

# Pesticide Incidents Report

Field Operations Directorate investigations

1 April 2009 – 31 March 2010

## Summary

During the year, FOD staff investigated 92 reported pesticide incidents, including 41 cases involving allegations of ill health. This is an increase in the number of complaints alleging ill health. As in previous years, the majority of people involved in reported incidents were members of the public.

PIAP considered all 41 of the reported incidents involving allegations of ill health. The panel assessed four cases (involving 17 people) as 'likely' to be linked to pesticide usage.

## 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 2009 and 31 March 2010.

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 HSE's activity on pesticides is not limited to the investigation of incidents and complaints and formal enforcement. HSE 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, complaints officers, 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 (EA), the Department for Environment, Food and Rural Affairs (Defra) and the local authorities (LAs) in Great Britain, to ensure a consistent and co-ordinated approach.

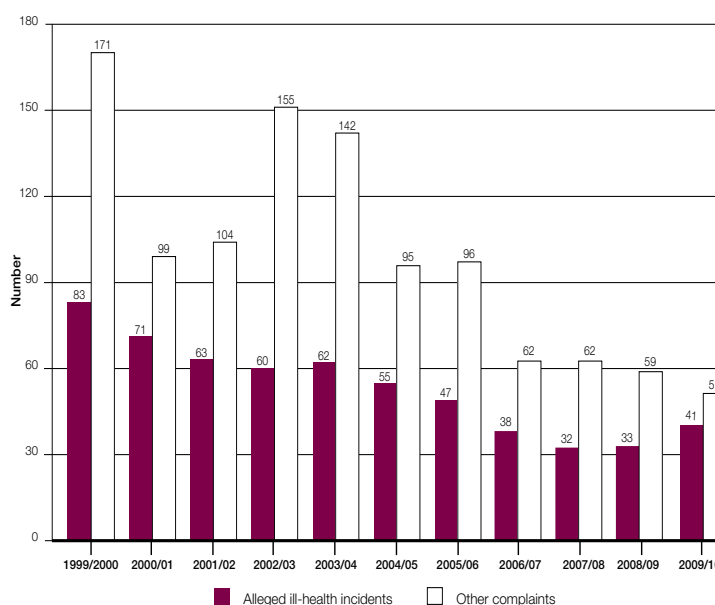
5 This report does not include investigations for which these other bodies are the enforcing authority. Similarly, products such as veterinary medicines (including sheep treatments), which are subject to the Medicines Act 1968, are outside the remit of the report.

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 2009/10, FOD inspectors investigated 92 reported pesticide incidents (complaints). Forty-one complaints involved allegations of ill health, with the remaining 51 complaints involving other issues to do with pesticide use. The total of 92 incidents is the same as the previous year's figure but is 42% lower than the average for the previous ten years.

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 1999/2000–2009/10

9 The number of complaints alleging ill health is an increase of eight from the previous year's figure of 33 but 13 (24%) lower than the average of the previous ten years. The range is between 83 and 32. Further analysis of these complaints is in paragraphs 15–40.

10 The number of other complaints is eight fewer than the previous figure of 59 and 53 (51%) lower than the average of the previous ten years. This is also the lowest figure recorded since 1994/95. Further analysis of these complaints is in paragraphs 40–46.

11 Inspectors issued four enforcement notices under the Food and Environment Protection Act 1985 (as amended) (FEPA) and the Control of Pesticides Regulations 1986 (as amended) (COPR) during the year compared with nine in 2008/09.

12 No charges were laid before the courts during the year under FEPA or COPR.

13 These enforcement figures are provisional and may be revised before publication in the Health and Safety Executive's Annual Report 2009/10.

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 (HSWA) and the Control of Substances Hazardous to Health Regulations 2002 (as amended) (COSHH). This report does not include information on any related enforcement under this legislation.

# Alleged ill-health incidents

## The Pesticide Incidents Appraisal Panel

15 HSE's Pesticide Incidents Appraisal Panel considers all incidents reported to FOD where there is any allegation that the use of a pesticide has caused ill health. PIAP is notified of these incidents only on completion of the inspector's investigation.

16 On occasion, PIAP also considers 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 continuing review within HSE as part of a wider discussion, both within government and by its Advisory Committee on Pesticides (ACP), on pesticide monitoring and surveillance schemes.

18 The PIAP membership for 2009/10 is listed below:

Dr D Sen, HSE, Corporate Medical Unit, Chair  
Mr A Robertson, IOM Consulting  
Dr N Langford, City Hospital, Birmingham  
Dr S Bradberry, City Hospital, Birmingham (and NPIS)  
Dr J Battershill, Department of Health  
Dr L Hetherington, Department of Health  
Mr C Molde, HSE, Agriculture and Food Sector  
Mr D Jacques, HSE, Corporate Medical Unit, Secretary

19 The main purpose of PIAP, however, remains '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'.

20 To fulfil this purpose, PIAP considers individual incident and case reports, not to establish the cause, but to consider the strength of the association between exposure and ill health. During the year the panel has, therefore, continued to assess reports based on the 'balance of probability' from available information and not, as before 2002, making an assessment 'beyond reasonable doubt'.

21 This shift in the approach to case assessment should lower the threshold for recording cases as being potentially relevant or important. It should also help identify any new associations. While the change might cause some distortion to the comparative year-on-year results presented in the annual report series, it will provide a 'categorisation' of cases more appropriate to PIAP's defined purpose.

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

## Summary information on alleged ill-health incidents for 2009/10

23 Table 1 shows the outcome for the 41 incidents forwarded to PIAP in 2009/10 (there were no incidents forwarded by local authorities in this 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 1** Number of alleged ill-health incidents and people affected analysed by PIAP decision and employment status 2009/10

	Total		Employees/ Self-employed working with pesticides		Members of public/others	
	Incidents	(People)	Incidents	(People)	Incidents	(People)
Confirmed	0	(0)	0	(0)	0	(0)
Likely	4	(17)	0	(0)	4	(17)
Open assessment (i)	1	(1)	0	(0)	1	(1)
Open assessment (ii)	1	(1)	0	(0)	1	(1)
Unrelated	12	(14)	0	(0)	12	(14)
Insufficient information	21	(27)	1	(1)	20	(26)
Pending	0	(0)	0	(0)	0	(0)
Not an incident	2	(2)	0	(0)	2	(2)
<b>Total</b>	<b>41</b>	<b>(62)</b>	<b>1</b>	<b>(1)</b>	<b>40</b>	<b>(61)</b>

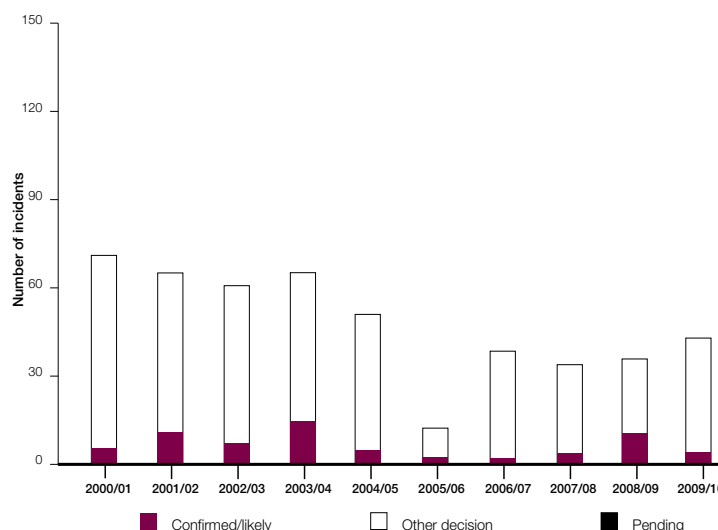
24 In this and subsequent analyses, incidents in which more than one individual was alleged to have been made ill, and for which the individuals received a different assessment by the panel, have been classified according to the most serious individual assessment. The ranking of severity is taken as being 'confirmed', 'likely', 'open assessment', and 'insufficient information'. There is also an 'unrelated' category.

25 The panel judged that four incidents, involving 17 people, were 'likely' cases. Interestingly, in all the 'likely' cases involving more than one individual, the panel assessed, on every occasion, all the members of each group to be similarly and therefore 'likely' exposed.

26 There were 21 incidents with 'insufficient information', two with an 'open assessment', and 12 which the panel considered 'unrelated'. Two reported incidents were dismissed for falling outside the PIAP definition of a pesticide incident.

## Overall trends

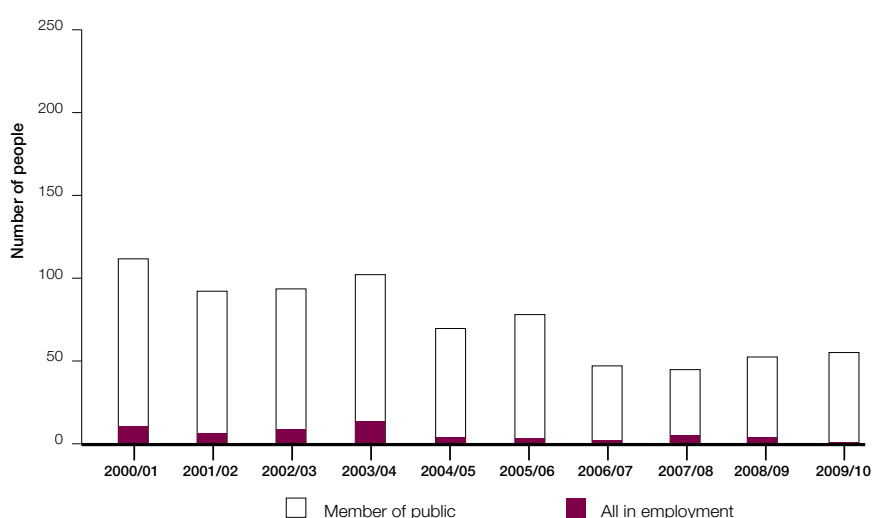
27 Figure 2 shows the number of incidents forwarded to PIAP in each of the last ten years, analysed according to whether the panel classified the link between pesticide usage and the alleged ill health as 'confirmed' or 'likely', or came to some other decision.



**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% to 25% since 1995/96, except in 2000/01 when it was 10%. In 2002/03 the figure was 13%, while for 2008/09, taking into account those incidents pending from the previous year, the final figure was 36.3% (13 of 33). In the current year, if one considers just those incidents (41) reported to HSE in 2009/10, the figure has fallen to 9.8% (4 of 41), although these 'likely' incidents involved 27.4% (17 of 62) of the people allegedly made ill by pesticide exposure during the year. There were 51% of incidents (21 of 41) with insufficient information, a significant increase from previous years.

29 The number of people involved in reported incidents considered by the panel in each of the last ten years, either people 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** Trends in employment status: all alleged ill-health incidents

30 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 relatively 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 reflects the occurrence of single incidents involving large numbers of people (for example, one incident involving nine individuals in the last year, and all assessed as 'likely' cases). By contrast, the number of incidents reported each year has not been so variable, as Figure 2 shows.

### Recent ill-health data

31 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)

32 Table 2 summarises the information on severity of symptoms for the current year 2009/10. It incorporates the assessments of all incidents (6) and associated individuals (19) with a 'confirmed', 'likely', or 'open' assessment

**Table 2** Severity of ill health

	Mild		Moderate		Severe	
	Incidents	(People)	Incidents	(People)	Incidents	(People)
Confirmed	0	(0)	0	(0)	0	(0)
Likely	2	(11)	2	(6)	0	(0)
Open assessment (i)	1	(1)	0	(0)	0	(0)
Open assessment (ii)	1	(1)	0	(0)	0	(0)
<b>Total</b>	<b>4</b>	<b>(13)</b>	<b>2</b>	<b>(6)</b>	<b>0</b>	<b>(0)</b>

33 The six persons who were assessed as having 'moderate' symptoms were classified as being 'systemic' and/or needing the attention of their GP or a doctor in the local Accident and Emergency department; and 13 were assessed as having 'mild local' symptoms.

34 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**

35 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.

36 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 2009/10, products could not be identified for 5 of the 41 reported incidents (12.20%).

37 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. Also, 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.

38 Accepting these limitations, the most common pesticide function associated with incidents reported to PIAP is herbicide, followed by fungicide and insecticide. In 2009/10, of the 63 identified products involved in the reported incidents there were 32 herbicides, 23 fungicides, 4 insecticides, and 4 'other' groupings.

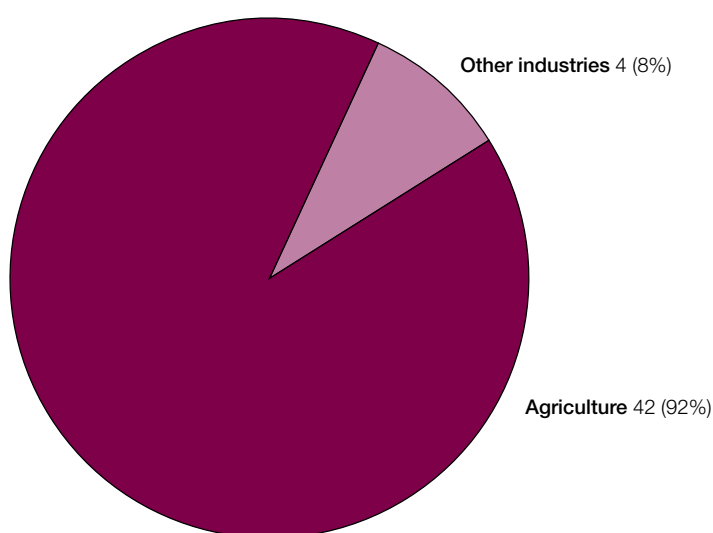
39 The most commonly recorded active ingredient during 2008/09 was pendimethalin (5), clomazone (4), diflufenican (4), flufenacet (4) and Prothiconazole (4) with no other actives having a greater involvement.

40 Finally, a point of observation – the Medical Panel met only once in 2009/10, a consequence of the steady fall in numbers of reported cases with a possible health outcome. This meeting took place on 17 September 2010.

## Environmental and other non-health complaints 2009/10

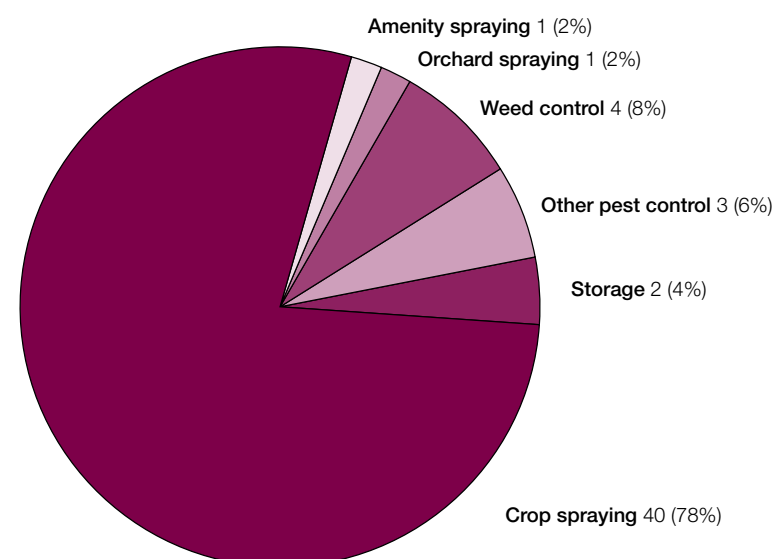
41 During the year there were 51 environmental and other complaints, ie complaints in which there were no allegations of ill health relating to exposure. This is a decrease of eight from the previous year's figure of 59 (2009/10) and compares with an average of 104 and is the lowest number recorded since 1994/95. See Figure 1 and paragraphs 7 to 10 for statistical analysis of the figures.

42 Figures 4 to 6 summarise the number of complaints in 2009/10, classified according to the industry sector in which the pesticides were used, the work activity involved and the method of application.



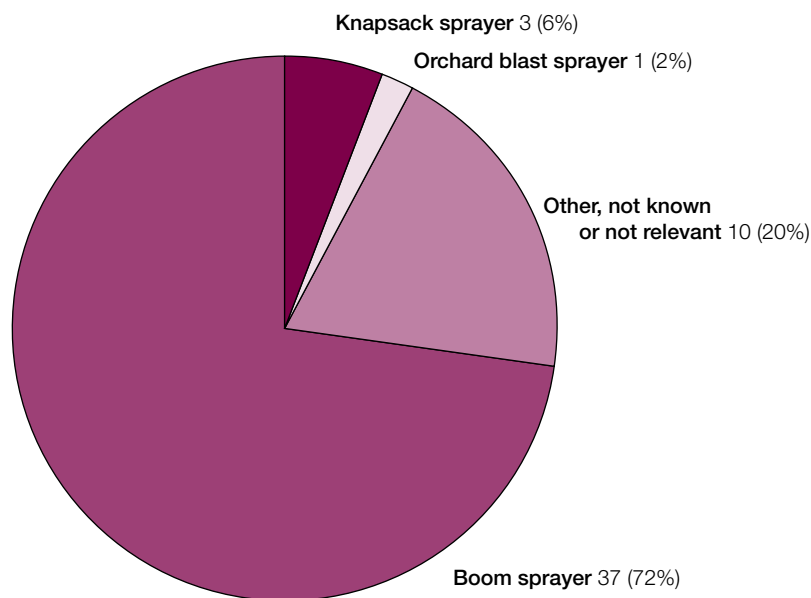
**Figure 4** Number of environmental and other non-health complaints 2009/10: classified by sector

43 Of the 51 complaints, 47 (92%) originated from the use of pesticides within the agricultural sector. The remaining 4 (8%) were associated with 'other industries'.



**Figure 5** Number of environmental and other non-health complaints 2009/10: classified by activity

44 Crop spraying accounted for 78% of all environmental and other non-health complaints investigated during 2009/10. Other significant activities included weed control 8%, storage 4%, orchard and amenity spraying 2% (each). The remaining 6% occurred within a group of miscellaneous activities, including other pest control.



**Figure 6** Number of environmental and other non-health complaints 2009/10: classified by application method

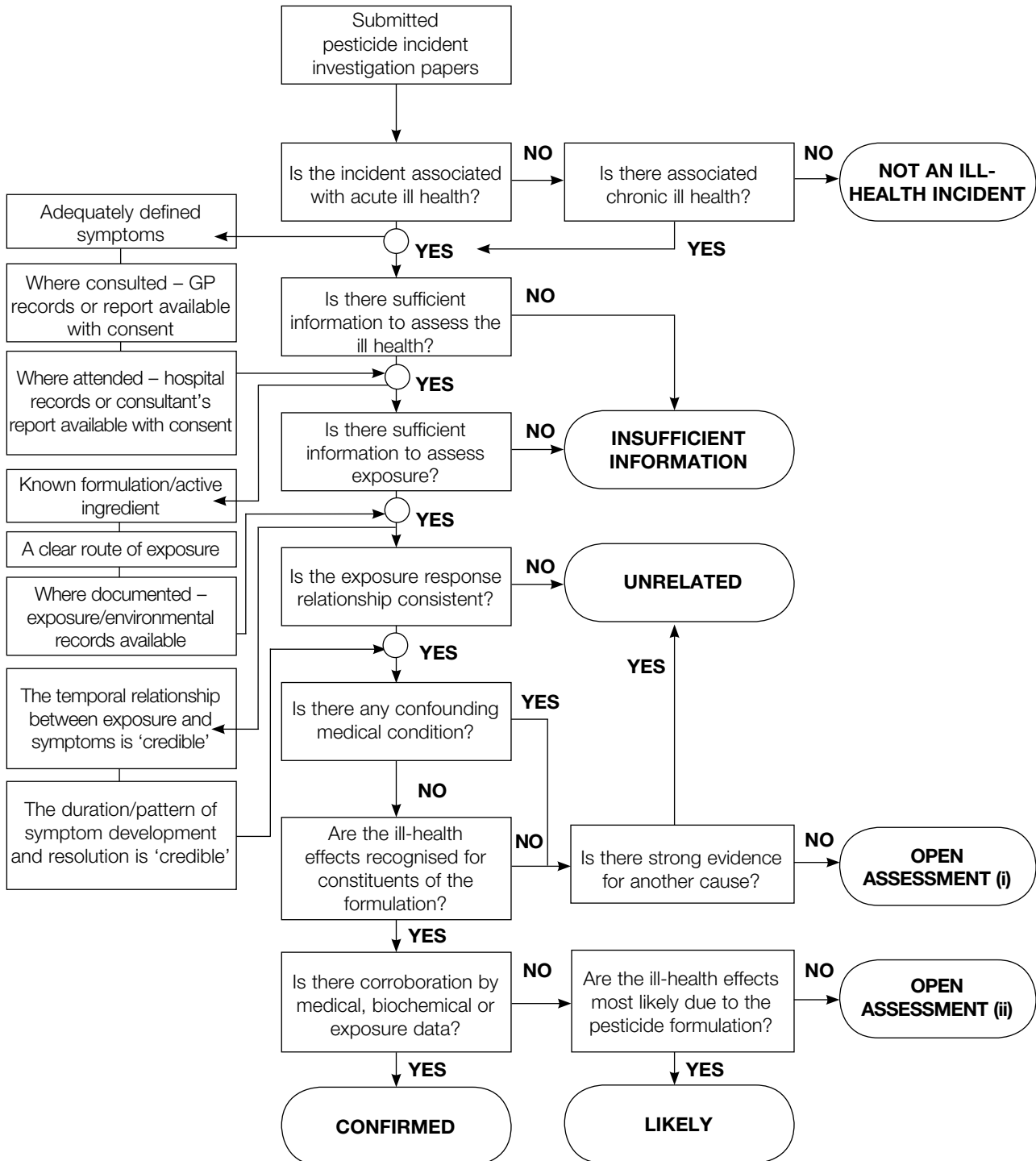
45 Conventional crop boom sprayers were involved in approximately 72% of all environmental and other non-health complaints. Knapsack spraying accounted for 6% and orchard spraying a further 2%. For the remaining 20% of complaints, the application method was either not recorded or not relevant.

46 Of the 51 complaints, 49 of them were reported by members of the public, consistent with experience in previous years. The other two incidents were reported by employees.

## Appendix 1: Pesticide Incidents Appraisal Panel classification scheme

<b>Confirmed</b>	<p>There are clinical symptoms and signs typical of exposure to the cited pesticide formulation combined with either:</p> <ul style="list-style-type: none"><li>■ corroborating medical and (where appropriate) biochemical evidence; or</li><li>■ evidence of overexposure.</li></ul>
<b>Likely</b>	<p>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.</p>
<b>Open assessment</b>	<p>(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</p> <p>(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.</p>
<b>Unrelated</b>	<p>There is strong evidence, eg evidence about exposure or from medical reports, that the reported ill health is not pesticide-related.</p>
<b>Insufficient information</b>	<p>The available data is insufficient, incomplete or conflicting and the panel is unable to classify a case for one or more of these reasons.</p>

## Appendix 2: Flow chart for PIAP assessments



## Further reading

1 *LERAP: Horizontal boom sprayers. A step-by-step guide to reducing aquatic buffer zones in the arable sector* PB5621 Pesticides Safety Directorate 2001, available from Defra Publications, ADMAIL 6000, London SW1A 2XX Tel: 08457 556000 or view online at [www.pesticides.gov.uk](http://www.pesticides.gov.uk)

2 *LERAP: Broadcast air-assisted sprayers. A step-by-step guide to reducing aquatic buffer zones* PB6533 Pesticides Safety Directorate 2002, available from Defra Publications, ADMAIL 6000, London SW1A 2XX Tel: 08457 556000 or view online at [www.pesticides.gov.uk](http://www.pesticides.gov.uk)

3 *The Control of Pesticides Regulations 1986* SI 1986/1510 ISBN 978 0 11 067510 7 The Stationery Office 1986, available from The Publications Centre Tel: 0870 600 5522

4 *The Control of Pesticides (Amendment) Regulations 1997* SI 1997/188 ISBN 978 0 11 063695 5 The Stationery Office 1997, available from The Publications Centre Tel: 0870 600 5522

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](http://www.pesticides.gov.uk)

6 *Guidance on storing pesticides for farmers and other professional users* Agriculture Information Sheet AIS16 HSE Books 1996 (free)

7 *Reporting incidents of exposure to pesticides and veterinary medicines: What to do if you think people, animals or the environment have been harmed by exposure to pesticides or veterinary medicines* Leaflet INDG141(rev1) HSE Books 1999 (single copy free)

## Further information

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

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