Pesticide incidents report

Field Operations Directorate investigations

1 April 2006 - 31 March 2007

Summary

During the year, FOD staff investigated 100 reported pesticide incidents, including 38 cases involving allegations of ill health. The downwards trend in the number of complaints of alleged ill health appears to be continuing. The majority of people involved in reported incidents were, as in previous years, members of the public.

PIAP considered 35 of the 38 reported incidents. The panel assessed one case as 'confirmed' and one as 'likely' to be linked to pesticide usage. The most commonly recorded active ingredient was glyphosate.

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 2006 and 31 March 2007.

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);
- environmental and other complaints not alleging ill health; and
- case studies.

3 FOD'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, qualified medical and occupational health professionals and scientists from the Health and Safety Laboratory 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), agencies of Defra including the Pesticides Safety Directorate (PSD) and the local authorities (LAs) in Great Britain, to ensure a consistent and co-ordinated approach.

5 This report, with the exception of one of the case studies, 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 2006/07, FOD inspectors investigated 100 reported pesticide incidents (complaints). Thirty-eight complaints involved allegations of ill health, with the remaining 62 complaints involving other issues to do with pesticide use. The total of 100 incidents is a decrease of 43 from the previous year's figure of 143 (2005/06) and 45.5% lower than the average for the previous ten years.

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

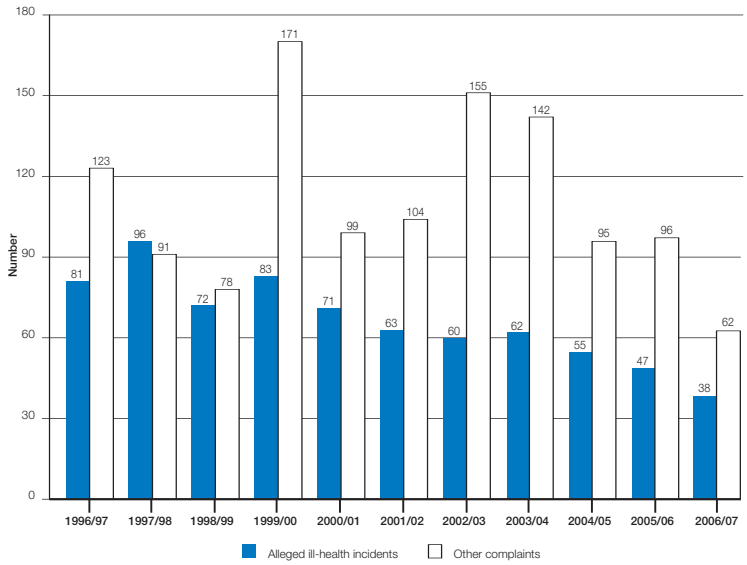


Figure 1 FOD alleged ill-health incidents and other complaints 1996/97-2006/07

9 The number of complaints alleging ill health is nine (19%) less than in 2005/06 and 32 (45%) lower than the average of the previous ten years. This is the lowest figure recorded since 1996/97. Further analysis of these complaints is in paragraphs 15-43.

10 The number of other complaints is 34 (35%) less than in 2005/06 and 53 (46%) lower than the average of the previous ten years. Further analysis of these complaints is in paragraphs 44-49.

11 Inspectors issued seven 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 20 in 2005/06.

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 Commission's Annual Report 2006/07.

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, with the exception of one of the case studies, 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 (PIAP) 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 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 review as part of the Government's response to the report of the Royal Commission on Environmental Pollution on crop spraying and the health of residents and bystanders.

18 The PIAP membership for 2006/07 is listed below:

Dr D Sen, HSE, Corporate Medical Unit, Chair
Ms F Northall, Guys and St Thomas' Poisons Unit
Ms G Cullen, Guys and St Thomas' Poisons Unit
Dr N Langford, City Hospital, Birmingham
Dr J Battershill, Health Protection Agency
Mr R Hadway, HSE, Agriculture and Food Sector
Ms C Armstrong, 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 '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 2006/07

23 Table 1 shows the outcome for the 38 incidents forwarded to PIAP in 2006/07 (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. Though there were a further 17 cases in the 'pending' category from previous years, only 38 new incidents had been reported to HSE in 2006/07.

	Total		Employees/ Self-employed working with pesticides		Members of public/others	
	Incidents	(People)	Incidents	(People)	Incidents	(People)
Confirmed	1	(1)	1	(1)	0	(0)
Likely	1	(1)	0	(0)	1	(1)
Open assessment (i)	2	(2)	0	(0)	2	(2)
Open assessment (ii)	0	(0)	0	(0)	0	(0)
Unrelated	6	(6)	0	(0)	6	(6)
Insufficient information	25	(32)	0	(0)	25	(32)
Pending	3	(3)	1	(1)	2	(2)
Not an incident	0	(0)	0	(0)	0	(0)
Total	38	(45)	2	(2)	36	(43)

Table 1 Number of alleged ill-health incidents and people affected analysed by PIAP decision and employment status 2006/07

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 All 17 incidents previously identified as 'pending' in earlier reports have now been considered by the panel; in one case from 2004/05 a fatality had occurred involving a member of the public who had accidentally drunk 'Paraquat' decanted into an unmarked/ unlabelled bottle. This was considered by the panel to be a 'confirmed' case. [Reported as Case Study 2 in 2005/06 report.] There were 12 cases with 'insufficient information', three with an 'open assessment', and one which the panel considered 'unrelated'.

Overall trends

26 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.

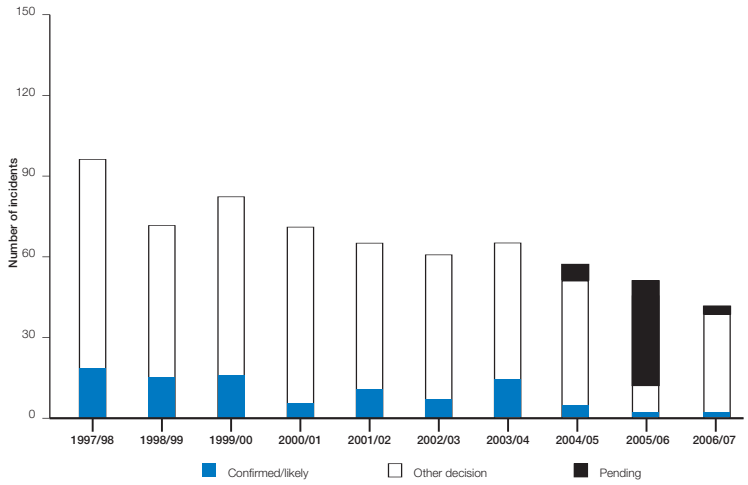


Figure 2 Trends in PIAP decisions

27 At 38 the total number of alleged ill-health incidents in 2006/07 was the lowest figure yet recorded, and the previously noted trend of a falling number of cases reported annually since 1999/2000 would therefore appear to continue.

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 2003/04, taking into account the pending cases, the final figure was 29% (18 of 62). In the current year, if one considers just those cases (38) reported to HSE in 2006/07, the figure has fallen again at 5.3% (2 out of 38).

29 The suggestion that the proportion of incidents assessed as 'confirmed' or 'likely' might be increasing, a finding that had been predicted from the change in approach to the assessment of incidents outlined in paragraphs 20 and 21, is not therefore confirmed. The proportion continues to remain considerably lower than in the early 1990s, when nearly half of the cases considered by the panel were assessed as 'confirmed' or 'likely'.

30 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).

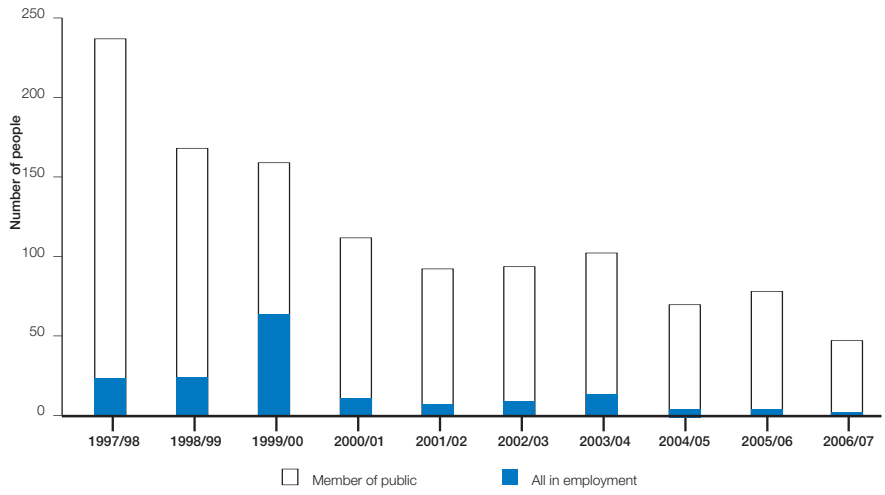


Figure 3 Trends in employment status: all alleged ill-health incidents

31 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 less than 15%. 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. By contrast, the number of incidents reported each year has not been so variable, as Figure 2 shows.

Recent ill-health data

32 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).

33 There were no cases investigated by FOD inspectors during the current year where complaints of chronic ill health were recorded.

34 Table 2 summarises the information on severity of symptoms for the current year 2006/07. It incorporates the assessments of all incidents (4) and associated individuals (4) with a ‘confirmed’, ‘likely’, or ‘open’ assessment.

	Mild		Moderate		Severe	
	Incidents	(People)	Incidents	(People)	Incidents	(People)
Confirmed	0	(0)	1	(1)	0	(0)
Likely	1	(1)	0	(0)	0	(0)
Open assessment (i)	2	(2)	0	(0)	0	(0)
Open assessment (ii)	0	(0)	0	(0)	0	(0)
Total	3	(3)	1	(1)	0	(0)

Table 2 Severity of ill health

35 The person who was assessed as having ’moderate’ symptoms was classified as being ‘systemic’, and three other people were assessed as having ‘mild local’ symptoms.

36 Mild local symptoms are most commonly a self-limiting skin rash or an irritation of the skin, eyes or respiratory tract.

37 During 2004/05 the panel had planned to set up a review of those incidents assessed as ‘confirmed’ or ‘likely’ where irritancy has been the lead health effect. Unfortunately, the member of the panel who had volunteered to take this work forward was unable to start because of other work demands placed upon him. Nevertheless, this remains an aspiration but one which is dependent on the availability of appropriate resource.

Recent and historical data on pesticides

38 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.

39 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 2006/07, products could not be identified for eight of the 38 reported incidents (19%).

40 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.

41 Accepting these limitations, the most common pesticide function associated with incidents reported to PIAP is herbicide, followed by fungicide and insecticide. In 2006/07, of the 61 identified products involved in the reported incidents there were 30 herbicides, 18 fungicides, eight insecticides, and five 'other' groupings.

42 The most commonly recorded active ingredient during 2006/07 was glyphosate (10) with no other actives having a greater involvement.

43 Finally, a point of observation – the panel met only once in 2006/07, a consequence of the steady fall in numbers of reported cases with a possible health outcome. This meeting took place on 12 July 2007.

Environmental and other non-health complaints 2006/07

44 During the year there were 62 environmental and other complaints, ie complaints in which there were no allegations of ill health relating to exposure. This is a decrease of 34 from the previous year's figure of 96 (2005/06) and compares with an average of 115 and a range of 78 to 171 in the previous ten years (1996/97-2005/06). See Figure 1 and paragraphs 7 to 10 for statistical analysis of the figures.

45 Figures 4 to 6 summarise the number of complaints in 2006/07, classified according to the industry sector in which the pesticides were used, the work activity involved and the method of application.

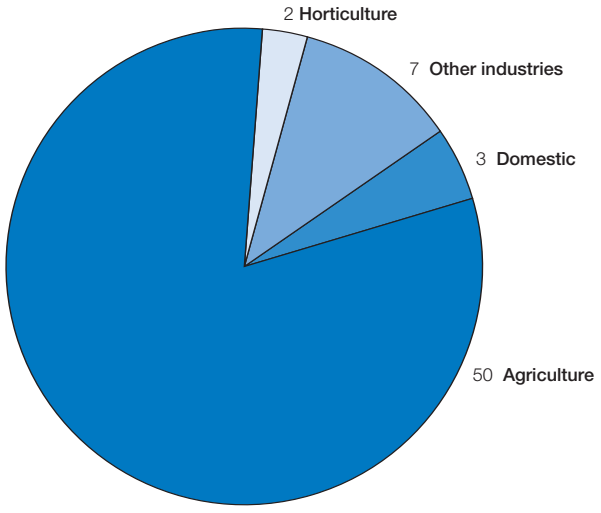


Figure 4 Number of environmental and other non-health complaints 2006/07: classified by sector

46 Fifty of the 62 complaints (81%) originated from the use of pesticides within the agricultural sector. Domestic use accounted for 5%, horticultural use for 3% and the remaining 11% were associated with 'other industries'.

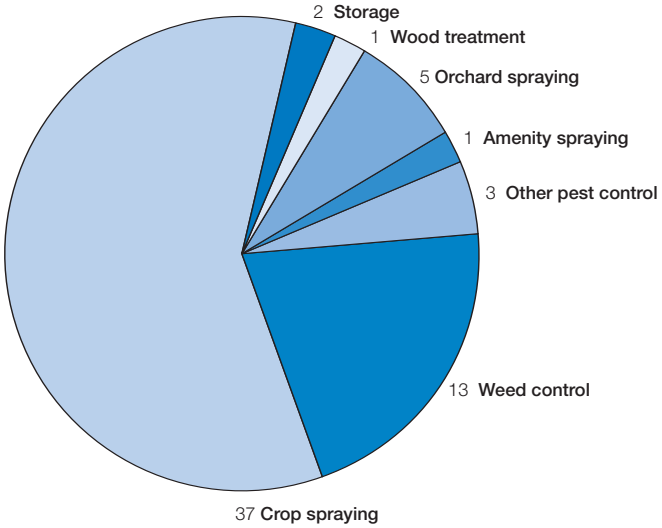


Figure 5 Number of environmental and other non-health complaints 2006/07: classified by activity

47 Crop spraying accounted for 59% of all environmental and other non-health complaints investigated during 2006/07. Other significant activities included weed control 21%, orchard spraying 8%, storage 3%, amenity spraying and wood treatment 2% each. The remaining 5% occurred within a group of miscellaneous activities, including other pest control.

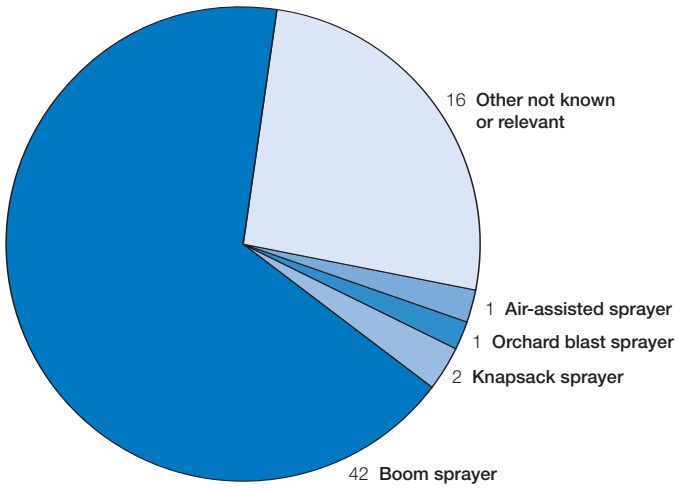


Figure 6 Number of environmental and other non-health complaints 2006/07: classified by application method

48 Conventional crop boom sprayers were involved in approximately 67% of all environmental and other non-health complaints. Knapsack spraying accounted for 3%, orchard blast sprayer and incidents involving an air-assisted sprayer a further 2% each. For the remaining 26% of complaints the application method was either not recorded or not relevant.

49 Of the 62 complaints, 60 were reported by members of the public, consistent with experience in previous years. The other two incidents were reported by employees.

Case studies

As in previous years, case studies are included in the report to illustrate important issues or areas of concern that commonly give rise to complaints to FOD and/or result in enforcement action. This year the two case studies focus attention on the amenity use of pesticides.

Case 1: Information, instruction and training

A local authority was prosecuted following an incident in which a groundsman, an employee, was adversely affected after he had sprayed herbicide on park grounds and bowling greens.

Investigation of the incident revealed the following:

- He had sprayed a park pavilion and several other areas with the moss killer 'Enforcer' using a boom sprayer mounted on a tractor.
- He was not wearing suitable protective clothing.
- He had only received basic training in the use of pesticides. He held a recognised certificate of competence in the safe use of pesticides after successfully completing the PA1 (foundation) and PA6 (hand-held applicator) training modules. However, he had not received any training in the use of tractor-mounted boom sprayers.
- He had not received any additional or refresher training since he obtained his certificate in 1989.
- There was a lack of adequate washing facilities.
- No attempt had been made to advise members of the public of the risks arising from pesticide exposure.
- No records of pesticide use were kept.

The groundsman was found wandering around a recreation ground in a distressed state the following morning after his wife had reported him missing.

The investigation concluded that the local authority had failed to provide the groundsman with adequate information, instruction and training and failed to ensure that members of the public using the parks were not exposed to risks while the spraying was carried out. In addition, the authority had failed to make suitable arrangements for the groundsman to wash after he had applied the pesticide.

The local authority was prosecuted under sections 2(1) and 3(1) of the Health and Safety at Work etc Act 1974 for failing to ensure the health and safety of one of its employees and of other people. The authority pleaded guilty and was fined £6000 and ordered to pay £3747 towards the cost of bringing the prosecution.

Section 2(1) of the Act places a duty on every employer to ensure, so far as is reasonably practicable, the health, safety and welfare at work of all his employees.

In particular that duty includes –

(a) the provision and maintenance of plant and systems of work that are safe and without risks to health;
(b) arrangements for ensuring the safety and absence of risks to health in connection with the use, handling, storage and transport of substances;
(c) the provision of such information, instruction, training and supervision as is necessary to ensure the health and safety at work of employees; and
(d) the provision and maintenance of adequate welfare facilities.

Section 3(1) of the Act places a similar duty on employers to ensure the health and safety of persons other than their employees, eg members of the public who could be affected by the conduct of the undertaking.

Current pesticide legislation places more specific duties on users of pesticides and in particular requires that no person should use a pesticide unless that person –

(a) has received adequate instruction, training and guidance in the safe, efficient and humane use of pesticides, and
(b) is competent for the duties which that person is called upon to perform.

In addition a person using a pesticide approved for agricultural use is required to hold a recognised certificate of competence issued by the National Proficiency Tests Council (NPTC) or the Scottish Skills Testing Service (SSTS) if he/she:

- **was born after 31 December 1964; or**
- **is providing a commercial service.**

The certificate must be relevant to the method(s) of application exercised by the user.

All users of pesticides are encouraged to keep their knowledge and skills up to date by joining a recognised scheme which promotes continuous professional development.

Further advice and guidance on the requirements for training and other matters relating to pesticide applications can be found in the Defra publication *Pesticides - Code of practice for using plant protection products*. A similar code has been published for users in Scotland.

Case 2: Polluting reservoirs

A weed control contractor was prosecuted by the Environment Agency for polluting a reservoir with a non-approved pesticide. High levels of atrazine in the reservoir were reported to the agency by the water company.

Investigation of the incident including sampling traced the source of the pollution to a local poultry farm that had employed the contractor to treat weeds. The contractor used atrazine which found its way into the holding tanks on-site and then into a nearby ditch. The contamination spread into a nearby water course which drained into the reservoir. The contractor admitted using a redundant barrel of the herbicide for the job.

The levels of atrazine found in the reservoir were above the EU regulatory limit for drinking water. Subsequent treatment of the water meant that the public supply was not affected.

The contractor was fined £4000 and ordered to pay costs of £1241.90 for causing polluting matter, namely atrazine, to enter controlled waters contrary to section 85 (1) and (6) of the Water Resources Act. The poultry company (landowners of the site) received a formal caution.

Occupiers and owners of premises (clients) may be held responsible and called to account for the acts or omissions of any contractors that they engage to perform work on their behalf. In particular, they may be required to demonstrate that they have taken appropriate steps to ensure that contractors are competent and have the necessary resources to undertake work without endangering the health or safety of persons or damaging the environment.

BASIS (Registration) Ltd, NAAC and NPTC have recently joined together to introduce a new assurance scheme for contractors working in the amenity sector. Contractors who meet the audited performance standard will be awarded the Amenity Assured certificate.

No person should store or use a pesticide unless it has been approved and any conditions of approval have been complied with in full. Details of all approved pesticides are published on the websites maintained by the Pesticides Safety Directorate at: www.pesticides.gov.uk (agricultural products) and HSE at: www.hse.gov.uk (non-agricultural products). Many established products have recently been removed from the approved lists so all users are advised to check that any product held in store is covered by a current approval. Purchase of pesticides should be carefully managed to avoid the build-up of redundant stock.

Any pesticides found in stores that are no longer approved should be disposed of in a safe manner. The products should not be used if the approval for use has been withdrawn.

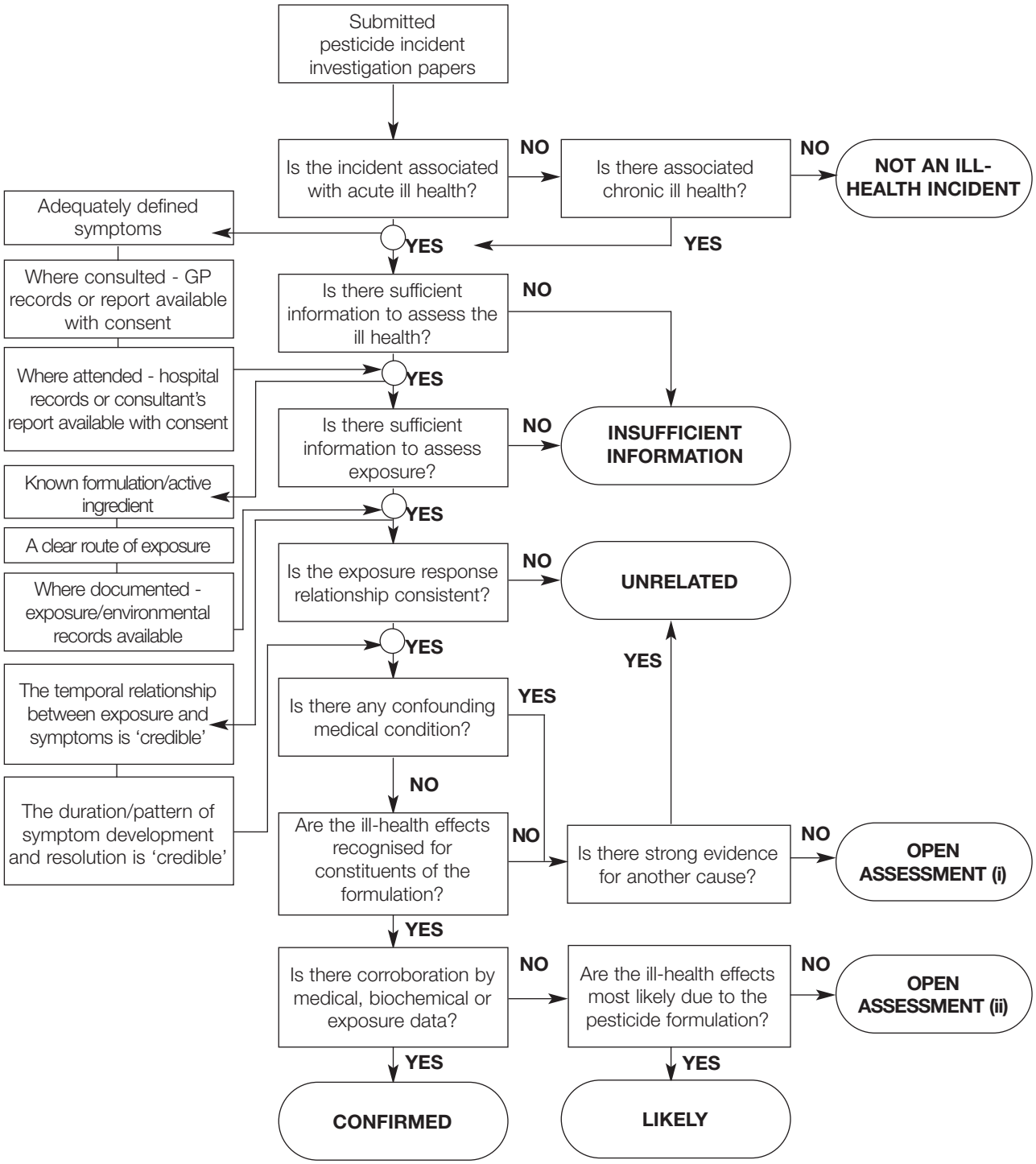
Advice on the safe disposal of pesticides is given in the *Code of Practice for using plant protection products.* Advice can also be obtained from local authorities and the Environment Agency (or the Scottish Executive in Scotland).

Anyone who sees pollution, illegal tipping of waste, poaching, fish in distress or danger to the natural environment can contact the Agency's emergency hotline on **0800 80 70 60**. The hotline operates 24 hours a day, 365 days a year, calls are free and will be treated in the strictest confidence.

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



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: 08459 556000

2 *LERAP: Broadcast air-assisted sprayers* PB6533 Pesticides Safety Directorate 2002, available from Defra Publications, ADMAIL 6000, London SW1A 2XX Tel: 08459 556000

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: 08459 556000. This is also available on the Defra website: www.defra.gov,uk

6 *Code of best practice - Safe use of sulphuric acid as an agricultural desiccant* available from the National Association of Agricultural Contractors (NAAC), Samuelson House, Paxton Road, Orton Centre, Peterborough PE2 5LT Tel: 01733 362920

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

8 *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) Web version: www.hse.gov.uk/pubns/indg141.pdf

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:
Health and Safety Executive, Agriculture and Food Sector,
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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