-DDT. The residue definition is the sum of these products expressed as DDT. The overall number of 498 pesticides analysed for in 2021 refers to the compounds analysed including metabolites as listed in Annex I**.**

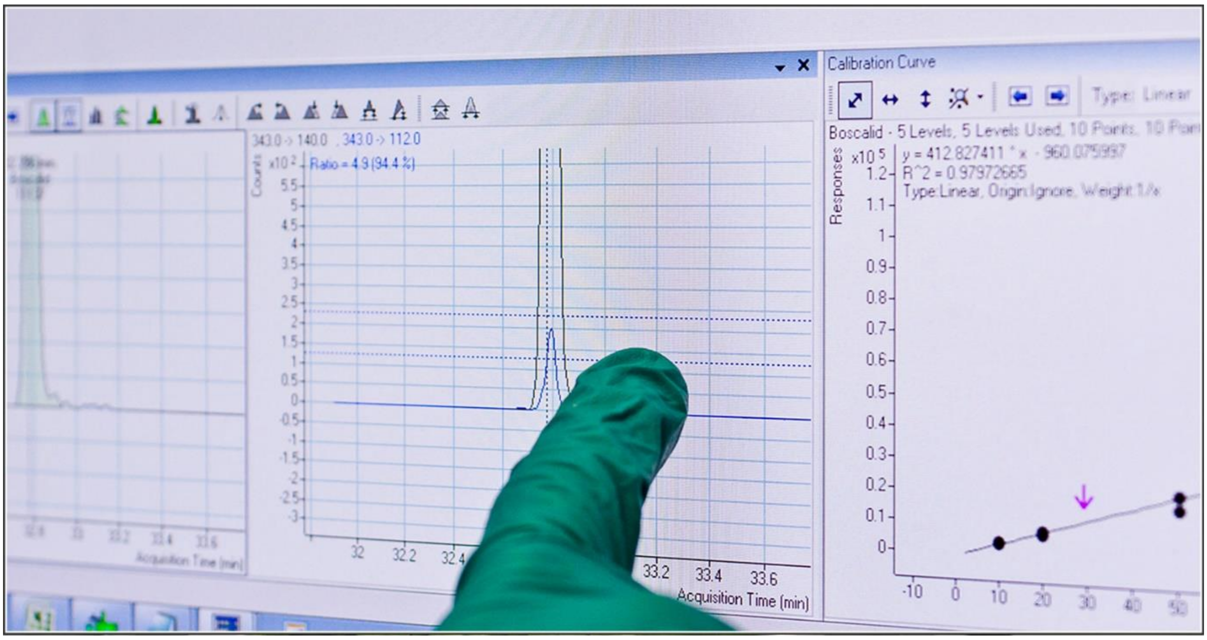

Figure 14: Residue identification and quantitation.

Figure 15: State-of-the-art advanced facilities are available in the Pesticide Control Laboratory such as accurate, high resolution mass spectroscopy.

5.2 Quality assurance

It is obligatory that all Official Control laboratories in the EU involved in the testing for pesticide residues be accredited.

In 2021, the Food Chemistry Division was audited by the Irish National Accreditation Board and its accreditation status to the ISO 17025 standard was confirmed and extended. The current pesticides in the scope of the accreditation may be viewed on the Irish National Accreditation Board website at https://www.inab.ie/FileUpload/Testing/DAFM-Laboratories-Backweston-385T.pdf .

The laboratory participated in all seven of the EU Proficiency studies organised, on behalf of the EU Commission, by the European Union Community Reference Laboratories (EU-RL) in the pesticide area. Routine quality assurance procedures are followed within the laboratory in accordance with the requirements specified to maintain accreditation to the ISO 17025 standard.

Figure 16: The monitoring system ensures that food produced in the EU is safe for consumers to eat.

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

6 RESULTS

6.1 Summary of the analytical results

A total of **1,629** samples were taken for analysis under two different types of sampling –

- **1,558** samples were selected under the surveillance strategy
- **71** samples were taken in a targeted manner under the enforcement strategy.

The following tables (1 to 16) provide summary details of all the samples taken in 2021 grouped by the food categories. These categories are based on the way the commodities are arranged and grouped in Annex I of the Residue Regulation (EC) No. 396/2005. The tables include information on the number of samples containing pesticides residues, country of origin and the most commonly detected pesticide in that food category.

Where results are included, they are expressed in mg/kg and are rounded to different significant figures depending on the concentration. These rounding rules do not reflect the precision of the methods but are used by regulatory laboratories in pesticide residues to harmonise the rounding and reporting of pesticide residue results in the EU.

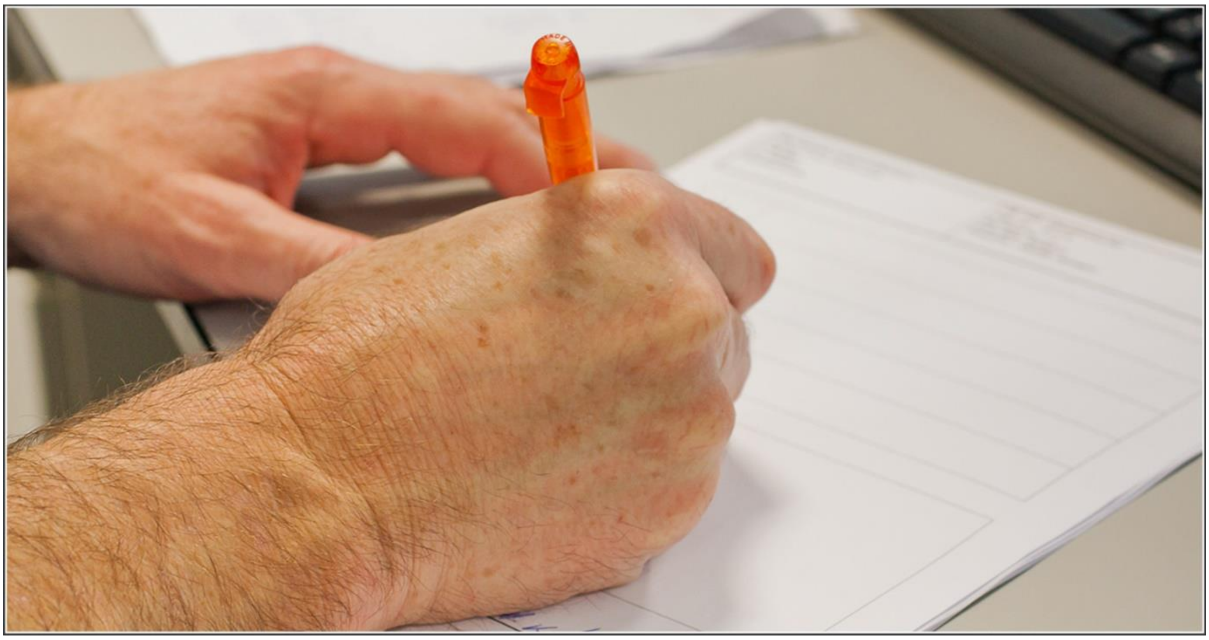

Figure 17: Signing off on results.

Table 1: Summary results of fruit samples

Commodity	Residues detected				Origin of samples			
	Total	<LOQ	>LOQ and <MRL	>MRL	Ireland	EU	TC	Unknown
Apples	73	15	56	2	3	38	32	0
Apricots	6	1	5	0	0	4	2	0
Blackberries	3	2	1	0	0	0	3	0
Blueberries	16	10	5	1	0	2	14	0
Canned or jarred pineapple	1	1	0	0	0	0	0	1
Chinese persimmons	2	1	1	0	0	1	1	0
Clementines	18	0	17	1	0	2	16	0
Coconut milk (Cocos nucifera) liquid	10	10	0	0	0	2	5	3
Common banana	17	4	13	0	0	0	17	0
Common peaches	9	0	8	1	0	7	2	0
Figs	1	1	0	0	0	0	1	0
Gojiberry	2	2	0	0	0	0	2	0
Granate apples (pomegranate)	18	9	6	3	0	3	15	0
Grapefruits	25	4	14	7	0	4	19	2
Hemp seeds	1	1	0	0	0	0	1	0
Juice, apple	9	4	5	0	0	0	1	8
Juice, black currant	1	1	0	0	0	0	0	1
Juice, cranberry	4	4	0	0	0	0	1	3
Juice, mango	1	0	0	1	0	0	0	1
Juice, pineapple	6	6	0	0	0	0	0	6
Juice, grapefruit	1	0	1	0	0	0	0	1
Juice, orange	12	10	2	0	0	0	0	12
Juice, prune	1	1	0	0	0	0	0	1
Juice, strawberry*	1	0	1	0	0	0	0	1
Kiwi fruits (green, red, yellow)	27	15	10	2	0	12	15	0
Kumquats	1	1	0	0	0	1	0	0
Lemons	11	1	9	1	0	6	5	0
Limes	10	3	5	2	0	0	10	0
Linseeds	1	1	0	0	0	0	1	0
Mandarins	21	1	20	0	0	2	17	2
Mangoes	14	5	9	0	0	1	13	0
Melons	19	9	10	0	0	6	13	0
Nectarines	8	2	6	0	0	8	0	0
Oranges	31	2	24	5	0	11	20	0
Passionfruits	9	0	8	1	0	0	9	0
Pears	28	3	25	0	0	23	5	0
Pineapples	7	2	5	0	0	0	7	0
Plums	9	3	6	0	0	4	4	1
Pomelos	1	0	0	1	0	0	1	0

Commodity	Residues detected				Origin of samples			
	Total	<LOQ	>LOQ and <MRL	>MRL	Ireland	EU	TC	Unknown
Pumpkin seeds	3	3	0	0	0	0	3	0
Pumpkins	1	0	1	0	0	1	0	0
Rape seed oil, edible	2	1	1	0	1	0	0	1
Raspberries and similar-	8	2	6	0	0	4	4	0
Satsumas	10	0	10	0	0	0	10	0
Sesame seeds	9	6	2	1	0	0	9	0
Strawberries	19	4	15	0	4	8	7	0
Table grapes	27	2	25	0	0	9	18	0
Ugli fruits	1	0	1	0	0	0	1	0
Watermelons	3	3	0	0	0	0	3	0
Wine, white	5	4	1	0	0	1	3	1
Wine, red	5	2	3	0	0	2	3	0
Total	**528**	**162**	**337**	**29**	**8**	**162**	**313**	**45**

**Samples were excluded in 2021 EFSA National Summary report.*

Table 2: Summary of fruit samples taken in the surveillance programme

Fruit samples with pesticide residues detected	• 528 fruit surveillance samples were analysed • 30.7% had no residues detected above the LOQ • 63.8% had residues detected above the LOQ and below the MRL • 5.5% had residues detected above the MRL
Origin of samples	• 1.5% of fruit samples were of Irish origin • 30.7% were from EU countries and 59.3% from outside the EU • The origin could not be confirmed for 8.5% due to the processed nature of the product sampled
Most frequently detected pesticides	• Detection rates in all fruit samples: imazalil 24%, pyrimethanil 22%, fludioxonil 21%, thiabendazole 20%, acetamiprid 10%
Maximum number of multiple residues	• 9 pesticides were found in 3 individual samples: a pear from Portugal; a mandarin from S. Africa; and a lemon from Argentina.
Pesticide residues above the MRL	• 29 samples exceeded the MRL. Details are in chapter 7 of this report

Table 3: Summary results of vegetable, fungi and other plant product samples

Commodity	Residues detected				Origin of samples			
	Total	<LOQ	>LOQ and <MRL	>MRL	Ireland	EU	TC	Unknown
Asparagus	4	4	0	0	0	0	4	0
Aubergines	19	5	14	0	0	19	0	0
Avocados	14	12	2	0	0	2	12	0
Beans (with pods) and similar-	15	8	7	0	0	0	14	1
Beans (canned)*	9	8	1	0	0	1	0	8
Beetroots	3	3	0	0	0	3	0	0
Broccoli	28	21	7	0	4	17	7	0
Brussels sprouts	1	1	0	0	1	0	0	0
Carrots	28	15	13	0	12	13	1	2
Cauliflowers	11	11	0	0	6	5	0	0
Celeries	12	2	8	2	4	7	1	0
Chards	2	0	2	0	0	2	0	0
Chickpeas (without pods)	1	1	0	0	0	0	0	1
Chickpea (canned or jarred)	2	2	0	0	0	0	0	2
Chili peppers	23	6	10	7	0	0	23	0
Chinese cabbages	1	1	0	0	0	1	0	0
Chives	2	0	1	1	0	0	2	0
Cinnamon bark	1	1	0	0	0	0	1	0
Common mushrooms	24	6	17	1	24	0	0	0
Coriander leaves	2	0	1	1	0	2	0	0
Courgettes	10	2	8	0	1	9	0	0
Cucumbers	9	4	5	0	3	6	0	0
Curry leaves	1	0	0	1*	0	0	1	0
Florence fennels	2	0	2	0	0	2	0	0
French beans (with pods)	2	2	0	0	0	0	2	0
Garden peas (with pods)	12	3	8	1	0	0	12	0
Garden peas (without pods)	2	2	0	0	1	0	0	1
Garlic	1	0	1	0	0	1	0	0
Gherkins	1	1	0	0	0	1	0	0
Ginger roots	5	4	1	0	0	1	4	0
Globe artichokes	1	1	0	0	0	1	0	0
Head cabbages	12	5	7	0	8	4	0	0
Juice, tomato	1	1	0	0	0	0	1	0
Kales	8	5	2	1	7	1	0	0
Leeks	7	6	1	0	4	3	0	0
Lentils (dry)	5	2	3	0	0	0	3	2
Lettuces (generic)	41	19	22	0	12	26	3	0

Commodity	Residues detected				Origin of samples			
	Total	<LOQ	>LOQ and <MRL	>MRL	Ireland	EU	TC	Unknown
Mints	2	0	2	0	1	0	1	0
Okra	5	4	1	0	0	0	5	0
Olive oil, virgin or extra-virgin	12	10	2	0	1	8	0	3
Onions	8	7	1	0	0	8	0	0
Oyster mushrooms	1	1	0	0	1	0	0	0
Pak-choi	2	1	1	0	2	0	0	0
Parsley	2	0	0	2	0	2	0	0
Parsnips and similar-	8	3	3	2	7	1	0	0
Potatoes	30	17	13	0	22	4	4	0
Radishes	3	2	1	0	0	3	0	0
Roman rocket	4	0	4	0	0	4	0	0
Rosemary	1	1	0	0	0	1	0	0
Sage	1	0	0	1	0	0	1	0
Shallots	3	2	1	0	1	2	0	0
Sorrel	1	1	0	0	0	0	1	0
Soyabeans (without pods)	1	1	0	0	0	0	1	0
Spinaches	3	2	1	0	1	2	0	0
Spring onions	3	1	2	0	1	0	2	0
Swedes	5	3	1	1	5	0	0	0
Sweet corn	6	6	0	0	1	1	3	1
Sweet peppers	26	7	18	1	0	22	4	0
Sweet potatoes	13	8	4	1	0	1	12	0
Tamarillos	1	0	0	1	0	0	1	0
Tarragon	1	0	0	1	0	1	0	0
Teas leaves, dry and/or fermented, and similar	9	7	2	0	1	0	6	2
Thyme	1	1	0	0	0	0	1	0
Tomatoes	30	11	19	0	7	22	1	0
Turnips	3	1	2	0	3	0	0	0
Watercresses	1	0	0	1	0	1	0	0
Winter squashes	3	1	2	0	0	2	1	0
Total	**511**	**262**	**223**	**26**	**141**	**212**	**135**	**23**

**Samples were excluded in 2021 EFSA National Summary report.*

Table 4: Summary of vegetable, fungi and other plant product samples taken in the surveillance programme

Vegetable and fungi samples with pesticide residues detected	• 511 vegetable, fungi and other plant product surveillance samples were analysed • 51.3% had no residues detected above the LOQ • 43.6% had residues detected above the LOQ and below the MRL • 5.1% had residues detected above the MRL
Origin of samples	• 27.6% of vegetable, fungi and other plant product were of Irish origin • 41.5% were from EU countries and 26.4% from outside the EU • The origin could not be confirmed for 4.5% of the product sampled due to the processed nature of the product sampled
Most frequently detected pesticides	• Detection rates in all vegetable samples: fludioxonil 7%, acetamiprid 7%, azoxystrobin 6%, boscalid 6%, difenoconazole, 5%
Maximum number of multiple residues	• 15 pesticides were found in a fresh tarragon sample from Spain
Pesticide residues above the MRL	• 26 samples exceeded the MRL. Details are in chapter 7 of this report

6.2 Key findings of the fruit and vegetable sample results

In the 2021 programme, a total of 1,039 fruit, vegetable and fungi samples were analysed. When compared to previous years, the number of samples with residues detected above the MRL (5.3%) is higher than 2000 (3.5%) and 2019 (0.8%). The majority of the breaches occur in samples from third countries with different regulations controlling the use of pesticides and where application for higher import MRLs in the EU (technically referred to as import tolerances) have yet to be applied for or are not granted.

The number of fruit and vegetable samples with detectable residues above the LOQ has decreased from 64.2% in 2020 to 59.2% in 2021. The number of pesticides being detected has remained relatively constant.

The most commonly detected pesticide in fruit and vegetable samples in 2021 was fludioxonil. This is a non-systemic fungicide used as a post-harvest treatment across a broad range of commodities. In the previous 3 years, imazalil (which is mainly used to prevent decay of citrus during storage and transportation) was the most commonly detected pesticide in fruit and vegetable samples. It was the second most commonly detected pesticide in 2021.

Table 5: Summary results of cereal samples

Commodity	Residues detected				Origin of samples			
	Total	<LOQ	>LOQ and <MRL	>MRL	Ireland	EU	TC	Unknown
Buckwheat	1	1	0	0	0	0	1	0
Barley grains	10	9	1	0	9	0	1	0
Common millet grain	3	3	0	0	0	0	3	0
Common wheat grain	14	10	4	0	4	9	1	0
Oat grain	20	20	0	0	10	0	5	5
Oat milk*	2	2	0	0	0	2	0	0
Rice grain	15	3	6	6	0	0	0	15
Wheat flour	21	10	11	0	7	2	1	11
Total	**86**	**58**	**22**	**6**	**30**	**13**	**12**	**31**

**Samples were excluded in 2021 EFSA National Summary report.*

Table 6: Summary of cereal samples taken in the surveillance programme

Cereal samples with pesticide residues detected	• 86 cereal samples were analysed • 67.4% had no residue detected above the LOQ • 25.6% had residues detected above the LOQ and below the MRL • 7.0% with residues above the MRL
Origin of samples	• 34.9% of cereal samples were of Irish origin • 15.1% were from EU countries and 14.0% from outside the EU • The origin could not be confirmed for 36.0% of the product sampled due to the processed nature of the product sampled
Most frequently detected pesticide	• Detection rates in cereal samples: deltamethrin 12%, pirimiphos-methyl 9%, tebuconazole 9%, isoprothiolane 8% and cypermethrin 6%
Maximum number of multiple residues	• 7 pesticides were found in a rice sample of unknown origin
Pesticide residues above the MRL	• 6 samples exceeded the MRL. Details are in chapter 7 of this report

6.3 Key findings of the cereal sample results

In the 2021 programme, a total of 86 cereal samples were analysed using the surveillance or random sampling strategy. Pesticide residues were found in 32.6% of the cereal samples taken and there were 6 rice samples where the MRL was exceeded (7.0%). This is higher than the MRL exceedance rate found in 2020 (4.2%) and 2019 (2.9%).

In the case of the cereal samples, 34.9% were of domestic origin. No residues were detected in 67.4% of the samples and 25.6% of the cereal samples had residues in compliance with the EU legislation. The remaining 7.0% contained residues exceeding the MRLs and were not considered as non-compliant when analytical measurement uncertainty (50%) was taken into account.

Table 7: Summary results of food of animal origin samples

Commodity	Residues detected				Origin of samples			
	Total	<LOQ	>LOQ and <MRL	>MRL	Ireland	EU	TC	Unknown
Bovine fat tissue	137	133	4	0	137	0	0	0
Chicken, fresh fat tissue	21	21	0	0	21	0	0	0
Equine fat tissue	2	1	1	0	2	0	0	0
Pig fat tissue	61	60	1	0	61	0	0	0
Sheep fat tissue	84	79	5	0	84	0	0	0
Turkey, fresh fat tissue	5	5	0	0	5	0	0	0
Cow milk	90	65	25	0	90	0	0	0
Goat milk	2	1	1	0	2	0	0	0
Hen eggs	30	30	0	0	30	0	0	0
Honey	14	14	0	0	14	0	0	0
Total	**446**	**409**	**37**	**0**	**446**	**0**	**0**	**0**

Table 8: Summary of food of animal origin samples taken in the surveillance programme

Food of animal origin samples with pesticide residues detected	• 446 food of animal origin samples were analysed • 91.7% had no residue detected above the LOQ • 8.3% had residues detected above the LOQ and below the MRL
Origin of samples	• 100% of the food of animal origin samples were of Irish origin
Most frequently detected pesticide	• Chlorates were detected in 26 milk samples. Diazinon was detected in 7 food of animal origin samples
Maximum number of multiple residues	• Only 1 pesticide residue was detected in food of animal origin samples
Pesticide residues above the MRL	• No food of animal origin sample contained residues above the MRL

6.4 Key findings of the food of animal origin sample results

The percentage of food of animal origin samples with detectable residues has increased to 8.3% in 2021 compared to the relatively low levels detected over the past three years: 3.5% in 2020, 2.0% in 2019 and 3.9% in 2018. This increase can be attributed to the analysis and detection of chlorate residues in milk samples, which was only recently added to the laboratory’s scope. There was no MRL breach in 2021 compared with none in 2020 or 2019 for food of animal origin.

Table 9: Summary results of baby food samples

Commodity	Residues detected				Origin of samples			
	Total	<LOQ	>LOQ and <MRL	>MRL	Ireland	EU	TC	Unknown
Follow-on formulae	21	21	0	0	21	0	0	0
Infant formulae	12	12	0	0	11	0	1	0
Ready-to-eat meal for infants and young children	25	25	0	0	0	16	5	4
Total	**58**	**58**	**0**	**0**	**32**	**16**	**6**	**4**

Table 10: Summary of baby food samples taken in the surveillance programme

Baby food samples with pesticide residues detected	• 58 baby food samples were analysed • 100% had no residue detected above the LOQ
Origin of samples	• 55.2% of the baby food samples were of Irish origin. 6 samples were from outside the EU. The origin could not be confirmed for 6.9% of the product sampled due to the processed nature of the product sampled
Most frequently detected pesticide	• No pesticides detected
Maximum number of multiple residues	• No pesticides detected
Pesticide residues above the MRL	• No baby food sample with residues detected above the MRL

6.5 Key findings of baby food sample results

In line with previous years, there continued to be no residues detected in the infant and follow-on formula samples analysed in 2021.

Table 11: Summary results of targeted and follow up enforcement samples (samples also included in Tables 1 and 3)

Commodity	Residues detected				Origin of samples			
	Total	<LOQ	>LOQ& <MRL	>MRL	IE	EU	TC	Unknown
Apple	2	0	2	0	0	0	2	0
Grapefruit	1	0	0	1	0	0	1	0
Orange	1	0	0	1	0	0	1	0
Swede	1	0	0	1	1	0	0	0
Total	**5**	**0**	**2**	**3**	**1**	**0**	**4**	**0**

Table 12: Summary of targeted and follow up samples taken in the enforcement programme

Enforcement samples with pesticide residues detected	• 5 targeted and follow-up enforcement samples were analysed • None of the samples had no residue detected above the LOQ • 40.0% had residues detected above the LOQ and below the MRL • 60.0% had residues detected above the MRL
Origin of samples	• 20.0% of enforcement samples were of Irish origin • 80.0% were from outside the EU.
Most frequently detected pesticide	• Not relevant due to diverse range of commodities
Maximum number of multiple residues	• 8 pesticides were found in a sample of apples from Brazil
Pesticide residues above the MRL	• 3 samples exceeded the MRL. Details are in chapter 7 of this report

6.6 Key findings of targeted and follow up sample results

Where samples taken during 2020 were found to exceed a statutory MRL, the relevant food commodities were targeted for analysis in 2021. Five samples were taken and three samples exceeded an MRL.

Table 13: Summary results of import control samples

Commodity	Residues detected				Origin of samples			
	Total	<LOQ	>LOQ & <MRL	>MRL	IE	EU	TC	Unknown
Beans (with pod)	2	0	2	0	0	0	2	0
Buckwheat	1	1	0	0	0	0	1	0
Chilli peppers	23	6	10	7	0	0	23	0
Cinnamon bark	1	1	0	0	0	0	1	0
Curry leaves	1	0	0	1*	0	0	1	0
Gojiberry	2	2	0	0	0	0	2	0
Granate apples	7	3	2	2	0	0	7	0
Common banana	1	1	0	0	0	0	1	0
Hemp seeds	1	1	0	0	0	0	1	0
Lentils (dry)	1	1	0	0	0	0	1	0
Linseeds	1	1	0	0	0	0	1	0
Okra	5	4	1	0	0	0	5	0
Sweet peppers	3	2	0	1	0	0	3	0
Pumpkin seeds	3	3	0	0	0	0	3	0
Sesame seeds	9	6	2	1	0	0	9	0
Soyabeans	1	1	0	0	0	0	1	0
Tea (green)	4	2	2	0	0	0	4	0
Total	**66**	**35**	**19**	**12**	**0**	**0**	**66**	**0**

*Sample was compliant on application of dehydration processing factor

Table 14: Summary of import control samples taken in the enforcement programme

Enforcement samples with pesticide residues detected	• 66 import control samples were analysed • 53% had no residue detected above the LOQ • 28.8% had residues detected above the LOQ and below the MRL • 18.2% had residues detected above the MRL
Origin of samples	• 100.0% of import control samples were from outside the EU
Most frequently detected pesticide	• Acetamiprid was detected in 11 chilli pepper samples and two pomegranate samples.
Maximum number of multiple residues	• 5 pesticides were found in a chilli pepper sample from Uganda
Pesticide residues above the MRL	• 12 samples exceeded the MRL. Details are in chapter 7 of this report

6.7 Key findings of import control sample results

In 2021, 66 samples were taken under EU Regulations dealing with increased inspection of targeted food commodities from certain countries. No residues were detected in 53% of the samples and 28.8% of the samples had residues in compliance with the EU legislation. A significant number (18.2%) had residues detected above the MRLs. When measurement uncertainty (50%) is taken into account this reduces to 9.1% (excluding the curry leaves sample which was compliant on the application of a dehydration processing factor). This is a significant increase on the previous year which can largely be attributed to the impact of Britain's exit from the EU Customs Union (Ireland may be the first entry point into the EU market where previously it was the UK) and a normalisation of trade volumes post-pandemic.

7 MRL BREACHES

7.1 Types of breaches

Sixty-one (3.7%) of the 1,629 samples taken in 2021 were found to contain residues above the Maximum Residue Levels set in Regulation (EC) 396/2005. Taking into account the analytical measurement uncertainty, 1.9% of the samples (31 samples – excluding the sample of curry leaves that was compliant on the application of a dehydration processing factor) clearly exceeded these legal limits (non-compliance).

Table 15 shows the breakdown of the residues found in all samples by food types, total sample number and % of samples without residues above the LOQ, residues below the MRL and the number exceeding the MRL from the two sampling programmes.

Table 15: Summary of all food types with residues and MRL breaches in 2021

Samples	Total	<LOQ	%<LOQ	>LOQ and <MRL	%>LOQ and <MRL	>MRL	% >MRL
Animal products	446	409	91.7%	37	8.3%	0	0.0%
Cereals	86	58	67.4%	22	25.6%	6	7.0%
Baby food	58	58	100.0%	0	0.0%	0	0.0%
Fruits and vegetables	1039	424	40.8%	560	53.9	55	5.3%
Total	1629	949	58.3%	619	38.0%	61	3.7%

Table 16 lists all the breaches with details of the origin, commodity, and pesticides detected above the MRL.

Table 16: Details of the MRL breaches in 2021

Commodity	Residues detected			
	Origin	Compound	Result	MRL
Surveillance				
Apples	France	Fenhexamid	0.032	0.010
	Chile	Diphenylamine	0.052	0.050
Blueberries	Peru	Fludioxonil	3.5	2.0
Celeries	Ireland	Linuron	0.065	0.010
		Aclonifen	0.015	0.010
	Ireland	Linuron	0.017	0.010
Chives	Tanzania	Chlorpyrifos	0.016	0.010
		Thiamethoxam	0.033	0.020
		Cyfluthrin	2.0	0.020
		3-hydroxy-carbofuran	0.051	0.020
Clementine	Morocco	Propiconazole	0.011	0.010
Common mushrooms	Ireland	Fluazinam	0.011	0.010
Common peaches	Spain	Thiabendazole	0.011	0.010
Corriander leaves	Spain	Chlorbromuron	0.012	0.010
Garden peas (with pod)	Kenya	Chlorothalonil	0.024	0.010
Granate apples (pomegranate)	Spain	Acetamiprid	0.020	0.010
Grapefruits	Turkey	Chlorpyrifos-methyl	0.076	0.010
		Buprofezin	0.056	0.010
	Turkey	Chlorpyrifos-methyl	0.21	0.010
	Turkey	Chlorpyrifos-methyl	0.10	0.010
	Turkey	Chlorpyrifos-methyl	0.083	0.010
		Buprofezin	0.017	0.010
		Chlorpyrifos	0.063	0.010
	Turkey	Chlorpyrifos-methyl	0.12	0.010
	Turkey	Chlorpyrifos-methyl	0.012	0.010
Juice, mango	Unknown	Pyrimethanil	0.012	0.010
Kales	Spain	Spinosad	2.8	2.0
Kiwi fruits (green, red, yellow)	Chile	Thiabendazole	0.011	0.010
	Chile	Thiabendazole	0.012	0.010
Lemons	Argentina	Propiconazole	1.2	0.010
Limes	Brazil	Propargite	0.59	0.010
	Brazil	Chlorothalonil	0.011	0.010
Oranges	Egypt	Chlorpyrifos	0.031	0.010
	Egypt	Chlorpyrifos	0.013	0.010
	Egypt	Chlorpyrifos	0.041	0.010
	S. Africa	Imazalil	5.0	4.0
Parsley	Spain	1,4-Dimethylnaphthalene	0.041	0.010

	The Netherlands	Fenuron	0.23	0.010
Parsnips and similar-	Ireland	Linuron	0.086	0.010
	Ireland	Linuron	0.050	0.010
Passionfruits	Colombia	Chlorothalonil	0.10	0.010
Pomelos	China	Myclobutanil	0.011	0.010
Rice grain	Unknown	Buprofezin	0.017	0.010
	Unknown	Buprofezin	0.015	0.010
	Unknown	Thiamethoxam	0.012	0.010
	Unknown	Chlorpyrifos	0.013	0.010
	Unknown	Chlorpyrifos-methyl	0.019	0.010
		Chlorpyrifos	0.013	0.010
	Unknown	Buprofezin	0.016	0.010
		Tricyclazole	0.012	0.010
Sage	Kenya	Chlorothalonil	0.032	0.020
Sweet potatoes	Egypt	Chlorpropham	0.025	0.010
Tamarillos	Colombia	Pyrimethanil	0.016	0.010
Tarragon	Spain	Lufenuron	2.3	0.020
Watercresses	Italy	Cyprodinil	0.042	0.020
		Emamectin benzoate	0.020	0.010
Enforcement				
Grapefruits	Turkey	Chlorpyrifos-methyl	0.17	0.010
		Prochloraz	0.12	
Oranges	Egypt	Buprofezin	0.017	0.010
		Chlorpyrifos	0.044	0.010
Swedes	Ireland	Chlorpropham	0.046	0.010
Import Controls				
Chilli peppers	Uganda	Carbendazim	0.17	0.10
		Thiophanate-methyl	1.1	0.10
		Clothianidin	0.10	0.040
	Turkey	Acetamiprid	0.34	0.300
	Turkey	Biphenyl	0.16	0.010
	Turkey	Acrinathrin	0.022	0.020
		Chlorpyrifos-methyl	0.028	0.010
	Uganda	Carbendazim	0.12	0.10
		Clothianidin	0.049	0.040
	Uganda	Acetamiprid	0.42	0.30
	Uganda	Clothianidin	0.086	0.040
Curry Leaves*	India	Chlorpyrifos	0.21*	0.010
		Methomyl	0.049*	0.020
		Thiodicarb	0.14*	0.020
Granate apples (pomegranate)	Turkey	Acetamiprid	0.011	0.010
	Turkey	Acetamiprid	0.023	0.010
Sesame seeds	India	Chlorpyrifos	0.013	0.010
Sweet peppers	Turkey	Chlorpyrifos-methyl	0.031	0.010

*Sample was compliant on application of dehydration processing factor [Generic dehydration factor for laurel leaves of 7 used (no specific dehydration available for curry leaves)]

7.2 Risk Assessments

7.2.1 Acute assessment

An acute risk assessment for Irish consumers, adults and children, was conducted for each MRL exceedance detected in 2021.

The risk assessment is based on the following factors:

- A large portion consumed over a 24-hour period. A very high percentile, 97.5%, is used from the food surveys.
- Body weight of the consumer.
- A variability factor to account for possible uneven distribution of the residues in a consignment or food lot. A factor of 5 is normally used. The mean residue detected in a laboratory sample is multiplied by this factor and is applied to an average weight of a food unit.
- ARfD - Acute reference dose mg /kg bw - toxicological endpoint over a 24-hour period.
- Residue found in the sample exceeding the MRL.
- Refinement such as peel/pulp factors. In the post-harvest application such as dipping citrus fruit in Imazalil, a refinement factor can be used since most of the pesticide resides on the peel and the laboratory result is based on the whole fruit.

The results of the assessments are provided to the FSAI to coordinate a harmonised enforcement approach.

It should be stressed that these assessments based on the combination of a large food portion, highest residue found and a highly uneven distribution of the residue is a very conservative assessment leading to an overestimation of the real exposure of Irish consumers to pesticide intakes.

The acute or short-term pesticide intake for all products which had breaches indicates that most of the breaches were below the 100% ARfD and therefore are deemed not to represent a short-term intake safety concern.

A number of non-compliant commodities related to the detection of chlorpyrifos or its metabolite, chlorpyrifos-methyl. These detections occurred in samples of grapefruit, orange, chive and rice. In such instances, a consumer health risk cannot be explicitly ruled out since a consumer risk assessment cannot be performed due to the absence of toxicological reference values (i.e. ARfD). The EU regulatory assessment process carried out under Regulation (EC) No.

1107/2009 was unable to establish ARfD values for chlorpyrifos and chlorpyrifos-methyl due to insufficient data.

7.2.2 Chronic Assessment

A chronic risk assessment for Irish consumers, adult and children, is conducted for each MRL exceedance. The calculation of the chronic exposure assessment is based on

- Mean portion of food consumed
- Body weight of the consumer
- ADI (acceptable daily intake)
- Residue found in the sample exceeding the MRL

It is assumed that the consumer is eating the same commodity with the residue leading to the MRL breach on a daily basis over a lifetime. This assessment is an overestimate of the real exposure to pesticides.

A number of commodities contained residues of chlorpyrifos or its metabolite, chlorpyrifos-methyl. A consumer health risk cannot be explicitly ruled out in these cases due to the absence of toxicological reference values (i.e. ADI) that are not set at EU level due to insufficient data.

8 ENFORCEMENT ACTIONS

Enforcement action is taken when an unacceptable risk to consumers is identified, or where repeated occurrence of excessive residue levels in commodities from the same source occurs. As part of the enforcement programme, commodities of specific country of origin are targeted for further attention. Targeted sampling of produce in the monitoring plan that has previously been found to be in breach of established MRLs is the prime means of determining whether violations are isolated incidents or are a result of systematic pesticides abuse. The enforcement sampling programme is designed to eliminate such abuses and to ensure that they are not repeated.

8.1 Enforcement actions on domestic samples

The PCD Enforcement Officer investigates MRL breaches in samples of domestic origin. In 2020, 4 MRL breaches were detected in produce of domestic origin (celery, swede and 2 parsnips).

With respect to the reported breaches, on-site follow-up visits were undertaken.

As a result of MRL breaches and invalid uses detected in 2021, a number of follow up targeted samples were taken from domestic growers in 2022.

8.2 Enforcement actions on imported samples

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

Commission Regulation (EC) No. 2019/1793, as amended, imposes additional controls on imports from third countries known or considered to be a risk from elevated levels of pesticide residues. Annex I to this legislation lists countries and commodities subject to this legislation, and also details sampling and analysis frequencies. Produce subject to these additional controls can only enter the country through Designated Points of Entry, which for Ireland (with respect to pesticide residues) are Dublin Port and Dublin Airport.

Based on the laboratory result (and risk assessment where appropriate), a consignment is either released (no issues arising), redispatched or destroyed under supervision. The latter options come into play when a risk assessment indicates that a health concern cannot be ruled out and/or a MRL is breached with a 50% measurement of uncertainty. In all instances a health concern takes precedence over uncertainty guidelines.

In 2021, 66 consignments were randomly selected and analysed for pesticide residues.
Taking into account the analytical measurement uncertainty 1.9% of the samples (31 samples – excluding a sample of curry leaves that was compliant on the application of a dehydration processing factor) clearly exceeded these legal limits (non-compliance). Follow up actions included letters to the domestic Food Business Operators (FBOs) where the commodities were sampled and letters to Codex representatives from the countries of origin for the commodities concerned, warning of future targeting.

8.3 Concluding remarks

The Food Chemistry Division and Pesticide Controls Division of the DAFM, and the FSAI continue to have an on-going dialogue as part of the service contract between both organisations. The intention is to optimise the annual control programme for pesticide residues in food and assess the possible risk of such residues for consumers. The programme will continue to take account of the opinion of the European Commission with respect to the range of crops and pesticides to be included in the programme.

For the immediate future, DAFM will focus on further increasing the capacity of the laboratory to screen for an ever-increasing number of pesticides, using multi and single residue methods over a wider range of food commodities.

9 ANNEXES

9.1 ANNEX I Scopes and Reporting Level (mg/kg) of the analytical methods used

Multi-residue methods

			F&V		Cereals		Fats		Milk		Eggs		Infant Formula	
	Scope (mg/kg)		RL	Acc	RL	Acc	RL	Acc	RL	Acc	RL	Acc	RL	Acc
1	1-Naphthylacetamide	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
2	***1,4-Dimethylnapthalene***	***GC***	***0.01***	***N***	***0.01***	***N***								
3	**2,4,5-T**	**LC**	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
4	**2,4-D**	**LC**	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
5	**2,4-DB**	**LC**	0.067	N	0.067	N	0.067	N	0.067	N	0.067	N	0.067	N
6	4,4-Dichlorobenzophenone	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
7	Abamectin	LC	0.01	N	0.1	Y	0.01	N	0.1	N	0.1	N	0.01	Y
8	Acephate	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
9	Acephate	GC	0.01	Y	0.01	Y	0.005	Y	0.005	N	0.005	N	0.005	N
10	Acetamiprid	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
11	Acetochlor	LC	0.02	Y	0.02	Y	0.02	N	0.02	N	0.02	N	0.01	Y
12	**Acibenzolar-S-methyl**	**LC**	0.05	N	0.05	N	0.05	N	0.05	N	0.05	N	0.05	N
13	Aclonifen	GC	0.01	Y	0.01	N	0.005	Y	0.01	N	0.01	N	0.01	Y
14	Acrinathrin	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
15	Alachlor	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
16	Aldicarb	LC	0.02	Y	0.01	Y	0.02	N	0.02	N	0.02	N	0.01	Y
17	Aldicarb-sulfone	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
18	Aldicarb-sulfoxide	LC	0.02	Y	0.01	Y	0.02	N	0.02	N	0.02	N	0.01	Y
19	Aldrin	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.003	Y
20	Ametryn	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
21	Amidosulfuron	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
22	Aminocarb	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
23	Anthraquinone	GC	0.05	N	0.01	Y			0.05	N	0.05	N	0.05	N
24	***Asulam***	***LC***	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
25	Atrazine	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
26	Atrazine-desethyl	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
27	Atrazine-desisopropyl	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
28	Azaconazole	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
29	Azamethiophos	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
30	Azinphos-ethyl	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.01	Y
31	Azinphos-methyl	GC	0.01	Y	0.01	Y	0.01	Y	0.005	Y	0.005	N	0.005	N
32	Azoxystrobin	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
33	Azoxystrobin	GC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
34	BAC10	LC	0.05	N	0.05	Y	0.05	N	0.05	N	0.05	N	0.05	N
35	BAC12	LC	0.05	N	0.05	Y	0.05	N	0.05	N	0.05	N	0.05	N
36	BAC14	LC	0.05	N	0.05	Y	0.05	N	0.05	N	0.05	N	0.05	N
37	BAC16	LC	0.05	N	0.05	Y	0.05	N	0.05	N	0.05	N	0.05	N
38	Benalaxyl	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
39	Bendiocarb	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
40	Bentazone	LC	0.01	Y	0.01	Y			0.01	N	0.01	N	0.01	Y
41	Benthiavalicarb-isopropyl	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
42	Benzoximate	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y

43	Bifenthrin	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
44	Binapacryl	GC	0.01	Y	0.01	Y			0.01	N	0.01	N	0.01	N
45	Bioresmethrin	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
46	Biphenyl	GC	0.05	Y	0.01	Y	0.025	Y	0.05	N	0.05	N	0.05	Y
47	Bitertanol	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
48	Bixafen	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
49	Boscalid	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
50	Boscalid	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
51	Bromacil	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
52	Bromophos-ethyl	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.01	Y
53	Bromophos-methyl	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.01	N
54	Bromopropylate	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
55	Bromoxynil	LC	0.01	Y	0.01	Y			0.01	N	0.01	N	0.01	N
56	Bromuconazole	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
57	Bupirimate	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
58	Buprofezin	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
59	Butocarboxim Sulfoxide	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
60	Butoxycarboxim	LC	0.02	Y	0.01	Y	0.02	N	0.02	N	0.02	N	0.02	Y
61	Cadusafos	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.003	Y
62	***Captofol***	***GC***	0.01	N	0.01	N	0.005	N	0.01	N	0.01	N	0.01	N
63	***Captan***	***GC***	0.01	N	0.01	N			0.01	N	0.01	N	0.01	N
64	Carbaryl	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
65	Carbendazim	LC	0.01	Y	0.02	Y	0.02	N	0.02	N	0.02	N	0.01	Y
66	Carbofuran	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
67	Carbofuran 3 Hydroxy	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
68	Carbosulfan	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
69	Carboxin	LC	0.01	N	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	Y
70	Carfentrazone-ethyl	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
71	Chlorantraniliprole	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
72	Chlorbromuron	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
73	Chlorbufam	GC	0.01	Y	0.01	Y			0.01	N	0.01	N	0.01	Y
74	Chlordane-cis	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.05	Y
75	Chlordane-trans	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.05	Y
76	Chlorfenapyr	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	N
77	Chlorfenvinphos	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
78	Chlorfluazuron	LC	0.01	Y	0.01	Y			0.01	N	0.01	N	0.01	Y
79	Chloridazon	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
80	Chlorobenzilate	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.01	Y
81	Chlorothalonil	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
82	Chlorotoluron	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
83	Chloroxuron	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
84	Chlorpropham	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
85	Chlorpyrifos methyl	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.01	Y
86	Chlorpyriphos	LC	0.01	Y	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	Y
87	Chlorsulfuron	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.05	Y
88	Chlorthal-dimethyl	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
89	Chlozolinate	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.05	Y
90	Clethodim	LC	0.01	N	0.01	N			0.01	N	0.01	N	0.01	Y
91	Clodinafop-propargyl	LC	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N

92	Clofentezine	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
93	Clomazone	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
94	***Clopyralid***	***LC***	0.05	N	0.05	N	0.05	N	0.05	N	0.05	N	0.05	N
95	Clothianidin	LC	0.01	N	0.01	Y			0.01	N	0.01	N	0.01	Y
96	Coumaphos	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.01	Y
97	Cyanazine	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
98	Cyanofenphos	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
99	Cyanophos	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
100	Cyazofamid	LC	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
101	Cyclanilide	LC	0.1	Y	0.1	N			0.1	N	0.1	N	0.1	N
102	Cycloate	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
103	Cycloxydim	LC	0.05	Y	0.05	Y			0.05	N	0.05	N	0.05	Y
104	Cyfluthrin	GC	0.01	Y	0.01	Y	0.02	Y	0.02	Y	0.01	N	0.05	Y
105	Cyhalothrin-lambda	GC	0.01	Y	0.02	Y	0.005	Y	0.005	Y	0.01	N	0.01	Y
106	Cymiazol	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
107	Cymoxanil	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	N
108	Cypermethrin	GC	0.02	Y	0.02	Y	0.01	Y	0.02	N	0.02	N	0.1	Y
109	***Cyproconazole***	LC	*0.01*	*N*	*0.01*	*N*	*0.01*	*N*	*0.01*	*N*	*0.01*	*N*	*0.01*	*N*
110	Cyproconazole	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
111	Cyprodinil	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
112	DDAC	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	N
113	DEET	LC	0.05	Y	0.05	Y	0.05	N	0.05	N	0.05	N	0.05	Y
114	Deltamethrin	GC	0.01	Y	0.01	Y	0.02	Y	0.01	N	0.01	N	0.05	Y
115	Demeton-S-me-sulfone	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.003	Y
116	Demeton-S-methyl-sulfoxide	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
117	Desmedipham	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
118	Diazinon	GC	0.01	Y	0.01	Y	0.005	Y	0.01	Y	0.01	N	0.01	Y
119	Dichlobenil	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
120	Dichlofenthion	LC	0.05	N	0.01	Y	0.05	N	0.05	N	0.05	N	0.05	Y
121	Dichlofluanid	GC	0.01	Y	0.01	N	0.005	Y	0.01	N	0.01	N	0.01	Y
122	**Dichlorprop**	**LC**	0.01	N	0.01	N			0.01	N	0.01	N	0.01	N
123	Dichlorvos	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.01	Y
124	Diclobutrazol	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
125	Dicloran	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
126	***Dicofol***	***GC***	0.01	N	0.01	N			0.01	N	0.01	N	0.01	N
127	Dicrotophos	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
128	Dieldrin	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.003	Y
129	Diethofencarb	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
130	Difenoconazole	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
131	Diflubenzuron	LC	0.01	Y	0.01	Y			0.01	N	0.01	N	0.01	Y
132	Diflufenican	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
133	Dimethenamid	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
134	Dimethoate	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.01	Y
135	Dimethomorph	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
136	Dimoxystrobin	GC	0.01	N	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	N
137	Diniconazole	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
138	***Dinitramine***	**LC**	0.1	N	0.1	N	0.1	N	0.1	N	0.1	N	0.1	N
139	Dinoseb	LC	0.02	Y	0.01	Y			0.02	N	0.02	N	0.01	Y
140	Dinoterb	LC	0.02	Y	0.01	Y			0.02	N	0.02	N	0.02	Y

141	Dioxacarb	LC	0.01	Y	0.01	Y	0.02	N	0.02	N	0.02	N	0.01	Y
142	Diphenamid	LC	0.01	Y	0.01	Y	0.02	N	0.02	N	0.02	N	0.01	Y
143	Diphenylamine	GC	0.05	Y	0.05	N	0.025	Y	0.05	N	0.05	N	0.01	Y
144	Ditalimfos	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
145	Diuron	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
146	DMSA	LC	0.02	Y	0.01	Y	0.02	N	0.02	N	0.02	N	0.01	Y
147	DMST	LC	0.02	Y	0.02	N	0.02	N	0.02	N	0.02	N	0.02	Y
148	DNOC	LC	0.01	Y	0.01	N			0.02	N	0.02	N	0.02	Y
149	Dodine	LC	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	Y
150	Emamectin B1a	LC	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	N	0.01	Y
151	Endosulfan sulfate	LC	0.02	Y	0.02	N	0.02	Y	0.02	N	0.02	N	0.01	Y
152	Endosulfan-alpha	GC	0.01	N	0.01	N	0.005	Y	0.01	N	0.01	N	0.01	Y
153	Endosulfan-beta	GC	0.01	Y	0.01	N	0.005	Y	0.01	N	0.01	N	0.01	Y
154	Endosulfan-ether	GC	0.01	Y	0.01	N	0.005	Y	0.01	N	0.01	N	0.01	Y
155	Endosulfan-lacton	GC	0.01	Y	0.01	N	0.005	Y	0.01	N	0.01	N	0.01	Y
156	Endosulfan-sulfate	GC	0.02	Y	0.02	N	0.02	Y	0.02	N	0.02	N	0.02	N
157	Endrin	GC	0.01	Y	0.01	N	0.005	Y	0.01	N	0.01	N	0.003	Y
158	EPN	GC	0.01	Y	0.01	N	0.005	Y	0.01	N	0.01	N	0.01	Y
159	Epoxyconazole	LC	0.01	Y	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	Y
160	Esfenvalerate	LC	0.01	Y			0.05	Y					0.01	Y
161	***EPTC***	***LC***	0.1	N	0.1	N	0.1	N	0.1	N	0.1	N	0.1	N
162	Ethiofencarb	LC	0.05	Y	0.05	N	0.05	Y	0.05	N	0.05	N	0.05	Y
163	Ethiofencarb-sulfone	LC	0.05	Y	0.05	N	0.05	N	0.05	N	0.05	N	0.05	Y
164	Ethiofencarb-sulfoxide	LC	0.05	Y	0.05	N	0.05	Y	0.05	N	0.05	N	0.05	Y
165	Ethion	LC	0.01	Y	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	Y
166	Ethirimol	LC	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	Y
167	Ethofumesate	LC	0.01	Y	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	Y
168	Ethoprophos	GC	0.01	Y	0.01	N	0.005	Y	0.01	N	0.01	N	0.003	Y
169	Etofenprox	LC	0.01	Y	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	Y
170	Etoxazole	GC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.05	Y
171	Etridazole	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
172	Etrimfos	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
173	Famoxadone	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
174	Fenamidone	GC	0.01	Y	0.02	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
175	Fenamiphos	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
176	Fenamiphos-sulfone	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
177	Fenamiphos-sulfoxide	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
178	Fenarimol	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
179	Fenazaquin	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
180	Fenbuconazole	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
181	Fenchlorphos	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.01	Y
182	Fenhexamid	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
183	Fenitrothion	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
184	**Fenoprop (2,4,5-TP)**	**LC**	0.05	N	0.05	N			0.05	N	0.05	N	0.05	N
185	Fenothiocarb	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
186	Fenoxaprop-ethyl	LC	0.05	N	0.05	Y	0.05	N	0.05	N	0.05	N	0.05	Y
187	Fenoxycarb	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
188	Fenpiclonil	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
189	Fenpropathrin	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y

190	Fenpropidin	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
191	Fenpropimorph	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
192	Fenpyroximate	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N
193	***Fensulfothion***	***LC***	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.003	N
194	Fenthion	LC	0.01	Y	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	Y
195	Fenthion Sulfone	LC	0.01	Y	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	Y
196	Fenthion Sulfoxide	LC	0.01	N	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	Y
197	Fenuron	LC	0.05	N	0.05	Y	0.05	N	0.05	N	0.05	N	0.05	Y
198	Fenvalerate	GC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
199	Fipronil	LC	0.01	Y	0.01	Y	*0.01*	*N*	0.01	N	0.01	N	0.003	Y
200	Fipronil desulfinyl	LC	0.01	Y	0.01	Y	*0.01*	*N*	0.01	N	0.01	N	0.003	Y
201	Fipronil sulfide	LC	0.01	Y	0.01	Y	*0.01*	*N*	0.01	N	0.01	N	0.003	Y
202	Fipronil sulfone	LC	0.01	Y	0.01	Y	*0.01*	*N*	0.01	N	0.01	N	0.003	Y
203	Flamprop-isopropyl	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
204	Flazasulfuron	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
205	Flonicamid	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
206	Florasulam	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
207	Fluazifop	LC	0.02	Y	0.01	Y	0.02	N	0.02	N	0.02	N	0.02	N
208	Fluazifop-P-butyl	LC	0.01	Y	0.01	Y			0.02	N	0.02	N	0.01	Y
209	Fluazinam	LC	0.01	Y	0.01	Y			0.02	N	0.02	N	0.01	Y
210	Flubendiamide	LC	0.01	N	0.01	Y			0.01	N	0.01	N	0.01	Y
211	Flucycloxuron	LC	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	N	0.01	Y
212	Flucythrinate	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
213	Fludioxonil	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
214	Fludioxonil	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
215	Flufenacet	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
216	Flufenoxuron	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
217	Fluopicolide	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
218	Fluopyram	LC	0.02	N	0.02	Y	0.02	N	0.02	N	0.02	N	0.02	Y
219	Fluquinconazole	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	N
220	Flurochloridone	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
221	Flurtamone	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
222	Flusilazole	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
223	Flutolanil	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
224	Flutriafol	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
225	Fluvalinate-tau	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
226	Fluxapyroxad	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
227	**Folpet**	**GC**	0.01	N	0.01	N			0.01	N	0.01	N	0.01	N
228	Fonofos	GC	0.01	Y	0.01	N	0.005	Y	0.005	Y	0.01	N	0.01	Y
229	Forchlorfenuron	LC	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	N	0.01	Y
230	Formothion	GC	0.01	N	0.01	N	0.005	Y	0.01	N	0.01	N	0.01	N
231	Fosthiazate	LC	0.01	N	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
232	Fuberidazole	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
233	Furalaxyl	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
234	Furathiocarb	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
235	Furmecyclox	LC	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	Y
236	Haloxyfop	LC	0.02	Y	0.01	Y			0.02	N	0.02	N	0.02	N
237	Haloxyfop-methyl	LC	0.01	Y	0.01	Y	0.02	N	0.02	N	0.02	N	0.01	Y
238	HCH-alpha	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.005	N	0.005	N

239	HCH-beta	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.01	Y
240	HCH-delta	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.01	Y
241	Heptachlor	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.003	Y
242	Heptachlor endo-epoxide,trans	GC	0.01	N	0.01	N	0.005	Y	0.01	N	0.01	N	0.003	Y
243	Heptachlor exo-epoxide,cis	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.005	N	0.003	N
244	Heptenophos	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
245	Hexachlorobenzene	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.003	Y
246	Hexaconazole	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
247	Hexaflumuron	LC	0.01	Y	0.01	Y			0.01	N	0.01	N	0.01	Y
248	Hexythiazox	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
249	Imazalil	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
250	Imazamox	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	N
251	***Imazaquin***	***LC***	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
252	***Imazethapyr***	***LC***	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
253	Imidacloprid	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
254	Indoxacarb	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
255	Iodofenphos	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.005	N	0.005	N
256	Iodosulfuron-methyl	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
257	Ioxynil	LC	0.01	Y	0.01	Y			0.01	N	0.01	N	0.01	N
258	Iprodione	GC	0.01	Y	0.01	N			0.01	N	0.01	N	0.01	Y
259	Iprovalicarb	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
260	Isazophos	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
261	Isocarbofos	GC	0.01	Y	0.01	Y			0.01	N	0.01	N	0.01	N
262	Isodrin	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
263	Isofenphos	LC	0.01	Y	0.02	Y	0.01	Y	0.02	N	0.02	N	0.01	Y
264	Isofenphos	GC	0.01	Y	0.01	Y	0.005	Y	0.02	N	0.02	N	0.01	Y
265	Isofenphos-methyl	GC	0.01	Y	0.01	N	0.005	Y	0.01	N	0.01	N	0.01	Y
266	Isofenphos-oxon	GC	0.01	N	0.01	N	0.005	Y	0.01	N	0.01	N	0.01	N
267	Isoprocarb	LC	0.01	N	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
268	Isoprothiolane	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
269	Isoproturon	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
270	Kresoxim-methyl	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
271	Lenacil	GC	0.01	Y	0.05	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
272	Lindane	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.01	Y
273	Linuron	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
274	Lufenuron	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
275	Malaoxon	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
276	Malathion	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
277	Mandipropamid	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
278	MCPA	LC	0.02	Y	0.02	N			0.02	N	0.02	N	0.02	N
279	MCPA methyl ester	GC	0.01	Y	0.01	N	0.005	Y	0.01	N	0.01	N	0.01	Y
280	MCPB	LC	0.01	Y	0.01	Y			0.01	N	0.01	N	0.01	N
281	Mecarbam	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
282	Mecoprop	LC	0.01	Y	0.01	Y			0.01	N	0.01	N	0.01	N
283	Mefenpyr-Diethyl	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
284	Mepanipyrim	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
285	Mephosfolan	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
286	Mepronil	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
287	Mesosulfuron methyl	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y

288	Metalaxyl	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
289	Metamitron	LC	0.01	Y	0.01	Y			0.01	N	0.01	N	0.01	Y
290	Metazachlor	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
291	Metconazole	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
292	Methacrifos	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
293	Methamidophos	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
294	Methamidophos	GC	0.01	N	0.01	Y			0.01	N	0.01	N	0.01	Y
295	Methidathion	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
296	Methiocarb	LC	0.01	Y	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	Y
297	***Methiocarb sulfone***	***LC***	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
298	***Methiocarb sulfoxide***	***LC***	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
299	Methomyl	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
300	Methoprene	LC	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	N	0.01	Y
301	Methoxychlor	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.005	N	0.005	N
302	Methoxyfenozide	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
303	Metobromuron	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
304	Metolachlor	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
305	Metosulam	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
306	Metoxuron	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
307	Metrafenone	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
308	Metribuzin	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
309	Metsulfuron-methyl	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
310	Mevinphos	GC	0.01	Y	0.01	Y	0.005	Y	0.02	Y	0.01	N	0.01	Y
311	Mirex	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
312	Molinate	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	N
313	Molinate	GC	0.01	Y	0.01	N	0.005	Y	0.01	N	0.01	N	0.01	Y
314	Monocrotophos	LC	0.01	Y	0.01	Y	0.02	N	0.02	N	0.02	N	0.01	Y
315	Monolinuron	LC	0.01	Y	0.01	Y	0.02	N	0.02	N	0.02	N	0.01	Y
316	Myclobutanil	LC	0.01	Y	0.01	Y	0.02	N	0.02	N	0.02	N	0.01	Y
317	Napropamide	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
318	Naptalam	LC	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
319	Neburon	LC	0.01	Y	0.01	Y	0.02	N	0.02	N	0.02	N	0.01	Y
320	Nicosulfuron	LC	0.01	Y	0.01	Y	0.02	N	0.02	N	0.02	N	0.02	N
321	Nitenpyram	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
322	Nitrofen	GC	0.01	N	0.01	Y	0.005	Y	0.01	N	0.01	N	0.003	N
323	Nonachlor-trans	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
324	Nuarimol	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
325	Omethoate	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.003	N
326	opDDD	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.01	Y
327	opDDE	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.01	Y
328	opDDT	GC	0.01	Y	0.005	Y	0.005	Y	0.005	Y	0.01	N	0.01	Y
329	o-Phenylphenol	GC	0.01	Y	0.01	N	0.005	Y	0.01	N	0.01	N	0.01	Y
330	Oxadiazon	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
331	Oxadixyl	GC	0.01	N	0.01	Y			0.01	N	0.01	N	0.01	Y
332	Oxamyl	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
333	Oxamyl Oxime	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
334	Oxychlordane	GC	0.01	Y	0.01	Y	0.005	Y	0.006	N	0.006	N	0.006	N
335	Oxyfluorfen	LC	0.1	N	0.01	Y	0.1	N	0.1	N	0.1	N	0.1	Y
336	Paclobutrazol	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y

337	Paraoxon methyl	GC	0.01	N	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
338	Paraoxon-ethyl	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
339	Parathion-ethyl	GC	0.01	Y	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	Y
340	Parathion-methyl	GC	0.01	Y	0.01	Y	0.005	Y	0.01	Y	0.01	N	0.01	Y
341	PCB28	GC	0.005	N	0.005	Y	0.005	Y	0.01	Y	0.01	N	0.01	Y
342	PCB52	GC	0.005	N	0.005	Y	0.005	Y	0.01	Y	0.01	N	0.01	Y
343	PCB101	GC	0.005	N	0.005	Y	0.005	Y	0.01	Y	0.01	N	0.01	Y
344	PCB118	GC	0.005	N	0.005	Y	0.005	Y	0.01	Y	0.01	N	0.01	Y
345	PCB138	GC	0.005	N	0.005	Y	0.005	Y	0.01	Y	0.01	N	0.01	Y
346	PCB153	GC	0.005	N	0.005	Y	0.005	Y	0.01	Y	0.01	N	0.01	Y
347	PCB180	GC	0.005	N	0.005	Y	0.005	Y	0.01	Y	0.01	N	0.01	Y
348	Penconazole	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
349	Pencycuron	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
350	Pendimethalin	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
351	Pentachloroaniline	GC	0.01	N	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	N
352	Permethrin	GC	0.01	Y	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	Y
353	Pethoxamid	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
354	Phenmedipham	LC	0.01	N	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
355	Phenthoate	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
356	**Phorate**	**GC**	0.01	N	0.01	N			0.01	N	0.01	N	0.01	N
357	Phorate Sulfoxide	LC	0.01	Y	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	Y
358	Phosalone	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.01	Y
359	Phosmet	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	N
360	Phosphamidon	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
361	Phoxim	LC	0.01	N	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	Y
362	**Picloram**	**LC**	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
363	Picoxystrobin	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
364	Piperonyl butoxide	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
365	Pirimicarb	GC	0.01	Y	0.01	N	0.005	Y	0.01	N	0.01	N	0.01	Y
366	Pirimicarb desmethyl	GC	0.01	N	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	N
367	Pirimiphos-ethyl	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
368	Pirimiphos-methyl	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
369	ppDDD	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.01	Y
370	ppDDE	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.01	Y
371	ppDDT	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.005	N	0.005	N
372	Prochloraz	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
373	Procymidone	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
374	Profenofos	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
375	Promecarb	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
376	Promethryn	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
377	Prometon	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
378	Propachlor	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
379	Propamocarb	LC					0.01	N	0.01	N	0.01	N	0.01	Y
380	Propanil	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
381	Propaquizafop	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
382	Propargite	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
383	Propazine	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
384	Propetamphos	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.01	Y
385	Propham	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y

386	Propiconazole	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	N
387	Propoxur	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
388	Propoxycarbazone	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
389	Propyzamide	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
390	Proquinazid	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
391	Prosulfocarb	LC	0.05	Y	0.05	Y	0.01	N	0.01	N	0.01	N	0.01	Y
392	Prosulfuron	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
393	Prothioconazole desthio	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
394	Prothiofos	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
395	Pymetrozine	LC	0.02	Y	0.01	Y	0.02	N	0.02	N	0.02	N	0.01	Y
396	Pyraclostrobin	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
397	Pyrazophos	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
398	Pyrethrins	LC	0.05	N	0.01	Y	0.05	Y	0.05	N	0.05	N	0.05	Y
399	Pyridaben	LC							0.01	N	0.01	N	0.01	Y
400	Pyridaben	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
401	***Pyridalyl***	***LC***	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
402	Pyridaphenthion	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
403	Pyrifenox	GC	0.02	Y	0.02	Y	0.01	Y	0.02	N	0.02	N	0.02	N
404	Pyrimethanil	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
405	Pyriproxifen	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
406	Quinalphos	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
407	***Quinclorac***	***LC***	*0.01*	*N*	*0.01*	*N*	*0.01*	*N*	*0.01*	*N*	*0.01*	*N*	*0.01*	*N*
408	Quinoxyfen	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
409	Quintozene	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.01	Y
410	Quizalofop	LC	0.02	Y	0.01	Y			0.02	N	0.02	N	0.02	N
411	Quizalofop-ethyl	LC	0.01	Y	0.01	Y	0.02	N	0.02	N	0.02	N	0.01	Y
412	Resmethrin	GC	0.1	N	0.05	Y	0.1	Y	0.1	N	0.1	N	0.1	N
413	Rimsulfuron	LC	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	N	0.02	Y
414	Rotenone	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
415	Silthiofam	GC	0.01	N	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	N
416	Simazine	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
417	Simetryn	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
418	Spinosyn A	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
419	Spinosyn D	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
420	Spirodiclofen	LC	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
421	Spirodiclofen	GC	0.01	Y	0.01	N	0.005	Y	0.01	N	0.01	N	0.01	Y
422	Spiromesifen	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
423	Spirotetramat	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
424	Spiroxamine	LC	0.01	Y	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	Y
425	Sulfentrazone	LC	0.01	Y	0.01	Y			0.01	N	0.01	N	0.02	Y
426	Sulfotep	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
427	Sulprofos	LC	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	Y
428	Tebuconazole	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
429	Tebufenozide	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
430	Tebufenpyrad	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
431	Tecnazene	GC	0.01	Y	0.01	Y	0.005	Y	0.005	Y	0.01	N	0.01	Y
432	Teflubenzuron	LC	0.01	Y	0.01	Y			0.01	N	0.01	N	0.01	Y
433	Tefluthrin	GC	0.01	N	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	N
434	***Terbufos***	***LC***	0.05	N	0.05	N	0.025	N	0.05	N	0.05	N	0.05	N

435	Terbumeton	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
436	Terbuthylazine	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
437	Terbuthylazine-2-hydroxy	LC	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	Y
438	Terbuthylazine-desethyl	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
439	Terbutryn	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
440	Tetraconazole	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
441	Tetradifon	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
442	Tetramethrin	GC	0.02	Y	0.02	Y	0.005	Y	0.02	N	0.02	N	0.02	N
443	**TFNA**	**LC**	0.01	N	0.01	N			0.01	N	0.01	N	0.01	N
444	**TFNG**	**LC**	0.01	N	0.01	N			0.01	N	0.01	N	0.01	N
445	Thiabendazole	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
446	Thiacloprid	LC	0.02	Y	0.01	Y	0.02	N	0.02	N	0.02	N	0.01	Y
447	Thiamethoxam	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
448	Thifensulfuron-methyl	LC	0.05	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
449	Thiobencarb	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
450	Thiodicarb	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
451	Thionazin	LC	0.02	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
452	**Thiophanate methyl**	**LC**	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
453	**Thiophanate ethyl**	**LC**	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
454	Tolclofos-methyl	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
455	Tolyfluanid	GC	0.01	Y	0.01	N	0.005	Y	0.01	N	0.01	N	0.01	Y
456	**Topramezone**	**LC**	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
457	Triadimefon	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
458	Triadimenol	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
459	Tri-Allate	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
460	Triasulfuron	LC	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
461	Triazophos	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
462	**Trichlorfon**	**LC**	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
463	Triclopyr	LC	0.01	N	0.01	Y			0.01	N	0.01	N	0.01	N
464	Tricyclazole	LC	0.01	N	0.01	Y	0.01	N	0.01	N	0.01	N	0.01	Y
465	Trifloxystrobin	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
466	Triflumizole	LC	0.02	Y	0.01	Y	0.01	Y	0.02	N	0.02	N	0.01	Y
467	Triflumizole	GC	0.02	Y	0.01	Y	0.01	Y	0.02	N	0.02	N	0.01	Y
468	Triflumuron	LC	0.01	Y	0.01	Y			0.01	N	0.01	N	0.01	Y
469	Trifluralin	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
470	Triflusulfuron-methyl	LC	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
471	Triticonazole	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
472	Vamidothion	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y
473	Vinclozolin	GC	0.01	Y	0.01	Y	0.005	Y	0.01	N	0.01	N	0.01	Y
474	Zoxamide	LC	0.01	Y	0.01	Y	0.01	Y	0.01	N	0.01	N	0.01	Y

Single residue methods

Glyphosate and co.		F&V		Cereals		Milk	
Scope (mg/kg)		RL	Acc	RL	Acc	RL	Acc
AMPA	LC	0.08	N	0.08	Y		
AMPA	*IC*						
Chlorate	*IC*			*0.01*	*Y*	*0.01*	*Y*
Dicamba	*IC*						
Ethephon	LC	0.05	N	0.04	Y		
Ethephon	*IC*			*0.05*	*Y*	*0.01*	*Y*
Fosetyl Aluminium	*IC*			*0.01*	*Y*	*0.01*	*Y*
Glufosinate	*IC*			*0.01*	*Y*	*0.01*	*Y*
Glufosinate ammonium	LC	0.08	N	0.08	Y		
Glyphosate	LC	0.08	N	0.08	Y		
Glyphosate	*IC*			*0.01*	*Y*	*0.01*	*Y*
HEPA	*IC*			*0.02*	*Y*	*0.01*	*Y*
Maleic Hydrazide	*IC*						
N-acetyl AMPA	*IC*			*0.01*	*Y*	*0.01*	*Y*
N-acetyl Glufosinate	LC	0.08	N	0.08	Y		
N-acetyl Glufosinate	*IC*			*0.01*	*Y*	*0.01*	*Y*
N-acetyl Glyphosate	*IC*			*0.01*	*Y*	*0.01*	*Y*
Perchlorate	*IC*			*0.01*	*Y*	*0.01*	*Y*
Phosphonic acid	*IC*			*0.1*	*Y*	*0.1*	*Y*

Dithiocarbamates		F&V		IF/FOF		Cereals	
Scope (mg/kg)		RL	Acc	RL	Acc	RL	Acc
DTCs	*GC*	0.05	Y	0.05	Y	0.05	N

Quats & Co.		F&V		Cereals	
Scope (mg/kg)		RL	Acc	RL	Acc
Chlormequat	*LC*	0.01	Y	0.02	Y
Cyromazine	*LC*	0.02	Y	0.02	Y
Daminozide	*LC*	0.01	Y	0.02	Y
Mepiquat	*LC*	0.01	Y	0.02	Y
Paraquat	*LC*	0.1	N	0.05	N

Amitraz & metabolites		F&V		Honey	
Scope (mg/kg)		RL	Acc	RL	Acc
Amitraz	*LC*	0.01	Y	0.01	Y
DMF	*LC*	0.01	Y	0.01	Y
DMPF	*LC*	0.01	Y	0.01	Y

9.2 ANNEX II Abbreviations

ADI	Acceptable daily intake
ARfD	Acute Reference Dose
BCP	Border Control Post
DAFM	Department of Agriculture, Food and the Marine
EC	European Community
EU	European Union
FSAI	Food Safety Authority of Ireland
IUNA	Irish Universities Nutrition Alliance
LOQ	Limit of Quantitation
mg/kg	milligram per kilogram
MRL	Maximum Residue Level
NCFS	National Children's Food Survey
OJ	Official Journal of the European Union
PCB	Polychlorinated Biphenyl
PCD	Pesticide Controls Division
RASFF	Rapid Alert System for Food and Feed
SI	Statutory Instrument
TC	Third Country

9.3 ANNEX III Glossary of terms

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

Maximum Residue Level (MRL)	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. MRLs are fixed at or about the limit of determination, where there are no approved uses. 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.
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

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