Department
for Environment,
Food & Rural Affairs

Quarter 2 2025 report on the pesticide residues monitoring programme

December 2025

We are responsible for improving and protecting the environment. We aim to grow a green economy and sustain thriving rural communities. We also support our world-leading food, farming and fishing industries.

Defra is a ministerial department, supported by 34 agencies and public bodies.

This publication is available at www.gov.uk/defra.

Any enquiries regarding this publication should be sent to PesticideResiduesTeam@hse.gov.uk.

Contents

1. Introduction, results summary and actions taken by Health and Safety Executive (HSE)

Chair's comments

During this year's surveillance programme, we are measuring up to 428 different pesticides in each of the foods we survey. The Quarter 2 (Q2) programme for Great Britain (GB) surveyed 604 samples of 22 different foods (Table 1a GB in this report contains a full list). The samples were collected between the beginning of April and the end of June 2025. The Q2 programme for Northern Ireland (NI) surveyed 279 samples of 21 different foods (Table 1b NI in this report contains a full list). The samples were collected between the beginning of April and the end of June 2025.

Of the 604 Q2 GB samples, we found residues in 320 of them and of these, 16 samples contained residues over the maximum residue level (MRL). Of the 279 Q2 NI samples, we found residues in 123 of them and of these, 2 samples contained residues over the MRL.

HSE undertakes screening and detailed risk assessments, as required, for the pesticide residues found. This is to determine whether the residues present could lead to someone eating an amount above a level that is considered safe. HSE also produces for every case where the actual residue level found could lead to an intake above the safety levels.

Following screening assessment, we needed to consider the potential short-term health effects of only a small minority of the residues found in more detail. In all but 2 of these cases, we concluded that effects on health were either unlikely or not expected. In the 2 pesticide commodity combinations we concluded that the consumer exposure levels observed here are undesirable, and in these cases some people might experience minor adverse health effects, which we expect would be short-lived and reversible. Full details are presented in detailed risk assessments. All other residues found did not cause any concern for health.

These detailed considerations on the risk assessments as well as links to underlying information are covered in our reports for barley, beans with pods and potatoes. We also needed to consider the potential genotoxic health effects of chlorpyrifos, carbofuran, dimethoate and omethoate found across 5 samples of beans with pods and one sample of barley. Each of these samples did not contain more than one pesticide that might have possible genotoxicity. These pesticides are not authorised in the UK but can on occasions be found in some imported food. We concluded that a risk of an adverse effect on health due to genotoxicity would be low.

Additionally, none of the individual commodity long-term exposure screening assessments performed in this quarter (for each of the pesticides found in this report) indicated any potential for adverse long-term health effects. This was based on the assessment of dietary intakes as below the acceptable daily intake (ADI) or other established long-term health-based reference values.

Read the Pesticide Residues in Food reports for full analytical results, details of suppliers and retailers of the foods sampled (these are in ODS (Open Document Spreadsheet) files. We hope this data format is useful for people wanting to look at the individual results in more detail.

Since the UK left the EU, we report the results for samples collected in GB separately from those collected in NI. Surveys have been titled throughout the report as either GB or NI to make clear where the samples were collected. Samples collected in GB are subject to GB MRLs. GB MRLs are set by inclusion in a GB MRL Statutory Register, implemented and updated by means of a database. For samples collected in NI, certain aspects of EU food law, including compliance with EU set MRLs, continue to apply under the terms of the Windsor Framework. In the detailed data files HSE is, for 2025 results, still separating out EU from non-EU origin foods in the results.

HSE asked suppliers and the authorities of the exporting countries for an explanation of our findings. Any responses they have received specifically for publication are available in in the sample details section of sample details and supplier responses.

If you have any feedback or comments on the monitoring programme or the reports produced, send them to HSE at PesticideResiduesTeam@hse.gov.uk.

Ann Davison
Chair of the Expert Committee on Pesticide Residues in Food

Consumer risk summary

HSE screens each residue detected for any consumer health issues to identify which need to be considered in more detail. The approach that HSE apply to do this work, including follow up risk assessments where they are needed, is explained in HSE risk assessment methodology. We comment on any risks HSE considered in detail in our full report, and HSE's detailed risk assessments are also published.

HSE liaises with the Food Standards Agency (FSA) on consumer risk assessment and the FSA also takes part in our meetings.

Table 1a: Overview of the survey results for Q2 Great Britain (GB)

GB surveys that have an asterisk are a requirement of the Multi-annual GB control plan for pesticide residues.

Survey title (where samples collected)	Number of pesticides sought	Samples tested	Detailed risk assessment presented?	MRL exceedances (samples)
Apples (GB) *	418	18	No	0
Asparagus (GB)	412	30	No	0
Barley (GB) *	420	18	Yes	0
Beans with pods (GB)	412	22	Yes	5
Cabbage (GB) *	389	24	No	0
Figs (GB)	388	23	No	0
Fish (tinned) (GB)	118	24	No	0
Grapes (GB)	415	21	No	1
Lettuce (GB) *	418	24	No	1
Mango (GB)	388	30	No	1
Milk (GB) *	124	78	No	0

Survey title (where samples collected)	Number of pesticides sought	Samples tested	Detailed risk assessment presented?	MRL exceedances (samples)
Oats (GB) *	419	18	No	0
Peaches and nectarines (GB) *	393	34	No	0
Plums (GB)	413	30	No	0
Pork (GB) *	121	25	No	0
Potatoes (GB)	428	51	Yes	3
Pre-packed salad (GB)	412	18	No	2
Rice (GB)	412	24	No	1
Spinach (GB) *	389	24	No	2
Strawberries (GB) *	391	16	No	0
Tomatoes (GB) *	421	16	No	0
Wine (GB) *	419	36	No	0

Table 1b: Overview of the survey results for Q2 Northern Ireland (NI)

Northern Ireland surveys that have an asterisk are a requirement of the EU Co-ordinated Programme required by Commission Implementing Regulations 2023/731.

Survey title (where samples collected)	Number of pesticides sought	Samples tested	Detailed risk assessment presented?	MRL exceedances (samples)
Apples (NI) *	401	9	No	0
Asparagus (NI)	390	11	No	0

Survey title (where samples collected)	Number of pesticides sought	Samples tested	Detailed risk assessment presented?	MRL exceedances (samples)
Barley (NI) *	402	18	No	0
Beans with pods (NI) *	391	9	No	0
Cabbage (NI) *	395	12	No	0
Cheese (hard) (NI)	39	12	No	0
Fish (tinned) (NI)	39	12	No	0
Grapes (NI)	396	9	No	0
Lettuce (NI) *	400	8	No	0
Mango (NI)	390	11	No	0
Milk (NI) *	47	27	No	0
Oats (NI) *	402	18	No	0
Peaches and nectarines (NI) *	397	11	No	0
Plums (NI)	402	15	No	0
Pork (NI) *	44	18	No	0
Potatoes (NI)	397	18	Yes	0
Pre-packed salad (NI)	400	15	No	2
Spinach (NI) *	400	6	No	0
Strawberries (NI) *	396	12	No	0
Tomatoes (NI) *	400	11	No	0

Survey title (where samples collected)	Number of pesticides sought	Samples tested	Detailed risk assessment presented?	MRL exceedances (samples)
Wine (NI) *	395	17	No	0

Samples collected in GB must comply with GB set MRLs unless the goods are qualifying NI goods and are subject to unfettered access under the terms of the UK Internal Market Act 2020. For samples collected in NI, under the Windsor Framework, certain aspects of EU food law, including compliance with EU MRLs apply.

Other issues

Suspected unauthorised uses

- 1 UK potato sample that contained glufosinate. The HSE enforcement investigation is ongoing, and an update will be provided in the next quarterly report

Details of possible unauthorised uses from previous surveys are provided in section 5: issues arising in this report.

Organic samples with residues

The Department for Environment and Rural Affairs (Defra) and Department of Agriculture, Environment and Rural Affairs (DAERA), and the relevant organic certification organisations are responsible for follow-up activity related to the presence of pesticide residues in organic samples.

HSE writes to the suppliers of organic food obtained in GB if the samples contain a pesticide residue which is not permitted under retained organic regulation Commission Regulation (EC) No 889/2008 and copies these bodies in.

- 3 Italian samples of organic spinach (GB) containing chlorate
- one Italian sample of organic wine (GB) contained fosetyl-Al
- 3 Irish samples of organic oats (NI) containing chlormequat

HSE writes to Defra organics if samples of organic produce contain a pesticide residue which is permitted under retained organic regulation Commission Regulation (EC) No 889/2008.

- one UK sample of organic green beans (GB) containing spinosad (sum)

Further information

You can find further information on the individual sample details in an accessible format by looking at the Pesticide Residues in Food quarterly data and results.

This includes:

- brand name, sampling point and origin information
- pesticides sought and residues found

Introduction to the work of the Expert Committee on Pesticide Residues in Food (PRiF)

The UK Expert Committee on Pesticide Residues in Food (the PRiF) is established to provide independent scientific advice to:

- Department for Environment, Food and Rural Affairs (Defra)
- Health and Safety Executive (HSE) (accountable to the Department of Work and Pensions)
- Department of Agriculture, Environment and Rural Affairs for Northern Ireland (DAERA)
- Food Standards Agency (FSA)
- Scottish Government
- Welsh Government

Read the PRiF Terms of Reference and Code of Practice.

In relation to the published reports this includes advice on:

- the government's presentation of findings resulting from monitoring programmes of pesticide residues in food in GB and NI – in particular to ensure that results can be readily and appropriately understood by the public
- planned and ad-hoc government programmes to monitor pesticide residues in foodstuffs – in particular on foods to be surveyed (taking account of changing diets), availability of produce, location and frequency of sampling and pesticides to be sought
- the determination of likely causes of adverse findings detected in government (and where relevant other national and international) monitoring programmes for pesticide residues in food

The Expert Committee on Pesticide Residues in Food was established in 2011. Members have a broad range of expertise relating to the food supply industry. Previously this work was carried out by the Pesticide Residues Committee.

The chair, Ann Davison, has worked in consumer affairs for most of her career, running consumer organisations and networks. The committee also includes members with expertise in food science, public interest and food production and supply.

Information on the membership of the committee can be found on gov.uk: Expert Committee on Pesticide Residues in Food (PRiF)

UK National Monitoring Programmes

The HSE, working under Defra, and the Scottish and Welsh governments' authority has official responsibility to organise a monitoring programme of GB food for pesticide residues. Similarly, HSE working under Defra's authority has official responsibility to organise a monitoring programme of NI food for pesticide residues, including participating in the EU multi-annual control programme.

The programmes are made up of a risk-based rolling programme of surveys and statutory programmes required by GB or EU law. It is a surveillance programme, which is designed based upon evidence gathered in the previous years, including previous results, PRiF advice and border control information. For efficiency reasons, the NI programme may differ in that some lower priority (primarily imported) foods or processed foods are not included. If the GB survey identifies issues in these foods, then they would be included in future testing in NI.

These surveys are not an enforcement programme, and the survey design is generally not adjusted during the year. HSE are responsible for considering the safety of people who eat the food (in co-operation with the FSA if necessary) and for following up adverse or unexpected results. HSE are also responsible for determining whether food is compliant with the law, specifically, whether any pesticide residue found is within the MRL.

MRLs reflect levels of pesticides that could occur in food which has been treated in accordance with good agricultural practice. Where pesticides do not give rise to readily detectable residues, or are not authorised for use on commodities, MRLs are set at the lowest level which can be identified in routine laboratory analysis. This provides a mechanism for statutory controls on pesticides in food which is put into circulation and for monitoring the correct use of these chemicals.

Table 2: 2025 Survey design

GB surveys that have an asterisk are a requirement of the Multi-annual Great Britain control plan for pesticide residues.

NI surveys that have an asterisk are a requirement of the EU Coordinated Programme required by Commission Implementing Regulations 2024/989.

Table 2a: Fruit and vegetables

Food	Sampling points	Sampled during	Reporting
Apples (GB) *	Retail outlets	Quarterly	Quarterly
Apples (NI) *	Retail outlets	Quarterly	Quarterly
Asparagus (GB)	Retail outlets	Quarters 2 and 3	Quarters 2 and 3
Asparagus (NI)	Retail outlets	Quarters 2 and 3	Quarters 2 and 3
Beans with pods (GB)	Retail outlets and supply chain	Quarterly	Quarterly
Beans with pods (NI)	Retail outlets	Quarterly	Quarterly

Food	Sampling points	Sampled during	Reporting
Cabbage (GB) *	Retail outlets and supply chain	Quarterly	Quarterly
Cabbage (NI) *	Retail outlets	Quarterly	Quarterly
Celery (GB)	Retail outlets	Quarters 3 and 4	Quarters 3 and 4
Figs (GB)	Retail outlets and supply chain	Quarterly	Quarterly
Figs (NI)	Retail outlets	Quarters 3 and 4	Quarters 3 and 4
Grapes (GB)	Retail outlets and supply chain	Quarterly	Quarterly
Grapes (NI)	Retail outlets	Quarterly	Quarters 2, 3 and 4
Lettuce (GB) *	Retail outlets and supply chain	Quarters 2, 3 and 4	Quarters 2, 3 and 4
Lettuce (NI) *	Retail outlets	Quarters 3 and 4	Quarters 3 and 4
Mango (GB)	Retail outlets and supply chain	Quarterly	Quarterly
Mango (NI)	Retail outlets	Quarterly	Quarterly
Peaches and nectarines (GB) *	Retail outlets and supply chain	Quarterly	Quarterly
Peaches and nectarines (NI) *	Retail outlets	Quarterly	Quarterly
Plums (GB)	Retail outlets	Quarters 2 and 3	Quarters 2 and 3
Plums (NI)	Retail outlets	Quarters 2, 3 and 4	Quarters 2, 3 and 4
Potatoes (GB)	Supply chain	Quarterly	Quarterly

Food	Sampling points	Sampled during	Reporting
Potatoes (NI)	Retail outlets	Quarterly	Quarterly
Pre-packed salad (GB)	Retail outlets	Quarterly	Quarterly
Salad and baby leaf bags (NI)	Retail outlets	Quarters 2, 3 and 4	Quarters 2, 3 and 4
Spinach (GB) *	Retail outlets and supply chain	Quarterly	Quarterly
Spinach (NI) *	Retail outlets	Quarterly	Quarterly
Strawberries (GB) *	Retail outlets and supply chain	Quarterly	Quarterly
Strawberries (NI) *	Retail outlets	Quarterly	Quarterly
Tomatoes (GB) *	Retail outlets and supply chain	Quarterly	Quarterly
Tomatoes (NI) *	Retail outlets	Quarterly	Quarterly

Table 2b: Animal products

Food	Sampling points	Sampled during	Reporting
Cheese (NI)	Retail outlets	Quarterly	Quarterly
Fish (tinned) (GB)	Retail outlets	Quarterly	Quarterly
Fish (tinned) (NI)	Retail outlets	Quarterly	Quarterly
Milk (GB) *	Retail outlets	Quarterly	Quarterly
Milk (NI) *	Retail outlets	Quarterly	Quarters 2, 3 and 4
Pork (GB) *	Retail outlets	Quarterly	Quarterly

Food	Sampling points	Sampled during	Reporting
Pork (NI) *	Retail outlets	Quarterly	Quarterly

Table 2c: Cereal products

Food	Sampling points	Sampled during	Reporting
Barley (GB) *	Retail outlets	Quarterly	Quarterly
Barley (NI) *	Retail outlets	Quarters 2 and 3	Quarters 2 and 3
Bread (gluten free) (GB)	Retail outlets	Quarters 2, 3 and 4	Quarters 3 and 4
Bread (gluten free) (NI)	Retail outlets	Quarters 3 and 4	Quarters 3 and 4
Bread (ordinary) (GB)	Retail outlets	Quarters 2, 3 and 4	Quarters 3 and 4
Bread (ordinary) (NI)	Retail outlets	Quarters 3 and 4	Quarters 3 and 4
Oats (GB) *	Retail outlets	Quarterly	Quarterly
Oats (NI) *	Retail outlets	Quarters 2 and 3	Quarters 2 and 3
Rice (GB)	Retail outlets	Quarters 1 and 2	Quarters 1 and 2

Table 2d: Miscellaneous products

Food	Sampling points	Sampled during	Reporting
Apple juice (GB)	Retail outlets	Quarters 1 and 3	Quarters 1 and 3
Infant food (animal) (GB) *	Retail outlets	Quarter 3	Quarter 3
Infant food (cereal) (NI)*	Retail outlets	Quarter 3	Quarter 3

Food	Sampling points	Sampled during	Reporting
Mango juice (GB)	Retail outlets	Quarter 3	Quarter 3
Plant-based chocolate (GB)	Retail outlets	Quarter 4	Quarter 4
Plant-based protein (GB)	Retail outlets	Quarter 3	Quarter 3
Spices (cumin and turmeric) (GB)	Retail outlets	Quarters 2 and 3	Quarter 3
Tomatoes (processed) (GB)	Retail outlets	Quarter 1	Quarter 1
Wine (GB) *	Retail outlets	Quarterly	Quarters 2 and 4
Wine (NI) *	Retail outlets	Quarters 2 and 3	Quarters 2 and 3

Sampling points

Retail outlets - samples bought by market research contractor shoppers.

Supply chain - samples taken by inspectors from the Animal and Plant Health Agency (APHA) from a range of points in the supply chain (wholesalers, retail depots, ports and import points).

Reporting

Results for certain higher-priority foods are produced, followed up and published more frequently in the Pesticide Residues in Food data and results.

All the results for each quarter are published in the relevant quarterly report. Some surveys are included in every quarter, some are included every other quarter and some in just one quarter.

The place of origin listed for the samples tested in this report is in the following categories:

- were imported from outside the EU – in this report this means outside of the EU and outside of the UK
- came from the UK
- came from the EU

Table 3a: Summary of results for Q2 Great Britain (GB)

Food	Analysed	With residues at or below the MRL	With residues above the MRL	With residues of non-approved pesticides (UK only)	With multiple residues	Organic samples tested	Organic samples with residues
Apples (GB)	18	13	0	0	12	4	0
Asparagus (GB)	30	0	0	0	0	2	0
Barley (GB)	18	18	0	0	17	0	0
Beans with pods (GB)	22	8	5	0	8	2	1
Cabbage (GB)	24	13	0	0	7	4	0
Figs (GB)	23	0	0	0	0	0	0
Fish (tinned) (GB)	24	1	0	0	0	0	0
Grapes (GB)	21	20	1	0	20	0	0
Lettuce (GB)	24	17	1	0	11	0	0
Mango (GB)	30	24	1	0	11	0	0

Food	Analysed	With residues at or below the MRL	With residues above the MRL	With residues of non-approved pesticides (UK only)	With multiple residues	Organic samples tested	Organic samples with residues
Milk (GB)	78	0	0	0	0	36	0
Oats (GB)	18	8	0	0	8	10	0
Peaches and nectarines (GB)	34	27	0	0	17	0	0
Plums (GB)	30	27	0	0	15	0	0
Pork (GB)	25	2	0	0	1	0	0
Potatoes (GB)	51	32	3	0	13	1	0
Pre-packed salad (GB)	18	16	2	0	13	0	0
Rice (GB)	24	9	1	0	4	4	0
Spinach (GB)	24	19	2	0	15	4	3
Strawberries (GB)	16	15	0	0	12	0	0
Tomatoes (GB)	16	10	0	0	6	0	0

Food	Analysed	With residues at or below the MRL	With residues above the MRL	With residues of non-approved pesticides (UK only)	With multiple residues	Organic samples tested	Organic samples with residues
Wine (GB)	36	25	0	0	13	5	1

Table 3b: Summary of results for Q2 Northern Ireland (NI)

Food	Analysed	With residues at or below the MRL	With residues above the MRL	With residues of non-approved pesticides (UK only)	With multiple residues	Organic samples tested	Organic samples with residues
Apples (NI)	9	8	0	0	6	1	0
Asparagus (NI)	11	0	0	0	0	0	0
Barley (NI)	18	15	0	0	11	0	0
Beans with pods (NI)	9	4	0	0	2	0	0
Cabbage (NI)	12	2	0	0	0	0	0
Cheese (NI)	12	0	0	0	0	0	0
Fish (tinned) (NI)	12	4	0	0	0	0	0
Grapes (NI)	9	8	0	0	7	0	0
Lettuce (NI)	8	2	0	0	1	1	0
Mango (NI)	11	9	0	0	0	0	0

Food	Analysed	With residues at or below the MRL	With residues above the MRL	With residues of non-approved pesticides (UK only)	With multiple residues	Organic samples tested	Organic samples with residues
Milk (NI)	27	0	0	0	0	8	0
Oats (NI)	18	11	0	0	5	10	3
Peaches and nectarines (NI)	11	6	0	0	3	0	0
Plums (NI)	15	11	0	0	6	0	0
Pork (NI)	18	1	0	0	0	0	0
Potatoes (NI)	18	5	0	0	2	5	0
Pre-packed salad (NI)	15	13	2	0	12	0	0
Spinach (NI)	6	4	0	0	3	0	0
Strawberries (NI)	12	9	0	0	7	1	0
Tomatoes (NI)	11	2	0	0	0	1	0

Food	Analysed	With residues at or below the MRL	With residues above the MRL	With residues of non-approved pesticides (UK only)	With multiple residues	Organic samples tested	Organic samples with residues
Wine (NI)	17	7	0	0	0	1	0

Table 4a: Summary of maximum residue level (MRL) exceedances for Q2 Great Britain (GB)

Some shorthand has been used in this table. The asterisk symbol '*' means MRLs set at the limit of determination (LOD MRL). These MRLs are set at a default level, for example, at the LOD where analytical methods can reasonably detect the presence of the pesticide. Either insufficient trials data are available on which to set an MRL, or there may be no use of the pesticide on that crop permitted. However, they may be permitted elsewhere.

Where processed goods have been tested, the MRL may be adjusted to take account of processing – read section 5: issues arising in this report.

Measurement uncertainty is explained in the quarterly reports on the pesticide residues monitoring programme: methodology, background and references.

Beans with pods (GB)

Sample ID	Food type	Country of origin	Pesticide detected	Residue detected (mg per kg)	MRL (mg per kg)	MRL exceedance after allowing for measurement uncertainty	Sent to FSA for consideration
5017/2025	Yard long beans	India	Dimethoate	0.04	0.01*	Yes	Yes
5017/2025	Yard long beans	India	Omethoate	0.05	0.01*	Yes	Yes
5253/2025	Yard long beans	Bangladesh	Chlorpyrifos	0.08	0.01*	Yes	Yes

Sample ID	Food type	Country of origin	Pesticide detected	Residue detected (mg per kg)	MRL (mg per kg)	MRL exceedance after allowing for measurement uncertainty	Sent to FSA for consideration
5253/2025	Yard long beans	Bangladesh	Dinotefuran	0.08	0.01	Yes	No
5274/2025	Yard long beans	Thailand	Cypermethrin (sum)	0.9	0.7	No	No
5419/2025	Wing beans	Sri Lanka	Carbofuran (sum)	0.02	0.01*	No	Yes
5420/2025	Long beans	Sri Lanka	Carbofuran (sum)	0.2	0.01*	Yes	Yes

Grapes (GB)

Sample ID	Food type	Country of origin	Pesticide detected	Residue detected (mg per kg)	MRL (mg per kg)	MRL exceedance after allowing for measurement uncertainty	Sent to FSA for consideration
5562/2025	Victoria grapes	Brazil	Abamectin (partial sum)	0.02	0.01*	No	No

Lettuce (GB)

Sample ID	Food type	Country of origin	Pesticide detected	Residue detected (mg per kg)	MRL (mg per kg)	MRL exceedance after allowing for measurement uncertainty	Sent to FSA for consideration
5560/2025	Round lettuce	UK	Propyzamide	2.9	0.6	Yes	No

Mango (GB)

Sample ID	Food type	Country of origin	Pesticide detected	Residue detected (mg per kg)	MRL (mg per kg)	MRL exceedance after allowing for measurement uncertainty	Sent to FSA for consideration
5266/2025	Kesar mango	India	Acephate	0.02	0.01*	No	No

Potatoes (GB)

Sample ID	Food type	Country of origin	Pesticide detected	Residue detected (mg per kg)	MRL (mg per kg)	MRL exceedance after allowing for measurement uncertainty	Sent to FSA for consideration
5510/2025	Spunta potatoes	Egypt	Fluazifop-p (sum)	0.4	0.15	Yes	No

Sample ID	Food type	Country of origin	Pesticide detected	Residue detected (mg per kg)	MRL (mg per kg)	MRL exceedance after allowing for measurement uncertainty	Sent to FSA for consideration
5511/2025	Spunta potatoes	Egypt	Fosthiazate	0.1	0.02*	Yes	Yes
5514/2025	Santana potatoes	Egypt	Fluazifop-p (sum)	0.3	0.15	No	No

Pre-packed Salad (GB)

Sample ID	Food type	Country of origin	Pesticide detected	Residue detected (mg per kg)	MRL (mg per kg)	MRL exceedance after allowing for measurement uncertainty	Sent to FSA for consideration
0516/2025	Pre-packed mixed leaf salad	UK	Chlorate	0.8	0.7	No	No
1252/2025	Mild and tender baby leaf salad	UK	Chlorate	1.6	0.7	Yes	No

Rice (GB)

Sample ID	Food type	Country of origin	Pesticide detected	Residue detected (mg per kg)	MRL (mg per kg)	MRL exceedance after allowing for measurement uncertainty	Sent to FSA for consideration
4007/2025	Brown rice	UK	Hexaconazole	0.03	0.01*	Yes	No

Spinach (GB)

Sample ID	Food type	Country of origin	Pesticide detected	Residue detected (mg per kg)	MRL (mg per kg)	MRL exceedance after allowing for measurement uncertainty	Sent to FSA for consideration
5277/2025	Baby spinach	UK	Lenacil	0.2	0.1*	No	No
5476/2025	Baby leaf spinach	UK	Lenacil	0.5	0.1*	Yes	No

Samples collected in GB must comply with GB set MRLs unless the goods are qualifying NI goods and are subject to unfettered access under the terms of the UK Internal Market Act for 2020. For samples collected in NI, under the Windsor Framework, certain aspects of EU food law, including compliance with EU set MRLs, continue to apply.

Table 4b: Summary of MRL exceedances for Q2 Northern Ireland (NI)

Where processed goods have been tested, the MRL may be adjusted to take account of processing – read section 5: issues arising in this report.

Measurement uncertainty is explained in the quarterly reports on the pesticide residues monitoring programme: methodology, background and references.

Pre-packed Salad (NI)

Sample ID	Food type	Country of origin	Pesticide detected	Residue detected (mg per kg)	MRL (mg per kg)	MRL exceedance after allowing for measurement uncertainty	Sent to FSA for consideration
1280/2025	Radicchio, lambs lettuce and frisee	UK	Chlorate	1.2	0.7	No	No
4131/2025	Rocket	UK	Chlorate	1.4	0.7	No	No

Samples collected in GB must comply with GB-set MRLs unless the goods are qualifying NI goods and are subject to unfettered access under the terms of the UK Internal Market Act for 2020. For samples collected in NI, under the Windsor Framework, certain aspects of EU food law, including compliance with EU set MRLs, continue to apply.

Action taken by HSE

HSE wrote to:

- the suppliers of all samples containing residues above the MRL

- the authorities of the exporting countries of all samples containing residues above the MRL
- the suppliers of GB and NI samples that contained residues of actives which do not have a plant protection product authorised for the crop they were detected in
- the Organics branch of Defra about samples that were labelled as organic and contained any residues of pesticides which is not permitted under retained organic regulation Commission Regulation (EC) No 889/2008

Recipients of the letters are given 4 weeks to provide a statement for inclusion in the report. The Expert Committee on Pesticide Residues in Food reviews any replies received.

Supplier responses

None

2. Findings by food in Great Britain (GB) and the UK: detailed risk assessments

Summary

For more information on the results, read the:

- summary table of results in this report
- survey design in this report
- glossary in this report
- Risk Assessment - dietary intake assessments
- HSE risk assessment methodology, and
- detailed pesticide residues in food quarterly data, which includes brand name, sampling point and origin information, pesticides sought, and residues found

Apples (GB)

Samples tested

18 samples were tested for up to 418 pesticide residues.

Cooking

- one sample came from the UK

Eating

- 4 samples came from the UK
- 7 samples were imported from outside the EU
- 6 samples came from the EU

Pesticide residues detected of those sought

- 5 samples contained no residues of those sought
- 13 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- 4 samples were labelled as organic. None contained residues of those sought

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. We do not expect these residues to effect human health, either separately or in combination. The pesticide residues found in each sample do not include more than one of the pesticides from the groups that HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

PRiF considered these results in detail and felt it did not need to make any additional comments.

Asparagus (GB)

Samples tested

30 samples were tested for up to 412 pesticide residues.

- 17 samples came from the UK
- 12 samples were imported from outside the EU
- one sample came from the EU

Pesticide residues detected of those sought

- 30 samples contained no residues of those sought
- none of the samples contained residues above the MRL
- 2 samples were labelled as organic. None contained residues of those sought

Risk assessments

The laboratory did not detect any residues, so we did not carry out a risk assessment.

Additional comments by the PRiF

None.

Barley (GB)

Samples tested

18 samples were tested for up to 420 pesticide residues.

Barley with husk

- one sample came from the UK

Pearl barley

- 17 samples came from the UK

The country of origin of samples may not be the same as the country where the barley was produced. It may be where the barley was processed, where it was packed for consumer purchase or the address of the brand owner.

Pesticide residues detected of those sought

- all samples contained residues
- none of the samples contained residues above the MRL. The MRL may have been adjusted, if the barley were processed, to allow for the effect of processing Further information can be found in section 5: issues arising in this report
- none of the samples were labelled as organic

Risk assessments

Following screening assessment there was one sample of barley with husk that contained a residue of chlorpyrifos at a level of 0.008 mg per kg (below the level of the MRL of 0.01* mg per kg) where we wanted to assess whether there would be an effect on health.

Based on the HSE assessment of short-term risk for chlorpyrifos (see section 4: dietary intake assessments) we conclude an effect on health is not expected.

As outlined in HSE's full risk assessment (see section 4: dietary intake assessments) in 2019 the European Food Safety authority (EFSA) issued a statement on the human health assessment of chlorpyrifos which included a consideration of the potential for genotoxicity (whether damage to genetic material can occur). We conclude that on a precautionary basis any findings of chlorpyrifos are undesirable due to the uncertainty regarding genotoxicity. However, due to the low level of chlorpyrifos (only 0.008 mg per kg) in the barley sample we consider risks of adverse health effects are low.

Other risk assessment screening work undertaken did not indicate any other expectation of effects on health. Refer to HSE risk assessment methodology for further details.

Combined risk assessments

Some samples contained residues of more than one pesticide. Some of these residues are from pesticides which belong to a similar chemical group and may have similar toxicological effects. So, the risk assessors needed to consider their possible impacts on human health, both on their own and in combination.

HSE carried out a combined risk assessment of the relevant samples. We would not expect this combination of pesticides in these samples to have an effect on health. Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

We needed to consider the potential genotoxic health effects of chlorpyrifos in one sample of barley with husk at 0.008 mg per kg. This pesticide is not authorised in the UK but can on occasion be found in some imported food. We concluded that on a precautionary basis any findings of chlorpyrifos are undesirable due to the uncertainty regarding genotoxicity, however, at the levels present, risks of an adverse effect on health due to genotoxicity are low.

Beans with pods (GB)

Samples tested

22 samples were tested for up to 412 pesticide residues.

Dwarf beans

- 2 samples were imported from outside the EU

Fine beans

- 6 samples were imported from outside the EU

Green beans

- 6 samples were imported from outside the EU

Runner beans

- 2 samples were imported from outside the EU

Speciality beans

- 6 samples were imported from outside the EU

Pesticide residues detected of those sought

- 9 samples contained no residues of those sought
- 13 samples contained residues above the reporting limit
- 5 samples contained residues above the MRL
- 2 samples were labelled as organic. One contained residues of those sought

Risk assessments

Following screening assessment there were 3 pesticides, chlorpyrifos, dimethoate, and carbofuran where we wanted to assess whether there would be an effect on health.

Chlorpyrifos - a residue finding in Yard Long Beans from Bangladesh of 0.08 mg per kg above the MRL of 0.01* mg per kg.

Based on the HSE assessment of short-term risk for chlorpyrifos (see section 4: dietary intake assessments), we conclude an effect on health is unlikely.

As outlined in HSE's full risk assessment (see section 4: dietary intake assessments) in 2019 EFSA issued a statement on the human health assessment of chlorpyrifos which included a consideration of the potential for genotoxicity (whether damage to genetic

material can occur). We conclude that on a precautionary basis any findings of chlorpyrifos are undesirable due to the uncertainty regarding genotoxicity. However, we consider risks of adverse health effects are low. For full details, read section 4: dietary intake assessments .

Dimethoate - a residue finding in Yard Long beans from India of dimethoate at 0.04 mg per kg and its metabolite omethoate at 0.05 mg per kg above the MRLs of 0.01* mg per kg.

Based on the HSE assessment for dimethoate and its metabolite omethoate, we conclude a short-term effect on health is unlikely. As outlined in HSE's full risk assessment (see section 4: dietary intake assessments), in 2018, an EFSA assessment reviewed dimethoate and concluded that no toxicological reference values could be determined for dimethoate or omethoate, due to a lack of a fully supporting toxicological database. We think that, at the anticipated highest exposures following consumption of the beans with pods sample containing the highest residue, there is unlikely to be a risk of ill health effects based on short term toxicity.

The 2018 EFSA conclusion for dimethoate also includes a consideration of the potential for genotoxicity (whether damage to genetic material can occur) for dimethoate and omethoate. It is unclear whether dimethoate or omethoate can damage genetic material (are genotoxic). We conclude that on a precautionary basis any findings of dimethoate and omethoate are undesirable due to the uncertainty regarding genotoxicity at low doses. However, we consider risks of adverse health effects are low.

Carbofuran - a residue finding in Long Beans from Sri Lanka of 0.2 mg per kg above the MRL of 0.01* mg per kg.

HSE concluded that due to significant erosion of the safety factor, some people might experience transient signs of cholinergic toxicity (for example, headache, stomach upset, salivation, reduced pupil response) after eating large portions (97.5th percentile consumption) of beans with pods containing this level of carbofuran. Such effects would be expected to be minor, short lived and reversible. See section 4: dietary intake assessments for full details of this assessment of short-term risk.

Regarding genotoxicity, we conclude that on a precautionary basis any findings of carbofuran are undesirable due to the uncertainty regarding genotoxicity. However, we consider any such risks of adverse health effects are low.

There were two further samples with residues of omethoate (0.005 mg per kg) and of carbofuran (0.02 mg per kg) at lower levels than the above samples discussed. For all these beans with pods samples, refer to the section on substances that might be genotoxic for HSE's conclusions regarding potential genotoxicity.

Other risk assessment screening work undertaken did not indicate any other expectation of effects on health. Refer to HSE risk assessment methodology for further details.

Combined risk assessments

Some samples contained residues of more than one pesticide. We do not expect these residues to effect human health, either separately or in combination. The pesticide residues found in each sample do not include more than one of the pesticides from the groups that HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

The results from these surveys have already been published and followed up earlier in the year as part of the rolling reports.

We needed to consider the potential genotoxic health effects of chlorpyrifos, dimethoate and omethoate, and carbofuran in the yard long, wing and long beans samples. The affected samples did not contain more than one pesticide that might have possible genotoxicity. These pesticides are not authorised in the UK but can on occasion be found in some imported food. We concluded that on a precautionary basis any findings of chlorpyrifos, dimethoate and omethoate, and carbofuran are undesirable due to the uncertainty regarding genotoxicity and risks of an adverse effect on health due to genotoxicity are low.

Residues measured above the MRL

The laboratory detected 5 samples with residues above the MRL in beans with pods. Details are available in Table 4a: Summary of MRL exceedances for Q2 GB.

HSE have passed details of 4 samples of wing beans, long beans and yard long beans to the FSA for further consideration. For two of these samples, FSA concluded no further action was required. FSA raised International Food Safety Authority network (INFOSAN) notifications for the yard long beans sample containing the residues dimethoate and omethoate, and for the long beans sample containing the highest residue of carbofuran, requiring that where stock remains, they should be withdrawn from the market. Further details are in Table 4a: Summary of MRL exceedances for Q2 GB.

Cabbage (GB)

Samples tested

24 samples were tested for up to 389 pesticide residues.

- 14 samples came from the UK
- 10 samples came from the EU

Pesticide residues detected of those sought

- 11 samples contained no residues of those sought
- 13 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- 4 samples were labelled as organic. None contained residues of those sought

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. We do not expect these residues to effect human health, either separately or in combination. The pesticide residues found in each sample do not include more than one of the pesticides from the groups that HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

PRiF considered these results and felt it did not need to make any additional comments.

Figs (GB)

Samples tested

23 samples were tested for up to 388 pesticide residues.

23 samples were imported from outside the EU.

Pesticide residues detected of those sought

- 23 samples contained no residues of those sought
- none of the samples contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The laboratory did not detect any residues, so we did not carry out a risk assessment.

Additional comments by the PRiF

None.

Fish (tinned) (GB)

Samples tested

24 samples were tested for up to 118 pesticide residues.

Anchovy

- one sample was imported from outside the EU

Crab

- 2 samples were imported from outside the EU

Kippers

- one sample came from the EU

Mackerel

- one sample came from the UK
- one sample was imported from outside the EU

Pilchards

- one sample came from the UK

Salmon

- 3 samples were imported from outside the EU

Sild

- one sample came from the EU

Tuna

- 13 samples were imported from outside the EU

Where no sea area information is available, the country of origin on the packaging does not necessarily indicate where the fish (tinned) was caught or farmed. It could be where it was landed or processed or where it was packed for retail sale.

Pesticide residues detected of those sought

- 23 samples contained no residues of those sought
- one sample contained residues above the reporting limit

- none of the samples contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

None of the samples contained more than one residue, so we did not carry out a combined risk assessment.

Additional comments by the PRiF

One sample contained a residue of DDT in the form of DDE which indicates presence in the environment from historical use. View in section 5: issues arising in this report.

The tinned fish may be stored in brine, oil or water; therefore, the presence of some pesticide residues may be due to the storage media. Read more information on this in the MRL section in the glossary in this report.

Grapes (GB)

Samples tested

21 samples were tested for up to 415 pesticide residues.

21 samples were imported from outside the EU.

Pesticide residues detected of those sought

- all samples contained residues
- one sample contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. Some of these residues are from pesticides which belong to similar chemical groups and may have similar toxicological effects. So, the risk assessors needed to consider their possible impacts on human health, both on their own and in combination.

HSE carried out a combined risk assessment of the relevant samples. We would not expect this combination of pesticides in these samples to have an effect on health.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

PRiF considered these results and felt it did not need to make any additional comments.

Residues measured above the MRL

The laboratory detected one sample with a residue above the MRL in grapes. Details are available in Table 4a: Summary of MRL exceedances for Q2 GB.

Lettuce (GB)

Samples tested

24 samples were tested for up to 418 pesticide residues.

Gem hearts

- 4 samples came from the UK
- 3 samples came from the EU

Iceberg

- 3 samples came from the UK
- 4 samples came from the EU

Romaine

- one sample came from the UK
- 8 samples came from the EU

Round

- one sample came from the UK

Pesticide residues detected of those sought

- 6 samples contained no residues of those sought
- 18 samples contained residues above the reporting limit
- one sample contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. We do not expect these residues to effect human health, either separately or in combination. The pesticide residues found in each sample do not include more than one of the pesticides from the groups that HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

Many of the pesticides used for lettuce are applied under the extension of authorisations for minor use (EAMU) system, which is where the grower takes the risk on application, under an extension of use scheme. It is important that the growers understand and adhere to the correct conditions for these extensions of use applications and often, there are different rates of use for indoor and outdoor growing of crops.

Residues measured above the MRL

The laboratory detected one sample with a residue above the MRL in lettuce. Details are available in Table 4a: Summary of MRL exceedances for Q2 GB.

Mango (GB)

Samples tested

30 samples were tested for up to 388 pesticide residues.

Fresh

- 30 samples were imported from outside the EU

Pesticide residues detected of those sought

- 5 samples contained no residues of those sought
- 25 samples contained residues above the reporting limit
- one sample contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. We do not expect these residues to effect human health, either separately or in combination. The pesticide residues found in each sample do not include more than one of the pesticides from the groups that the HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

PRiF considered these results in detail and felt it did not need to make any additional comments.

Residues measured above the MRL

The laboratory detected one sample with a residue above the MRL in mango. The screening assessment performed by HSE concluded that there was no Acute Reference Dose (ARfD) exceedance for this sample, so an effect on health would not be expected. Details are available in Table 4a: Summary of MRL exceedances for Q2 GB.

Milk (GB)

Samples tested

78 samples were tested for up to 124 pesticide residues.

Cows' milk

- 73 samples came from the UK

Goats' milk

- 5 samples came from the UK

Pesticide residues detected of those sought

- 78 samples contained no residues of those sought
- none of the samples contained residues above the MRL
- 36 samples were labelled as organic. None contained residues of those sought

Risk assessments

The laboratory did not detect any residues, so we did not carry out a risk assessment.

Additional comments by the PRiF

None.

Oats (GB)

Samples tested

18 samples were tested for up to 419 pesticide residues.

- 13 samples came from the UK
- 5 samples came from the EU

The country of origin of samples may not be the same as the country where the oats were produced. It may be where the oats were processed, where they were packed for consumer purchase or the address of the brand owner.

Pesticide residues detected of those sought

- 10 samples contained no residues of those sought
- 8 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL. The MRL may have been adjusted, if the oats were processed, to allow for the effect of processing. Further information can be found in section 5: issues arising in this report
- 10 samples were labelled as organic. None contained residues of those sought

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. Some of these residues are from pesticides which belong to a similar chemical group and may have similar toxicological effects. So, the risk assessors needed to consider their possible impacts on human health, both on their own and in combination.

HSE carried out a combined risk assessment of the relevant samples. We would not expect this combination of pesticides in these samples to have an effect on health.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

PRiF considered these results in detail and felt it did not need to make any additional comments.

Peaches and nectarines (GB)

Samples tested

34 samples were tested for up to 393 pesticide residues.

Nectarines

- 5 samples were imported from outside the EU
- 8 samples came from the EU

Peaches

- 6 samples were imported from outside the EU
- 15 samples came from the EU

Pesticide residues detected of those sought

- 7 samples contained no residues of those sought
- 27 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. We do not expect these residues to effect human health, either separately or in combination. The pesticide residues found in each sample do not include more than one of the pesticides from the groups that HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

PRiF considered these results in detail and felt it did not need to make any additional comments.

Plums (GB)

Samples tested

30 samples were tested for up to 413 pesticide residues.

- 25 samples were imported from outside the EU
- 5 samples came from the EU

Pesticide residues detected of those sought

- 3 samples contained no residues of those sought
- 27 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. We do not expect these residues to have an effect on health, either separately or in combination. The pesticide residues found in each sample do not include more than one of the pesticides from the groups that the HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

PRiF considered these results in detail and felt it did not need to make any additional comments.

Pork (GB)

Samples tested

25 samples were tested for up to 121 pesticide residues

- 24 samples came from the UK
- one sample came from the EU

Pesticide residues detected of those sought

- 23 samples contained no residues of those sought
- 2 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

One sample contained residues of more than one pesticide. We do not expect these residues to effect human health, either separately or in combination. The pesticide residues found in this sample do not include more than one of the pesticides from the groups that HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

Two samples contained a residue of DDT in the form of DDE which indicates presence in the environment from historical use. View in section 5: issues arising in this report.

Potatoes (GB)

Samples tested

51 samples were tested for up to 428 pesticide residues.

- 37 samples came from the UK
- 14 samples were imported from outside the EU

Pesticide residues detected of those sought

- 16 samples contained no residues of those sought
- 35 samples contained residues above the reporting limit
- 3 samples contained residues above the MRL
- 1 sample was labelled as organic. None contained residues of those sought

Risk assessments

Following screening assessment, there were two pesticides found, fluazifop-p and fosthiazate, where HSE wanted to assess whether there would be an effect on short term health. For full details of the HSE risk assessments, see section 4: dietary intake assessments.

Fluazifop-p - there were 2 samples of potatoes containing fluazifop-p, each at levels (0.3 and 0.4 mg per kg) above the MRL of 0.15 mg per kg.

Based on the HSE assessment for risk (see section 4: dietary intake assessments), HSE concludes that an effect on health is not expected. The effects in the toxicity studies used to set the ARfD of 0.017 mg per kg bw (expressed as fluazifop acid) are only relevant for pregnant females. The initial screen of the residues indicated that the dietary intakes for consumer groups which might include pregnant females do not exceed the ARfD. For consumers in the general population excluding pregnant females, although an ARfD was not specifically set, HSE considered the underlying toxicity studies and derived a hypothetical short term reference value for consumer risk assessment of 0.085 mg per kg bw (expressed as fluazifop acid). Intakes for all consumer groups are below this level and HSE concluded an effect on health is not expected.

Fosthiazate - a single sample of potatoes contained fosthiazate at 0.1 mg per kg above the MRL of 0.02* mg per kg.

HSE concluded that due to significant erosion of the safety factor, some people might experience transient signs of cholinergic toxicity (for example, headache, stomach upset, salivation, reduced pupil response) after eating large portions (97.5th percentile consumption) of potatoes containing this level of fosthiazate. Such effects would be expected to be minor, short lived and reversible. For full details of this assessment of short-term risk, see section 4: dietary intake assessments.

Other risk assessment screening work undertaken did not indicate any other expectation of effects on health. Refer to HSE risk assessment methodology for further details.

Combined risk assessments

Some samples contained residues of more than one pesticide. We do not expect these residues to have an effect on health, either separately or in combination. The pesticide residues found in each sample do not include more than one of the pesticides from the groups that the HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

Based on the HSE Chemicals Regulation Division's (CRD) risk assessment of the residues detected, for the samples containing fluazifop-P HSE concluded that an effect on health is not expected, and for the single finding of fosthiazate, HSE concluded that some people might experience minor adverse health effects. This exposure level is undesirable, but we note that any health effects would be expected to be short-lived and reversible.

Residues measured above the MRL

The laboratory detected 3 samples with residues above the MRL in potatoes. Details are available in Table 4a: Summary of MRL exceedances for Q2 GB.

HSE observed that MRL exceedances of fosthiazate can occur if the growing period of the potato crop is too short. The UK authorised uses of fosthiazate on potatoes have a specified harvest interval which must be observed for this reason.

HSE have passed details of one sample containing a residue of fosthiazate to FSA for further consideration. FSA concluded that no further action was required for this sample. Further details are in Table 4a: Summary of MRL exceedances for Q2 GB.

Pre-packed salad (GB)

Samples tested

18 samples were tested for up to 412 pesticide residues.

Lamb's lettuce

- one sample came from the UK

Mixed leaf

- 14 samples came from the UK

Rocket

- 2 samples came from the UK
- one sample came from the EU

The country of origin of samples may not be the same as the country where the salad leaves were produced. It may be where the salad leaves were processed, where they were packed for consumer purchase or the address of the brand owner.

Pesticide residues detected of those sought

- all samples contained residues
- 2 samples contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. We do not expect these residues to effect human health, either separately or in combination. The pesticide residues found in each sample do not include more than one of the pesticides from the groups that HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

Further information on chlorate residues can be found in section 5: issues arising in this report.

Residues measured above the MRL

The laboratory detected 2 samples with residues above the MRL in pre-packed salad. Details are available in Table 4a: Summary of MRL exceedances for Q2 GB.

Rice (GB)

Samples tested

24 samples were tested for up to 412 pesticide residues.

Basmati

- 7 samples came from the UK
- one sample was imported from outside the EU

Brown

- 9 samples came from the UK

White

- 3 samples came from the UK
- 2 samples were imported from outside the EU
- one sample came from the EU

Wholegrain

- one sample came from the UK

The country of origin of samples may not be the same as the country where the rice was produced. It may be where the rice was processed, where it was packed for consumer purchase or the address of the brand owner.

Pesticide residues detected of those sought

- 14 samples contained no residues of those sought
- 10 samples contained residues above the reporting limit.
- one sample contained residues above the MRL.
- 4 samples were labelled as organic. None contained residues of those sought

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. One sample contained residues that are from pesticides which belong to a similar chemical group and may have

similar toxicological effects. So, the risk assessors needed to consider their possible impacts on human health, both on their own and in combination.

HSE carried out a combined risk assessment of the relevant sample. We would not expect this combination of pesticides in this sample to have an effect on health.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

PRiF considered these results in detail and felt it did not need to make any additional comments.

Residues measured above the MRL

The laboratory detected one sample with a residue above the MRL in rice. The screening assessment performed by HSE concluded that there was no exceedance of the toxicological reference value for this sample, so an effect on health would not be expected. Details are available in Table 4a: Summary of MRL exceedances for Q2 GB.

Spinach (GB)

Samples tested

24 samples were tested for up to 389 pesticide residues.

Baby leaf (fresh)

- 4 samples came from the UK
- 6 samples came from the EU

Spinach (fresh)

- 3 samples came from the UK
- 11 samples came from the EU

Pesticide residues detected of those sought

- 3 samples contained no residues of those sought
- 21 samples contained residues above the reporting limit
- 2 samples contained residues above the MRL
- 4 samples were labelled as organic. 3 contained residues of those sought

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. We do not expect these residues to effect human health, either separately or in combination. The pesticide residues found in each sample do not include more than one of the pesticides from the groups that HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

Further information on chlorate residues can be found in section 5: issues arising in this report.

Residues measured above the MRL

The laboratory detected 2 samples with residues above the MRL in spinach. Details are available in Table 4a: Summary of MRL exceedances for Q2 GB.

Strawberries (GB)

Samples tested

16 samples were tested for up to 391 pesticide residues.

Fresh

- 9 samples came from the UK
- 7 samples came from the EU

Pesticide residues detected of those sought

- one sample contained no residues of those sought
- 15 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. We do not expect these residues to effect human health, either separately or in combination. The pesticide residues found in each sample do not include more than one of the pesticides from the groups that HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

PRiF considered these results and felt it did not need to make any additional comments.

Tomatoes (GB)

Samples tested

16 samples were tested for up to 421 pesticide residues.

Cherry

- 3 samples were imported from outside the EU

Plum

- one sample came from the EU

Round

- one sample came from the UK
- 6 samples came from the EU

Salad

- one sample was imported from outside the EU
- one sample came from the EU

Vine

- one sample came from the UK
- 2 samples came from the EU

Pesticide residues detected of those sought

- 6 samples contained no residues of those sought
- 10 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. We do not expect these residues to effect human health, either separately or in combination. The pesticide

residues found in each sample do not include more than one of the pesticides from the groups that HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

PRiF considered these results and felt it did not need to make any additional comments.

Wine (GB)

Samples tested

36 samples were tested for up to 419 pesticide residues.

Red

- 7 samples were imported from outside the EU
- 8 samples came from the EU

Rose

- one sample came from the UK
- 2 samples were imported from outside the EU
- one sample came from the EU

Sparkling

- one sample was imported from outside the EU

White

- one sample came from the UK
- 5 samples were imported from outside the EU
- 10 samples came from the EU

The country of origin of samples may not be the same as the country where the wine grapes were produced. It may be where the wine was processed, where it was packed for consumer purchase or the address of the brand owner.

Pesticide residues detected of those sought

- 11 samples contained no residues of those sought
- 25 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL. The MRL may have been adjusted, if the wine was processed, to allow for the effect of processing. Further information can be found in section 5: issues arising in this report
- 5 samples were labelled as organic. One contained residues of those sought

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. We do not expect these residues to effect human health, either separately or in combination. The pesticide residues found in each sample do not include more than one of the pesticides from the groups that HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

Folpet (sum) was detected in 7 samples. The full residue definition for folpet is “sum of folpet and phthalimide, expressed as folpet”. In these 7 samples only phthalimide was detected. Further information on folpet and phthalimide residues can be found in section 5: issues arising in this report.

3. Findings by food in Northern Ireland (NI) and risk assessments

Summary

For more information on the results, read the:

- summary table of results in this report
- survey design in this report
- glossary in this report
- Risk Assessment - dietary intake assessments
- HSE risk assessment methodology, and
- detailed pesticide residues in food quarterly data, which includes brand name, sampling point and origin information, pesticides sought, and residues found

Apples (NI)

Samples tested

9 samples were tested for up to 400 pesticide residues.

Eating

- one sample came from the UK
- 3 samples were imported from outside the EU
- 5 samples came from the EU

Pesticide residues detected of those sought

- one sample contained no residues of those sought
- 8 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- one sample was labelled as organic. None contained residues of those sought

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. We do not expect these residues to have an effect on health, either separately or in combination. The pesticide residues found in each sample do not include more than one of the pesticides from the groups that HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

HSE ascertained that for the sample where dithiocarbamates was detected at a level of 0.63 mg per kg, the crop was sprayed with mancozeb. Therefore, HSE was able to confirm that there would be no exceedance of the ARfD. In the other sample finding (dithiocarbamates at 0.14 mg per kg), the screening assessment that assumed that the most toxic forms of dithiocarbamates had been sprayed on the crop also concluded no exceedance of the relevant ARfDs. Therefore, for these samples containing

dithiocarbamates an effect on health is not expected. For further information, read the explanation of the assessment of dithiocarbamates in HSE risk assessment methodology.

Asparagus (NI)

Samples tested

11 samples were tested for up to 390 pesticide residues.

Fresh

- 3 samples came from the UK
- 5 samples were imported from outside the EU
- 3 samples came from the EU

Pesticide residues detected of those sought

- 11 samples contained no residues of those sought
- none of the samples contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The laboratory did not detect any residues, so we did not carry out a risk assessment.

Additional comments by the PRiF

None.

Barley (NI)

Samples tested

18 samples were tested for up to 401 pesticide residues.

Barley

- 18 samples came from the UK

The country of origin of samples may not be the same as the country where the barley was produced. It may be where the barley was processed, where it was packed for consumer purchase or the address of the brand owner.

Pesticide residues detected of those sought

- 3 samples contained no residues of those sought
- 15 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. Some of these residues are from pesticides which belong to a similar chemical group and may have similar toxicological effects. So, the risk assessors needed to consider their possible impacts on human health, both on their own and in combination.

HSE carried out a combined risk assessment of the relevant samples. We would not expect this combination of pesticides in these samples to have an effect on health.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

PRiF considered these results and felt it did not need to make any additional comments.

Beans with pods (NI)

Samples tested

9 samples were tested for up to 390 pesticide residues.

Dwarf Beans

- one sample was imported from outside the EU

Fine Beans

- 2 samples were imported from outside the EU

Green Beans

- 2 samples were imported from outside the EU

Runner Beans

- 2 samples were imported from outside the EU

Speciality Beans

- 2 samples were imported from outside the EU

Pesticide residues detected of those sought

- 5 samples contained no residues of those sought
- 4 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. We do not expect these residues to have an effect on health, either separately or in combination. The pesticide residues found in each sample do not include more than one of the pesticides from the groups that the HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

PRiF considered these results and felt it did not need to make any additional comments.

Cabbage (NI)

Samples tested

12 samples were tested for up to 394 pesticide residues.

- 10 samples came from the UK
- 2 samples came from the EU

Pesticide residues detected of those sought

- 10 samples contained no residues of those sought
- 2 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

None of the samples contained more than one residue, so we did not carry out a combined risk assessment.

Additional comments by the PRiF

There were two samples (country of origin Northern Ireland) with low level residues of lambda-cyhalothrin up to 0.013 mg per kg. The laboratory analysis does not distinguish between lambda-cyhalothrin and gamma-cyhalothrin. Whilst the latter is a more toxic form, we know that the only authorisations on cabbage in Northern Ireland are for the lambda-cyhalothrin and not gamma-cyhalothrin. HSE will routinely screen the residues determined as lambda-cyhalothrin assuming that gamma-cyhalothrin was used. HSE has applied this approach in their screening risk assessment, intakes were all well below the ARfD for gamma-cyhalothrin and an effect on health is not expected.

Cheese (hard) (NI)

Samples tested

12 samples were tested for up to 39 pesticide residues.

Cheddar

- 5 samples came from the UK
- 6 samples came from the EU

Red Leicester

- one sample came from the UK

The country of origin of samples may not be the same as the country where the hard cheese was produced. It may be where the hard cheese was processed, where it was packed for consumer purchase or the address of the brand owner.

Pesticide residues detected of those sought

- 12 samples contained no residues of those sought
- none of the samples contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The laboratory did not detect any residues, so we did not carry out a risk assessment.

Additional comments by the PRiF

None.

Fish (tinned) (NI)

Samples tested

12 samples were tested for up to 39 pesticide residues.

Mackerel

- one sample came from the UK
- 3 samples were imported from outside the EU

Sardines

- one sample was imported from outside the EU
- one sample came from the EU

Sild

- one sample came from the EU

Tuna

- 4 samples were imported from outside the EU
- one sample came from the EU

Where no sea area information is available, the country of origin on the packaging does not necessarily indicate where the tinned fish was caught or farmed. It could be where it was landed or processed or where it was packed for retail sale.

Pesticide residues detected of those sought

- 8 samples contained no residues of those sought
- 4 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

None of the samples contained more than one residue, so we did not carry out a combined risk assessment.

Additional comments by the PRiF

3 samples contained residues of DDT in the form of DDE which indicates presence in the environment from historical use. View in section 5: issues arising in this report.

The tinned fish may be stored in brine, oil or water**;** therefore, the presence of some pesticide residues may be due to the storage media. Read more information on this in the MRL section in the glossary in this report.

Grapes (NI)

Samples tested

9 samples were tested for up to 395 pesticide residues.

Table grapes

- 9 samples were imported from outside the EU

Pesticide residues detected of those sought

- one sample contained no residues of those sought
- 8 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. We do not expect these residues to have an effect on health, either separately or in combination. The pesticide residues found in each sample do not include more than one of the pesticides from the groups that the HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

PRiF considered these results and felt it did not need to make any additional comments.

Lettuce (NI)

Samples tested

8 samples were tested for up to 399 pesticide residues.

Cos

- one sample came from the EU

Iceberg

- one sample came from the UK
- 3 samples came from the EU

Little Gem

- one sample came from the UK
- one sample came from the EU

Romaine

- one sample came from the UK

Pesticide residues detected of those sought

- 6 samples contained no residues of those sought
- 2 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- one sample was labelled as organic. None contained residues of those sought

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

One sample contained residues of more than one pesticide. We do not expect these residues to have an effect on health, either separately or in combination. The pesticide residues found in this sample do not include more than one of the pesticides from the groups that the HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

Further information on chlorate residues can be found in section 5: issues arising in this report.

Mango (NI)

Samples tested

11 samples were tested for up to 389 pesticide residues.

Fresh

- 11 samples were imported from outside the EU

Pesticide residues detected of those sought

- 2 samples contained no residues of those sought
- 9 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

None of the samples contained more than one residue, so we did not carry out a combined risk assessment.

Additional comments by the PRiF

PRiF considered these results and felt it did not need to make any additional comments.

Milk (NI)

Samples tested

27 samples were tested for up to 47 pesticide residues.

Butter milk

- 2 samples came from the UK

Cows milk

- 20 samples came from the UK
- 2 samples came from the EU

Goats milk

- 3 samples came from the UK

Pesticide residues detected of those sought

- 27 samples contained no residues of those sought
- none of the samples contained residues above the MRL
- 8 samples were labelled as organic. None contained residues of those sought

Risk assessments

The laboratory did not detect any residues, so we did not carry out a risk assessment.

Additional comments by the PRiF

None.

Oats (NI)

Samples tested

18 samples were tested for up to 401 pesticide residues.

- 13 samples came from the UK
- 5 samples came from the EU

The country of origin of samples may not be the same as the country where the oats were produced. It may be where the oats were processed, where they were packed for consumer purchase or the address of the brand owner.

Pesticide residues detected of those sought

- 7 samples contained no residues of those sought
- 11 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- 10 samples were labelled as organic. 3 contained residues of those sought

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. Some of these residues are from pesticides which belong to a similar chemical group and may have similar toxicological effects. So, the risk assessors needed to consider their possible impacts on human health, both on their own and in combination.

HSE carried out a combined risk assessment of the relevant samples. We would not expect this combination of pesticides in these samples to have an effect on health.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

PRiF considered these results and felt it did not need to make any additional comments.

Peaches and nectarines (NI)

Samples tested

11 samples were tested for up to 396 pesticide residues.

Nectarines

- 2 samples were imported from outside the EU
- 3 samples came from the EU

Peaches

- 6 samples came from the EU

Pesticide residues detected of those sought

- 5 samples contained no residues of those sought
- 6 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. We do not expect these residues to have an effect on health, either separately or in combination. The pesticide residues found in each sample do not include more than one of the pesticides from the groups that the HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

PRiF considered these results and felt it did not need to make any additional comments.

Plums (NI)

Samples tested

15 samples were tested for up to 401 pesticide residues.

- 9 samples were imported from outside the EU
- 6 samples came from the EU

Pesticide residues detected of those sought

- 4 samples contained no residues of those sought
- 11 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. We do not expect these residues to have an effect on health, either separately or in combination. The pesticide residues found in each sample do not include more than one of the pesticides from the groups that the HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

PRiF considered these results and felt it did not need to make any additional comments.

Pork (NI)

Samples tested

18 samples were tested for up to 44 pesticide residues.

- 10 samples came from the UK
- 8 samples came from the EU

The country of origin of samples may not be the same as the country where the pork was produced. It may be where the pork was processed, where it was packed for consumer purchase or the address of the brand owner.

Pesticide residues detected of those sought

- 17 samples contained no residues of those sought
- one sample contained residues above the reporting limit
- none of the samples contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

None of the samples contained more than one residue, so we did not carry out a combined risk assessment.

Additional comments by the PRiF

PRiF considered these results and felt it did not need to make any additional comments.

Potatoes (NI)

Samples tested

18 samples were tested for up to 396 pesticide residues.

- 13 samples came from the UK
- 5 samples came from the EU

Pesticide residues detected of those sought

- 13 samples contained no residues of those sought
- 5 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- 5 samples were labelled as organic. None contained residues of those sought

Risk assessments

1 sample of potatoes contained a residue of glufosinate at a level where we wanted to assess whether there would be a short-term effect on health. The highest level detected was 0.24 mg per kg below the level of the MRL at 0.3 mg per kg. HSE's risk assessment (full details at section 4: dietary intake assessments) concludes that an effect on health is not expected.

Combined risk assessments

Some samples contained residues of more than one pesticide. We do not expect these residues to have an effect on health, either separately or in combination. The pesticide residues found in each sample do not include more than one of the pesticides from the groups that HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

Based on the HSE CRD's risk assessment of the glufosinate residue detected we consider a short-term effect on health is not expected. The residue definition for the analysis includes parent glufosinate and two metabolites 3-[hydroxy (methyl) phosphinoyl] propionic acid (MPP) and N-acetyl-glufosinate (NAG). Neither of the metabolites were found in the sample reflecting that the residue is likely to have arisen from a desiccant use.

HSE ascertained that for the sample where dithiocarbamates were detected, the crop was sprayed with mancozeb. Therefore, HSE was able to confirm that there would be no exceedance of the ARfD, and that an effect on health is not expected. For further information, read the explanation of the assessment of dithiocarbamates in HSE risk assessment methodology.

Pre-packed salad (NI)

Samples tested

15 samples were tested for up to 399 pesticide residues.

- 13 samples came from the UK
- 2 samples came from the EU

The country of origin of samples may not be the same as the country where the salad leaves were produced. It may be where the salad leaves were processed, where they were packed for consumer purchase or the address of the brand owner.

Pesticide residues detected of those sought

- all samples contained residues
- 2 samples contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. We do not expect these residues to have an effect on health, either separately or in combination. The pesticide residues found in each sample do not include more than one of the pesticides from the groups that the HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

PRiF considered these results in detail and felt it did not need to make any additional comments.

Further information on chlorate residues can be found in section 5: issues arising in this report.

Residues measured above the MRL

The laboratory detected 2 residues above the MRL in pre-packed salad. Details are available in Table 4b: Summary of MRL exceedances for Q2 NI.

Spinach (NI)

Samples tested

6 samples were tested for up to 399 pesticide residues.

Fresh

- one sample came from the UK
- 5 samples came from the EU

Pesticide residues detected of those sought

- 2 samples contained no residues of those sought
- 4 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- none of the samples were labelled as organic

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. We do not expect these residues to have an effect on health, either separately or in combination. The pesticide residues found in each sample do not include more than one of the pesticides from the groups that the HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

Further information on chlorate residues can be found in section 5: issues arising in this report.

Strawberries (NI)

Samples tested

12 samples were tested for up to 395 pesticide residues.

Fresh

- 4 samples came from the UK
- 8 samples came from the EU

Pesticide residues detected of those sought

- 3 samples contained no residues of those sought
- 9 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- one sample was labelled as organic. None contained residues of those sought

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

Some samples contained residues of more than one pesticide. We do not expect these residues to have an effect on health, either separately or in combination. The pesticide residues found in each sample do not include more than one of the pesticides from the groups that the HSE considers for combined risk assessment.

Further information of how HSE consider combined risk assessments is in HSE risk assessment methodology.

Additional comments by the PRiF

PRiF considered these results and felt it did not need to make any additional comments.

Tomatoes (NI)

Samples tested

11 samples were tested for up to 399 pesticide residues.

Cherry

- one sample was imported from outside the EU
- one sample came from the EU

Plum

- 2 samples came from the EU

Salad

- 2 samples came from the UK
- 3 samples came from the EU

Vine

- 2 samples came from the UK

Pesticide residues detected of those sought

- 9 samples contained no residues of those sought
- 2 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- one sample was labelled as organic. None contained residues of those sought

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

None of the samples contained more than one residue, so we did not carry out a combined risk assessment.

Additional comments by the PRiF

PRiF considered these results and felt it did not need to make any additional comments.

Wine (NI)

Samples tested

17 samples were tested for up to 394 pesticide residues.

Red

- 8 samples were imported from outside the EU
- 3 samples came from the EU

White

- 3 samples were imported from outside the EU
- 3 samples came from the EU

The country of origin of samples may not be the same as the country where the wine grapes were produced. It may be where the wine was processed, where it was packed for consumer purchase or the address of the brand owner.

Pesticide residues detected of those sought

- 10 samples contained no residues of those sought
- 7 samples contained residues above the reporting limit
- none of the samples contained residues above the MRL
- one sample was labelled as organic. None contained residues of those sought

Risk assessments

The residues detected by the laboratory would not be expected to have an effect on health.

Combined risk assessments

None of the samples contained more than one residue, so we did not carry out a combined risk assessment.

Additional comments by the PRiF

There were no detections of folpet in these samples. The full residue definition for folpet is “sum of folpet and phthalimide, expressed as folpet”. The laboratory confirmed that they had analysed folpet but not phthalimide. In the corresponding GB survey for wine (see Wine (GB)), several samples contained phthalimide (and not the parent pesticide folpet).

Further information on folpet and phthalimide residues can be found in section 5: issues arising in this report.

4. Risk assessment – dietary intake assessments

Screening assessments have been done for all pesticides to check that predicted intakes are within the relevant health-based reference values. A short term (acute) exposure assessment is not done for pesticides which are not acutely toxic where it has been established that an Acute Reference Dose (ARfD) is not required. Read the GB toxicological reference values database. EU toxicological endpoints can be found in the EU Pesticides database.

Toxicological reference values set by the JMPR – The Joint Food and Agriculture Organisation (FAO) and World Health Organization (WHO) Meeting on Pesticide Residues) can be found in individual pesticide evaluations at JMPR Evaluations (an up to date index to pesticide evaluations is available in the latest report).

The screening assessment uses the internationally agreed approach to long term (chronic) and short term (acute) consumer exposure assessment, with UK food consumption data as detailed within the UK NEDI and NESTI models, which are available on the HSE website.

For the Q2 2025 assessments, the following approaches have been taken to refine these assessments according to case-by-case issues and to ensure that appropriate consumption values are used for less frequently consumed commodities where available food consumption data may be limited:

Baby leaf salad

For salad leaves (in pre-prepared bags) lettuce data without a variability factor were used. The constituent salad leaves are small, and a whole product consideration which takes account of unit-to-unit variability is not considered relevant.

Barley

Data on barley were used for all forms of barley, including pearl barley.

Beans with pods

Data on beans with pods were used for all forms of green beans, including speciality beans.

Fish (tinned)

Data on fish were used for all forms of tinned fish.

Mango

Data on mango were used despite a low number of consumers in several of the sub-groups. However, use of these consumption data was considered reasonable after comparison with alternative data.

Oats

Data on oats were used for all forms of oats, including oat flakes, porridge and rolled oats.

Peach and nectarines

Data on peaches were used for peaches and nectarines.

Pork

Data on meat (excluding poultry and offal) were used for pork.

Tomatoes

Data on tomato, with a variability factor of 7 and a unit weight of 85g, were used for all fresh tomato samples including cherry, plum, round, salad and vine. This is considered a suitable screening assessment for residues found in all these forms of tomatoes.

Short-term dietary risk assessment – single substance assessments where exceedance of the Acute Reference Dose (ARfD) has been identified during screening (tables 5a to 5d)

Table 5a: Barley (GB)

In this table, 'critical group intake' means the highest intake of all 10 consumer groups, or intakes for all consumer groups that exceed the ARfD.

Pesticide	Highest residue (mg per kg)	Adult intake (mg per kg bw per day)	Critical group intake (mg per kg bw per day)	ARfD (mg per kg bw)	Source
Chlorpyrifos	0.008	0.0000055	0.000045 (7 to 10 year olds) 0.000014 (4 to 6 year olds) 0.0000059 (vegetarians) 0.0000058 (toddlers) 0.0000055 (adults) 0.0000049 (15 to 18 year olds) 0.0000039 (elderly own home) 0.0000036 (11 to 14 year olds) 0.0000026 (elderly residential) (no infants were reported as consuming barley)	0.005	EU, 2024

Comment on risk assessment

An EFSA assessment in 2019 indicated that no toxicological reference values could be determined for chlorpyrifos, due to concerns over genotoxicity. Additionally, EFSA raised concerns over neurological effects in the developing foetus and young child. Chlorpyrifos is not approved in the EU and UK and pesticide products containing chlorpyrifos were withdrawn in 2020.

HSE considers that for short-term risk assessment, an indicative toxicological reference value of 0.0003 mg per kg bw can be used based on the lowest observed adverse effect level (LOAEL) set by EFSA for a developmental neurotoxicity study and applying a safety factor of 1000 to account for the severe nature of the findings (effects on brain measurements in a developmental neurotoxicity study). Toxicologists usually use safety factors of between 100 and a 1000 when a no observed adverse effect level (NOAEL) cannot be determined within a study. HSE proposed indicative toxicological reference value is conservative as it uses the highest uncertainty factor applied by toxicologists and is based on a LOAEL from a study with repeated dosing. Overall, HSEs approach is considered precautionary in protecting the nervous system in the developing foetus and child.

None of the intakes exceeded the HSE proposed indicative toxicological reference value for short term assessment. Based on the low short-term intakes, HSE concludes that a short term effect on health is not expected.

Refer to the section on substances that might be genotoxic for HSE's conclusions regarding potential genotoxicity.

Table 5b: Beans with pods (GB)

In this table, ‘critical group intake’ means the highest intake of all 10 consumer groups, or intakes for all consumer groups that exceed the ARfD.

Pesticide	Highest residue (mg per kg)	Adult intake (mg per kg bw per day)	Critical group intake (mg per kg bw per day)	ARfD (mg per kg bw)	Source
Carbofuran	0.2	0.00046	0.0010 (infants) 0.0010 (toddlers) 0.00075 (4 to 6 year olds) 0.00056 (vegetarians) 0.00055 (15 to 18 year olds) 0.00046 (adults) 0.00043 (elderly own home) 0.00040 (7 to 10 year olds) 0.00039 (11 to 14 year olds) 0.00022 (elderly residential)	0.00015	EFSA, 2009

Comment on risk assessment

The intakes for all consumer groups exceeded the ARfD. The highest intake was for infants and toddlers.

If infants or toddlers ate large portions of beans with pods containing carbofuran at 0.2 mg per kg their intake could be 668 percent of the ARfD. This intake is 30 times lower than a dose which caused a marginal (ca 20—30 percent) but significant inhibition of brain acetyl cholinesterase activity in an acute neurotoxicity study in rat pups (11 days old). This inhibition reversed within a few hours. The EFSA used this study as the basis of the ARfD. This significantly erodes the safety factor of 200 used in calculating the ARfD to 30. This reduction is undesirable since the factor is set to allow for the uncertainties associated with the use of animal data and possible differences in susceptibility between people.

In conclusion, HSE considers that some people might experience transient signs of cholinergic toxicity (for example, headache, stomach upset, salivation, reduced pupil response) after eating large portions (97.5th percentile consumption) of beans with pods containing the highest levels found in this report. Such effects would be expected to be minor, short lived and reversible.

Refer to the section on substances that might be genotoxic for HSE's conclusions regarding potential genotoxicity.

Table 5c: Beans with pods (GB)

In this table, ‘critical group intake’ means the highest intake of all 10 consumer groups, or intakes for all consumer groups that exceed the ARfD.

Pesticide	Highest residue (mg per kg)	Adult intake (mg per kg bw per day)	Critical group intake (mg per kg bw per day)	ARfD (mg per kg bw)	Source
Chlorpyrifos	0.08	0.00018	0.00040 (infants) 0.00040 (toddlers) 0.00030 (4 to 6-year-old children) 0.00022 (vegetarian) 0.00022 (15 to 18-year-old children) 0.00018 (adults) 0.00017 (elderly own home) 0.00016 (7 to 10-year-old children) 0.00016 (11 to 14-year-old children) 0.000087 (elderly residential)	No toxicological reference values established	EU, 2019

Comment on risk assessment

An EFSA assessment in 2019 indicated that no toxicological reference values could be determined for chlorpyrifos, due to concerns over genotoxicity. Additionally, EFSA raised concerns over neurological effects in the developing foetus and young child. Chlorpyrifos is not approved in the EU and UK and pesticide products containing chlorpyrifos were withdrawn in 2020.

HSE considers that for short-term risk assessment, an indicative toxicological reference value of 0.0003 mg per kg bw can be used based on the LOAEL set by EFSA for a developmental neurotoxicity study and applying a safety factor of 1000 to account for the severe nature of the findings (effects on brain measurements in a developmental neurotoxicity study). Toxicologists usually use safety factors of between 100 and 1000 when a NOAEL cannot be determined within a study. The HSE proposed indicative toxicological reference value is conservative as it uses the highest uncertainty factor applied by toxicologists and is based on a LOAEL from a study with repeated

dosing. Overall, HSE's approach is considered precautionary in protecting the nervous system in the developing foetus and child.

The intakes for infants and toddlers exceeded the HSE proposed indicative toxicological reference value for short term exposure. Intakes for all other consumer groups were at or below the indicative reference dose. The highest intake was for infants.

If infants ate large portions of beans with pods containing chlorpyrifos at 0.08 mg per kg, their intake of chlorpyrifos could be 134 percent of the above mentioned HSE proposed indicative toxicological reference value for short term exposure. This intake is approximately 750 times lower than the lowest intake in repeat-dose animal studies which was reported to cause effects in a developmental neurotoxicity study where pregnant rats were dosed from day 6 of pregnancy through until the pups were 11 days old. The proposed (short term) indicative toxicological reference value from HSE is precautionary. These exposures are undesirable but are unlikely to cause any adverse short-term effect.

Based on this assessment, HSE concludes that a short-term effect on health is unlikely after eating large portions (97.5th percentile consumption) of beans with pods containing the levels found in this report.

Refer to the section on substances that might be genotoxic for HSE's conclusions regarding potential genotoxicity.

Table 5d: Beans with pods (GB)

In this table, ‘critical group intake’ means the highest intake of all 10 consumer groups, or intakes for all consumer groups that exceed the ARfD.

Figures are presented in 2 separate rows for Dimethoate and Omethoate. These 2 residues are in the same sample

Pesticide	Highest residue (mg per kg)	Adult intake (mg per kg bw per day)	Critical group intake (mg per kg bw per day)	ARfD (mg per kg bw)	Source
Dimethoate and omethoate	0.04 (dimethoate)	0.000092 (dimethoate)	0.00020 (infants) 0.00020 (toddlers) 0.00015 (4 to 6 year old children) 0.00011 (vegetarians) 0.00011 (15 to 18 year olds) 0.000092 (adults) 0.000087 (elderly – own home) 0.000081 (7 to 10 year old child) 0.000078 (11 to 14 year old children) 0.000044 (elderly – residential)	Not established	EU, 2019
Dimethoate and omethoate	0.05 (omethoate)	0.00012 (omethoate)	0.00025 (infants) 0.00025 (toddlers) 0.00019 (4 to 6 year old children) 0.00014 (vegetarians) 0.00014 (15 to 18 year olds) 0.00012 (adults) 0.00011 (elderly – own home)	Not established	EU, 2019

			0.00010 (7 to 10 year old children) 0.000098 (11 to 14 year old children) 0.000054 (elderly – residential)		

Comment on risk assessment

An EFSA assessment in 2018 for dimethoate has indicated that no toxicological reference values could be determined for dimethoate and its metabolite omethoate, due to a lack of a fully supporting toxicological database. Both dimethoate and omethoate are not approved in the UK and pesticide products containing dimethoate were withdrawn in the UK and EU in 2020.

For dimethoate, the EFSA assessment stated an indicative value for a hypothetical toxicological reference value for short term exposure of 0.0001 mg per kg bw. Using this indicative value, estimated dietary intakes of dimethoate for infants, toddlers, 4 to 6 year old children, vegetarians and 15 to 18 year old children exceeded this reference value. The intakes of omethoate for all consumer groups, apart from 11 to 14 year old children and elderly living in a residential care setting, exceeded this hypothetical short term toxicological reference value for dimethoate. The highest intake was for infants and toddlers.

If infants and toddlers ate large portions of beans with pods containing dimethoate at 0.04 mg per kg, their intake could be 201 percent of the above mentioned hypothetical toxicological reference value for short term exposure. If infants and toddlers ate large portions of beans with pods containing omethoate at 0.05 mg per kg their intake could be approximately 251 percent of this hypothetical toxicological reference value for dimethoate. This indicative toxicological reference value is a precautionary value intended to protect the nervous system in the developing foetus and child, which has been set well below intakes which caused no observed effects in animal studies.

The JMPR established an ARfD for dimethoate of 0.02 mg per kg bw per day in 2019 and established an ARfD for omethoate of 0.002 mg per kg bw per day in 2022; this supports the view that the proposed hypothetical reference value from the EFSA Conclusion is precautionary.

These exposures are undesirable, but it is not clear if they may cause any adverse effect. Both the JMPR, EFSA and the previous EU evaluations observe that omethoate is more potent than dimethoate, and this is reflected in the different ARfD values set by JMPR. Despite this, the estimated exposures are not expected to inhibit acetylcholinesterase, the basis of the recent JMPR assessments and previous EU evaluations of the safety of dimethoate and omethoate.

Based on this assessment, HSE concludes that a short-term effect on health is unlikely after eating large portions (97.5th percentile consumption) of beans with pods containing the levels found in this report.

Refer to the section on substances that might be genotoxic for HSE's conclusions regarding potential genotoxicity.

Table 5e: Potatoes (GB)

In this table, ‘critical group intake’ means the highest intake of all 10 consumer groups, or intakes for all consumer groups that exceed the ARfD.

Pesticide	Highest residue (mg per kg)	Adult intake (mg per kg bw per day)	Critical group intake (mg per kg bw per day)	ARfD (mg per kg bw)	Source
Fluazifop-p (expressed as fluazifop acid)	0.4	0.0096	0.062 (infants) 0.043 (toddlers) 0.032 (4 to 6 year old children) 0.022 (7 to 10 year old children)	0.017 (expressed as fluazifop acid)	EU, 2010

Comment on risk assessment

The intakes for infants, toddlers, 4 to 6 year old children and 7 to 10 year old children exceeded the ARfD. The highest intake was for infants.

If infants ate large portions of potatoes containing fluazifop-p at 0.4 mg per kg their intake could be 362 percent of the ARfD. This intake is 27 times lower than a dose which caused no observed adverse effects in rat developmental toxicity studies with dosing for up to 2 weeks of gestation. EFSA used this as the basis of the ARfD where a NOAEL of 2 mg per kg bw per day (equivalent to 1.7 mg per kg bw per day when expressed as fluazifop acid) was derived.

The effects in these studies, reflecting a slight delay in pup development, that are the basis of the NOAEL are only relevant for pregnant females. Also, it is noted that an ARfD based on toxicity in developmental studies with repeated dosing (up to 15 days) might be over-protective for the general population. The intakes for consumer groups which might include pregnant females do not exceed the ARfD.

For consumers in the general population excluding pregnant females, although an ARfD was not specifically set, HSE considered the available toxicity studies to determine the most sensitive NOAEL relevant to these consumers. Based on this HSE propose to use the NOAEL of 10 mg per kg bw per day for a rabbit developmental toxicity study based on reduced body weight seen in adults, which would be relevant for these consumer groups. Toxicologists usually apply a factor of 100 to this dose to take into account the uncertainties caused by using animal data and possible differences in susceptibility between people. When this factor is applied to this NOAEL this gives a hypothetical short term reference value for consumer risk assessment of 0.1 mg per kg bw (equivalent to 0.085 mg per kg bw when expressed as fluazifop acid). Intakes for all consumer groups are below this level and HSE conclude an effect on health is not expected.

Table 5f: Potatoes (GB)

We have used some shorthand in this table:

- [a] the highest intake of all 10 consumer groups, or intakes for all consumer groups that exceed the ARfD
- [b] a variability factor of 10 was used in the intake calculation as fosthiazate is commonly used in potatoes as a granular pesticide and it is appropriate to apply a higher default variability factor of 10 (compared to a value of 7 for spray applications to potatoes) in this circumstance

Pesticide	Highest residue (mg per kg)	Adult intake [b] (mg per kg bw per day)	Critical group intake (mg per kg bw per day) [a] [b]	ARfD (mg per kg bw)	Source
Fosthiazate	0.41	0.0033	0.022 (infants) 0.015 (toddlers) 0.011 (4 to 6 year olds) 0.0076 (7 to 10 year olds) 0.0052 (11 to 14 year olds)	0.005	EU, 2003

Comment on risk assessment

The intakes for infants, toddlers, 4 to 6 year old children, 7 to 10 year old children and 11 to 14 year old children exceeded the ARfD. The highest intake was for infants.

If infants ate large portions of potatoes containing fosthiazate at 0.1 mg per kg their intake could be 439 percent of the ARfD. This intake is 23 times lower than a dose which caused no observed adverse effects in a 90 day and 1-year oral dog studies. These studies were used as the basis of the ARfD.

Toxicologists usually apply a factor of 100 to this dose to take into account the uncertainties caused by using animal data and possible differences in susceptibility between people. We consider this significant reduction in the factor of 100 to a level of 23 undesirable.

In conclusion we consider that some people might experience headache, reduced pupil response, and gastrointestinal disturbance (salivation, stomach upset) after eating large portions (97.5th percentile consumption) of potatoes containing the highest levels found in this report. Such effects would be expected to be minor, short-lived and reversible.

Table 5g: Potatoes (NI)

We have used some shorthand in this table:

- [a] the highest intake of all 10 consumer groups, or intakes for all consumer groups that exceed the ARfD

Pesticide	Highest residue (mg per kg)	Adult intake (mg per kg bw per day)	Critical group intake (mg per kg bw per day) [a]	ARfD (mg per kg bw)	Source
Glufosinate	0.24	0.0058	0.037 (infants) 0.026 (toddlers)	0.045 (general population) 0.021 (females of child bearing age	EFSA, 2005

Comment on risk assessment

The residue definition includes the sum of glufosinate isomers, its salts and its metabolites including 3-[hydroxy(methyl)phosphinoyl]propionic acid (MPP) and N-acetyl-glufosinate (NAG), expressed as glufosinate. All of these were sought in the monitoring and all of the residue determined in the potato sample was in the form of parent glufosinate. The information from regulatory studies on the nature and magnitude of residues indicates that it is likely a desiccant use that has derived the residue in the sample. The regulatory studies representing desiccant use show that the residue in potato tubers was mainly parent glufosinate, reflecting that there is little time for metabolism to occur.

The conclusion in an EFSA Assessment in 2005 proposed two different ARfD values. For females of child bearing age an ARfD of 0.021 mg per kg bw was based on a NOAEL of 6.3 mg per kg bw from a rabbit developmental study, with an additional safety factor of 3 (overall safety factor 300) based on reproductive toxicity effects not relevant to consumer groups that do not include females of child bearing age. For the general population (excluding females of child bearing age) an alternative ARfD of 0.045 mg per kg bw was proposed based on a NOAEL of 4.5 mg per kg bw from the 1-year dog study (safety factor 100).

Females of child bearing age

The intakes for 11 to 14 year olds, 15 to 18 year olds, adults and vegetarians are all below the ARfD of 0.021 mg per kg bw for females of child bearing age, and an effect on health is not expected.

General population

The intakes for all consumer groups are below the ARfD of 0.045 mg per kg bw for the general population, and an effect on health is not expected.

Overall, HSE concludes that an effect on health is not expected.

Short-term dietary risk assessment – multiple assessments needed following screening assessment of samples

Samples which contain more than one pesticide from the groups we consider, and where a more detailed assessment was needed following screening:

- triazoles
- organophosphates and, or carbamates
- captan and folpet
- DDAC and BAC
- chlormequat and mepiquat

None.

Long-term dietary risk assessments needed following screening assessment of samples

As noted in section 4: dietary intake assessments, total long-term dietary assessments across all commodities are not performed for these quarterly assessments. The issue is more fully considered in regulatory contexts pre-authorisation and at the time of MRL review. Then the issue is considered across all commodities (so more precautionary) by pesticide levels determined in GAP compliant trials, intended to address highest likely residues that might arise following pesticide use according to label recommendations.

However, for the HSE quarterly assessments, HSE do perform a screening exercise for all of the residues found for an individual commodity to see if the long-term intakes (commodity by commodity) show any indication of exceedance of the ADI. If an exceedance was observed, then HSE would consider further and would present a more detailed risk assessment.

In HSE's long-term exposure screening assessment for this report NI and GB samples were combined. None of these individual commodity long term exposure screening assessments performed in this quarter (for each of the pesticides found in this report) indicated potential for adverse long term health effects. HSE assessed the dietary intakes to be below the ADI or other established long term health based reference value.

Substances that might be genotoxic

Read an explanation of genotoxicity in the section on HSE's assessment of risk.

During regulatory assessment, careful consideration is given to any pesticides that may exhibit any potential to be genotoxic (able to damage genetic material) in live animals, so we need to consider the significance to the consumer when these residues are found.

There are small number of examples of older pesticides that might be genotoxic, where modern data to investigate the true genotoxic potential is not expected to be made available. It is likely that these will only be found in imported foods. For many of these old pesticides, the toxicological reference doses are low and HSE uses low reporting limits to ensure that these residues are found even at very low levels, as we know they are of particular interest to consumers.

The evaluation of possible health implications for HSE findings is complex as tests for genotoxicity are commonly performed at higher doses (orders of magnitude higher) than the dietary exposure levels that are assessed in HSE reports. As such it is difficult to conclude specifically, and to extrapolate the findings in the laboratory to the context of findings in the HSE monitoring and the presence of residues at low levels in foods. Where relevant some reassurance that any risks are likely to be small can be gained if increased cancer incidence, which may be due to gene mutations, does not occur in long term animal feeding studies, designed to detect such observations. Where relevant we will indicate this.

Due to the uncertainty about the potential for genetic damage (genotoxicity) at low doses, HSE will always conclude that on a precautionary basis any findings of genotoxic substances in food are undesirable.

Assessment of genotoxicity (Q2 2025) and conclusions:

Substances that might be genotoxic

Residues found in this report that have genotoxic potential (concluded from laboratory studies on animals): none

Residues found in this report where toxicological data are suggestive of genotoxicity but not certain: carbofuran, chlorpyrifos, dimethoate and omethoate.

Regarding carbofuran, chlorpyrifos, dimethoate and omethoate, there is some evidence from studies performed in vitro and, or in vivo that they may be genotoxic.

For carbofuran, chlorpyrifos and dimethoate, whilst there are negative results in the available in vivo studies, the currently recommended in vivo follow up studies, that may clarify the genotoxic potential have not been performed.

For omethoate, the necessary follow up studies clarifying the genotoxic potential were not available to EFSA. JMPR (2022) assessed newer more modern in vivo genotoxicity test data for omethoate, that provided the necessary follow up to the earlier positive genotoxicity studies. Based on all the available data, JMPR (2022) concluded that omethoate is unlikely to be genotoxic in vivo and unlikely to pose a

carcinogenic risk to humans at levels occurring in the diet. HSE notes the different conclusions from EFSA and JMPR on the genotoxic potential of omethoate. This difference appears to be based on the new data evaluated by JMPR but not available to EFSA at the time of their assessment. HSE has not had the opportunity to evaluate the new genotoxicity data on omethoate but notes the JMPR's conclusion that omethoate is unlikely to be genotoxic.

For carbofuran, chlorpyrifos, dimethoate and omethoate, there is some reassurance that risks of developing ill health effects following single or repeat exposures are likely to be low, since they did not cause cancer in cancer or other long-term studies with repeat daily doses in animals over their lifespan. The doses used in these studies were orders of magnitude higher than the exposures estimated in this assessment. It is not known if lower doses which are not toxic also have this effect.

Conclusions

Overall, HSE concludes that on a precautionary basis any residue finding of carbofuran, chlorpyrifos, dimethoate or omethoate is undesirable due to the uncertainty regarding genotoxicity at low doses; however, HSE consider any risks of adverse health effects are low after eating large portions (97.5th percentile consumption) of the foods containing the levels of these pesticides found in this report. The affected samples did not contain more than one pesticide that might have possible genotoxicity.

5. Issues arising in this report, follow-up from previous reports and plans for the quarter 3 2025 report

Chlorate

We have been testing a limited number of foods for chlorate since 2016. The pesticide sodium chlorate is a residual broad action weed killer that is not authorised for use in the EU or UK. However, we are confident that the residues we are detecting come from use of chlorine-based disinfectants used to maintain microbiological safety (control microorganisms that cause food poisoning). Because these residues are unavoidable, and important for the maintaining of microbiological control vital for food safety, we are not treating these results as breaches of the MRL. We are not advising that food companies change their existing practices because of our findings, but they should be aware about the ongoing discussion in this area.

We are only part of the work going on across government and beyond to consider what to do about chlorate residues in food and water.

How chlorate MRLs take account of use of biocides

The footnote included in the chlorate MRLs allow for chlorate residues incurred during the processing of food (from treated water or processing aids, such as biocides). The footnote exceptionally specifies that for considering compliance with chlorate MRLs, simple types of processing, such as packing, washing, chopping and freezing can be considered. Chlorate in irrigation water is allowed for in the MRLs as set and no further adjustment can be considered.

The responsibility for providing evidence showing that residues from processing can be considered, lies with the food business operator, and so we will be interested to see such evidence where appropriate. HSE will decide whether the footnote can be applied and if so, this will be reflected in our reports.

The Food and Biocides Industry Group have produced more detailed information and guidance on this topic which is available on the Chilled Food Association's website.

Infant food

Infant food MRLs are set under separate legislation managed by UK health departments. The footnote that applies to other foods cannot be used for infant foods, although residues

occur for the same reasons. UK health departments are working with HSE and FSA to resolve this.

Sanitisers

The presence of low-level residues of chlorate in food results from measures taken by the food and water industries to protect food safety by reducing microbiological contamination of food and drink (including drinking water, which is a significant source of chlorate in food). Chlorate itself is not used as a disinfectant, but chlorine-based sanitisers contain small amounts of chlorate. The FSA has worked with industry who promote best practice and guidance for use of sanitisers.

Drinking water

In national legislation throughout the UK, it is already a requirement to keep disinfection by-products as low as possible. This is usually achieved through management of disinfectant dosing and storage.

Microbiological safety of food

The HSE is working with the Advisory Committee on the Microbiological Safety of Food to understand how changes to pesticide MRLs affect biocide use, microbiological food safety, and any change to the overall risk to consumers to allow for both chemical and microbiological safety.

Dietary intakes

Since 2018 the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT) has been considering chlorate as part of its on-going work looking at the chemicals in the diet of infants and young children (up to 5 years). The European Food Safety Authority's 2015 opinion on chlorate establishes appropriate health-based guidance values for chlorate exposure to protect against acute and chronic risks to health.

Fosetyl-Al (sum)

The full residue definition is "fosetyl-Al (sum of fosetyl, phosphonic acid and their salts, expressed as fosetyl)". Throughout this report that definition is reflected as fosetyl (sum) All the residues reported as fosetyl (sum) in this report were detected as phosphonic acid.

Fosetyl-Al breaks down to phosphonic acid, but phosphoric acid can also be a residue left by use of pesticides containing disodium phosphonate or potassium phosphonates. Additionally, products sold as fertilizers also can contain or break down to phosphonic

acid. And finally, phosphonic acid also occurs naturally in the environment. The presence of phosphonic acid does not necessarily mean that a pesticide was used. Those producing food need to be aware that the use of products that contain phosphonic acid or break down to phosphonic acid may lead to produce which breaches the MRL.

This pesticide can only be detected using a single residue method technique.

Dichlorodiphenyltrichloroethane (DDT)

The use of DDT is banned or heavily restricted in many countries. It is not allowed for use on food crops anymore, but it is still used in some countries outside the EU as a public health insecticide. Residues of DDT take a long time to break down in the environment and can accumulate in fatty tissue which is a major reason that it has been banned in the EU and many other countries.

Due to the bans and restrictions on use the levels in food have decreased substantially since the 1960s and 1970s. Even so, because it takes a long time to breakdown we do expect, and do see, occasional DDT residues in our monitoring results. Overall, the incidence and the size of residues have fallen steadily over time, which is what we would expect. In recent years none of our findings were unusual, unexpected or of concern. We can tell from the chemical form that we detect whether the residues we have found are from historic use (which is what we usually find). Historic use is indicated by the detection of DDE which is a break down product of DDT. We explain this every time we publish DDT results to try to make it as clear as we can that the results show food producers are not using DDT today. However, there are occasional media stories about DDT and various links and associations, which do not make this distinction.

The residues we find nowadays are at levels that would not be expected to have any effect on health, either in the short term or in the long term, when checked against today's understanding of the effect of DDT on health. As a committee, we take care to ensure we look thoroughly at this, and the FSA also actively involved in our considerations.

Folpet and phthalimide

The full residue definition for folpet is "sum of folpet and phthalimide, expressed as folpet". You can read more about multi-component residue definitions in methodology, background and references. Folpet is a widely used fungicide. Phthalimide is included in the residue definition for folpet based on evidence (see 2014 EFSA assessment) phthalimide can form as a metabolite after folpet is used. However, chemical analysis cannot distinguish between any phthalimide we found formed in this way or from other non-pesticide sources of phthalimide. Phthalimide is present in many chemical products including medicines, dyes and the sweetener saccharine and also occurs naturally. Where we do not find folpet in the same sample, we think it's at least possible that the residue is from a source other than folpet use.

Processing factors

As the surveillance programme monitors residues in all types of food, from raw commodities (for example, potatoes) to processed (for example, wine), dried (for example, dried fruit) and composite foods (for example, fruit bread), consumer risk assessments are specifically tailored to address processed and mixed food products. MRLs are generally set for raw commodities, although when MRLs are established the assessment of dietary intakes allow for the potential for residues to remain in processed foods produced from the raw agricultural commodities. MRLs have been set for processed infant foods, and in future may be extended to other processed food products.

MRLs apply to all traded foods, including foods used as ingredients. The law specifies the level to apply to foods as they are traded. For almost all foods that means their raw, unprocessed form. But MRLs also apply to prepared and processed foods in which case the effect of processing needs to be allowed for.

In nearly all cases the MRL is set for the food in its raw, unprocessed form (the form of each food to which MRLs apply is listed in Annex I of Regulation 396/2005). These MRLs can be applied to processed foods using appropriate processing factors. Processing factors take account of the effect of processing on the food as traded. Different forms of processing may remove, concentrate, or dilute residues, and the effect may vary depending on the food and the pesticide concerned. Multiplying the processing factor by the original MRL gives a calculated MRL that can indicate the food was made with an ingredient or ingredients which had residues over the original MRL.

Calculating the MRLs for processed goods is dependent on the information available. HSE will contact the supplier if residues exceed the calculated MRL to give them an opportunity to provide relevant information to support the calculation.

HSE use the general principle that if no specific processing factor is available, a default factor of 1 may be applied. Further information can be found at the links below.

In this report, we have applied processing factors mostly from the European database of processing factors for pesticide residues in food European database of processing factors for pesticides residues in food version 5 May 2025.

Table 6: Processing factors and MRLs

Table 6a: Processing factors and MRLs used for barley (GB and NI)

Food type	Pesticide	Processing factor	MRL for unprocessed grain (mg per kg)	Pearl barley MRL (mg per kg)
Pearl barley	Chlormequat	0.38	7	2.66
Pearl barley	Mepiquat	0.81	4	3.24
Pearl barley	Tebuconazole	0.38	2	0.76

Table 6b: Processing factors and MRLs used for oats (GB and NI)

Food type	Pesticide	Processing factor	MRL for unprocessed grain (mg per kg)	Porridge Rolled Oats MRL (mg per kg)
Porridge rolled oats	Chlormequat	0.87	15	13.05
Porridge rolled oats	Glyphosate	0.17	20	3.4
Porridge rolled oats	Pirimiphos-methyl	0.17	5	0.85

Table 6c: Processing factors and MRLs used for wine (GB)

Food type	Pesticide	Processing factor	MRL for unprocessed grape (mg per kg)	Wine MRL (mg per kg)
Red wine	Dimethomorph	0.37	3	1.11
Red wine	Fenhexamid	0.23	15	3.45
Red wine	Folpet (sum)	1.3	20	26
Red wine	Fosetyl-Al (sum)	1.1	100	110
Red wine	Metalaxyl (sum)	0.67	1	0.67
Rose wine	Fosetyl-Al (sum)	0.93	100	93
White wine	Dimethomorph	0.63	3	1.89
White wine	Fenhexamid	0.41	15	6.15
White wine	Folpet (sum)	0.55	20	11
White wine	Fosetyl-Al (sum)	0.78	100	78
White wine	Iprovalicarb	0.8	2	1.6

White wine	Metalaxyl (sum)	0.48	1	0.48
White wine	Pyrimethanil	0.68	5	3.4

Table 6d: Processing factors and MRLs used for wine (NI)

Food type	Pesticide	Processing factor	MRL for unprocessed grape (mg per kg)	Wine MRL (mg per kg)
Red wine	Dimethomorph	0.37	3	1.11
Red wine	Metalaxyl (sum)	0.67	1.5	1.005
Red wine	Methoxyfenozide	0.33	1	0.33
White wine	Dimethomorph	0.63	3	1.89
White wine	Metalaxyl (sum)	0.48	1.5	0.72

Follow-up from previous reports

None

In our Quarter 3 2025 report

Samples collected in Great Britain

In quarter 3 of 2025 we will look at results from samples collected in Great Britain for:

- apples
- apple juice
- asparagus
- barley
- beans with pods
- bread (gluten free)
- cabbage
- figs
- fish (tinned)
- grapes
- infant food (animal)
- lettuce
- mango
- mango juice
- milk
- oats
- peaches and nectarines
- plant based protein
- plums

- pork
- potatoes
- pre-packed salad
- spices (cumin and turmeric)
- spinach
- strawberries
- tomatoes

Samples collected in Northern Ireland

In quarter 3 of 2025 we will look at results from samples collected in Northern Ireland for:

- apples
- asparagus
- barley
- beans with pods
- bread (gluten free)
- bread (ordinary)
- cabbage
- cheese
- figs
- fish (tinned)
- grapes
- infant food (fruit and vegetable)
- lettuce
- mango
- milk
- oats
- peaches and nectarines
- plums
- pork
- potatoes
- pre-packed salad
- spinach
- strawberries
- tomatoes
- wine

Glossary

This is a ‘standard’ glossary which defines the key terms used in the Expert Committee on Pesticide Residues in Food (PRiF) reports. Not all the terms listed here are used in every report.

97.5th percentile consumer

See High level consumer in this report.

Acceptable daily intake (ADI)

This is the amount of a chemical which can be consumed every day for a lifetime in the practical certainty, because of all known facts, that no harm will result. It is expressed in milligrams of the chemical per kilogram of body weight of the consumer. The starting point for the derivation of the ADI is usually the ‘no observed adverse effect level’ (NOAEL) that has been observed in animal studies for toxicity. This is then divided by an uncertainty factor (most often 100) to allow for the possibility that animals may be less sensitive than humans and to account for possible variation in sensitivity between individuals. The studies from which NOAELs and hence ADIs are derived to allow for any impurities in the pesticide active substance as manufactured, and any toxic breakdown products of the pesticide.

Acetylcholine

Acetylcholine is a neurotransmitter, a chemical that carries signals through the nervous system. See cholinergic in this report.

Acetylcholinesterase

This is an enzyme which degrades acetylcholine and is involved in the regulation of nerve impulses. Inhibition of this enzyme can interfere with this nerve transmission function. This is a short-term effect of concern with organophosphate and carbamate pesticides at levels above the Acute Reference Dose (ARfD).

Acute reference dose (ARfD)

The definition of the ARfD is similar to that of the ADI, but it relates to the amount of a chemical that can be taken in at one meal or on one day without appreciable health risk to the consumer. It is normally derived by applying an appropriate uncertainty factor to the lowest NOAEL in studies that assess acute toxicity or developmental toxicity.

As a matter of policy, the EU does not use NOAELs from tests that involve deliberate administration of pesticides to humans to determine ADIs and ARfDs. However, where

such data have been ethically and scientifically derived some authorities, for example, the World Health Organization (WHO), do consider such data. Where human data are used there is usually less uncertainty in the resulting reference value compared to extrapolating from animal tests to humans, and a lower uncertainty factor (most often 10) is used to account for the variation in sensitivity between individuals.

The initial risk assessments in PRiF reports use the agreed EU reference values. However, where intakes are above the EU value and a reference value based on acceptable human data is available a refined assessment, which is a more appropriate indicator of the risk, is also reported.

Analyte

This is the name for the substance that the PRiF surveys look for and measure if present; it could be a pesticide itself or a product from a pesticide when it is degraded, or metabolised.

Cocktail effect

See multiple residues in this report.

Codex

The Codex Committee on Pesticide Residues (CCPR) is responsible for establishing Codex maximum residue levels (MRLs) for pesticide residues in specific food items or in groups of food. These Codex MRL (CXLs) are internationally agreed food standards.

COLEACP (Europe-Africa-Caribbean-Pacific Liaison Committee)

It aims to promote the competitive export of fresh fruit, vegetables, flowers and ornamental plants from the ACP. Its specialised information and advisory services are open to all ACP companies in the horticultural export sector and are financed by the European Commission. It has 2 overriding objectives to enable ACP companies to comply with European food safety and traceability requirements and to consolidate the position of small-scale producers in the ACP horticultural export sector.

Cholinergic

In relation to the animal nervous system, processes and structures are cholinergic if they release or use acetylcholine.

Cryogenic milling

Processing of commodities at very low temperatures can be achieved by milling or grinding pre-frozen samples in the presence of dry ice, a procedure known as ‘cryogenic milling’.

Extensions of authorisations for minor use (EAMUs)

Users and authorisation holders of agricultural Plant Protection Products (PPP) may apply to have the authorisation of specific PPP’s extended to cover uses additional to those authorised and shown on the manufacturer’s product label. For many reasons, label recommendations of authorised pesticides do not cover the control of every problem which may arise. This is particularly true for crops that are grown on a comparatively small scale in the UK as well as for pests and diseases that occur less often, or which are new to the UK. As part of the process evidence on residues that would arise from the use is required, and consumer safety is evaluated and if necessary, a specific MRL set. EAMU is pronounced “emu” these types of authorisations are also informally called “off labels”.

EFSA Pesticides Peer review Co-Ordination (EPCO)

EU meetings involving EFSA and member state experts.

Genotoxicity

Genotoxicity is the effect of substances (called genotoxins) which can alter or damage the genetic material (DNA, RNA, or chromosomes) within a cell. Cells have the capacity to protect themselves from genotoxic effects by many repair processes and therefore many genotoxic events do not become evident as mutations. Where mutations occur, this can lead to cancer or effects that can be passed to unborn children (for example, birth defects, inherited diseases).

Good agricultural practice in the use of pesticides (GAP)

The nationally authorised safe uses of pesticides under conditions necessary for effective and reliable pest control (the way products should be used according to the statutory conditions of authorisation which are stated on the label). GAP encompasses a range of pesticide applications up to the highest authorised rates of use, applied in a manner which leaves a residue which is the smallest practicable. Authorised safe uses are determined at the national level and include nationally registered recommended uses, which allow for public and occupational health and environmental safety considerations. Actual conditions include any stage in the production, storage, transport, distribution and processing of food commodities and animal feed.

High-level consumer

A term used in UK risk assessment calculations to describe the amount of food consumed by a person. In line with internationally agreed approaches, the PRiF uses the 97.5th percentile value, which is generally about three times the average amount consumed. This takes account of different eating patterns that may occur throughout the population.

Human data

See Acute Reference Dose in this report.

In vitro

A test performed in vitro “in the glass” means that it is performed outside of a living organism and usually involves isolated tissues, organs or cells.

In vivo

Live animal studies.

Import tolerance

An MRL set for imported products where the use of the active substance in a plant protection product on a commodity is not authorised in the European Community (EC), or an existing EC MRL is not sufficient to meet the needs of international trade. All import tolerances are assessed for consumer safety.

Imported

The tables in the reports record whether the sample was of UK origin or imported. This can mean different things depending on the commodity. See also Origin in this report. HSE report the country from where the produce has been imported only if this is clear from the packaging or labelling.

INFOSAN (International Food Safety Authority network)

Since the end of the EU transition period, in GB, notifications are submitted via FAO/WHO’s International Food Safety Authority network (INFOSAN) of which UK is a member. Non compliances that do not present a food safety risk are not communicated by GB to other countries and there is an expectation that non-compliance notifications will be communicated by the importer/exporter in liaison with the local authority (LA).

NI continues to be part of the EU Rapid Alert System for Food and Feed (RASFF) (See RASFF in this report) network under the terms of the Windsor Framework so where

appropriate will email notifications via the RASFF network, including for non-compliances under Administrative Assistance and Cooperation Network (AAC) procedures.

JMPR

Joint FAO and WHO Meeting on Pesticide Residues, which conducts scientific evaluations of pesticide residues in food.

Limit of determination (LOD) and LOD MRLs

The LOD is the lowest concentration of a pesticide residue or contaminant that can be routinely identified and quantitively measured in a specified food, agricultural commodity or animal feed with an acceptable degree of certainty by the method of analysis. Note, exceptionally we test at levels lower than the LOD MRL to determine incidence of certain pesticides of specific interest.

LOD MRL (maximum residue levels set at the LOD)

These are marked by an asterisk (*). For some pesticides and commodities insufficient trials data are available on which to set a MRL or there may be no use of the pesticide on that crop. In these cases, the MRL may be set at a default level for example, at the LOD where analytical methods can reasonably detect the presence of the pesticide. These MRLs are not based on GAP. Also, see under Reporting limit in this report.

Lowest observed adverse effect level (LOAEL)

The lowest concentration or amount of a substance, found by experiment or observation, which causes detectable adverse alteration of morphology, functional capacity, growth, development or life span of the target organism under defined conditions of exposure.

Maximum residue level (MRL)

An MRL is the maximum concentration of a pesticide residue expressed in mg per kg in or on food or feed of plant and animal origin that is legally tolerated when a plant protection product (PPP) is applied correctly (following GAP).

MRLs apply to most food commodities, although they are not currently applied to fish and produce grown exclusively for animal feed. They are not set specifically for processed commodities. Instead, the MRLs for the raw agricultural commodities apply, with processing factors applied to determine the compliance of processed goods.

An import tolerance is an MRL set on imported food or feed to meet the needs of international trade.

MRLs are intended primarily as a check that GAP is being followed and to assist international trade in produce treated with pesticides. MRLs are not in themselves ‘safety limits’, and exposure to residues greater than the MRL does not automatically imply a hazard to health.

MRLs reflect levels of pesticides that could occur in produce, which has been treated in accordance with GAP. Where pesticides do not give rise to readily detectable residues, or are not authorised for use on commodities, MRLs are set at the lowest level which can be identified in routine laboratory analysis. Thus, they provide a mechanism for statutory controls on pesticides in produce which is put into circulation and for monitoring correct use of these chemicals.

If no use of a pesticide on a crop is identified when MRLs are set the tolerance for that pesticide and crop combination is set at the limit of determination (effectively zero). Limit of determination MRL are marked by a ‘*’.

MRLs are regulated in Northern Ireland under Regulation 396/2005.

MRLs are regulated in Great Britain under Retained Regulation (EC) No 396/2005.

Maximum residue levels set at the LOD (LOD MRL)

See LOD MRL in this report. For some pesticides and commodities, insufficient trials data are available on which to set MRL, or there may be no use of the pesticide on that crop. In these cases, the MRL may be set at a default level, for example, at the LOD where analytical methods can reasonably detect the presence of the pesticide. These MRLs are not based on GAP.

MRL exceedances

When a residue is found at a level higher than that set for the MRL.

MRL exceedances and relationship with the ADI

Before permitting any use of a pesticide, a detailed assessment is made to ensure that residues in foods derived from commodities comply with MRLs and will not give rise to unacceptable risks to consumers. MRLs do take account of consumer safety aspects and, in effect, are set at levels below safety limits. However, MRLs must not be confused with safety limits, which are expressed in terms of the ADI of a particular pesticide residue from all sources. The ADI (expressed as mg per kg bw per day) is the amount of chemical that can be consumed every day of an individual’s entire lifetime in the practical certainty, based on all known facts, that no harm will result. See ADI in this report for further information.

Whenever unexpectedly high or unusual residues occur during monitoring, the risk to consumers, from exposure to residues at the highest levels found, is assessed by comparison of predicted intakes with the ADI or ARfD as appropriate.

No MRL

For certain pesticides an MRL may not have been set.

Metabolite

A degradation or conversion product from a pesticide when it is metabolised.

Multiple residues

In this report this term is used to describe when more than one pesticide is found in an individual food sample. It may have arisen because the crop was treated at different times with pesticides applied singularly, or when pesticides are applied as mixtures (several pesticides mixed in the spray tank at the same time), or the marketed pesticide product contains more than one pesticide or any combination of these 3 situations. Mixtures may be used in response to specific pest pressures and as part of strategies to minimise pesticide resistance building up on pest populations. We consider the possible implications to health of more than one pesticide being found in samples (sometimes called the 'cocktail effect'). Refer to 'Multiple residues' under HSE risk assessment methodology for further details.

NEDI

National Estimate of Daily Intake (NEDI). An estimate of intake of pesticide in the diet over the long-term to compare to the ADI. The NEDI is based on median or mean residue levels and a high-level consumption (97.5th percentile value) for the daily amounts of the food item consumed over the long-term. For further details on the calculation of NEDIs, refer to the Consumer Exposure section of the Data Requirements Handbook on the HSE Pesticide website. Here you will find information and further links.

NESTI

National Estimate of Short-Term Intake (NESTI). An estimate of peak intake of pesticide in the diet to compare to the ARfD. The NESTI is based on the highest residue found multiplied by a variability factor and a high-level consumption (97.5th percentile value) for the food item consumed over a single day. See variability factor in this report For further details on the calculation of NESTIs, refer to the Consumer Exposure section of the Data Requirements Handbook on the HSE Pesticide website. Here you will find information and further links.

Neurotoxicity

Neurotoxicity is the effect of substances (called neurotoxins) which alter the normal working of an animal's nervous systems and or can damage the nervous tissue.

No observed adverse effect level (NOAEL)

The greatest concentration or amount of a substance, found by experiment or observation, which causes no detectable adverse alteration of morphology, functional capacity, growth, development or life span of the target organism under defined conditions of exposure.

Off label

See Extensions of Authorisations for Minor Use (EAMUs) in this report.

Origin

The Brand Name Annex reports the origins of the samples tested. This can mean different things depending on the commodity. For example, butter is often labelled as 'UK origin'; however, many of it comes in bulk from New Zealand and is split into smaller blocks and packaged in the UK. Lettuce is a fresh produce and 'UK origin' usually means that it has been grown and packaged in the UK. Processed commodities such as cereal bars often contain multiple raw ingredients, each of which may come from a different source/origin. Therefore, the origin of the produce usually reflects the place where it was manufactured. The PRiF report the origin as stated on the packaging or labelling of the commodity concerned, unless other more accurate information is available to indicate that the origin is from elsewhere. Some products are listed as 'unknown origin' because the labelling does not give this information.

Parent

The chemical form of a pesticide as applied to plants, as opposed to metabolites and breakdown products.

Percentile

A percentile is a value that divides a sample of measurements at a specific point when they are listed in ascending order of magnitude. For example, the 97.5th percentile from a food consumption survey is a value that is equal to or more than 97.5% of the measurements and equal to or less than 2.5% of the measurements. So, in a sample of 40 daily food consumption values, the 97.5th percentile is equal to or more than 39 of the measurements. Such high percentile estimates of food consumption are used in risk assessments as they are more protective than using average consumption levels.

Permitted level (PL)

The permitted levels (expressed as mg per kg), in specific commodities, of some substances which can be classified as pesticides but are controlled under the Miscellaneous Food Additives Regulations 1995 (S.I. 1995 No. 3187).

Pesticide

A pesticide is any substance, preparation or organism prepared or used for destroying any pest. Most pesticides sought by the PRiF in its monitoring are those used to control pests in agricultural crops, although non-agricultural products may be included where there is a specific reason for doing so, for example, where there are implications in terms of possible intakes of residues.

Probabilistic modelling

The usual estimates of consumer exposure use single high values for both consumption amounts and residue levels. Whilst these are based on realistic UK dietary survey data and residue levels, they tend to overestimate most representative intakes. This is because they do not allow for actual variations in both amounts consumed and residue levels. Probabilistic modelling is a technique that considers all the possible different combinations of consumption and residue levels. This provides information on the probability of intakes occurring.

Rapid Alert System for Food and Feed (RASFF)

The European Commission's Rapid Alert System for Food and Feed (RASFF) allows member authorities (EU and EFTA member States) to quickly exchange information about measures taken when responding to risks detected in food or feed. This exchange of information helps authorities in countries inside the European single market to act more rapidly and in a coordinated way in response to a possible health threat caused by food or feed.

RASFFs notifications about pesticide residues are sent when a residue is over the MRL allowing for measurement uncertainty and a potential consumer risk has been identified. For pesticide residues in food traded in the single market this means when a risk assessment has identified that risk to people eating the food cannot be ruled out.

More information is available on the European Commission website at RASFF - Food and Feed Safety Alerts.

Relationship between GAP and MRLs

The MRL can be defined as the maximum concentration of a pesticide residue (expressed as mg per kg) likely to occur in or on food commodities and animal feeds, after the use of the pesticide according to the GAP.

Reporting limit

The reporting limit is the lowest level at which residues will be reported by a laboratory for a survey, as agreed in advance with the laboratory. It can be equal to or higher than the limit of quantification (sometimes also referred to as the limit of determination). The limit of quantification is the lowest concentration that has been validated to meet strict acceptance criteria and may vary slightly from laboratory to laboratory depending on the equipment available and operating procedures used. The reporting limit should be at or below the MRL. For a small number of pesticides for example, monocrotophos, we are looking for the pesticide below the LOD MRL because we are specifically interested in prevalence in food due to the nature of the pesticide. In such cases, tests are performed in the laboratory to support the lower reporting limits by validating the method at lower limits. ‘None were detected above the set RL’: This term is used in the Brand Name Annex, where no residues were found above their reporting limit.

Residue

Residues may be present in vegetable and animal products following the application of pesticides. They may not only include the pesticide that was applied but other degradation or reaction products and metabolites that may be of toxicological significance. The levels or amounts of residues present are expressed in milligrams of the chemical in a kilogram of crop, food, or commodity (mg per kg), or parts per million.

Risk assessment

A risk assessment is carried out when residues are found in foods to determine whether, at the levels found, they present a concern for consumer health or not. Consumer risk assessments are routinely conducted as part of the approval process for pesticides and are based on residue trials. Approval of a pesticide is only recommended when the consumer risk is acceptable.

Safety factor

Values used in extrapolation from experimental studies in animals (usually 100) or humans (usually 10) to the population: for PRiF assessments this represents a value by which the NOAEL is divided to derive an ADI or ARfD. The value depends on the nature of the effect, the dose-response relationship, and the quality of the toxicological information available. The use of such a factor account for possible differences in susceptibility

between the animal species tested and humans, and for variation between different individuals in the population. The terms ‘uncertainty factor’ and ‘assessment factor’ are also sometimes used for this factor; HSE will use ‘safety factor’.

Sample

The nature of all samples is as designated in the EC’s ‘sampling’ Directive 2002/63/EC. For example, a sample of apples must be made up of at least 10 apples and weigh at least 1 kg in total, and a sample of grapes must be made up of at least 5 bunches and weigh at least 2 kg in total.

Variability factor

A value that describes the variation in residue levels between the highest unit level and the average level in samples made up of many units. Internationally this is agreed to be the 97.5th percentile unit residue level divided by the average of the sum. The variability factor multiplied by the measured residue level from a composite sample (for example, a sample made up by mixing several units before analysis) gives an estimate of the likely higher residue levels that may have occurred in individual units. These estimated higher levels are used in short-term risk assessments involving fruit and vegetables where consumers eat only a portion of a single item, for example, melon, or a small number of units for