Pesticide Incidents Report
Field Operations Directorate investigations
1 April 2012 – 31 March 2013

Summary
During the year, staff from the Field Operations Directorate (FOD) investigated 45 reported pesticide incidents, including 15 cases involving allegations of ill health. This is a decrease in the number of complaints alleging ill health. As in previous years, the majority of people involved in an alleged ill-health incident were members of the public, who claim to have been exposed as bystanders during spraying activities.

The Pesticide Incidents Appraisal Panel (PIAP) considered all 15 of the reported incidents involving allegations of ill health. The panel assessed two cases as ‘likely’ to be linked to pesticide usage and one case as confirmed.

Introduction
1 This report provides information on incidents and complaints involving pesticides investigated by the Field Operations Directorate (FOD) of the Health and Safety Executive (HSE) between 1 April 2012 and 31 March 2013.

2 The report comprises:
   ■ statistical information on complaints and enforcement;
   ■ a report on alleged ill-health incidents reviewed by HSE’s Pesticide Incidents Appraisal Panel (PIAP); and
   ■ environmental and other complaints not alleging ill health.

3 FOD activity on pesticides is not limited to the investigation of incidents and complaints and formal enforcement. Staff also provide advice and guidance to members of the public and to employers, the self-employed and employees during site visits and inspections.

4 When investigating pesticide incidents and complaints, HSE staff are concerned not only with the health of people at work and members of the public who may be affected by work activities, but also with the effects of pesticides on the environment. The investigation of incidents often requires expertise from a range of disciplines within HSE. Inspectors, specialist inspectors, qualified medical and occupational health professionals and scientists from the Health and Safety Laboratory (HSL) and HSE’s Chemical Regulation Directorate (CRD) may all be involved. Inspectors also liaise locally with other bodies that have enforcement responsibilities for pesticide activities, including other government departments such as the Environment Agency, the Department for Environment, Food and Rural Affairs (Defra) and the local authorities throughout Great Britain, to ensure a consistent and coordinated approach.

5 This report does not include investigations for which these other bodies are the enforcing authority. Similarly, products such as veterinary medicines (including sheep treatments), which are subject to the Medicines Act 1968, are outside the remit of the report.

6 The report and details of individual incidents will be presented to the Advisory Committee on Pesticides (ACP) to inform the pesticides approvals process.
Statistical summary

7 During 2012/13 FOD inspectors investigated 45 reported pesticide incidents (complaints). Fifteen (15) complaints involved allegations of ill health. The remaining 30 complaints involved other issues to do with pesticide use, eg approval, labelling, supply, storage, overspray etc. The total of 45 incidents is a decrease from the previous year’s figure of 69; 64% lower than the average for the previous ten years and the lowest number recorded since 1994/95.

8 Figure 1 shows how the numbers of incidents and complaints compared with previous years.

Figure 1 FOD alleged ill-health incidents and other complaints 2002/03–2012/13

9 The number of complaints alleging ill health is a decrease of 7 from the previous year’s figure of 22 and 27 (64%) fewer than the average of the previous ten years. This is the lowest figure on record since 1994/95 (the range over this period being between 128 and 22 cases). Further analysis of these complaints is set out in paragraphs 15–40.

10 The number of other complaints is 17 less than the previous figure of 47 and 52 (63%) lower than the average for the previous ten years. This is also the lowest figure recorded since 1994/95. Further analysis of these complaints is in paragraphs 42–47.

11 Inspectors issued 14 enforcement notices: one under the Control of Pesticides Regulations 1986 (COPR); two under the Biocidal Products Regulations 2001; three under the Plant Protection Products (Basic Conditions) Regulations 1997 (PPPR); one under the Plant Protection Products Regulations 2011; and seven under the Plant Protection Products Sustainable Use Regulations 2012 during the year, compared with 9 notices in 2011/12.

12 In May 2012 three informations were laid before the courts under COPR relating to the storage and use of non-approved pesticides. The defendant pleaded guilty and was fined £3000 plus £3500 towards the prosecution costs. Two cases were also presented in the magistrates’ court in July 2012 under the Plant Protection Products (Basic Conditions) Regulations 1997 for spray drift away from intended treated area during windy weather conditions. Both defendants (farmer and contractor) pleaded not guilty and were later acquitted by magistrates.
13 These enforcement figures are provisional and may be revised before publication in HSE’s Annual Report 2012/13. Further details can be found on HSE’s register of prosecutions and notices database at www.hse.gov.uk/enforce/prosecutions.htm.

14 Inspectors also enforce matters relating to the use of pesticides under health and safety legislation, principally the Health and Safety at Work etc Act 1974 (the HSW Act) and the Control of Substances Hazardous to Health Regulations 2002 (COSHH). This report does not include information on any related enforcement under this legislation.

Alleged ill-health incidents 2012/13

The Pesticide Incidents Appraisal Panel (PIAP)

15 PIAP considers all incidents reported to HSE’s Field Operations Division (FOD) where there is any allegation that the use of a pesticide has caused ill health. Complaints are usually made by members of the public alleging overspray from farm spraying activity. PIAP is notified of these incidents only on completion of FOD’s investigation.

16 On occasion, PIAP will also consider a small number of other incidents which fall within the jurisdiction of other parts of HSE or of a different enforcing authority, such as a local authority.

17 The data in this report is presented in line with that of previous reports since 1995/96. However, the role of PIAP remains under continual review within HSE as part of a wider discussion – both within government and its Advisory Committee on Pesticides – on pesticide monitoring and surveillance schemes. PIAP members are also aware of the Pesticides Adverse Health Effects Surveillance Working Group (PAHES) Report produced by ACP to consider the various reporting schemes and surveillance following exposure to pesticides.

18 Members were also consulted on continuous improvements on handling and collecting data for future reports.

19 The PIAP membership for 2012/13 is listed below:

Dr D Sen, HSE, Corporate Medical Unit, Chair
Dr S Bradberry, City Hospital Birmingham (and National Poisons Information Service)
Dr N Langford, Leicester Royal Infirmary
Dr L Hetherington, Public Health England
Dr Karen Galea, IOM Consulting
Mr N Sangha, HSE, Agriculture, Waste and Recycling Sector
Mr D Jacques, HSE, Corporate Medical Unit, Secretary

20 The main purpose of PIAP, however, remains unchanged: ‘to provide an overview of alleged ill health attributed to pesticide exposure (as reported to and investigated by HSE) so that new issues and trends can be identified; and to inform the pesticides approval process’.
21 To fulfil this purpose, PIAP continues to consider individual incident and case reports, not to establish the cause, but to consider the strength of the association between exposure and ill health. In recent years, therefore, the panel has assessed reports based on the ‘balance of probability’ from available information and not, as before 2002, making an assessment ‘beyond reasonable doubt’, a much higher burden of proof.

22 Appendix 1 outlines the current case/incident classification scheme, which remains largely unchanged from previous years. Appendix 2 is a flow chart which shows how PIAP reviews cases to reach its decision.

Summary information on alleged ill-health incidents for 2012/13

23 Table 1 shows the outcome for the 15 incidents forwarded to PIAP in 2012/13 (there were no incidents forwarded by local authorities during the year) broken down according to the panel’s assessment (using the classification scheme in Appendix 1) and the employment status of the people involved.

<table>
<thead>
<tr>
<th>Total</th>
<th>Employees/ self-employed working with pesticides</th>
<th>Members of public/others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incidents</td>
<td>(People)</td>
<td>Incidents</td>
</tr>
<tr>
<td>Confirmed</td>
<td>1 (1)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Likely</td>
<td>2 (4)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Open assessment (i)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Open assessment (ii)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Unrelated</td>
<td>7 (10)</td>
<td>1 (1)</td>
</tr>
<tr>
<td>Insufficient information</td>
<td>5 (5)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Pending</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Not an incident</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Total</td>
<td>15 (20)</td>
<td>1 (1)</td>
</tr>
</tbody>
</table>

24 In this and previous analyses, those incidents in which more than one individual person claimed to have been made ill by pesticides were subsequently classified according to the most serious individual assessment. The panel concluded that each individual should be assessed separately and the case ranked according to severity. The ranking by severity is: ‘confirmed’; ‘likely’; ‘open assessment”; and ‘insufficient information’. There is also an ‘unrelated’ category.

25 The panel concluded that in two of the incidents, four people were ‘likely’ to have been exposed to pesticides on the balance of probability. In one case corroborating medical evidence on the alleged symptoms experienced concluded that it was a ‘confirmed’ case of exposure.
26 Seven incidents were ‘unrelated’ to pesticide exposure and in five incidents the panel concluded that the available data was ‘insufficient’. None of the incidents was classed as ‘open assessment (i and ii)’.

Overall trends

27 Figure 2 shows the number of incidents forwarded to PIAP in each of the last ten years, analysed according to whether the panel classified the link between pesticide usage and the alleged ill health as ‘confirmed’ or ‘likely’, or came to some other decision.

Figure 2  Trends in PIAP decisions

28 The proportion of the total (excluding ‘pending’) incidents assessed as ‘confirmed’ or ‘likely’ has been in the order of 20–25% since 1995/96, except in 2000/01 when it was 10%. In 2002/03 the figure was 13%, while for 2009/10 the figure had fallen to 9.8% (4 out of 41). If one considers just those incidents (15) reported to HSE in 2012/13, the figure for ‘confirmed’ and/or ‘likely’ incidents is 20% (3 out of 15) – 25% of cases (5 out of 20 individuals) were ‘confirmed’ or ‘likely’.

29 There were 33% of incidents (5 out of 15) with ‘insufficient information’, which is disappointing in view of the efforts that have been made to collect relevant information. The main shortfall remains in the availability of corroborating medical information (from a general practitioner (GP) or hospital doctor) and the failure by a number of complainants to return signed consent forms.
The number of people involved in reported incidents considered by the panel in each of the last ten years, either those using pesticides as part of a work activity or members of the public, is shown in Figure 3 (excluding a small number of cases where employment status was not recorded).

Figure 3 shows that the majority of people involved in reported incidents each year continue to be members of the public. The proportion in employment has fluctuated over the past ten years, although for the past five years it has remained small. The total number of people involved in alleged ill-health incidents has also fluctuated greatly from one year to the next. Much of this fluctuation may reflect the impact of single incidents involving large numbers of people (as in 2009/10), all assessed as ‘likely’ cases. By contrast, over recent years the number of incidents reported each year has not been so variable, as Figure 2 shows.

Recent ill-health data

Since 1994/95, the panel has recorded the type and severity of the ill health experienced by people involved in incidents with a ‘confirmed’ or ‘likely’ assessment. In 2002/03 this was extended to include cases receiving an open assessment. Symptoms are recorded as ‘acute’ and/or ‘chronic’, ‘local’ and/or ‘systemic’ and their severity as ‘mild’ (requiring no or self-treatment), ‘moderate’ (presenting to a GP or hospital accident and emergency department) or ‘severe’ (in-patient treatment). Difficulty in obtaining signed consent from complainants and hence obtaining their medical information to corroborate their signs and symptoms has been mentioned in paragraph 29.

Table 2 summarises the information on severity of symptoms for the current year, 2012/13. It incorporates the assessments of all three incidents and associated five individuals with a ‘confirmed’, ‘likely’, or ‘open’ assessment.
34 None of the cases could be classified as ‘severe’. The individual who was assessed as having ‘moderate’ symptoms was classified as showing ‘systemic’ signs or symptoms and/or needing the attention of their local hospital accident and emergency department; four individuals were assessed as having ‘mild local’ symptoms that were self-limiting in nature.

35 Mild local symptoms are most commonly a self-limiting skin rash or an irritation of the skin, eyes or respiratory tract, while mild systemic symptoms include transient headaches and nausea.

**Recent and historical data on pesticides**

36 For each of the pesticides reported to be involved in an incident, the database records the trade names and the names of the active ingredients where these have been identified. In addition to an assessment of cases against the known toxicology of active ingredients, the panel has, since April 2001, included a consideration of the hazards associated with co-formulants.

37 For many incidents, however, information relating to product identification is not available and this contributes to the high proportion of cases categorised as ‘insufficient information’. During 2012/13, pesticide products could not be identified in 3 of the 15 reported incidents (20%).

38 The full interpretation of the overall PIAP database is not only limited by the lack of product information, but also by the fact that the relative importance of particular categories of pesticide may simply reflect the fact that their usage is more widespread rather than indicating that they are more hazardous. Moreover, mention of an active ingredient in the report of an incident need not imply that it contributed to any ill-health effect; many pesticides include more than one active ingredient, as well as non-active components, and it may be that one of these was responsible.

39 Accepting these limitations, the most common pesticide classification associated with incidents reported to PIAP is herbicide, followed by fungicide and insecticide. In 2012/13, of the 19 identified products involved in the reported incidents there were 9 herbicides, 8 fungicides, 2 insecticides, and 1 ‘other’ grouping.

40 The most commonly recorded active ingredient during 2012/13 was glyphosate, no other actives having a greater involvement.

41 As in the previous year the Medical Panel only met once in 2012/13, a consequence of the steady fall in numbers of reported cases with a possible health outcome. This meeting took place on 10 October 2013.

**Environmental and other non-health complaints 2012/13**

42 During the year 30 environmental and other complaints (i.e. complaints in which there were no allegations of ill health relating to exposure) were reported to HSE. This is a decrease of 17 from the previous year’s figure of 47 (2011/12) and compares with an average of 82 over the previous ten years 2002/03–2011/12. See Figure 1 and paragraphs 7–10 for statistical analysis of the figures.

43 Figures 4 to 6 summarise the number of complaints in 2012/13, classified according to the industry sector in which the pesticides were used, the work activity involved and the method of application.
44 Of the 30 complaints, 18 (60%) originated from the use of pesticides within the agricultural sector. Two were in horticulture (7%), 3 in a domestic setting (10%), and the remaining 7 (23%) were associated with ‘other industries’.

45 Crop spraying accounted for 40% of all environmental and other non-health complaints investigated during 2012/13. Other significant activities included storage 17%, amenity and orchard spraying and other pest control 10% (each). The remaining 13% occurred within wood treatment, rodent control and fumigation.
Figure 6 Number of environmental and other non-health complaints 2012/13: classified by application method

46 Conventional crop boom sprayers were involved in approximately 33% of all environmental and other non-health complaints. Knapsack spraying accounted for 17% and by all-terrain vehicle (ATV) and aerial spraying (3% each). For the remaining 44% of complaints, the application method was either not recorded or not relevant.

47 Of the 30 complaints, 20 of them were reported by members of the public, consistent with experience in previous years.
Appendix 1: Pesticide Incidents Appraisal Panel classification scheme

**Confirmed**
There are clinical symptoms and signs typical of exposure to the cited pesticide formulation combined with either:

- corroborating medical and (where appropriate) biochemical evidence; or
- evidence of overexposure.

**Likely**
The balance of evidence based on reported exposure circumstances, clinical symptoms and signs or biochemical evidence (where appropriate) is consistent with ill health due to exposure to the cited pesticide formulation.

**Open assessment**
(i) The reported ill health is not consistent with the known potential ill-health effects of the cited pesticide formulation given the reported exposure circumstances but the implied association cannot be entirely discounted in the light of current knowledge; or

(ii) the evidence is consistent with pesticide exposure being the cause of the reported ill health but alternative explanations, eg pre-existing disease are also present.

**Unrelated**
There is strong evidence, eg evidence about exposure or from medical reports, that the reported ill health is not pesticide-related.

**Insufficient information**
The available data is insufficient, incomplete or conflicting and the panel is unable to classify a case for one or more of these reasons.
Appendix 2: Flow chart for PIAP assessments

1. Submitted pesticide incident investigation papers

2. Is the incident associated with acute ill health?
   - Yes
   - No
   - Not an ill-health incident

3. Is there an associated chronic ill health?
   - Yes
   - No

4. Adequately defined symptoms
   - Yes
   - No
   - Where consulted – GP records or report available with consent
   - Where attended – hospital records or consultant’s report available with consent

5. Is there sufficient information to assess the ill health?
   - Yes
   - No
   - Known formulation/active ingredient
   - A clear route of exposure
   - Where documented – exposure/environmental records available
   - The temporal relationship between exposure and symptoms is ‘credible’
   - The duration/pattern of symptom development and resolution is ‘credible’

6. Is there sufficient information to assess exposure?
   - Yes
   - No
   - Insufficient information

7. Is the exposure response relationship consistent?
   - Yes
   - No
   - Unrelated

8. Is there any confounding medical condition?
   - Yes
   - No
   - Where consulted – GP records or report available with consent
   - Where attended – hospital records or consultant’s report available with consent

9. Are the ill-health effects recognised for constituents of the formulation?
   - Yes
   - No
   - Are the ill-health effects most likely due to the pesticide formulation?

10. Is there strong evidence for another cause?
    - Yes
    - No
    - Open Assessment (i)

11. Are the ill-health effects recognised for constituents of the formulation?
    - Yes
    - No
    - Confirmed

12. Are the ill-health effects most likely due to the pesticide formulation?
    - Yes
    - No
    - Open Assessment (ii)

13. Are the ill-health effects recognised for constituents of the formulation?
    - Yes
    - No
    - Likely
Further reading


5. Code of Practice for using plant protection products PB11090 Defra and HSE, available from Defra Publications, ADMAIL 6000, London SW1A 2XX Tel: 08457 556000 or view online at www.pesticides.gov.uk


Further information

Information on approved pesticide products is available online at www.pesticides.gov.uk (agricultural pesticides) and www.hse.gov.uk (non-agricultural pesticides). The sites are continually updated so that the most up-to-date information is freely available.

Enquiries concerning this report should be addressed to:

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City Gate West
Toll House Hill
Nottingham NG1 5AT

For details of HSE offices see www.hse.gov.uk/contact/maps/index.htm

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