The expert committee on Pesticide Residues in Food (PRiF)

Annual Report 2013
The Expert Committee on Pesticide Residues in Food oversees a programme to check food and drink in the UK for traces of pesticide residues.

- One of the purposes of the programme is to check whether residues in food and drink are found above the maximum residue levels (MRLs) set by law.
- When we find residues we assess whether the levels found are likely to impact on human health.
- We assess whether residues might be of concern to particular groups of consumers, such as babies, toddlers and the elderly.
- Where more than one pesticide is found with similar modes of action, we assess if the impact of the sum of the residues is of concern.
- When problems are found we take action, including focused testing and if necessary advise the regulatory authority so that enforcement action can be taken.
- We act as a check on the regulatory regime.
- We review residues found in sampling for the “School Fruit and Vegetable Scheme” which provides children between 4 & 6 in local authority maintained schools in England with a free piece of fruit or vegetable each day.

The Expert Committee on Pesticide Residues in Food does not:

- Advise on whether pesticides should be approved for use or withdrawn from the market.
- Set Government policy on pesticides.
- Take account of or assess the impact of pesticides on the environment.
- Promote the use of pesticides.

This is the third annual report from The Expert Committee on Pesticide Residues in Food. It will summarise the results from monitoring samples collected throughout 2013 and our conclusions about those results. It will also describe the work that is being carried out in 2014 and the work planned for 2015.

Details of all the samples we have collected and tested are available on our website: CRD | Expert Committee on Pesticide Residues in Food (PRiF) | Defra Expert Committee on Pesticide Residues in Food (PRiF)

If you have any comments about this report, you can send them to PRiF@hse.gsi.gov.uk
The expert committee on Pesticide Residues in Food (PRiF)

Annual Report 2013

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1 Chairman’s Introduction

Dear Reader,

This is the third annual report from the Expert Committee on Pesticide Residues in Food (PRiF). The expert committee is made up entirely of independent members with a wide range of expertise.

In addition to some explanations this report includes a brief account of some topical issues and a summary of results for the 2013 monitoring programme, which I hope you will find both interesting and useful.

Throughout 2013, PRiF has published quarterly reports on the results that have been found in the monitoring programme. We have also reported monthly on beans with pods, grapes, milk, okra and pears as part of our rolling reporting programme. All of these results have been published on our website.

In 2013, 3,549 samples of food and drink were tested for pesticide residues. We tested for up to 395 pesticides in some of the commodities. The results showed us that more than 56% of the samples tested by the laboratories do not have any of the residues of the pesticides they were tested for. The results also showed us that just over 3% of the samples contained residues above the MRL (maximum residue level) set by law. The report describes all of these results and details of the follow-up actions.

We aim some of the monitoring programme at foods where we expect to find residues. Over time we also test for more pesticides with more sensitive equipment looking for lower levels of each residue. So we expect to see a rise in the number of samples with residues, including some above the MRL. Every sample that contains a residue at any level is assessed for risk to consumer’s health. From the results of these assessments we can see that even where food contains a residue above the MRL, there is not usually a risk to the health of people who have eaten that food.

For more information about the monitoring programme and what we do, please look on our website: CRD | Expert Committee on Pesticide Residues in Food (PRiF) | Defra Expert Committee on Pesticide Residues in Food (PRiF)

Please contact us if you have any comments (prif@hse.gsi.gov.uk).

Yours sincerely

Dr Paul Brantom
Chairman, Expert Committee of Pesticide Residues in Food
2 Executive Summary

- 3,549 samples of 44 different types of food were collected in 2013.
- 43.61% of these samples contained residues.
- We tested for up to 395 pesticides in fruit and vegetables, 37 in animal products, 241 in starchy foods and grains, 194 in infant food and 325 in other groceries.
- All the samples in which residues were detected were checked by the Health and Safety Executive’s Chemicals Regulation Directorate (CRD) for risk to consumers by means of a risk assessment screening mechanism. We published results of 13 detailed and 2 combined risk assessments where there was a concern for human health.
- We referred 11 samples to the Food Standards Agency (FSA) as we had concerns about the potential risk to the health of people eating these foods. The FSA notified the European Commission about these samples which then notified all the countries which are members of the Rapid Alert System for Food and Feed (RASFF).
- We referred 41 samples of UK produced fruit and vegetables to CRD as they contained residues of pesticides not approved for use in the UK on those crops. Where CRD could not identify an obvious reason for the residue they then investigated how these residues could have arisen.
3 About Us

The pesticide residue surveillance programme monitors pesticide residues in food and drink in the UK supply chain. The term pesticide residue means the trace of a pesticide which may be found in or on our food. The agriculture and food industries use pesticides to help protect their crops from pests, including insects, weeds or fungal infections. The agriculture and food industries must comply with regulations from the UK Government and the European Union (EU).

We give advice on:

- Setting up monitoring programmes for the pesticide residues in UK food
- How to take and process samples
- Methods of analysing samples
- How to assess the results

We publish the monitoring results regularly on our website, in an understandable way and we aim to do this as quickly as possible without compromise of integrity.

The Expert Committee on Pesticide Residues in Food was formed in 2011, to carry on the monitoring work of the Pesticide Residues Committee (PRC), which ceased to operate in 2010.

Our members have been appointed by the Chief Executive of the FSA, ministers from the Department for Environment Food and Rural Affairs (DEFRA), the Department of Health, the Scottish Government, the National Assembly for Wales and the Department of Agriculture and Rural Development for Northern Ireland.

We give advice on the monitoring programme to:

- Ministers
- The Chief Executive of the FSA
- The Director of the Health and Safety’s Chemicals Regulation Directorate (CRD)

We meet four times a year and representatives from government departments and the FSA attend our meetings as officials. CRD provides our administration. We hold an annual open event where members of the public can join us to discuss pesticide residues in food. We also open one of our business meetings to the public each year.
**The Bigger Picture**

People are concerned about health, the environment and how food is produced. Pesticides used in the wrong way or in the wrong amounts can harm people, wildlife and the environment, so they must be handled with care. The government and EU allow pesticides to be used in UK agriculture, as long as they are used in line with the law and guidance controlling their use.

As regulating pesticides is a complicated area, there are a number of different organisations involved. These are known as regulatory bodies. The Advisory Committee on Pesticides (ACP) is responsible in the UK for approving and giving advice on using and handling pesticides, or for considering incidents relating to the effect of pesticides on wildlife and pets. The ACP assesses all pesticides before they can be used and sold in the UK. It advises the government if a pesticide should be approved, what crops it may be used on, how it must be used and how much can be used on a crop. It takes account of any new information about an approved pesticide to see if it should be used at a reduced rate, under different conditions or withdrawn from sale.

Most residues come from pesticides being used on crops. To work effectively, pesticides must be used in the right amounts and at the right time. The amount of residue in a food is dependent on:

- How much pesticide was used
- When it was applied in relation to harvest date
- How it is metabolised by plants and animals, and how it breaks down in the environment.

In addition to this, residues can sometimes be due to contamination (small amounts of pesticide that remain in the environment after legitimate use). Due to significant technical improvements in laboratory analysis we have the capability to detect very low levels of residues and so it is possible that as methods become more sensitive we will find more residues.

Our work and open reporting has encouraged producers and retailers to be responsible about their use of pesticides and how they supply food to people. We are transparent about our work and publish the results, including where samples were obtained and where possible who produced them.

**Maximum Residue Levels (MRLs)**

MRLs are set at the largest amount of pesticides that the relevant regulatory body would expect to find in that crop when it has been treated in line with good agricultural practice (GAP). When MRLs are set, effects on human health are considered and the MRLs are set at a level below the safety limits. If a food has a higher level of residue than the MRL, it does not automatically mean that the food is not safe to eat. A residue above the MRL may show that the farmer has not used the pesticide properly. Some pesticides may not be used in the EU at all; however some of the crops we eat are only grown outside Europe. In these cases the MRL may be set at the lowest level that official laboratories across Europe can normally detect. This is known as the limit of determination (LOD).

**Regulations**

All statutory MRLs are set on an EC wide basis, under EU regulation 396/2005(EC). Annex I of this regulation identifies which foods are covered by the MRL legislation.
4 The Monitoring Programme

We are interested in whether pesticide residues meet legal trading levels and if there is any risk to people’s health.

Survey Categories

We have reported a summary of the results later in this report in the following sections:

- Fruit and vegetables (including potatoes) – Section 8
- Starchy food and grains (bread, oats etc) – Section 9
- Animal products (meat, fish and dairy products) – Section 10
- Infant food – Section 11
- Other groceries – Section 12

We have also included sections on:

- Samples of organic foods that contained pesticide residues – Section 15
- Pesticide residues we found at levels above the MRL – Section 16
- The conclusion we reached from CRD’s risk assessments in food in 2013 – Section 18

European Union Surveys

All European Union (EU) countries are required to take part in a Europe-wide survey for pesticide residues as well as having their own national monitoring programme.

Every year the European Commission agrees a survey for all member states to carry out in their own countries. The number of samples that each country must test depends on the size of the population, with countries with large populations testing more than countries with a small population. All these results are published as a single report on the European Food Safety Authority’s (EFSA) website (http://www.efsa.europa.eu/).

In 2013 EU surveys included apples, head cabbage, leek, lettuce, milk, peaches and nectarines, rye or oats, strawberries, swine meat (pork), tomatoes and wine made from grapes. It is a legal requirement for member states to take part in these surveys.
Collecting and testing samples

EU law tells us the size of the samples that we need to test. For example, for pears the sample must be made up of at least 10 pears and must weigh at least one kilogram.

We send samples to the following laboratories to be tested:

- Agri-Food and Biosciences Institutes (AFBI) – Belfast
- The Food and Environment Research Agency (FERA) – York
- Eurofins Laboratories – Wolverhampton
- LGC Ltd – Teddington
- Science and Advice for Scottish Agriculture (SASA) – Edinburgh

Residues tested for

Pesticides tested for include those that are expected to be found in those food products as well as other pesticides in the analytical suite.

Over the last 13 years the number of pesticides we test for has risen. The increase is consistent with the current capability of most laboratories which test food for pesticide residues.

The analytical suite we used in 2013 can be found on our website: http://www.pesticides.gov.uk/Resources/CRD/PRiF/Documents/Other/2013/2013%20Analytical%20Suite.xlsx

Why we choose certain foods

There is a wide range of foods available in the UK throughout the year. To make the most of resources and make sure a wide range of food is tested; the programme changes from year to year.

The commodities we choose to survey take account of:

- What pesticides have been found before, and which foods we have concerns about.
- How important the food is in our diets.
- How long ago the food was last tested.
- The different types of food in our diets - i.e. fruit and vegetables, cereal etc.

The pesticides tested for depends on:

- What has been found before.
- What we know is being used to grow specific foods – i.e. pesticides approved for certain crops.
- What we know about pesticides being used in the UK and other countries.
- What we know about pesticides being found in tests in other countries.
- The risk the residue of that pesticide may present.
- The maximum residue levels set.

We publish detailed results from the programme every three months; the following reports are available on our website. (CRD | Results and reports, survey details | 2013 Programme)

<table>
<thead>
<tr>
<th>Report</th>
<th>When Samples were Collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quarter 1 2013</td>
<td>January to March 2013</td>
</tr>
<tr>
<td>Quarter 2 2013</td>
<td>Up to June 2013</td>
</tr>
<tr>
<td>Quarter 3 2013</td>
<td>Up to September 2013</td>
</tr>
<tr>
<td>Quarter 4 2013</td>
<td>Up to December 2013</td>
</tr>
</tbody>
</table>

You can also get copies of these reports from our secretariat:

Email: PRiF@hse.gsi.gov.uk
5 Where the samples were collected in 2013

Each year, samples are collected from different places throughout the UK. In 2013 we collected over 2,888 samples from shops and market stalls in 24 towns and cities in the UK. Defra inspectors collected around 661 samples from places such as wholesalers, ports and supermarket distribution depots. This allows samples to be collected from non-retail sources making the survey more representative of the food chain.
6 Food Tested in 2013

As some foods are available at different times throughout the year from different parts of the world, we may collect samples of these foods over three, six, nine or twelve months. We sometimes report results of tests every six months rather than every three months.

Details of the foods reported on in each quarter are below.

**Quarter 1 Report** (January to March 2013, results published September 2013)

- Apple juice
- Beans with pods
- Cabbage
- Chocolate
- Fish (fresh water)
- Grapes
- Infant food (cereal based)
- Infant food (fruit and vegetable based)
- Kiwi fruit
- Leeks
- Lettuce
- Milk
- Okra
- Pears
- Peppers
- Potatoes
- Rhubarb
- Rhubarb (tinned)
- Speciality fruit
- Speciality vegetables
- Tomatoes
- Yoghurts

**Quarter 2 Report** (Up to June 2013, results published December 2013)

- Apple purée
- Apples
- Beans with pods
- Cabbage
- Cheese
- Corn (on the cob)
- Grapes
- Kiwi fruit
- Leeks
- Lettuce
- Milk
- Nuts
- Okra
- Onions
- Peaches and nectarines
- Pears
- Peas (with pods)
- Peppers
- Pork
- Pork products (processed)
- Potatoes
- Pre-prepared salad leaves
- Speciality fruit
- Speciality vegetables
- Tomatoes
- Yoghurt

**Quarter 3 Report** (Up to September 2013, results published March 2014)

- Apple juice
- Apricots
- Beans with pods
- Bread
- Broad beans
- Cabbage
- Cherries
- Cherries (tinned)
- Fish (fresh water)
- Grapes
- Infant formula
- Leeks
- Lettuce
- Milk
- Okra
- Potatoes
- Pears
- Pears
- Speciality fruit
- Speciality vegetables
- Strawberries (tinned)
- Tomatoes
- Wine

**Quarter 4 Report** (Up to December 2013, results published June 2014)

- Apple purée
- Apples
- Beans with pods
- Bread
- Cabbage
- Cheese
- Corn (on the cob)
- Figs
- Fish (fresh water)
- Grapes
- Kiwi fruit
- Leeks
- Lettuce
- Milk
- Nuts
- Oats
- Okra
- Peaches and nectarines
- Pears
- Peppers
- Pork
- Pork products (processed)
- Potatoes
- Pre-prepared salad leaves
- Rhubarb
- Speciality fruit
- Speciality vegetables
- Strawberries
- Tomatoes
- Yoghurt
7 Results from the 2013 programme

In 2013, we tested 3,549 samples. We tested each sample for many different pesticides. In total we tested around 834,101 food and pesticide combinations. Of the pesticides we looked for, we found that:

- 56.38% of samples contained none of the pesticides we looked for.
- 41.36% of samples contained residues at or below the MRL.
- 2.25% of samples contained residues over the MRL.

The monitoring programme looks at those foods in which we expect to find residues; because of this we cannot say that the results represent the UK food supply as a whole.

Some samples labelled as being from the UK may not have been grown in the country. The country of origin can be where the raw ingredient was produced, where the food was made, where it was packed from bulk for retail sale or it could be the home of the brand owner. For example tinned tomatoes can be labelled as being from the UK, but the tomatoes in the tin could have been grown in Italy or China and then tinned in the UK.
8 Results – Fruit and Vegetables

We tested 1,993 samples for up to 395 pesticides and we carried out tests on around 622,091 food and pesticide combinations.

We found residues in 1,195 of those samples (59.96%) 78 of those samples (3.91%) contained residues over the MRL.

We tested 596 samples of UK fruit and vegetables. We found residues in 297 (49.83%) of those samples 5 samples (0.84%) contained residues over the MRL.

Main findings and actions

- We did not find any of the residues we looked for in corn on the cob.
- We did not find any residues above the MRL in apples, apricots, broad beans, cabbage, kiwi fruit, leeks, lettuce, onions, peaches and nectarines, potatoes, rhubarb or tomatoes.
- For the purposes of this report we have decided to use the European temporary guideline for BAC and DDAC as the base level with which to compare our findings. The trade were aware that it was permitted to trade food containing residues up to and including 0.5 mg/kg. Only residues above this level have been highlighted as exceedances in this report. See section 13 for more details.
- Out of the 9 samples of pre-prepared salad leaves with residues over the MRL, 8 of them were residues of BAC and DDAC above the temporary trading level.
- As with other years, out of the 19 beans with pods samples with MRL exceedances, 16 of those were in speciality beans. As speciality beans are varieties that are not commonly grown in Europe, many of the MRLs are set at the Limit of Determination (LOD).
We informed the Food Standards Agency (FSA) about any samples that could be a risk to human health. The FSA told other EU members states using the EU’s Rapid Alert System for Food and Feed (RASFF).

We found some samples of UK food with residues that suggested that pesticides which were not approved for use within the UK had been used on that crop. All these samples were referred to the Chemicals Regulation Directorate (CRD) for investigation.

### Results by food type

<table>
<thead>
<tr>
<th>Food</th>
<th>Number of samples tested</th>
<th>Number of samples containing residues at or below the MRL</th>
<th>Number of samples containing residues above the MRL</th>
<th>Number of samples containing more than one pesticide residue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apples</td>
<td>96</td>
<td>80</td>
<td>0</td>
<td>55</td>
</tr>
<tr>
<td>Apricots</td>
<td>72</td>
<td>59</td>
<td>0</td>
<td>44</td>
</tr>
<tr>
<td>Beans with pods</td>
<td>120</td>
<td>38</td>
<td>19</td>
<td>30</td>
</tr>
<tr>
<td>Broad beans</td>
<td>48</td>
<td>21</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Cabbage</td>
<td>72</td>
<td>26</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Cherries</td>
<td>96</td>
<td>83</td>
<td>3</td>
<td>61</td>
</tr>
<tr>
<td>Corn (on the cob)</td>
<td>72</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Figs</td>
<td>48</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Grapes</td>
<td>121</td>
<td>113</td>
<td>2</td>
<td>87</td>
</tr>
<tr>
<td>Kiwi fruit</td>
<td>72</td>
<td>37</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Leeks</td>
<td>96</td>
<td>15</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Lettuce</td>
<td>72</td>
<td>48</td>
<td>0</td>
<td>28</td>
</tr>
<tr>
<td>Okra</td>
<td>97</td>
<td>40</td>
<td>12</td>
<td>18</td>
</tr>
<tr>
<td>Onions</td>
<td>48</td>
<td>34</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Peaches and nectarines</td>
<td>96</td>
<td>80</td>
<td>0</td>
<td>60</td>
</tr>
<tr>
<td>Pears</td>
<td>96</td>
<td>92</td>
<td>1</td>
<td>83</td>
</tr>
<tr>
<td>Peas (with pods)</td>
<td>24</td>
<td>10</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Peppers</td>
<td>43</td>
<td>19</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Potatoes</td>
<td>157</td>
<td>79</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>Pre-prepared salad leaves</td>
<td>71</td>
<td>52</td>
<td>9</td>
<td>37</td>
</tr>
<tr>
<td>Rhubarb</td>
<td>41</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Speciality fruit</td>
<td>95</td>
<td>43</td>
<td>13</td>
<td>34</td>
</tr>
<tr>
<td>Speciality vegetables</td>
<td>48</td>
<td>11</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>Strawberries</td>
<td>96</td>
<td>88</td>
<td>2</td>
<td>84</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>96</td>
<td>46</td>
<td>0</td>
<td>31</td>
</tr>
</tbody>
</table>
9 Results – Starchy foods and grains

We tested 281 samples for up to 241 pesticides. We carried out tests on around 58,621 food and pesticide combinations.

We found residues in 201 (71.53%) of these samples. 1 sample contained a residue above the MRL.

Main findings

- We found no residues above the MRL in bread.
- We found one sample with a residue of chlormequat above the MRL in oats. Chlormequat is used as a growth regulator in oats, rye and wheat amongst other crops. A risk assessment carried out by toxicologists indicated that the residue would not be expected to have any effect on health.

Results by food type

<table>
<thead>
<tr>
<th>Food</th>
<th>Number of samples tested</th>
<th>Number of samples containing residues at or below the MRL</th>
<th>Number of samples containing residues above the MRL</th>
<th>Number of samples containing more than one pesticide residue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bread</td>
<td>216</td>
<td>137</td>
<td>0</td>
<td>56</td>
</tr>
<tr>
<td>Oats</td>
<td>65</td>
<td>63</td>
<td>1</td>
<td>54</td>
</tr>
</tbody>
</table>
10 Results – Animal Products

We tested 787 samples for up to 37 pesticides. We carried out tests on around 27,656 food and pesticide combinations.

We found residues in 51 (6.48%) of the samples. None of the samples had residues above the MRL.

Main Findings

- We did not find any of the residues we tested for in milk and yoghurt.
- There were 32 samples of processed pork products with residues. 29 of those contained pirimiphos-methyl. All but one of the residues were in sausage samples. Pirimiphos-methyl can be used as a post harvest treatment on cereals and therefore the residues are likely to be from other ingredients in the sausage (i.e. the rusk) rather than in the meat.
- Where no MRLs are set for the food (eg fish) then the number of residues found are listed.

Results by food type

<table>
<thead>
<tr>
<th>Food</th>
<th>Number of samples tested</th>
<th>Number of samples containing residues at or below the MRL</th>
<th>Number of samples containing residues above the MRL</th>
<th>Number of samples containing more than one residue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheese</td>
<td>108</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fish (fresh water)</td>
<td>109</td>
<td>14</td>
<td>0*</td>
<td>1</td>
</tr>
<tr>
<td>Milk</td>
<td>300</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pork</td>
<td>90</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pork products (processed)</td>
<td>108</td>
<td>32</td>
<td>0*</td>
<td>3</td>
</tr>
<tr>
<td>Yoghurt</td>
<td>72</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*No MRLs were applied to these samples
11 Results - Infant Food

This year we tested cereal based and fruit and vegetable based infant foods as well as infant formula. We tested 97 products for up to 194 pesticides. We carried out around 13,918 food and pesticide combinations.

We found that out of the 97 samples, 1 sample contained 2 residues that were above the MRL.

Main findings

- The residues found in the infant food sample were BAC and DDAC. A risk assessment was carried out and the residues were not expected to have an effect on health.
- BAC and DDAC have been found in a range of commodities throughout 2013 due to their use as disinfectants. The residues were over the 0.01* mg/kg MRL, but they were below the temporary trading MRL of 0.5 mg/kg which has been set by SCoFCAH (Standing Committee on Food Chain and Animal Health). However this temporary MRL does not apply to infant food therefore the residues found were over the MRL.

Results by food type

<table>
<thead>
<tr>
<th>Food</th>
<th>Number of samples tested</th>
<th>Number of samples containing residues at or below the MRL</th>
<th>Number of samples containing residues above the MRL</th>
<th>Number of samples containing more than one pesticide residue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cereal Based</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fruit and vegetable based</td>
<td>11</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Infant formula</td>
<td>73</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
12 Results – Other Groceries

The “other groceries” that we tested this year were apple juice, apple purée, tinned cherries, chocolate, nuts, tinned rhubarb, tinned strawberries and wine.

We tested 391 samples for up to 325 pesticides. We carried out tests on around 111,815 food and pesticide combinations. We found residues in 100 (25.58%) of the samples. Only 1 sample contained a residue above the MRL.

Main findings

■ We found none of the residues we tested for in apple juice, chocolate or tinned rhubarb.
■ Out of the 26 samples of tinned cherries which contained a residue, 22 of those contained a residue of cypermethrin. Cypermethrin is widely used as an insecticide in commercial agricultural applications.
■ One sample of tinned strawberries had a residue of dimethoate above the MRL for fresh strawberries. Residues of dimethoate and omethoate are reported together as dimethoate. The residue found in the sample was all omethoate.
■ Where no MRLs are set for the processed food then the number of residues found are listed and where possible a comparison made with the fresh commodities MRL.

Result by food type

<table>
<thead>
<tr>
<th>Food</th>
<th>Number of samples tested</th>
<th>Number of samples containing residue at or below the MRL</th>
<th>Number of samples containing residues over the MRL</th>
<th>Number of samples containing more than one pesticide residue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple juice</td>
<td>48</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Apple purée</td>
<td>49</td>
<td>18</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Cherries (tinned)</td>
<td>36</td>
<td>26</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Chocolate</td>
<td>72</td>
<td>0</td>
<td>0*</td>
<td>0</td>
</tr>
<tr>
<td>Nuts</td>
<td>72</td>
<td>12</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rhubarb (tinned)</td>
<td>24</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Strawberries (tinned)</td>
<td>24</td>
<td>7</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Wine</td>
<td>66</td>
<td>36</td>
<td>0</td>
<td>12</td>
</tr>
</tbody>
</table>

* No MRLs were applied to these samples
13 Topical issues from 2013

**BAC (benzalkonium chloride) and DDAC (didecyldimethylammonium chloride)**

BAC and DDAC are quaternary ammonium compounds (QACs) widely used as disinfectants rather than pesticides. They are regulated as both biocides and pesticides, and in 2013 all EU member states were requested to include analysis for QACs in their monitoring programmes. The results will be used as part of a process of setting specific MRLs that take into account appropriate disinfectant use as well as the safety of residues for consumers.

Throughout 2013 we found BAC and DDAC residues above the LOD MRL of 0.01* mg/kg. The residues have been found in a number of different foods with different countries of origin. These findings are not just confined to the UK, there have been similar results across most of the EU member states.

As disinfection is an important hygiene measure, EU countries agreed to allow marketing of produce with residues up to a temporary guideline level of 0.5 mg/kg for all foods, which is above the default MRL. The European Food Safety Authority (EFSA) had advised that this level would be safe for all consumer groups.

Throughout 2013, our reports have split BAC and DDAC MRL exceedances to show those that contained residues over the LOD MRL of 0.01* mg/kg but under the temporary guideline of 0.5 mg/kg, and those with residues over the temporary guideline.

We wrote to all suppliers of samples with residues above the LOD MRL, but these were not highlighted in our reports unless they were also above the temporary guideline level, after measurement uncertainty had been applied.

Until there is a final conclusion on an appropriate MRL, food producers and suppliers should, where practical, take steps to minimise residues of disinfectants as well as to comply with any guideline level set.

**2013 findings**

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Number of findings of BAC</th>
<th>Number of findings of DDAC</th>
<th>Number of findings over temporary MRL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beans with pods</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Infant food</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Leeks</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Pre-prepared salad leaves</td>
<td>28</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>SFVS apples</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>SFVS carrot</td>
<td>7</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>SFVS pineapple</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Speciality fruit</td>
<td>6</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Speciality vegetables</td>
<td>10</td>
<td>0</td>
<td>7</td>
</tr>
</tbody>
</table>
DDT

The use of DDT is banned or heavily restricted in many countries. It isn’t allowed for use on food crops any more but it is still used in some countries outside the EU as a public health insecticide. However, 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. During 2013 none of our findings were unusual, unexpected or of concern. We can tell from the chemical form that we detect whether the residues we’ve found are from historic use (which is what we usually find). 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 aren’t using DDT today. However we noted that during 2013 there were occasional media stories about DDT and various links and associations which did 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 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 Food Standards Agency is also actively involved in our considerations. It is true that DDT takes time to break down in the human body and builds up in fatty tissues. However, ingesting modern levels over a lifetime won’t build up to the high levels found in people who were exposed back in the 1960s and 1970s.
Thiamethoxam residues in UK lettuce originating for non-UK seed

We often detect thiamethoxam residues in UK grown lettuce. Thiamethoxam is not authorised for use on lettuce or lettuce seed in the UK, but we don’t now regard these findings as evidence of illegal use of thiamethoxam in the UK.

HSE have looked into the question of thiamethoxam residues and found that commercial lettuce growers in the UK can legally use seed bought from the Netherlands or grow on seedlings from Dutch nurseries.

Pesticide active substances are approved at the EU level, but each member state authorises the specific uses for pesticide products in its own territory.

Thiamethoxam is authorised for use in the Netherlands on lettuce seed. Treating seed rather than a growing plant means the dose needed is reduced and carefully controlled.

Once seeds have been treated, they can be grown into plants anywhere in the EU without the requirement for another authorisation in each member state. The process of authorising a seed treatment in any member state requires that a full assessment of the risk to consumers, operators and the environment is considered. In particular the label on the seed must include safety information and instructions arising from the seed treatment.

Because residues arise from the uses of a seed treatment that has been authorised in the Netherlands, we are satisfied that the residues are not showing a misuse of a pesticide by UK lettuce growers.
14 The School Fruit and Vegetables Scheme

The school fruit and vegetable scheme is part of a five-a-day programme to encourage children to eat at least five portions of fruit and vegetables every day. Under the scheme, all school children aged between four and six in local authority maintained infant, primary, and special schools in England are entitled to a free piece of fruit or vegetable each school day. In 2013 the scheme distributed around 447 million pieces of fruit and vegetables to schools across England.

We check the fruit and vegetables provided by the scheme for pesticide residues. As with other foods supplied to the public, any residues in these fruit and vegetables must comply with the MRLs. The scheme buys fruit and vegetables from growers who follow UK food safety schemes or the equivalent if food has been imported. CRD obtains samples of fruit and vegetables from the scheme’s suppliers and then tests them for residues at the Food and Environment Research Agency (Fera). We compare results for each sample with the relevant MRLs and assess whether any residues found would be likely to affect children’s health.

We publish our findings for samples taken during each school term on our website: CRD | Results and reports, survey details | School Fruit and Vegetable Scheme Introduction

Results by food type

<table>
<thead>
<tr>
<th>Food</th>
<th>Number of samples tested</th>
<th>Number of samples containing residue at or below the MRL</th>
<th>Number of samples containing residues over the MRL</th>
<th>Number of samples containing more than one pesticide residue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apples</td>
<td>42</td>
<td>40</td>
<td>0</td>
<td>34</td>
</tr>
<tr>
<td>Bananas</td>
<td>30</td>
<td>26</td>
<td>0</td>
<td>23</td>
</tr>
<tr>
<td>Carrots</td>
<td>39</td>
<td>31</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Pears</td>
<td>25</td>
<td>25</td>
<td>0</td>
<td>22</td>
</tr>
<tr>
<td>Pineapple (prepared)</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Raisins and sultanas</td>
<td>14</td>
<td>13</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>Strawberries</td>
<td>34</td>
<td>33</td>
<td>1</td>
<td>34</td>
</tr>
<tr>
<td>Sugarsnap peas</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>6</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
15 Organic samples

In 2013, out of 3,549 samples we tested, 112 were labelled as organic. Although we do not specifically target organic foods in our surveys, they are tested as part of the monitoring programme as they are available for people to buy. We are also obliged to test some samples as part of the EU surveys.

Residues in organic samples

Organic farmers and growers are allowed to use a limited number of approved pesticides.

Six of the organic samples tested contained pesticide residues. None of the samples contained a residue above the MRL. All results were passed to the relevant authority in the country the food came from, and the section in Defra that deals with organic farming.

The following organic samples contained residues. None of the residues detected would be expected to have an effect on health.

<table>
<thead>
<tr>
<th>Food</th>
<th>Country of origin</th>
<th>Pesticide residue found</th>
<th>Amount of residue found (mg/kg)</th>
<th>MRL (mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oats</td>
<td>UK</td>
<td>chlormequat</td>
<td>0.03</td>
<td>5</td>
</tr>
<tr>
<td>Oats</td>
<td>UK</td>
<td>chlormequat</td>
<td>0.03</td>
<td>5</td>
</tr>
<tr>
<td>Oats</td>
<td>UK</td>
<td>chlormequat</td>
<td>0.04</td>
<td>5</td>
</tr>
<tr>
<td>Oats</td>
<td>UK</td>
<td>chlormequat</td>
<td>0.04</td>
<td>5</td>
</tr>
<tr>
<td>Oats</td>
<td>UK</td>
<td>chlormequat</td>
<td>0.05</td>
<td>5</td>
</tr>
<tr>
<td>Oats</td>
<td>UK</td>
<td>chlormequat</td>
<td>0.09</td>
<td>5</td>
</tr>
</tbody>
</table>
16 Residues above the MRLs

Of the 3,549 samples tested, 83 contained one or more residue above the relevant MRL.

MRLs are trading standards rather than safety levels, therefore these results do not automatically mean the levels of residues found and recorded are a risk to people’s health. The samples containing residues above the MRL were mainly found in fruit and vegetables.

Detailed findings are in the reports we produce every quarter, and all of the residues above the MRL are summarised later in this report at annex 1.

Samples above the MRL
17 Suspected unapproved uses in the UK

We are able to check the residues found in UK produce against the pesticides approved for use on those crops.

Sometimes we do find residues which have not been approved for use on particular UK grown crops. There are different reasons this may occur, such as:

- The crop has been grown from an imported seed which was treated legally in another country and the residue has carried over from the seed.
- A food has been grown overseas but the country of origin on the packaging is that of the brand owner or where it was packed.
- If the residues are very low, this may have been caused by accident e.g. through pesticide spray drift, irrigation water or equipment not being correctly cleaned between uses.
- Illegal use.

If we find a residue of a pesticide that has not been approved for use in the UK, we inform the Chemicals Regulation Directorate (CRD) about our results so they can consider investigating.

We referred the following samples to CRD in 2013.

<table>
<thead>
<tr>
<th>Food</th>
<th>Pesticide residue found</th>
<th>Amount of residue found (mg/kg)</th>
<th>MRL (mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple purée (4 samples)</td>
<td>Carbendazim</td>
<td>0.01 – 0.04</td>
<td>0.2</td>
</tr>
<tr>
<td>Apples (2 samples)</td>
<td>Captan and folpet</td>
<td>0.05 – 0.2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Ethirimol</td>
<td>0.01 – 0.02</td>
<td>0.1</td>
</tr>
<tr>
<td>Apples (6 samples)</td>
<td>Captan and folpet</td>
<td>0.02 – 0.06</td>
<td>3</td>
</tr>
<tr>
<td>Broad beans</td>
<td>Carbendazim</td>
<td>0.02</td>
<td>0.1*</td>
</tr>
<tr>
<td>Celeriac</td>
<td>Iprodione</td>
<td>0.05</td>
<td>0.02*</td>
</tr>
<tr>
<td>Leeks</td>
<td>Chlorothalonil</td>
<td>0.03</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Famoxadone</td>
<td>0.01</td>
<td>2</td>
</tr>
<tr>
<td>Leeks</td>
<td>Famoxadone</td>
<td>0.02</td>
<td>2</td>
</tr>
<tr>
<td>Lettuce (2 samples)</td>
<td>Thiamethoxam</td>
<td>0.01 - 0.07</td>
<td>5</td>
</tr>
<tr>
<td>Lettuce</td>
<td>Inorganic bromide</td>
<td>24</td>
<td>50</td>
</tr>
<tr>
<td>Pears (9 samples)</td>
<td>Captan and folpet</td>
<td>0.02 – 0.2</td>
<td>3</td>
</tr>
<tr>
<td>Potatoes</td>
<td>DDT</td>
<td>0.01</td>
<td>0.05*</td>
</tr>
<tr>
<td>Strawberries (7 samples)</td>
<td>Ethirimol</td>
<td>0.01 – 0.06</td>
<td>0.2</td>
</tr>
<tr>
<td>Watercress (2 samples)</td>
<td>Dithiocarbamates</td>
<td>0.1 – 0.2</td>
<td>0.3</td>
</tr>
</tbody>
</table>

CRD’s investigation into most of these cases found that no illegal use had taken place and the residue was present for another reason. In some cases the investigation is still ongoing and the results will be published in one of the quarterly reports from the Expert Committee on Pesticide Residues in Food, once the investigation has been completed.

Captan and folpet are reported together, however folpet is not approved for use on UK crops. Where no folpet was associated with the captan then there was no suspected unapproved use so no further action was necessary. Thiamethoxam is not approved for use in the UK but is an approved seed treatment in some EU countries. It is applied in these countries as a seed treatment before being grown in the UK. Therefore the residues are from legal use.
18 Assessing the risk to people’s health

Since 2008, every result which contained a residue has been checked to see if the residues found could have an effect on health. We call these checks risk assessment screens.

Risk Assessment Screening

In nearly all cases the risk assessment screening showed that people would eat less than the acute reference dose (ARfD) which is the amount of pesticide that a person can eat in one day without affecting their health, and less than the acceptable daily intake (ADI) which is the amount of that pesticide it is safe to eat every day for a lifetime. The risk assessment screening considers the amount eaten by 10 different groups of people based on consumption data supplied by the FSA. These groups are infants, toddlers, young people (4 different age groups), adults, vegetarians, elderly people living in their own homes and elderly people living in residential accommodation.

The ARfD and ADI values that we use in risk assessment screens are set by national and international regulatory bodies such as the Advisory Committee on Pesticides (ACP) in the UK, the European Food Safety Authority (EFSA) in the EU and the Joint Food and Agriculture Organisation/World Health Organisation Meeting on Pesticide Residues (JMPR).

Detailed Risk Assessments

We publish detailed risk assessments:

- For all situations where consumption patterns could lead to people eating more than the acute reference dose or daily intake of specific pesticides.
- Where a sample contains a residue of more than one organophosphate or carbamate pesticide (or both) or residues of certain fungicides from the same chemical group (e.g. captan and folpet). Each of these groups of pesticides can have similar effects on people, so we check to see what could happen if these effects are added together.

We considered 13 detailed risk assessments during 2013. In each case we considered specific advice on the possible health risks. In most cases we found that risks to people’s health were unlikely. Where the risk assessment showed that there might be a risk to health, we informed the Food Standards Agency.

The full text of all the detailed risk assessments is in our reports (which we publish every three months) or in our reports on samples taken from the School Fruit and Vegetable Scheme.

You can download these reports from our website: http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF/PRiF_Results_and_Reports/2013++Programme
**PRiF:** Advise HSE on foods to be included in the monitoring programme, taking past findings into account as well as findings from other EU countries.

**HSE:** Government inspectors and a market research company visit retail outlets and other places in the food chain to collect samples of various foods, including both imported and UK produced.

**CRD:**
- Prepare a notification for the EU’s Rapid Alert System for Food and Feed (RASFF) about any possible risks to people who might eat the food.
- Follow-up non compliance.
- Publish report including brand name details.

**PRiF:**
- Scrutinise data – check that risks are identified and considered. Identify appropriate actions. Make sure the whole report in particular the conclusions are clear.

**CRD:**
- Risk Assessment - Assess the risk to people who might eat the food containing pesticide residues at the levels detected. Identify non compliance - check the level of residue detected against the relevant MRL.

**UKAS accredited laboratories analyse the samples.**

**PRiF Analytical Sub Group peer review data.**

**HSE collate results.**
19 Follow up action

If we find a residue above the relevant MRL it could just be in one sample. However if we find that a number of samples contain residues above the MRL in one survey or in further surveys of the same food, it suggests that:

- The pesticide’s approval is not in line with the MRL (pesticides approved for use in the UK are rarely out of line with the MRLs, but there may be problems with imported foods).
- The MRL is set at the Limit of Detection (the lowest amount that can normally be detected by official laboratories across Europe), which is a default level that does not take account of the use outside Europe.
- Some people who grow or store the food are not using pesticides properly.

Main Actions

- All samples with residues over the MRL were reported to the retailers, suppliers and growers involved. We asked them to explain why the residues were over the MRL. Where they asked us to, we published these explanations in our reports.
- All UK samples with a pesticide not approved for use in the UK were reported to CRD for further investigation.
- For all samples of non-UK produce with residues over the MRL, we wrote to the relevant authorities in the countries the produce was exported from.
- When we found residues that could be a risk to health we informed the FSA. They told other member states using the Rapid Alert System for Food and Feed (RASFF). Our quarterly reports include details of RASFF notifications issued as follow up to the monitoring results.
- All residues found in organic samples were reported to the organic team in Defra.
- We can target further monitoring of a food where we have found residues of interest.
- Alongside the quarterly reporting we run a programme called “rolling reporting”. Rolling reporting is 4 or 5 commodities which are being sampled and reported on every month throughout the year. In 2013 the commodities in the rolling reporting programme were beans with pods, grapes, milk, okra and pears.

If we are concerned about anything we find we can take the following actions:

- In serious cases involving another EU member state we can inform the European Commission Inspectors from the European Commission’s Food and Veterinary Office who will then investigate the problem.
- If we suspect that pesticides are being used illegally in the UK, the Health and Safety Executive’s Chemicals Regulation Directorate (CRD) may carry out a special survey. CRD is able to prosecute growers or suppliers they find breaking the law.
20 The programmes for 2014 and 2015

Food and drink CRD are monitoring in 2014

The 2014 programme started in January 2014. We will publish the results for each three month period on our website: [http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF/PRiF_Results_and_Reports/2014_-_Programme](http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF/PRiF_Results_and_Reports/2014_-_Programme)

Food and drink CRD is planning to monitor in 2015

CRD is planning the programme for 2015. The following is the proposed list of commodities for 2015. These may change based on information we receive in 2014.

---

<table>
<thead>
<tr>
<th>Apples</th>
<th>Flour (wheat)</th>
<th>Minced meat</th>
<th>Processed potatoes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asparagus</td>
<td>Garlic</td>
<td>Mushrooms</td>
<td>Pumpkin/squashes</td>
</tr>
<tr>
<td>Avocado</td>
<td>Grapes</td>
<td>Okra</td>
<td>Raspberries</td>
</tr>
<tr>
<td>Beans with pods</td>
<td>Herbs</td>
<td>Oranges</td>
<td>Rice</td>
</tr>
<tr>
<td>Beetroot</td>
<td>Infant food (animal)</td>
<td>Pears</td>
<td>Rice cakes</td>
</tr>
<tr>
<td>Bread</td>
<td>Infant formula</td>
<td>Pepper</td>
<td>Shell fish</td>
</tr>
<tr>
<td>Bread (part baked)</td>
<td>Juice (other)</td>
<td>Pesto</td>
<td>Speciality beans (dried)</td>
</tr>
<tr>
<td>Carrots</td>
<td>Lemons and lime</td>
<td>Plums</td>
<td>Speciality vegetables</td>
</tr>
<tr>
<td>Cheese (hard)</td>
<td>Lettuce</td>
<td>Potatoes</td>
<td>Spinach</td>
</tr>
<tr>
<td>Coffee</td>
<td>Liver</td>
<td>Poultry meat</td>
<td>Spring greens and kale</td>
</tr>
<tr>
<td>Cucumber</td>
<td>Milk</td>
<td>Pre-prepared salad leaves</td>
<td></td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>Apples</th>
<th>Cauliflower</th>
<th>Grapes</th>
<th>Pineapples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aubergine</td>
<td>Celery</td>
<td>Infant food (cereal based)</td>
<td>Potatoes</td>
</tr>
<tr>
<td>Banana</td>
<td>Cheese (soft)</td>
<td>Lettuce</td>
<td>Radish</td>
</tr>
<tr>
<td>Banana (plantain)</td>
<td>Chillies</td>
<td>Mango</td>
<td>Soya oil</td>
</tr>
<tr>
<td>Beans with pods</td>
<td>Courgette</td>
<td>Melon</td>
<td>Speciality fruit</td>
</tr>
<tr>
<td>Beef</td>
<td>Crème fraîche</td>
<td>Milk</td>
<td>Speciality vegetables</td>
</tr>
<tr>
<td>Berries</td>
<td>Crisps</td>
<td>Okra</td>
<td>Spices</td>
</tr>
<tr>
<td>Biscuits (plain crackers)</td>
<td>Currants</td>
<td>Olive oil</td>
<td>Tea</td>
</tr>
<tr>
<td>Bread</td>
<td>Curry leaves</td>
<td>Olives</td>
<td>Venison</td>
</tr>
<tr>
<td>Broccoli</td>
<td>Eggs</td>
<td>Orange juice</td>
<td>Wheat</td>
</tr>
<tr>
<td>Brussels sprouts</td>
<td>Fish (smoked)</td>
<td>Peas without pods</td>
<td></td>
</tr>
<tr>
<td>Butter</td>
<td>Ginger (fresh)</td>
<td></td>
<td>Peppers</td>
</tr>
</tbody>
</table>

---

These proposals have been made on the basis that the budget doesn’t change. If it does change, then what we will be able to test will also change.

We welcome your suggestions for foods we should monitor. Our contact details are at the back of this report.
21 Information supplied by the food industry and local authorities

This year, we have again worked with the Veterinary Residues Committee (VRC) to gather information from the food industry. The food industry produces a lot of monitoring information about pesticide residues. We encouraged them to share their information with us because it is useful for our monitoring programme.

We are grateful to the following, who have contributed monitoring information:

- Bakkavor Limited
- DG Fruit UK Ltd
- The Co-operative Food
- Greenvale AP
- Intercrop Ltd
- Jepco
- Kent Scientific Services
- Kettle Produce Ltd
- Merko (Europe) Ltd
- Orchard House & Paradise Foods
- Vitacress Salads UK

We would also like to thank the companies who sent us information but did not want to be mentioned.

If we receive information containing results we would not expect, or that shows residues above the MRLs, we assess the risk to people’s health. We also ask the company that gave us the information to comment on whether the results were confirmed by the laboratory that did the tests and what follow-up action was taken. We like to hear that when these results are found, the food industry takes the appropriate action. This may include inspecting records of spraying and carrying out further monitoring.

We want to encourage the food industry to give us monitoring information and hope that the amount of information we receive continues to increase. We also welcome developments, such as major retailers publishing their own test results for residues on their websites.

The information we receive, and CRD’s comments on their food safety calculations, will be available on our website as a supplement to this report when the data is complete.
22 The law relating to pesticides

As well as the laws on the levels of pesticide residues allowed in food, there are laws on the authorisation, selling, supplying, using, storing, importing and advertising of pesticides. The main rules on selling and using pesticides and on residues in food are increasingly being set in European Union (EU) Law.

EU law on approving pesticides and their sale, supply and advertisement

Regulations (EC) No 1107/2009 lays down how member states assess pesticides for authorisation in the EU, and which active substances (the ingredients in pesticides that make them work as pesticides) can be used in them. This regulation provides for:

- Listing the active substances that are approved for use in pesticides in the EU.
- Setting rules for adding further active substances to the list.
- Setting the common rules member states have to use when authorising pesticides that contain any active substance on the list.

All new active substances are checked for safety by scientists from all the member states and the European Food Safety Authority (EFSA) before they are added to the list of approved active substances. Member states may authorise products containing approved active substances as long as they meet further safety conditions set in the regulations.

Controls of storage, use and disposal

Controls also apply to the safe and sustainable use and storage of pesticides. They are applied through a variety of means including requirements for users to be trained and for the conditions of authorisation for products (for example details of how much pesticide can be applied in particular situations and how often) to be followed; legal requirements on users (for example to take responsible precautions to protect human health and environment when using or storing pesticides) and through advice and guidance such as that in Codes of Practice for safe use or storage.

The Plant Protection Products (Sustainable Use) Regulation 2012 came into effect in the UK on 18 July 2012. The use of pesticides had been regulated in the UK for many years, so many of the measures in this regulation are already features in earlier domestic legislation and are an established part of the UK good practice.

Maximum Residue Levels (MRLs)

There are controls on the amount of pesticide residues allowed in food marketed within the European Union. These controls set maximum levels (MRLs) for individual pesticides allowed in specific foods under EC Regulation 396/2005. MRLs are statutory trading levels, based on the highest level of a residue expected to be in a food when the pesticide is used in line with the terms of its approval. MRLs are set below the level considered to be safe for people. It is illegal to import, distribute, supply or sell food with residues above the MRL.

The main features of Regulation 396/2005 include the following:

- A list of foods subject to MRLs (Annex I).
- Definitive EU MRLs (Annex II) – this annex lists MRLs that were set across the EU using the procedures in Regulation 396/2005.
- Temporary EU MRLs (Annex III) – levels based on MRLs that were originally set by member states on a national basis. These are called “temporary” MRLs because they will eventually be reviewed and included in Annex II.
- A list of active substances that do not need MRLs (Annex IV), because residues from using these pesticides cannot be distinguished from residues occurring naturally.
■ A list of EU MRLs (Annex V) for active substances that are not approved for use in the EU, and
where all MRLs are set at the lowest practical limit of determination for that substance.
■ A “default MRL” of 0.01 mg/kg (milligrams of pesticide in every kilogram of food). This level
applies for all pesticides in all foods where as yet no definitive MRL (in Annex II) temporary MRL
(in Annex III), or limit of determination MRL (in Annex V) has been set.

Where it is practical, our laboratories’ reporting levels (the lowest levels our tests are set to measure)
when testing samples are set in line with the default MRL (0.01 mg/kg).

Pesticide residue testing

All the countries in the European Union (EU) are required under MRL legislation to have in place
a pesticide residue testing programme which is representative of their food supply market. The
programme must take samples close enough to the point where produce enters the food supply
market to enable follow up activity to take place if the food does not comply with the law.

In addition each year a regulation is published requiring all 27 countries in the EU to take part in a
co-ordinated programme of work. This programme covers around 30 foods sampled over a rolling 3
year programme. The results enable the European Food Safety Agency (EFSA) to check compliance
but also to make an assessment of the risks to consumers throughout the EU.

Increasingly this obligation forms a larger percentage of the national UK programme as more foods
and more pesticides are added to the joint programme in the community control plan.

The most recent report summarising the results for 2011 can be found at:
23 Update from the Food Standards Agency

Consumers are concerned about possible combined effects of mixtures of pesticides in foods. The FSA, in response to these concerns, asked the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT), to consider this issue. In 2002, the committee published its report on the risk assessment of mixtures of pesticides and similar substances. The report concluded that the risk to people’s health from mixtures of pesticide residues and other substances is likely to be small, but also made a number of recommendations for further research to support these findings. The FSA responded by funding a programme of research to address the recommendations made by the COT.

The FSA initially commissioned 17 research projects. In 2011, the COT considered these research reports and concluded that its research recommendations had been addressed well. It also drew conclusions from the reports. These included that the combined risk assessments based on the principle of “dose addition” are adequately protective for pesticides that have similar toxicological actions. A further project on the combined effects of benzimidazole fungicides was completed in 2012. The results of this project also supported the principle of “dose addition” for substances that act in a similar ways thus causing a similar effect.

A project on the effects of household processing practices such as washing, peeling and cooking on pesticide residues, is on-going. This new study also focuses on pesticide residues which belong to groups of pesticides with common modes of toxic action, and the data from this project will help assessments of combined dietary exposure to these pesticides and their metabolites.

An EU-funded project called Aggregate and Cumulative Risk of Pesticides: an On-Line Integrated Strategy (ACROPOLIS) was completed in 2013. This project involved a consortium of eleven participants including CRD and the Food and Environment Research Agency (Fera). The FSA provided dietary data to the CRD to support their work for ACROPOLIS and part-funded Fera’s contribution to the project. The project developed a tool for assessing risks from mixtures of pesticides from all sources.

The COT’s statement on the FSA-funded research is published at http://cot.food.gov.uk/cotstatements/cotstatementsyrs/cotstatements2011/cot201107.

Summaries of the research projects funded by the FSA are available on the FSA website at http://www.food.gov.uk/science/research/foodcomponentsresearch/mixturesresearch/t10prog/T10projlist/.

The full project reports can also be accessed at www.foodbase.org.uk/index.php.
24 Communicating with people

We want as many people as possible to find out about our work and to understand what we do. To do this we:

- Publish all the monitoring results on our website every quarter.
- Publish the results of our rolling reporting on our website every month.
- Publish an annual report written in plain English.
- Open one of our quarterly meetings each year to the public.
- Hold an annual one day workshop for members of the public, with presentations and opportunities to interact.

Our chairman is available for interviews with the media.

On our website we have a series of help pages:

- **An A-Z of pesticides:**
  [http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF/PRiF-help/a-to-z-of-pesticides](http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF/PRiF-help/a-to-z-of-pesticides)

- **A pesticide glossary:**

- **Frequently asked questions:**

The Veterinary Residues Committee (VRC) carries out similar work to the PRiF. They investigate residues of veterinary medicines in foods of animal origin (meat, cheese, yoghurt and so on). Some active substances are used in pesticides and veterinary medicines. We work with the VRC and tell them about any of our findings that are relevant to their monitoring programme.
Dr Paul Brantom is a registered toxicologist and has worked in toxicology of food-related chemicals for more than 40 years. He was previously head of toxicology at BIBRA International and manager of the University of Surrey Centre for Toxicology. He is currently semi-retired but continues to work as an independent consultant in toxicological risk assessment, mainly for International and National organisations. Following previous research experience he retains particular interests in toxicological risk assessment including non-animal testing methods and carcinogenicity. Dr Brantom is a past member of UK Advisory Committees on Novel Foods and Processes (ACNFP), Veterinary Products (VPC), Veterinary Residues (VRC) and Animal Feedingstuffs (ACAF). He is also a past member of the FEEDAP Panel of EFSA (European Food Safety Authority) and continues to work with EFSA and the European Research Agency (ERA) on a number of projects and working groups.

Julian Davies has over 25 years agronomy experience on vegetable and glasshouse crops. He is Agronomy and Commercial Director at Stockbridge Technology Centre Ltd (STC), an independent and industry owned applied research and development company in horticulture. He is particularly interested in reconnecting school children with where their food comes from and established the centre’s education projects at STC in 2003. Julian also runs business and enterprise projects with local schools. He is involved with Let Nature Feed Your Senses and Yorkshire Food Discovery, both Lottery funded projects.

Ann Davison began her career at Which? She has worked in consumer affairs for most of her career, running consumer organisations and networks such as Foodaware: the Consumer Food Group. She won the UK Woman of Europe 2000 Award. Ann has served as a consumer representative on a number of government committees – Defra Expert Panel on Air Quality Standards, the Adult Learning Committee of the Learning and Skills council and currently the Food Standards Agency’s Advisory Committee on Animal Feeding Stuffs. For nearly six years, Ann was Defra’s consumer adviser and ran its Consumer Representatives Group. Ann takes a special interest in food, health and standard issues. She chaired the Fairtrade Foundation’s Certification Committee for eleven years.

Dr Stuart Freeman is a fellow of the Royal College of Pathologists and an independent toxicology consultant with 25 years experience of the pharmaceutical and consumer products industries. During this time he worked at Smith Kline and Fresh, AstraZeneca, where he was Head of the Reproductive and Developmental Toxicology group, and GlaxoSmithKline Consumer Healthcare, where he was Head of Toxicology for the worldwide business. Dr Freeman has served industry committees and published and presented extensively in the field of toxicology.
Katie Knaggs is the Grower Sustainability Manager at International Procurement and Logistics Ltd (IPL). IPL is a wholly owned subsidiary of ASDA. Katie has over 15 years' experience working in the technical arena of Fresh Produce retail supply chains. At IPL she manages the sustainability strategy for the IPL's British and Global supply chains. Within Katie's role she looks at the Economic, Environment and Social sustainability elements in food supply chains. Katie's knowledge and expertise in pesticides is managing retailer supply chain agricultural policy including pesticide management and residue monitoring programmes. She is experienced in following up on pesticide noncompliance route cause investigation to grower level. Katie is a farmer's wife and mother of two children, she is from a livestock and arable farming background and has a BSc in Agri Food Marketing and Management.

Dr Rosemary Waring is a fellow of the Royal College of Pathologists. She has a long-term research interest in the metabolism of environmental compounds, including pesticides and their possible effects on human health. She is a toxicologist at the University of Birmingham where her group has studied neurotoxicology and endocrine disruption. As well as being a member of the PRiF Committee, Rosemary is a past member of the Advisory Committee on Pesticides (ACP). Currently she is an independent member of COMEAP (Committee on Medical Effects of Air Pollution) and COC (Committee for Carcinogenicity) and has recently ended her time as a panel member of an EC committee on consumer safety (SCCS, Cosmetic Ingredients Panel).

Dr Glenis Wedzicha read chemistry at the University of London, where her PhD research was on free radicals in an industrial context. She did postgraduate teaching training at the University of Oxford and her teaching career included teaching physics and chemistry to 'A' level. She also wrote media articles as a free lancer about complex scientific and technical issues that affect society. Glenis is the Science Co-ordinator on the Board of Trustees of North Yorkshire East (NYE) Federation of Women's Institute (WI) and vice-Chair of their Public Affairs and International Committee, a position she took up recently. She leads the scientific strategy of the Federation, and her role includes helping members understand the impact of science on their lives and society in general. She has a particular interest in the communication of food and environmental issues. Recently, Glenis has been appointed a member of the UK Chemicals Stakeholder Forum on which she represents the National Federation of WI's.

Debbie Winstanley has a BSc (Hons) in Agriculture with Agricultural Economics from the University of Wales. She was a commercial farm agronomist in the north-west of England for 20 years before working on potato agronomy at Cambridge University Farm. Subsequently, Debbie joined Co-Op Retail where she worked with fresh produce suppliers and then, she joined Sainsbury’s where she was first Product Technologist for potatoes and vegetables, and then the Company Agronomist, notably working on pesticide residue reduction. She is also an examiner for BASIS, who set standards for and certify the competence of professionals who work with pesticides. She is now the UK Agronomist for PepsiCo where her work covers potatoes for Walkers Crisps, oats for Quaker Oats and apples for Copella Apple Juice.
Analytical Sub Group

The Expert Committee on Pesticide Residues in Food’s Analytical Sub Group (ASG) reviews the results of analysis by the laboratories before they are sent to CRD, to ensure their reliability.

Most of the members of the group are from laboratories, the group members during 2013 were:

- Helen Kyle – Chemicals Regulation Directorate (Chairman)
- Dr Sadat Nawaz – Food and Environment Research Agency (FERA)
- Stewart Reynolds – Food and Environment Research Agency (FERA)
- David Sanderson – Agri-Food and Biosciences Institute (AFBI)
- Andrew Wyeth – LGC Ltd
- Kirsty Reid – Science and Advice for Scottish Agriculture (SASA)
- Ian Rock – Eurofins Ltd
- Dr Neil Schroeder – Eurofins Ltd
- Philippe Bersuder – Centre for Environment, Fisheries and Aquaculture Science (Cefas)
- Dr Jack Kay – Veterinary Medical Directorate (VMD)
- Peter Maynard – Public Analyst

Cost of our surveys

The UK pesticide residues monitoring programme in 2013 cost £2.1 million. 60% of this money came from the charge of sales of approved pesticides by pesticide manufacturers and suppliers in the UK. The rest came from the government. Most of the money was spent on testing samples for pesticide residues.

CRD pays members a fee for each meeting attended. CRD also provides support to the committee and the sub group.

The following table shows the main areas we spent money on 2013:

<table>
<thead>
<tr>
<th>Area of work</th>
<th>Amount spent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Members fees and meetings, including our open event</td>
<td>£13,000</td>
</tr>
<tr>
<td>Collecting samples</td>
<td>£231,000</td>
</tr>
<tr>
<td>Analysing samples</td>
<td>£1,900,000</td>
</tr>
</tbody>
</table>
Annex 1: All residues found above the MRL in 2013

The table below shows all samples from 2013 where we found at least one residue above the MRL. A number of the MRLs have (*) next to them, this means that the MRL is set at the limit of determination (the lowest level that can be normally detected by official laboratories across the EU). This is set when the pesticide must not be used in the EU at all, or cannot be used on these crops in the EU. As foods grown outside the EU are not all covered by the European standards for pesticide residues, residues above these MRLs do not necessarily mean that the farmer did not follow good agricultural practice (GAP).

Analytical Measurement Uncertainty

No measurement can ever be guaranteed to be exact and this can be caused by many things. Measurement uncertainty is a calculated indicator of our confidence in the accuracy of the amount of pesticide we detected. It is not expressing a doubt about which pesticides we have found.

It has been agreed for reporting purposes only that measurement uncertainty will be applied to any result that contained a residue over the MRL. In line with the EU guideline, we use a default value of 50% for measurement uncertainty. This means that when a sample has a residue over the MRL we subtract 50% of the reported value and check this value against the MRL. All the residues still over the MRL after the 50% measurement uncertainty has been applied are highlighted as breaching the law in our quarterly reports.

Samples with residues over the MRL is 2013

- 74.79% Not a breach of the law after measurement uncertainty taken into account
- 25.21% Breach of the law after measurement uncertainty taken into account
<table>
<thead>
<tr>
<th>Sample reference number</th>
<th>Food</th>
<th>Country of Origin</th>
<th>Pesticides residue found</th>
<th>Residue found (mg/kg)</th>
<th>MRL (mg/kg)</th>
<th>Breach of the law after allowing for measurement uncertainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>13128/2013</td>
<td>Beans with pods: valore</td>
<td>India</td>
<td>Methomyl (sum)</td>
<td>0.3</td>
<td>0.02*</td>
<td>Yes</td>
</tr>
<tr>
<td>13130/2013</td>
<td>Beans with pods: valore</td>
<td>Kenya</td>
<td>Propargite</td>
<td>0.02</td>
<td>0.01*</td>
<td>No</td>
</tr>
<tr>
<td>13537/2013</td>
<td>Beans with pods: guar</td>
<td>India</td>
<td>Dimethoate (sum)</td>
<td>0.2</td>
<td>0.02*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ethion</td>
<td>0.06</td>
<td>0.01*</td>
<td>Yes</td>
</tr>
<tr>
<td>13538/2013</td>
<td>Beans with pods: valore</td>
<td>India</td>
<td>Dimethoate (sum)</td>
<td>0.3</td>
<td>0.02*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Profenofos</td>
<td>0.08</td>
<td>0.05*</td>
<td>No</td>
</tr>
<tr>
<td>13539/2013</td>
<td>Beans with pods: guar</td>
<td>India</td>
<td>Dimethoate (sum)</td>
<td>0.2</td>
<td>0.02*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Profenofos</td>
<td>0.3</td>
<td>0.05*</td>
<td>Yes</td>
</tr>
<tr>
<td>13601/2013</td>
<td>Beans with pods: guar</td>
<td>India</td>
<td>Dimethoate (sum)</td>
<td>0.2</td>
<td>0.02*</td>
<td>Yes</td>
</tr>
<tr>
<td>13609/2013</td>
<td>Beans with pods: guar</td>
<td>Kenya</td>
<td>Propargite</td>
<td>0.6</td>
<td>0.01*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sprioxamine</td>
<td>0.07</td>
<td>0.05*</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tetradifon</td>
<td>0.2</td>
<td>0.01*</td>
<td>Yes</td>
</tr>
<tr>
<td>13655/2013</td>
<td>Beans with pods: guar</td>
<td>India</td>
<td>Carbendazim</td>
<td>0.3</td>
<td>0.2</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dimethoate (sum)</td>
<td>0.03</td>
<td>0.02*</td>
<td>No</td>
</tr>
<tr>
<td>13657/2013</td>
<td>Beans with pods: guar</td>
<td>India</td>
<td>Dimethoate (sum)</td>
<td>0.06</td>
<td>0.02*</td>
<td>Yes</td>
</tr>
<tr>
<td>13733/2013</td>
<td>Beans with pods: yard long</td>
<td>Malaysia</td>
<td>Carbendazim</td>
<td>0.3</td>
<td>0.2</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fenvalerate &amp; esfenvalerate (all isomers)</td>
<td>0.03</td>
<td>0.02*</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lufenuron</td>
<td>0.03</td>
<td>0.02*</td>
<td>No</td>
</tr>
<tr>
<td>13734/2013</td>
<td>Beans with pods: yard long</td>
<td>Malaysia</td>
<td>Triazophos</td>
<td>0.02</td>
<td>0.01*</td>
<td>Yes</td>
</tr>
<tr>
<td>13744/2013</td>
<td>Beans with pods: yard long</td>
<td>India</td>
<td>Triazophos</td>
<td>0.02</td>
<td>0.01*</td>
<td>No</td>
</tr>
<tr>
<td>13825/2013</td>
<td>Beans with pods: papri</td>
<td>Malaysia</td>
<td>Chlorfenapy</td>
<td>0.2</td>
<td>0.01*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dithiocarbamates</td>
<td>3</td>
<td>1</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hexaconazole</td>
<td>0.02</td>
<td>0.01*</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lufenuron</td>
<td>0.1</td>
<td>0.02*</td>
<td>Yes</td>
</tr>
<tr>
<td>13896/2013</td>
<td>Beans with pods: guar</td>
<td>India</td>
<td>Dimethoate (sum)</td>
<td>0.06</td>
<td>0.02*</td>
<td>Yes</td>
</tr>
<tr>
<td>13910/2013</td>
<td>Beans with pods: valor</td>
<td>Kenya</td>
<td>Dimethoate (sum)</td>
<td>0.3</td>
<td>0.02*</td>
<td>Yes</td>
</tr>
</tbody>
</table>

* Maximum Residue Levels at the LOD (LOD MRL): These MRLs are set at a default level, i.e. at the limit of determination (LOD) where analytical methods can reasonably detect the presence of the pesticide. Either insufficient trials data are available on which to set a maximum residue level or there may be no use of the pesticide on that crop in the EU. However may be permitted elsewhere.
<table>
<thead>
<tr>
<th>Sample reference number</th>
<th>Food</th>
<th>Country of Origin</th>
<th>Pesticides residue found</th>
<th>Residue found (mg/kg)</th>
<th>MRL (mg/kg)</th>
<th>Breach of the law after allowing for measurement uncertainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>13947/2013</td>
<td>Beans with pods: gawar</td>
<td>India</td>
<td>Dimethoate (sum)</td>
<td>0.04</td>
<td>0.02*</td>
<td>No</td>
</tr>
<tr>
<td>18580/2013</td>
<td>Beans with pods: valor</td>
<td>Kenya</td>
<td>Dimethoate (sum)</td>
<td>0.4</td>
<td>0.02*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Methomyl (sum)</td>
<td>0.2</td>
<td>0.02*</td>
<td>Yes</td>
</tr>
<tr>
<td>18640/2013</td>
<td>Beans with pods: guar</td>
<td>India</td>
<td>Fenpropathrin</td>
<td>0.07</td>
<td>0.01*</td>
<td>Yes</td>
</tr>
<tr>
<td>18685/2013</td>
<td>Beans with pods: valor</td>
<td>India</td>
<td>Profenofos</td>
<td>0.04</td>
<td>0.01*</td>
<td>Yes</td>
</tr>
<tr>
<td>17409/2013</td>
<td>Cherries</td>
<td>USA</td>
<td>Carbaryl</td>
<td>0.03</td>
<td>0.01*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fenpropathrin</td>
<td>0.4</td>
<td>0.01*</td>
<td>Yes</td>
</tr>
<tr>
<td>17734/2013</td>
<td>Cherries</td>
<td>USA</td>
<td>Fenpropathrin</td>
<td>0.4</td>
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<td>Speciality vegetable: yam</td>
<td>Jamaica</td>
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27 Glossary

Acceptable Daily Intake (ADI): This is the amount of a chemical which can be consumed every day for a lifetime in the practical certainty, on the basis 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 also to account for possible variation in sensitivity between individuals. The studies from which NOAELs and hence ADIs are derived take into account any impurities in the pesticide active substance as manufactured, and also any toxic breakdown products of the pesticide.

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, e.g. the World Health Organization, 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.

COLEACP (Europe-Africa-Caribbean-Pacific Liaison Committee): It aims to promote the competitive export of fresh fruit, vegetables, flowers and ornamental plants from the African Caribbean and Pacific Countries (ACP). Its specialised information and advisory services are open to all ACP Countries’ companies in the horticultural export sector and are financed by the European Commission. It has two overriding objectives to enable ACP Countries’ companies to comply with European food safety and traceability requirements and to consolidate the position of small-scale producers in the ACP Countries horticultural export sector.

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

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 approval 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 take into account 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 under Acute Reference Dose
**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’. The PRiF report the country from where the produce has been imported only if this is clear from the packaging or labelling.

**JMPR:** Joint FAO/WHO Meeting on Pesticide Residues, which conducts scientific evaluations of pesticide residues in food.

**Limit of Quantification (LOQ):** The limit of quantification is the lowest concentration of a pesticide residue or contaminant that can be routinely identified and quantitatively measured in a specified food, agricultural commodity or animal feed with an acceptable degree of certainty by the method of analysis.

**Maximum Residue Level (MRL):** The maximum concentration of a pesticide residue (expressed as mg/kg) legally permitted in or on food commodities and animal feeds. MRLs are based on good agricultural practice data and residues in foods derived from commodities that comply with the respective MRLs are intended to be toxicologically acceptable.

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 in excess of an MRL does not automatically imply a hazard to health.

The MRLs applicable in the UK are now largely set under EC legislation.

Further information on MRLs can be found at:
www.pesticides.gov.uk/guidance/industries/pesticides/topics/food-safety/maximum-residue-levels

**Maximum Residue Limits (CODEX or CAC):** In cases where there is no UK or EC MRLs, the acceptability of residues may be judged against Codex Maximum Residue Limits. Although not embodied in UK statute, Codex limits are taken as presumptive standards. These limits give an indication of the likely highest residue that should occur in edible crops. These are based on worldwide uses and the residues trials data to support those uses, at the time of evaluation (date of setting the limits is specified and thus the Maximum Residue Limit applicable up to that year, but will not take into account subsequent approved uses).

There are occasions where the MRL that has been set by Codex may not reflect current UK Good Agricultural Practice (e.g. the Codex MRLs for dithiocarbamates and propamocarb on lettuce). In such circumstances it is possible to exceed the Codex MRL through a UK approved use. This factor needs to be taken into account when assessing results.

**Maximum Residue Levels set at the LOD (LOD MRL):** For some pesticides and commodities, insufficient trials data are available on which to set a maximum residue level or there may be no use of the pesticide on that crop. In these cases, the MRL may be set at a default level, i.e. at the limit of determination (LOD) where analytical methods can reasonably detect the presence of the pesticide. **These MRLs are not based on Good Agricultural Practice (GAP).**

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

**MRL Exceedances and Relationship with the Acceptable Daily Intake (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...
acceptable daily intake (ADI) of a particular pesticide residue from all sources. The ADI (expressed as mg/kg bw/day) is the amount of chemical that can be consumed every day of an individual’s entire lifetime in the practical certainty, on the basis of all known facts, that no harm will result. See ADI 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 a MRL may not have been set.

UKT MRL: For certain pesticide a temporary national MRL has been set. UKT MRLs are worked out by Chemicals Regulation Directorate (CRD). The level indicates the amount of residue expected when the pesticide is applied in accordance with good agricultural practice (GAP). The UK has a number of UKT MRLs, these take precedence over provisional EC levels.

Extraneous Residue Limit (ERL): An ERL refers to a pesticide residue or a contaminant arising from environmental sources (including former agricultural uses) other than the use of a pesticide or a contaminant substance directly or indirectly on the commodity. It is the maximum concentration of a pesticide residue or contaminant that is recommended by the Codex Alimentarius Commission (CAC) to be legally permitted or recognised as acceptable in or on a food, agricultural commodity or animal feed.

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 three situations. Mixtures may be used in response to specific pest pressures and also as part of strategies to minimise pesticide resistance building up on pest populations.

NEDI: National Estimate of Daily Intake. 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 please refer to section 3 of the data requirements handbook: [www.pesticides.gov.uk/guidance/industries/pesticides/topics/pesticide-approvals/pesticides-registration/applicant-guide/the-applicant-guide-contents](www.pesticides.gov.uk/guidance/industries/pesticides/topics/pesticide-approvals/pesticides-registration/applicant-guide/the-applicant-guide-contents).

NESTI: National Estimate of Short Term Intake. 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 (see glossary description) and a high level consumption (97.5th percentile value) for the amount of the food item consumed over a single day. For further details on the calculation of NESTIs please refer to section 3 of the data requirements handbook: [www.pesticides.gov.uk/guidance/industries/pesticides/topics/pesticide-approvals/pesticides-registration/applicant-guide/the-applicant-guide-contents](www.pesticides.gov.uk/guidance/industries/pesticides/topics/pesticide-approvals/pesticides-registration/applicant-guide/the-applicant-guide-contents).

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.

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, the majority 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. In the PRiF report the origin is 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/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. The majority of 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, e.g. 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 take into account 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 particular intakes occurring.

**Processing factor:** MRLs are generally set for raw, unprocessed foods. Processing can affect (dilute or concentrate) residue levels. So to check that processed food was made with ingredients that complied with the MRL processing factors are applied to the MRL for the raw food. The processing factor depends on the pesticide detected, the food and the processing type.

**Rapid Alert System for Food and Feed (RASFF):** The European Commission operates an EU rapid alert system for food, which was set up in 1992. This provides the competent authorities in the member states of the European Union with the means of notifying cases where high residues of pesticides have been found in imported samples. Since its introduction this system has proved a successful method for disseminating information between Members States allowing swift action where necessary. CRD notify the Food Standards Agency of any residues where the predicted intakes are above the ARfD. RASFFs are only raised when a potential consumer risk has been identified. In general, for intakes exceeding the ARfD by more than 1.1 times, the FSA will raise a RASFF. If a significant consumer health concern has been identified, then the product will be withdrawn/recalled and the FSA will also issue a food alert.

**Relationship between GAP and MRLs:** The MRL can be defined as the maximum concentration of a pesticide residue (expressed as mg/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 calibrated level employed during analysis to detect residues. The reporting limit may vary slightly from laboratory to laboratory depending on the equipment available and operating procedures used.

‘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(s) of a pesticide(s). 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/commodity (mg/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 accounts 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; the PRIF will use ‘safety factor’.

**Sample:** The nature of all samples is as designated in the EC’s ‘sampling’ Directive – 2002/63/EC. Examples are: apples – at least 10 apples weighing at least 1 kg; grapes – at least 5 bunches, weighing at least 2 kg.

**Specific Off-Label Approval (SOLA):** For many reasons, label recommendations of approved 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 sporadic pests and diseases. It is for this reason that the extrapolations presented in the Long Term Arrangements for Extension of Use have been developed. If these do not address particular needs growers or their representatives may apply to CRD for a specific off-label approval (SOLA).

**Technical Exceedances:** When an MRL has been set at the LOD because there have been no data to support a higher level. In the context of this report, ‘technical exceedances’ always relate to produce from third countries.

**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 (i.e. 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, e.g. melon, or a small number of units e.g. apples and potatoes.

**Ware:** Ware potatoes, sometimes referred to as main crop potatoes, are harvested between August and November, and are available throughout the period August to June because they are stored under controlled temperature after October.
About the results

Where can I find your results?

Our latest reports are linked from: http://www.pesticide.gov.uk/guidance/industries/pesticides/advisory-groups/PRiF/PRiF_Results_and_Reports We also have an index by food and index by year.

We can send you an email announcing publication of results and other news. We generally send at the most 3 emails a month. Please let us know if you’d like to join the mailing list by emailing us at prif@hse.gsi.gov.uk - all we need is an email address.

What do the results show overall?

This is an extract from our (latest) annual report for 2012:

The vast majority of food tested complied with legal limits (MRLs).

- 63% of samples contained none of the pesticides being looked for.
- 35% of samples contained residues at or below the MRL.
- 2% of samples contained residues above the MRL.

There were few residues that we thought were of possible concern for consumers' health.

- 45 detailed risk assessments were carried out in 2012. In most cases there was unlikely to be a risk to people's health.

Are you finding more residues year-on-year?

Proportionally, the number of residues above the legal Maximum Residue Level, and instances of residues which we think are of concern for consumers health show little variation.

Over the years, as the knowledge and equipment of laboratories improves, we are increasingly able to test for more pesticides at lower amounts and so we do find more. A typical fruit and vegetable survey undertaken in 2003 by PRiF’s predecessor, the PRC (Pesticide Residue Committee), looked for just over 150 pesticides; in 2012 we looked for over 350 individual pesticides.

How can residues above the legal limit (MRL) still be safe?

MRLs are legal limits, not safety limits. Residues above the MRL are not necessarily therefore a cause for health concern.

MRLs are set at a level consistent with good agricultural practice i.e. consistent with using the pesticide as authorised. Authorisation considers issues such as the personal safety of those exposed to the pesticide and environment safety as well as safety for consumers. That means that MRL levels are often set far below levels that might otherwise be set just on consumer safety grounds alone.

All detected residues are screened for safety issues, whether or not they are above the MRL.
Do you consider the risk to children?

Yes. Our risk assessments consider the risk to several different groups of consumers (people who eat the relevant food) which includes various age groups including infants and children. As part of the risk assessment we take account of:

- The different eating habits, including the amounts of food that different people might eat
- People’s different sizes (bodyweights and growth stages)

About the survey programme and the samples

Do you test imported food?

Yes, imported food as well as food from other EU countries is part of the monitoring programme because it is part of the UK’s general food supply.

We try to include imported samples in all surveys of any food roughly in proportion to the UK market share of the food. For example when we survey bananas all the samples will be imported, but for swedes and turnips almost all samples will be from the UK.

Do you test baby food and baby milk?

Yes. Every year we test at least one sort of baby food or baby milk. We also take into account the different rules about pesticides residues in these special foods. The EU set the rules for pesticide residues in baby food and baby milk first before the general rules about pesticide residues in other foods. They are intended to be extra precautionary.


Do you test organic food?

Yes, organic food is part of the monitoring programme because it is part of the UK’s general food supply. Our laboratories check many different foods for pesticide residues and organic samples are included amongst them. We try to include organic samples in all surveys of any food roughly in proportion to the UK market share of that food.

We consider whether any residues found could be a risk to consumer health and if so also consider what action should be taken.

Some pesticides are allowed to be used in organic food production as well as in conventional (non-organic) farming. When we test foods, we test all the samples of the same sort of food for the same range of pesticides.

We are not responsible for checking compliance with organic rules. So when we find residues of pesticides in organic foods we send those findings through to the relevant organic certification company.

More about organic food.

Do you test samples from all across the UK? Who collects your samples?

Yes, every year we collect samples from retail outlets across the UK all year round. We change the particular locations used every year, as shown in our annual reports. We use market research shoppers at retail outlets for most of our surveys.

For some surveys, government inspectors collect samples from various points in the supply chain (such as ports, depots and pack houses) in England and Wales only. Plant Health and Seed
Inspectors from Fera collect samples of potatoes, Horticultural Marketing Inspectors from the Rural Payment Agency collect samples of fresh fruit and vegetables.

**How do you decide which foods to sample at retail (supermarkets and other shops) and which to sample from the food chain including wholesalers?**

We tend to use inspectors to collect food at wholesale markets, import points and processing plants for foods that are:

- Not routinely stocked by most retailers and even then often not stocked in large enough quantities to buy a sample. Examples include okra, eddoes, quince and mooli (diakon).
- Often sold loose at retail, which makes it harder for shoppers to collect traceability information. Examples include oranges and grapes.
- EU food surveys, which are surveys of particular foods that all EU member states are required to monitor for pesticide residues in a particular year.

We also use inspectors to collect samples of food where historically there have been compliance issues which have led to them being considered as a higher overall priority within the programme.

**How do you decide where to get retail samples? Why do you keep coming to my shop?**

We ask our shoppers to behave like normal shoppers. Our shoppers are based in a particular location, so that means they will go to the same supermarkets, greengrocers, butchers throughout the year.

Our aim is to get a snapshot that broadly reflects the market share of different chains and types of shops. We broadly collect in line with market share. We check to make sure that no particular retail chain or type of shop has been noticeably over or under represented.

We schedule special shopping trips to independent outlets - market stalls, independent greengrocers, butchers and bakers, farm shops and so on.

**How do you decide where to get samples from the non-retail parts of the food chain, such as wholesale markets and packers?**

We ask the inspectors we use to collect samples alongside their normal work.

Horticultural Marketing Inspectors make sure that fresh fruit and vegetables are labelled with the right class standard (for instance "class 1"). As well as working at wholesale markets they visit ports, airports, packing houses and shops.

Plant Health and Seed Inspectors have a wide range of duties relating to plant health. This includes checking that potatoes are free of diseases that could spread to growing potatoes and devastate harvests. They visit potato stores, potato packers, ports, airports, processors (for instance crisps and frozen chip factories) and farm shops.

**What exactly do you tell shoppers and inspectors to do? What are the protocols for collecting samples?**

Our protocols - or instructions to samplers - are based on EU law (Commission Directive 2002/63/EC) which tells us everything about taking samples. As well as the size and make up of the samples that we have to test, it tells us what a lot is, how many points in the lot we need to sample from.

We produce new sampling instructions every year for that year’s programme, and if necessary we update them throughout the year. We don’t publish these online as they go out of date so quickly. If you have any detailed questions or particular concern about the way a food is sampled please do get in touch.
How much is a sample? For instance, is a sample of apples, 1 apple?

EU law (Commission Directive 202/63/EC) tells us the size and make up of the samples we test.

We increase these amounts a little bit, to allow for things like miscounting and variation in weighing scales. Otherwise the laboratory would have to reject the samples.

For example for apples the law says a sample must be made up of at least 10 apples and must weigh at least one kilogram. So we ask our samplers to get 12 apples and at least 1.2 kilograms.

How do you prevent cross contamination during sampling and transport?

Our shoppers shop like ordinary shoppers that includes wrapping and packing foods appropriately. Our shoppers and inspectors also wrap and pack samples with bubble wraps to prevent breakage and leakage in transit. Analysts expect this to be sufficient to prevent contamination. Samples are sent to the laboratory by a next-day courier service. If the laboratory thinks that contamination has occurred or that the contents have deteriorated in transit then those samples are rejected.

About the tests (analysis)

What pesticides do you test for?

Most years our laboratories increase the number of pesticides they test for. This is driven by changes in the law about pesticides as much as improvements in analytical technology and techniques.

The actual pesticides tested for in each food also depends on the chemistry of that food. Some foods are just harder to analyse than others; they may be fatty, acidic, highly coloured or aromatic all of which can affect the isolation and identification of the pesticide.

We publish details of the planned monitoring programme every year which includes information on pesticides we plan to test for. In our quarterly reports we publish lists of all the pesticides we looked for but didn’t find as well as course as the pesticides we did find.

Are your laboratories UKAS accredited? Are they accredited for all the tests they do for the programme?

Yes.

EU law requires all official laboratories to be appropriately accredited, and CRD interpret that to mean that all results should be from tests covered by the UKAS (United Kingdom Accreditation Service) accreditation of the laboratories.

Do you test for neonicotinoid pesticides?

Yes. Our standard tests for fruit and vegetables include certain neonicotinoid pesticides. Other foods are also tested for certain neonicotinoids where appropriate. Each individual pesticide is tested for and reported separately and each has its own separate MRL.

Do you test for endocrine disrupting chemicals (EDCs)?

Endocrine disruption has only recently been recognised as a potential problem, (although data is already available for the possible effects of pesticides on reproduction including offspring).

The EU definition of what is an endocrine disrupting chemical hasn’t been set yet. Whatever the definition chosen, it’s almost certain that we test for some pesticide residues that fall into that definition.
Each individual pesticide is tested for and reported separately because each has its own separate MRL.

**Where can I find out more about laboratory procedures and practices?**

Our laboratories, and all official laboratories across the EU, follow the latest version of "Method Validation and Quality Control Procedures for Pesticide Residues Analysis in Food and Feed" as published by the EU Reference Laboratories for Pesticide Residues.

UKAS checks that our laboratories are following these rules as part of their accreditation checks.

**How do the laboratories make sure the results are not due to cross-contamination or interference?**

Our laboratories follow the rules for this in the analytical guidance. Any possible cross-contamination or interference is addressed during our Analytical Sub-Group's consideration of results.

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**About PRiF**

**Who are the members and who do they represent? Have they made declarations of interest?**

We are appointed for our expertise to provide independent advice to the government. We do not act as representatives for particular sectors. We receive a basic fee and expenses for this work.

We have published a [list of members](#) including our biographical details as well as our [declarations of interest](#).

**What are your terms of reference?**

Our terms of reference are:

*To advise Ministers, the Chief Executives of the Chemicals Regulation Directorate (CRD) and the Food Standards Agency (FSA) on:*

- the planning of surveillance programmes for pesticide residues in the UK food supply and the evaluation of the results.
- procedures for sampling, sample processing and new methods of analysis.

The Committee will make its findings and recommendations available to Government, consumers and the food and farming industries in a way which aims to be comprehensive, understandable and timely.
Contact Details

Expert Committee on Pesticide Residues in Food (PRiF)

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Chemicals Regulation Directorate

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