

# Pesticides and the Environment

A Strategy for the Sustainable Use  
of Plant Protection Products  
and Strategy Action Plans



SCOTTISH EXECUTIVE



Llywodraeth Cynulliad Cymru  
Welsh Assembly Government





# Pesticides and the Environment

## *A Strategy for the Sustainable Use of Plant Protection Products*



Department of  
Agriculture and  
Rural Development  
[www.dardni.gov.uk](http://www.dardni.gov.uk)



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# Part A

## The Strategy

This part of the document:

- Defines the scope of the strategy;
- Sets the objectives for the strategy;
- Identifies the strategic outcomes we wish to deliver through the strategy;
- Establishes the role of Government and other stakeholders in the delivery of the strategy;
- Describes the existing framework of controls on plant protection products;
- Outlines what the strategy aims to deliver through targeted Action Plans;
- Identifies measures that can be used to monitor whether the strategy is achieving its objectives.

## **PART A**

### **PESTICIDES AND THE ENVIRONMENT**

#### **A STRATEGY FOR THE SUSTAINABLE USE OF PLANT PROTECTION PRODUCTS**

## **1. BACKGROUND**

Pesticide is a general term that includes a variety of chemical and biological products used to kill or control living organisms such as rodents, insects, fungi and plants. This strategy concerns 'plant protection products' which are those pesticides used to protect plants from pests, diseases and weeds.

The UK has a substantial crop protection industry. Sales of plant protection products in 2004 were £467 million, representing 31,500 tonnes of active substances. Agricultural and horticultural uses accounted for 86% of the value of sales and 80% of the amount used, whilst garden, household, forestry and amenity uses accounted for the balance. Around 2,200 people were directly employed in the crop protection industry in 2004. Further information on the use of plant protection products in the UK is provided in Annex 1

## **2. SCOPE OF THE STRATEGY**

- 2.1 This strategy deals with plant protection products (essentially agricultural, amenity and home and garden pesticides). It does not cover biocides (such as wood preservatives or disinfectants) or veterinary medicines (such as sheep dip chemicals) which are subject to separate regulatory requirements. It is also concerned principally with the environmental impact of pesticides. In these respects it is aligned with a planned EC initiative for a Framework Directive on the Sustainable Use of Plant Protection Products which is described in section 6.
- 2.2 The strategy does not deal with the legislative controls on the marketing of pesticides or legislative controls on residues in foods (except where these are directly relevant to the specific action plans). Neither does it deal with controls on the use of plant protection products which are designed principally to protect the health of those who use them or bystanders or

residents who may be affected by spraying operations. The potential impact of plant protection products on the health of this latter group has recently been the subject of a major report by the Royal Commission on Environmental Pollution<sup>1</sup>. The Government will consider extending the strategy to cover human health issues at a later stage as indicated in Section 11.

- 2.3 Subject to appropriate regional variations this strategy is intended to cover England, Scotland, Wales and Northern Ireland. However, the devolved administrations currently have or may develop in the future parallel but different agricultural or environmental schemes to reflect priorities within their territories. The terminology for current schemes used in this strategy generally refers to the English situation.

### 3. OBJECTIVES

Defra's five year strategy, "Delivering the Essentials of Life" published in December 2004 established five strategic priorities for the department. This strategy will contribute particularly to 3 of these.

- **Protecting the countryside and natural resource protection**

Creating a robust policy framework and evidence base in order to promote the sustainable use and enhancement of the country's natural heritage and eco-systems.

- **Sustainable farming and food, including animal health and welfare**

Helping to create a sustainable food and farming supply chain serving the market and the environment; putting in place systems to reduce risks of animal diseases, and being ready to control them when they occur.

- **Sustainable Consumption and Production**

Breaking the link between economic growth and environmental degradation and resource use through promoting and enabling more sustainable patterns of consumption and production.

- 3.1 The sustainable use of plant protection products is relevant to these strategic priorities in the following ways:

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<sup>1</sup> Crop Spraying and the Health of Residents and Bystanders published 22 September 2005

### **Protecting the countryside and natural resources**

- By reducing pesticide contamination of surface and groundwater;
- By reducing the impact of pesticides on biodiversity;
- By promoting good practice in the use and disposal of plant protection products in the amenity and amateur sectors.

### **Sustainable farming and food**

- By maintaining the quality and quantity of food produced;
- By maintaining the production of locally grown crops;
- By promoting the development and use of alternative approaches to pest, disease and weed control that reduce dependence on chemical plant protection products.

### **Sustainable Consumption and Production**

- By minimising the amounts of waste packaging produced;
- By encouraging product availability to support local food production.

## **4. STRATEGIC OUTCOMES**

- 4.1 This strategy aims to promote uses of plant protection products that achieve high standards in environmental protection whilst maintaining the economic viability of crop production.

Specifically the strategy aims to:

- Reduce water pollution caused by plant protection products to the standards required by the EC Water Framework Directive;
- Reverse the loss of biodiversity caused by plant protection products;
- Encourage the introduction of more alternative chemicals and greater use of integrated crop management with a lower plant protection product dependency;
- Establish 'best practice' in the use of plant protection products in the amenity sector;
- Minimise the risk of environmental damage through inappropriate disposal of amateur products;
- Maintain the availability of sufficient plant protection products or other means of pest control particularly for minor crops.

## 5. WORKING TOGETHER

- 5.1 This strategy can only be delivered through co-operation between Government and a wide range of stakeholders including farmers, the crop protection industry and environmental groups.

### **This means that all-users of plant protection products should:**

- Comply with all relevant regulations and record keeping requirements for plant protection products;
- Comply with the statutory and advisory codes of practice relevant to their sector;
- Adopt an integrated approach to crop protection drawing on all available techniques to tackle pests, diseases and weeds;
- Support the action plans within this strategy relevant to their sector.

### **and this means Government will:**

- Consult with relevant stakeholders on new regulatory requirements;
- Conduct a regulatory impact assessment before considering any extension of regulation;
- Work with users of plant protection products and other stakeholders to develop and implement the Action Plans;
- Seek to promote the uptake of integrated approaches to pest control and the introduction of alternatives to chemical controls particularly through the work of the Pesticide Forum and through relevant research and development;
- Encourage voluntary approaches to deliver results wherever possible.

## 6. THE EXISTING FRAMEWORK

There is a very substantial body of legislation on plant protection products which has been built up over a period of 20 years. The regime is in a transitional period where some major pieces of national legislation are being replaced by new, harmonising EC legislation. The key objectives of virtually all legislation on plant protection products are to ensure high standards of protection for people and for the environment.

- 6.1 There are three main pieces of existing or planned EC legislation on plant protection products:

- Controls on the marketing of plant protection products under the EC Authorisations Directive (91/414/EEC).
- Legislation on pesticide residues in food. This legislation will soon be entirely harmonized through a recently-adopted EC Regulation on 'Maximum Residue Levels' (MRLs) (396/2005/EC).
- A proposed Framework Directive on the Sustainable Use of Plant Protection Products. A formal proposal from the European Commission is not expected until summer 2006. However, based on the Commission's communication of 2002 we expect the proposal to include at least the following elements:
  - Requirements for the training of users;
  - Requirements on the certification of new spray equipment and a mandatory sprayer inspection system;
  - Special measures to protect the aquatic environment;
  - Special measures to protect sites of conservation value;
  - Restrictions on aerial spraying;
  - Legislation on residues in food.

6.2 This body of legislation provides the basic elements of the regime to protect the health of users, consumers and the environment. It is under continuous development and major changes are likely over the next few years as a result of a planned Commission 'Thematic Strategy on the Sustainable Use of Plant Protection Products'. This strategy will include proposals for the Framework Directive (referred to above) and a new regulation to replace Directive 91/414/EEC. More information on the current regulatory framework is included in Annex 2.

6.3 The Action Plans to be taken forward under this strategy are intended to supplement these wider regulatory controls in relation to environmental protection. In some cases they may lead to further regulatory developments. But the government believes that a broad package of voluntary and statutory measures is likely to deliver benefits beyond those achievable through regulation alone.

## 7. INTEGRATION WITH RELATED POLICIES AND INITIATIVES

A range of UK industry and Government initiatives will also affect usage of plant protection products; a list of the more significant measures is included at Annex 3. The objectives of this strategy and these initiatives complement each other, and the Action Plans are designed to strengthen links and achieve the desired outcomes. A description of some of the key initiatives can be found below.

Taken together, these initiatives may well result in more constraints being placed on the use of plant protection products – but these constraints might be ameliorated by further incentives to follow best environmental sustainable practice. In addition to the pesticide regulatory system there are other environmental policies that impact on plant protection product use. EC and domestic agricultural schemes can also have significant impacts. Two of the most significant longer term influences on usage are likely to be the impact of reform of the Common Agricultural Policy (CAP) and EC legislation on water quality, particularly the Water Framework Directive.

### CAP Reform

- 7.1 CAP reform has made arable production more market-oriented. Pressures to increase profitability are expected to lead to the removal of unprofitable land from production and improved targeting of plant protection products to reduce costs. These effects suggest a declining trend in use following CAP reform. On the other hand, some changes to arable crops production that are expected to take place following CAP reform are likely to increase plant protection product use such as simplified rotations, potential increases in root cropping and vegetable production and perhaps the use of cheaper and less selective products. The overall impact of CAP reform on plant protection product use is therefore difficult to predict at this stage.
- 7.2 The launch of the new agri-environment scheme – Environmental Stewardship (ES) as part of the CAP reform package in March 2005 is also likely to impact on usage in England. There are two main elements:
- Entry Level Stewardship is a ‘whole farm’ scheme open to all farmers and land managers who agree to carry out basic environmental management that goes beyond the Single

Payment Scheme (SPS) requirement to maintain land in Good Agricultural and Environmental Condition (GAEC). An Organic Entry Level equivalent is also available for those who manage all or part of their land organically. The aim is to cover 70% of farmland within the next 3 years and, thus, to tackle countrywide problems such as general biodiversity loss and diffuse water pollution. This would also be the aim of similar schemes in the Devolved Administrations.

- Higher Level Stewardship (HLS) which builds on the success of the Countryside Stewardship and Environmentally Sensitive Areas Schemes. HLS rewards more ambitious environmental management and is designed to help deliver significant biodiversity and other environmental benefits in high priority situations.

7.3 ES includes a range of management options, including buffer strips, field margins, conservation headlands, low-input grassland and crop protection and soil management plans, that should lead to a targeted reduction in plant protection product use which in turn will benefit wildlife, soils and watercourses.

### **Water Framework Directive**

7.4 The Water Framework Directive 2000/06/EC (WFD) puts in place a common framework for the integrated management of the water environment across the EU. The WFD introduces common environmental objectives and requires water planning to be carried out on the basis of hydrological units called 'river basin districts'. The WFD applies to all waters (rivers, lakes, estuaries, coastal waters and ground waters) and requires Member States to have in place a range of environmental controls, including controls on both point source and diffuse source pollution.

7.5 Under the WFD, the UK administrations are currently developing environmental quality standards for a number of 'specific pollutants'. The list of these has not yet been finalised but it is likely to contain some plant protection products.

7.6 Also under the WFD a priority list of 33 dangerous substances was agreed in 2001. This includes some plant protection products and their components. The Commission is expected during 2006 to make proposals for a daughter directive of the WFD regarding Priority List substances. This will be aimed at a progressive reduction of emission

discharges and losses of Priority List substances. For a subset of persistent, bio-accumulative and toxic 'priority hazardous substances' (PHSs), agreement will be needed on cessation or phasing out of emissions within 20 years of measures being agreed.

## **Industry Initiatives**

- 7.7 Links to stakeholder initiatives such as the Voluntary Initiative (VI) for Pesticides are also important. This inclusion of key provisions from the VI (on sprayer testing, professional development for spray operators and crop protection management plans) within the Farm Assurance Schemes represents a significant step forward in promoting the sustainable use of plant protection products. The Farm Assurance Schemes have been and are likely to remain important vehicles for changing practice in the farming industry.

## **8. DELIVERY**

To achieve the strategic outcomes described in Section 4, activities will be focused into 5 targetted Action Plans. These are aimed at reducing the adverse impacts of plant protection products on water and biodiversity generally with special measures being taken in the amenity and amateur products sector. An Action Plan is also proposed to safeguard, as far as possible within the existing pesticide regime, the availability of products particularly for minor crops. The Action Plans are described briefly below and are included in full in part B of this document.

- 8.1 Each Action Plan will have a small implementation group responsible for ensuring the planned initiatives are taken forward. The group will report regularly on progress to the Pesticides Forum. We will publish a formal update on progress under each Action Plan on the departmental website one year following roll-out. At that stage we will also review the content of each plan and consider whether new or different initiatives are required under the strategy.

- **Water Action Plan**

The enhancement of water quality is a key objective of the strategy. We also need to integrate water protection policies in relation to plant protection products with wider water policy matters such as tackling the requirements of the WFD. Water quality is already being tackled through initiatives such as the England catchment-sensitive farming delivery initiative and through the VI which includes pilot water catchment projects. The water action plan seeks to integrate and build on these initiatives.

- **Plant Protection Products Biodiversity Action Plan**

The authorisations system aims to limit the adverse effects of plant protection products on non-target species. These controls are under continuous development. However, the authorisation system alone will not eliminate non-target species effects altogether and other initiatives are likely to have a major part to play in supplementing regulatory controls. Initiatives are also required to address the indirect effects of plant protection products on biodiversity. The biodiversity action plan is based around taking some of these key initiatives forward.

- **Product Availability Action Plan**

Virtually all farmers (including many organic growers) rely on plant protection products to produce an economic crop. The availability of a sufficient range of products is, therefore, central to sustainable farming. Problems with product availability are being exacerbated as the EC review programme under Directive 91/414/EEC removes many of the older substances from the market. The MRL programme is likely similarly to reduce the range of available uses. The problem will be particularly acute for 'minor pesticide uses' which occur principally in the horticultural sector.

The Government believes that the availability of plant protection products is largely a matter for the market and for the crop protection and farming industries. It is also the case that product availability must not compromise the overriding need to ensure high standards of human and environmental protection. Nevertheless, the Government does recognise that it has a role, working with key stakeholders, to support initiatives which encourage the availability of plant protection products, particularly for minor crops. The Action Plan includes

initiatives designed particularly to help maintain sufficient availability for the production of minor crops in the UK.

- **Amenity Action Plan**

Plant protection products are not only used in agriculture and horticulture. Significant quantities are also deployed for amenity uses (including the highways and parks sectors). These uses have historically received less attention than farm uses and there may be less supervision of spraying activities in some situations. There is also less organised monitoring of use patterns in this sector.

There are, therefore, concerns over the possible impact of the use and disposal of products by some amenity users. The VI has examined the amenity sector and identified hard surface uses and aquatic weed control as particular potential threats to water and uses in amenity grassland as the greatest threat to biodiversity. An Amenity Forum has been established to bring together the key stakeholders and to encourage best practice. The Action Plan for the amenity sector aims to build on this initiative.

- **Amateur Use Action Plan**

Plant protection products are widely used by members of the public. Although the quantities used by any individual are tiny the number of gardeners in the country using these products (estimated at around 6-7 million) means that the total quantity used by amateurs, while still small in relation to farm use, is significant.

Whilst amateur products are much lower risk than professional products their use by large numbers of untrained individuals raises special issues. The Amateur Use Action Plan aims in particular to encourage best practice and to ensure the safe disposal of unused products.

## 9. SCIENCE AND KNOWLEDGE TRANSFER

A strong scientific base is critical to the success of this strategy. Many of the actions proposed under this strategy are based on a scientific analysis of the state of the environment and the factors that influence that state. A substantial research and development programme will therefore be required to support the strategy. Successful mechanisms of knowledge transfer are also vital.

- 9.1 Defra spends about £5.7m each year on two areas of research relevant to plant protection products. The first supports our regulatory work and includes developing better ways to assess and manage risks arising from plant protection product use. The second supports Government policy to reduce the adverse environmental impact of use. This research covers more sustainable crop protection practices and ways to protect biodiversity. It also includes alternative technologies and integrated crop management systems that reduce reliance on chemical products.
- 9.2 Many of the current and planned research projects are carried out with the direct involvement of stakeholders, and cover plant protection product application technology, non-target risk assessment, ecological impacts, plant protection product resistance and alternative plant protection technologies. Where relevant the strategy's Action Plans have Research and Development (R&D) projects listed within them.
- 9.3 Knowledge transfer is vital to bringing new technologies to professional plant protection users. The results of R&D need to be carried forward into advice to farmers and other users, particularly to promote best environmental practice.
- 9.4 Schemes such as the VI contribute much to the process of knowledge transfer, and encouraging this process is one of the aims of this strategy. The Pesticides Forum has already made useful knowledge transfer recommendations which the Action Plans will draw on.

## 10. INDICATORS

Developing and applying indicators are vital in being able to reflect the impact of Government and industry efforts to encourage environmentally responsible use of plant protection products and wherever possible use non-chemical methods of pest, weed and disease control. The Pesticides Forum and the VI have developed a range of indicators for environmental impacts. These indicators are detailed in Annex 4.

- 10.1 Key indicators will initially be used to monitor the contribution of the Action Plans towards achieving the strategic objectives. Relevant indicators are listed as part of the individual Action Plans. However, further indicators may be developed in consultation with stakeholders within the Action Plan Implementation Groups. Indicators are also under development within the EC through the Harmonised Environmental Indicators for Pesticide Risk project which is linked to the Commission's Thematic Strategy for Pesticides.
- 10.2 The adoption of targets for each of the Action Plans will be considered further with stakeholders within each of the Action Plan Implementation Groups. A mixture of 'activity' and 'environmental outcome' targets will be reviewed with a view to the government adopting formal targets as part of the first annual report on progress under the action plans.

## **11. REVIEW OF THIS STRATEGY**

Progress under the various Action Plans will be reported on an annual basis on the departmental website. The strategy will also be kept under review in line with Defra's 5 year departmental strategy

- 11.1 In responding to the consultation a number of organisations proposed that the strategy should be extended to cover human health issues including: the risk to sprayer operators; the risk to bystanders or nearby residents from spraying operations; and finally the risk to consumers from pesticide residues in food.
- 11.2 All these issues are closely linked with the planned review of Directive 91/414/EEC referred to in Section 6. Additionally the issues surrounding the risk to bystanders and residents have recently been the subject of a major report by the Royal Commission on Environmental Pollution. The Government is currently considering this report with a view to issuing its response in summer 2006. Against this background we will review whether this strategy should be extended to human health as part of the review planned for one year after roll out.

## Part B

# The Strategy's Action Plans

Water Action Plan

Plant Protection Products Biodiversity Action Plan

Products Availability Action Plan

Amenity Use Action Plan

Amateur Use Action Plan

## Water Action Plan

Protecting and enhancing water quality is a key objective of the strategy. The EC Authorisation Directive (91/414/EEC) provides that plant protection products should be approved only where any contamination resulting from the use will comply with a range of specified water quality standards. The Water Framework Directive requires EU member states to take measures to prevent deterioration, enhance and restore surface, ground and drinking water by controlling, restricting or phasing out the use of a range of pollutants. Protecting water is also one of the key areas for the Voluntary Initiative for Pesticides which includes water catchment projects. This Action Plan will integrate and build on these, and other, regulatory and voluntary initiatives.

Issue	Action	Indicators
<p>Reduce levels of surface water (including headwater streams and ditches) and groundwater contamination by plant protection products.</p>	<p><b><u>REGULATORY ACTION</u></b>            Directive 91/414</p> <ul style="list-style-type: none"> <li>• Review of plant protection products under Directive 91/414/EEC which may pose a high risk to surface water.</li> <li>• Participate in the review of data requirements and linked guidance under Directive 91/414/EEC relating to pesticides in water.</li> <li>• Develop risk assessment to explore potential for additional risk mitigation measures in high vulnerability situations.</li> </ul> <p><b><u>REVIEW OF CURRENT INITIATIVES/POLICY</u></b>            Buffer zones and LERAPs</p> <ul style="list-style-type: none"> <li>• Review effectiveness of buffer zones in protection of water, operation of LERAPs scheme and compatibility with new Environmental Stewardship arrangements.</li> </ul> <p>Sprayer training</p> <ul style="list-style-type: none"> <li>• Review current mandatory training requirements for spray operators in the light of recommendations from the Royal Commission for Environmental Pollution's Bystanders Report (RCEP) and the EC Thematic Strategy package.</li> </ul> <p>Spray machinery</p> <ul style="list-style-type: none"> <li>• Review case for mandatory certification of spray machinery and regular testing of spray machinery in the</li> </ul>	<ul style="list-style-type: none"> <li>• Frequency of exceedance of relevant EQS levels.</li> <li>• Pesticides Forum aquatic risk indicator.</li> <li>• Frequency of detection of top 9 pesticides in surface water above 0.1µg/l.</li> <li>• Frequency of detection of individual pesticides in surface water above 0.1µg/l.</li> <li>• Frequency of detection of top 9 pesticides in ground water above 0.1µg/l.</li> <li>• Frequency of detection of individual pesticides in ground water above 0.1µg/l.</li> <li>• Number of substantiated water pollution incidents involving agricultural pesticides.</li> <li>• Frequency of detection of samples in DWI reports containing pesticide residues in excess of 0.1µg/l/total concentrations greater of 0.5 µg/l.</li> <li>• Frequency of detection of individual pesticides in surface water extracted for drinking water above 0.1µg/l.</li> <li>• Number of National Register of Sprayer Operators (NRoSO): members and area covered.</li> <li>• National Sprayer Testing Scheme: numbers and area covered.</li> </ul>

Issue	Action	Indicators
	<p>light of recommendations from the RCEP and the EC Thematic Strategy package.</p> <p>Aerial Spraying</p> <ul style="list-style-type: none"> <li>Review current regulations on aerial spraying in the light of the EC Thematic Strategy package.</li> </ul> <p>Collection scheme for pesticides and packaging</p> <ul style="list-style-type: none"> <li>Review the case for collection schemes for unused pesticides and packaging in the light of the EC Thematic Strategy package.</li> </ul> <p>Crop protection management plans</p> <ul style="list-style-type: none"> <li>Increase coverage of plans and monitor impacts on farmer behaviour.</li> </ul> <p>Environmental Information Sheets</p> <ul style="list-style-type: none"> <li>Increase numbers of EIS and assess effectiveness in raising awareness of environmental protection issues.</li> </ul> <p><b><u>LINKS WITH OTHER INITIATIVES</u></b></p> <p>Catchment Sensitive Farming and VI</p> <ul style="list-style-type: none"> <li>England Catchment Sensitive Farming (CSF) and Voluntary Initiative to work together to develop local approaches (including catchment stakeholder meetings and engagement with farmers) for protecting, enhancing and restoring water.</li> </ul> <p>Special attention paid to identifying problem catchments and priority substances in drinking water catchments and identifying relevant solutions.</p> <p>Voluntary Initiative</p> <ul style="list-style-type: none"> <li>Voluntary Initiative to raise awareness of water issues amongst farmers and develop programmes (e.g. Water Catchment Project, Crop Protection Management Plans, Sprayer Testing and bio-beds in handling areas) to promote behavioural change and deliver approaches for protecting, enhancing and restoring water.</li> </ul>	<ul style="list-style-type: none"> <li>Crop Protection Management Plans: area covered.</li> <li>Number of Environmental Information Sheets (EIS) published/ assessment of effectiveness.</li> <li>Number of local programmes in place for each CSF River Basin Management District (RBMD).</li> <li>Achievement of local catchment targets.</li> </ul>

Issue	Action	Indicators
	Amenity and Amateur Use Action Plans <ul style="list-style-type: none"> <li>• Effective delivery of these plans necessary for targets developed under this plan to be met.</li> </ul>	<ul style="list-style-type: none"> <li>• Frequency of detection of pesticide residues in ground and surface water attributable to amenity and amateur use.</li> </ul>
R & D	<ul style="list-style-type: none"> <li>• PS 2318 Assessing the impact of agricultural pesticides in the aquatic environment.</li> <li>• PS 2209 Environmental pesticide loading during spray contamination.</li> <li>• LK 0926 Sustainable Arable Farming and the Environment project (SAFFIE).</li> <li>• PS 2218 Design of a targeted mitigation system for transport of pesticides in drainflow in the UK.</li> <li>• PS 2304 Modelling the effects of pesticides on non-target aquatic organisms to improve risk assessment.</li> </ul>	

## Plant Protection Products Biodiversity Action Plan

The UK Government has made a commitment to halting biodiversity loss by 2010. Although it is difficult to attribute a specific decline in biodiversity to the use of individual plant protection products, there is sufficient evidence to indicate that pesticides do adversely affect biodiversity including having an indirect effect on bird populations. The EC pesticide Authorisation Directive (91/414/EEC) provides that plant protection products should be approved only where the short and long-term impacts on non-target species, populations and communities (birds, aquatic organisms (including fish), bees, earthworms and micro-organisms in soil) from single, prolonged or repeated exposure comply with specified standards. However, this system alone will not eliminate the effects on non-target species altogether nor tackle certain indirect effects of plant protection products. Other initiatives are likely to have a major part to play in supplementing regulatory controls. This Plan will integrate and build on these, and other, regulatory and voluntary initiatives.

Issue	Action	Indicators
<p>Reduce adverse effects on non-target species and adverse indirect effects from the use of plant protection products</p>	<p><b>REGULATORY ACTION</b> Directive 91/414/EEC</p> <ul style="list-style-type: none"> <li>• Participate in EC review of data requirements and linked guidance under Directive 91/414/EEC relating to impacts on non-target species.</li> </ul> <p>Comparative assessment and substitution</p> <ul style="list-style-type: none"> <li>• Consider the potential value of comparative assessment and substitution in the light of anticipated proposals from the EC Commission to revise Regulation 91/414/EEC.</li> </ul> <p><b>REVIEW OF CURRENT INITIATIVES/POLICY</b> Whole Farm Approach to biodiversity</p> <ul style="list-style-type: none"> <li>• Consider a 'whole farm approach' to ameliorate the impact of plant protection products on biodiversity through compensating conservation measures.</li> </ul> <p>Unsprayed headlands</p> <ul style="list-style-type: none"> <li>• Promote the use of unsprayed headlands.</li> </ul> <p>Low drift technology</p> <ul style="list-style-type: none"> <li>• Promote the use of low spray drift nozzles.</li> </ul>	<ul style="list-style-type: none"> <li>• Terrestrial wildlife population trends:               <ul style="list-style-type: none"> <li>- Grey partridge trends</li> <li>- Corn bunting trends</li> <li>- Yellowhammer trends</li> </ul> </li> <li>• Status of Biodiversity Action Plan priority species and habitat.</li> <li>• Trends in plant biodiversity in fields and field margins.</li> <li>• Cereal field margins indicator.</li> </ul>

Issue	Action	Indicators
	<p>Stewardship and information</p> <ul style="list-style-type: none"> <li>Promote emphasis on stewardship and training in biodiversity issues for professional users.</li> <li>Increase information on the potential environmental impact of products to allow users to make an informed choice as to what products they should use.</li> </ul> <p>Sites of special conservation value</p> <ul style="list-style-type: none"> <li>Review current regulations for special protection for conservation areas in the light of the EC Thematic Strategy package.</li> </ul> <p>Aquatic biodiversity</p> <ul style="list-style-type: none"> <li>Review effectiveness of aquatic buffer zones /unsprayed margins adjacent to water courses.</li> </ul> <p><b><u>LINKS WITH OTHER INITIATIVES</u></b></p> <p>integrated Farm Management</p> <ul style="list-style-type: none"> <li>Promotion/support Integrated Farm Management (IFM) by continued support for LEAF programme and development of policies and publication of advice which comply with the principles of this management system.</li> </ul> <p>Farm assurance</p> <ul style="list-style-type: none"> <li>Work with Crop Assurance Schemes to promote Integrated Crop/Pest/Farm Management techniques.</li> </ul> <p>Environmental Schemes</p> <ul style="list-style-type: none"> <li>Encourage the uptake of environmental stewardship schemes.</li> </ul> <p>Organic Farming</p> <ul style="list-style-type: none"> <li>Defra to continue to support organic farming through conversion grants and R&amp;D.</li> </ul> <p>Wildlife Incident Investigation Scheme (WIIS)</p> <ul style="list-style-type: none"> <li>Maintenance of WIIS, review campaign and</li> </ul>	<ul style="list-style-type: none"> <li>Number of agronomists undertaken Biodiversity and Environmental Training for Advisors (BETA) qualifications.</li> <li>Number of SSSIs in unfavourable conditions as a result of pesticide impacts (English Nature, CCW, SNH assessments).</li> <li>Surface water indicators.</li> <li>Number of applicants receiving payments under environmental schemes.</li> </ul>

Issue	Action	Indicators
	<p>reporting procedures and strengthen enforcement arrangements.</p> <p>Set-aside</p> <ul style="list-style-type: none"> <li>• Maximise conservation use of set-aside.</li> </ul>	<ul style="list-style-type: none"> <li>• Terrestrial Wildlife Indicator (Numbers of incidents reported under WIIS).</li> </ul>
R& D	<ul style="list-style-type: none"> <li>• LK 0949 Reducing environmental contamination by pesticides through modified and novel spray application methods.</li> <li>• PS 2002 Further development of pesticide dose adjustment to the crop environment (PACE) for fruit spraying with broadcast sprayer.</li> <li>• PS 2105 Delivery of semiochemicals within plant-pest-natural enemy systems.</li> <li>• PS 2313 Development of indicator species to measure pesticides impact on farmland wildlife.</li> <li>• PS 2310 Further estimates of wildlife exposure to pesticides in arable crops.</li> <li>• PS 2319 Development of a risk indicator for impacts of pesticides on terrestrial organisms (EU HAIR Project).</li> <li>• PS 2322 Assessment of the risk posed to honeybees by systemic pesticides.</li> <li>• PS 2323 Improved estimation of pesticide residues on arthropods consumed by mammals and birds.</li> <li>• PS 2326 Risk to small mammals from utilising caches of pesticide-treated seeds.</li> <li>• LK 0926 Sustainable Arable Farming and the Environment (SAFFIE) project.</li> </ul>	

## Product Availability Action Plan

The EC review programme is affecting the availability of plant protection products for agricultural, amenity, forestry and amateur users, but is most acutely felt in the horticulture sector which tends to have a larger proportion of ‘minor’ uses. This may have an impact on the ability of UK growers to produce particular crops and hence our ability to maintain or increase local food supplies. A reduction in the range of products also has implications for disease and pest resistance. It is often not sufficient to have only one product available to tackle a particular problem; a range of products with different modes of action may be required to reduce the likelihood of the rapid development of resistance. The Action Plan includes initiatives to help maintain sufficient availability for the production of minor crops in the UK. The most fruitful areas are likely to be through close co-operation with other EU Member States. The Government also has a role through encouraging the use of biological products or alternative cultivation techniques to help farmers and growers to manage pests, weeds and disease problems in ways that minimise environmental impact.

Issue	Action	Indicators
<p>Ensure that those involved in plant protection have access to a sufficient range of tools and techniques.</p>	<p><b><u>REGULATORY ACTION</u></b>            Directive 91/414</p> <ul style="list-style-type: none"> <li>• Consider measures to assist registration of plant protection products on minor crops when Directive 91/414/EEC revised.</li> <li>• Consider options to reduce residue data requirements for minor crops, whilst maintaining current levels of safety for users, consumers and the environment.</li> <li>• Continue to seek essential use derogations where justified on case-by-case basis.</li> </ul> <p>Regulation 396/2005</p> <ul style="list-style-type: none"> <li>• Maintain transitional measures for temporary MRLs.</li> </ul> <p><b><u>REVIEW OF CURRENT INITIATIVES/POLICY</u></b>            Approvals system</p> <ul style="list-style-type: none"> <li>• Promote use of ‘Mutual recognition’.</li> <li>• Review effectiveness of scheme allowing off-label recognition of other member states approvals.</li> </ul>	<ul style="list-style-type: none"> <li>• Number of ‘alternative’ plant protection products authorized.</li> <li>• Increased scope for the extrapolation of residues data.</li> <li>• Numbers of essential uses secured.</li> <li>• Gaps in UK pesticide availability.</li> <li>• Numbers of Mutual Recognition authorisations issued.</li> </ul>

Issue	Action	Indicators
	<ul style="list-style-type: none"> <li>• Develop and promote the pilot project to facilitate fast-track registration system for semiochemicals/biopesticides (and other environmentally benign chemicals).</li> <li>• Ensure an element of technology transfer is built into all R &amp; D.</li> </ul> <p>Minor Use Network (MUN)</p> <ul style="list-style-type: none"> <li>• To maintain MUN and use stakeholder involvement to take advantage of European minor use initiatives.</li> <li>• Identify key needs for information dissemination (e.g. non chemical methods, thresholds, decision support systems, etc).</li> <li>• Review effectiveness of current communication strategies (e.g. newsletters, targeted meetings, roadshows, etc).</li> <li>• Ensure plant-breeding firms and researchers aware of current and future needs of market place including resistance problems.</li> </ul> <p><u>ALTERNATIVE CONTROLS</u></p> <ul style="list-style-type: none"> <li>• Take forward recommendations from the Advisory Committee on Pesticides report on alternatives to conventional pest control techniques.</li> </ul>	<ul style="list-style-type: none"> <li>• Extent of technology transfer of current topical information.</li> </ul>
R&D	<ul style="list-style-type: none"> <li>• LK 0965 Integrated management of herbicide resistance.</li> <li>• PS 2101 Identification and provision of potential semiochemical tools for use in ICM.</li> <li>• PS 2103 Manipulation of insect immune defences to optimise biological control.</li> <li>• PS 2107 A framework for the practical use of semiochemicals in field crops.</li> <li>• PS 2526 The agronomic impact of Directive 91/414/EEC on pesticide regulations.</li> <li>• LK 0920 Providing a scientific basis for the avoidance of fungicide resistance in plant pathogens.</li> <li>• PS 2709 Herbicide-resistant broad-leaved weeds.</li> </ul>	

## Amenity Use Action Plan

Plant protection products are not only used in agriculture, forestry and horticulture. Although small in relation to the amount used in agriculture and horticulture, significant quantities are deployed for amenity uses (including highways, railways, airports, industrial sites, parks, landscape and sports turf). These uses have historically received less attention than agricultural and horticultural uses and there may be less supervision of spraying activities in some situations. There also needs to be consideration of establishing thoroughly organised monitoring of use patterns in this sector.

Issue	Action	Indicators
<p>Minimise impact of amenity uses on water pollution and biodiversity.</p>	<p><b><u>KNOWLEDGE BASE</u></b></p> <ul style="list-style-type: none"> <li>• Survey of usage in amenity sector to scope usage and users and clarify priorities and provide a baseline of current amenity operation.</li> </ul> <p><b><u>REGULATORY ACTION</u></b> Directive 91/414</p> <ul style="list-style-type: none"> <li>• Review of plant protection products used in amenity sector under Directive 91/414/EEC which pose high risk to water.</li> </ul> <p><b><u>REVIEW OF CURRENT INITIATIVES/POLICY</u></b></p> <p>Increase awareness of controls</p> <ul style="list-style-type: none"> <li>• Issue revised Code of Practice on Use of Plant Protection Products and promotional leaflets to amenity sectors covered by code.</li> <li>• Production of leaflets covering issues such as: record keeping, waste regulations, emergency procedures, and weed control on hard surfaces in different amenity areas to be developed.</li> </ul> <p>Training</p> <ul style="list-style-type: none"> <li>• Review variety of training available to amenity users and consider promotion of relevant training on purchasing, storage, use and disposal of pesticides in amenity situations.</li> <li>• Assess level of knowledge from those holding the</li> </ul>	<ul style="list-style-type: none"> <li>• Response rate to survey.</li> <li>• Frequency of detection of 'amenity pesticides' in surface water above 0.1 µg/l.</li> <li>• Production of leaflets.</li> </ul>

Issue	Action	Indicators
	<p>required certificate of competence.</p> <p>Hard surfaces and aquatic weed control</p> <ul style="list-style-type: none"> <li>• Develop targeted actions for these high risk sectors.</li> </ul> <p>Local Authorities</p> <ul style="list-style-type: none"> <li>• Review any guidance/framework for Local Authorities placing contracts to identify controls which might be strengthened.</li> <li>• Review certification of operators and increase awareness of standards of operation provided by certification such as BASIS.</li> <li>• Identify and establish a mechanism for identifying and disseminating relevant information to the local authorities.</li> </ul> <p><b><u>LINKS WITH OTHER INITIATIVES</u></b></p> <p>Amenity Forum</p> <ul style="list-style-type: none"> <li>• Work with Amenity Forum to ensure views of local authorities and all other relevant stakeholders in amenity sector are represented.</li> </ul> <p><b><u>ALTERNATIVE CONTROLS</u></b></p> <ul style="list-style-type: none"> <li>• Promote access to information on range of pest control techniques.</li> </ul>	<ul style="list-style-type: none"> <li>• Number of local authorities using BASIS BAACS scheme.</li> <li>• Number of contractors holding relevant certification.</li> <li>• Number of training days on purchasing, storage and use for amenity sector.</li> <li>• Number of amenity use products with Environmental Information Sheets (EIS), number of products with labels amended in line with CPA clarity guidance.</li> </ul>

## Amateur Use Action Plan

There are currently around 600 products approved for amateur use in the UK. The quantity of plant protection products used by gardeners (approximately 5200 tonnes of active substance in 2004) represents about 16% of the total amount used in the UK. However, the main products used in gardens are inorganic herbicides (mainly ferrous sulphate in lawn treatment) which accounted for approximately 4600 tonnes in 2004. If these inorganic herbicides are excluded, the remaining plant protection products used by gardeners account for 2% of the total used in the UK. The amateur use action plan aims in particular to encourage best practice and to ensure the safe storage and disposal of unused products.

Issue	Action	Indicators
<p>Promote best practice in use, storage and disposal of plant protection products amongst amateur users to minimise risk of environmental contamination</p>	<p><b><u>KNOWLEDGE BASE</u></b>            Monitor trends in gardeners' storage and disposal of amateur products.</p> <p><b><u>REVIEW OF CURRENT INITIATIVES/POLICY</u></b>            Provision of up-to-date, easy-to-understand information</p> <ul style="list-style-type: none"> <li>• Regulators to work with industry and others to maintain and publicise informative up-to-date 'garden areas' on their websites.</li> <li>• Consider development of training programmes for national DIY chains, garden centres and other retail staff.</li> <li>• Consider need for special measures in relation to high risk applications, for example hard surfaces and run off to drains.</li> </ul> <p><b><u>Promotion of best practice</u></b></p> <ul style="list-style-type: none"> <li>• Regulators to work with industry and others to disseminate publicity material on best practice to users.</li> <li>• Regulators to work with industry to review clarity of levels and suitability of phrases.</li> </ul>	<ul style="list-style-type: none"> <li>• PSD commissioned survey of disposal practice by householders in 2007. Monitoring of disposal practice by Local Authorities.</li> <li>• Monitor number of website hits or uptake of leaflets: number should increase with publicity or new material.</li> <li>• Monitor number of staff trained per year and number of outlets with at least one person trained.</li> <li>• Number of revised labels.</li> </ul>

Issue	Action	Indicators
	<p><u>Storage and disposal</u></p> <ul style="list-style-type: none"> <li>• Stakeholders to maintain and publicise storage and disposal information on the 'garden areas' on their websites.</li> <li>• PSD to develop an up-to-date database of local authority collection and disposal facilities.</li> <li>• PSD to develop web-based 'best practice' guidance on disposal issues for Local Authorities.</li> <li>• Development and dissemination of publicity material on disposal facilities to council offices, DIY chains, garden centres, libraries etc.</li> <li>• Monitor compliance with labelling on disposal advice for amateur products announced in PSD Regulatory Update 04/2005.</li> <li>• Regulators and industry to work together to explore additional product stewardship options (e.g. move from concentrates to Ready-to-Use products, assessing most suitable formulations for amateur use- granular, slow release capsules, etc).</li> </ul> <p><b><u>ALTERNATIVE CONTROLS</u></b></p> <ul style="list-style-type: none"> <li>• Stakeholders to maintain and publicise details on non-chemical alternatives and advice on best practice.</li> </ul>	

# Annexes

- |          |   |
|----------|---|
| Annex 1: | UK Industry and Plant Protection Products Usage   |
| Annex 2: | Existing Legislative Framework for Plant Protection Products                              |
| Annex 3: | Statutory Measures and EU/Government Policies Influencing Plant Protection Products Usage |

### UK INDUSTRY AND PLANT PROTECTION PRODUCT USAGE

#### Supply chain

The UK crop protection industry supplies three main market sectors:

- Agricultural and horticultural where sales of 25,000 tonnes of active substances generated £400m<sup>1</sup>.
- Garden and household where sales of 5,000 tonnes of active substances generated £48m<sup>1</sup>; and
- Amenity (e.g. roads, railways, parks) and forestry where sales of almost 1,000 tonnes of active substances generated £16.5m<sup>1</sup>.

Generally products supplied for agricultural and horticultural, amenity and forestry can only be applied by those holding relevant professional qualifications. There are no such restrictions on the use of garden and household products.

The crop protection industry is a global one. The research and development costs associated with developing new pesticide active substances are very substantial (current industry estimates are around \$200 million per active substance). Only a handful of multinational companies are involved in this work.

Active substances are formulated into products designed to combat a particular pest or disease. Formulating crop protection products is also a specialised and global business but a much larger number of companies are involved. In the UK around 250 companies are involved in the formulation or marketing of products.

Formulated products designed for 'professional users' are purchased by specialised distributors. There are around 400 distributors in the UK serving the agriculture and amenity sectors, some of whom also provide spray application services in addition to selling products. Products designed for garden and household use may be purchased direct by one of the UK's major retailers or sold through distributors to smaller retailers.

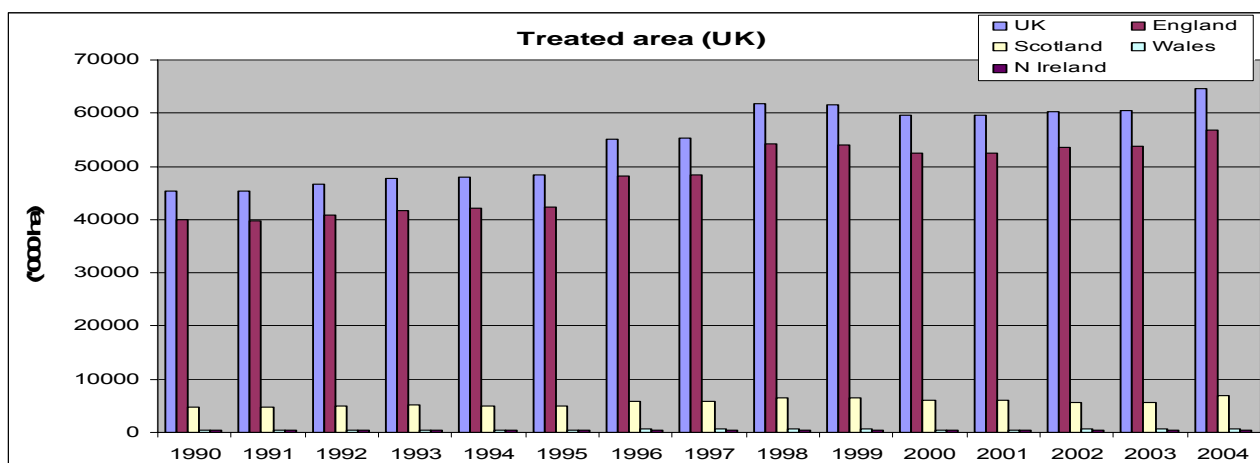
1. UK Sales of Plant Products – Crop Protection Association Figures published 2004.

## UK Plant Protection Product Usage

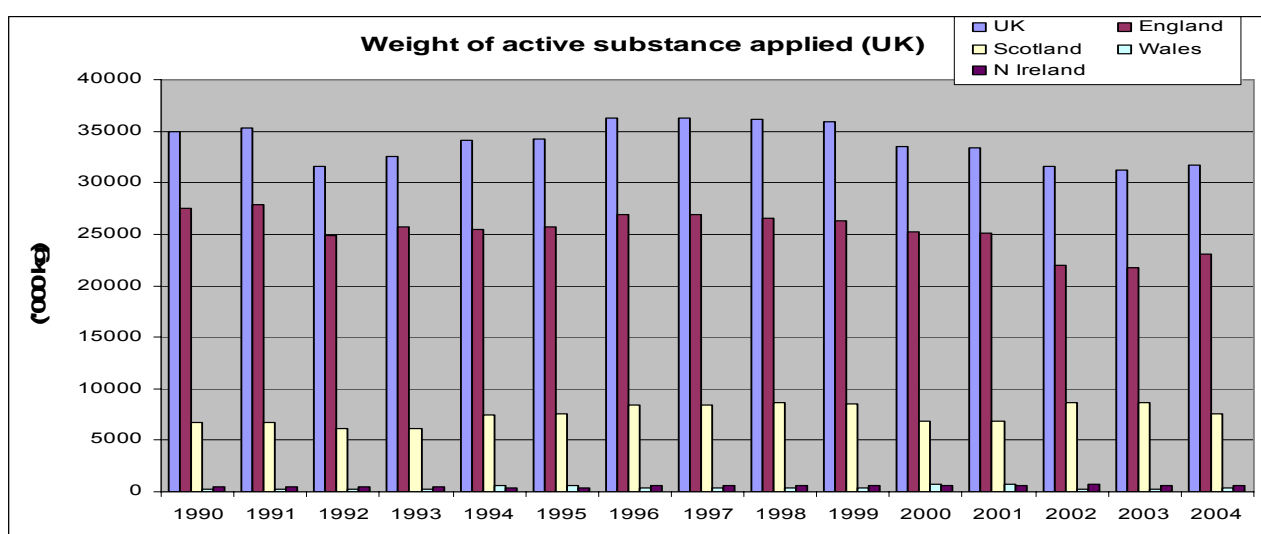
Official usage surveys on agricultural and horticultural crops are conducted annually to a programme fixed by the Advisory Committee on Pesticides. Arable surveys are conducted every other year, with all other crop groups surveyed on a 4 yearly cycle within England and Wales. Similar teams collect usage data in Scotland and Northern Ireland.

Whilst good data exists for use in the agricultural and horticultural sectors there is less information on use in other sectors. Work to be developed under this Strategy will address this knowledge gap.

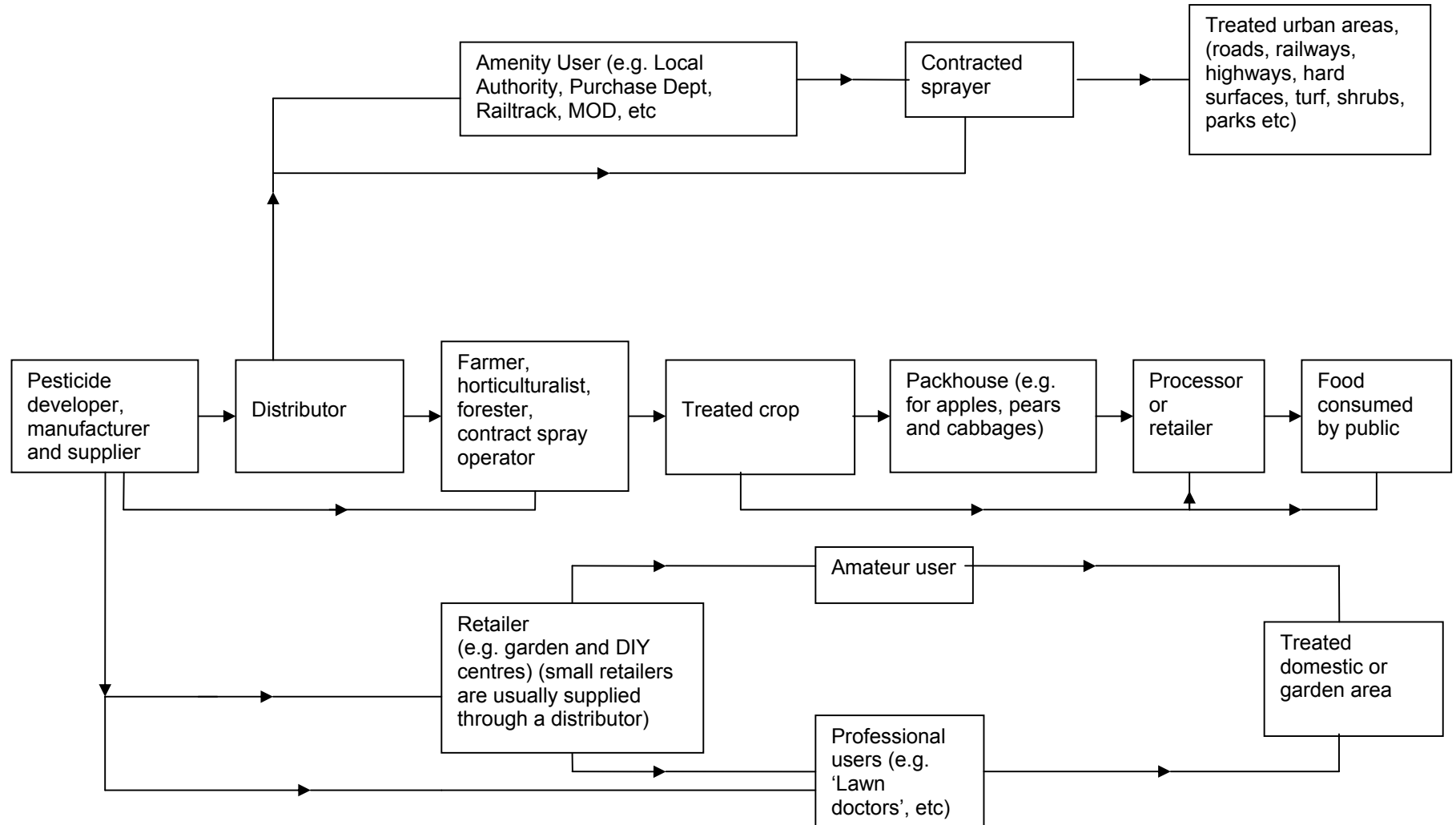
The charts below illustrate use patterns in the United Kingdom. It can be seen that while the area of treated crops has been gradually increasing over the past decade, the weight of active substance applied is fairly stable. The majority of use occurs in England.



Note: The "treated area" is essentially a multiple of the area of crop grown and the number of times it is treated. N Ireland notes are based on formulation treated area.

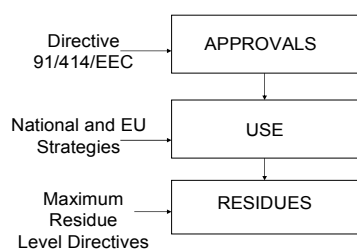


## The UK plant protection products industry



## EXISTING LEGISLATIVE FRAMEWORK FOR PLANT PROTECTION PRODUCTS

Legislation on plant protection products operates broadly at 3 levels as illustrated below.



### Approvals

The EC Plant Protection Products Authorisations Directive (Directive 91/414/EEC) controls the products that can be marketed. Under the Directive the “active substances” which can be used in plant protection products are approved at EC level. If they are approved they are placed on a “positive list” which forms Annex I to the Directive.

Once an active substance is placed on Annex I Member States can approve or “register” (or if the product had previously been approved under national rules, “re-register”) individual products that contain that active substance. However, Member States must register compounds according to a common set of rules. These rules are known as the Uniform Principles and form Annex VI to the Directive. The objective of the Uniform Principles is to increase harmonisation in pesticide availability amongst the Member States. An application for the approval of the same product in different Member States should result in the same outcome unless environmental factors in the 2 states are sufficiently different to mean that use is acceptable in one but not in the other.

There is a major review programme in place under Directive 91/414/EEC which is designed to ensure that all the active substances that were on the EC market before its introduction meet modern standards. Approaching 1,000 substances are scheduled for review and about half of these have already been withdrawn, largely for commercial reasons. Around 60 substances have been included in Annex I and 30 withdrawn. Over the period of the review so far about 70 new active substances have also been added to Annex I and decisions on a further 50 are pending. The corresponding figures for the UK are that about 350 active substances approved in the UK were included in the EC review, 55 have been included in Annex I and 80 withdrawn. 34 of the new active substances have registrations in the UK.

The Annex I listing process involves the submission of experimental scientific data (typically involving over 200 experimental studies and 50,000 pages of data). This data determines both the outcome of the regulatory process and the particular conditions (such as the rates of use, timing of applications or special protection measures required) that are attached to the use of a particular product if it is approved.

## **Use**

Secondly, controls on usage. Some of these controls flow from the approvals system. As noted above rates and timings etc are prescribed as part of the approvals system. Wider controls on use are currently subject to national rules within EC Member States. In the UK these include:

- A statutory code on the safe use of plant protection products;
- A requirement for all professional spray operators (other than those born before 1964) to hold a certificate of competence;
- Detailed controls such as on the mixing of plant protection products for use or the use of adjuvants.

We expect the European Commission to make proposals for a new Framework Directive on the sustainable use of plant protection products during 2006. This is likely to propose community controls which will replace at least some of the existing UK measures and may also supplement them. A number of schemes are in place to monitor plant protection product use. These include the Pesticide Usage Survey, the Wildlife Incident Investigation Scheme and the Residues Surveillance Programme. In addition monitoring of surface and ground water is undertaken by the Environment Agency for England and Wales, the Scottish Environmental Protection.

## **Residues**

Thirdly, controls on residues in food. Residues in fruit and vegetables, cereals and foodstuffs of animal origin (as well as processed baby foods) are controlled through a system of statutory Maximum Residue Levels (MRLs). MRLs are the maximum concentration of plant protection product residues legally permitted in food and animal feeds. The prescribed levels are based on good agricultural practice (GAP); if the farmer follows the GAP the level of plant protection product in the crop should not exceed the MRLs. MRLs are intended primarily as a check that the GAP is being followed and to assist international trade in treated produce.

The GAP (and hence the MRL) are always set in such a way that adherence to the GAP will not lead to dangerous residue levels. But MRLs are not safety limits in themselves and are usually set well below what would be "a safe level". It thus follows that residues in excess of an MRL are not necessarily a risk to health.

MRLs are being set through a long-term EC programme establishing individual limits for different active substance/food commodity combinations. So far around 30,000 different MRLs have been set. However, all the legislation on MRLs has recently been consolidated into a new EC regulation (396/2005/EC) which aims to establish an MRL reflecting all the approved uses of pesticides within the Community as well as MRLs that are required to take account of imports into the Community. Under the new system if no residue "tolerance" is prescribed through an appropriate MRL then a default level of residue (which is effectively zero) is the statutory maximum permitted. This new legislation is likely to be introduced in late 2006 or 2007 after various technical annexes to the EC regulation have been adopted.

## STATUTORY MEASURES AND EU/GOVERNMENT POLICIES INFLUENCING PESTICIDE USE

### Pesticide policies

Title of measure	Description of measure	Key Dates	Risks & Opportunities for users of plant protection products
EC Directive (91/414/EEC) on the placing on the market of plant protection products and UK pesticide regulation	Concerned with regulation to ensure safety of products to people and to the environment. Sets detailed requirements for regulators and for companies wishing to market plant protection products.	2006 proposal to revise 91/414. 2008 scheduled end of review programme.	Users need to follow legal requirements .  Loss of valuable products as a result of EU review process.  More even availability of plant protection products across EC.
Local Environment Risk Assessment for Pesticides (LERAP)	Two Defra (PSD) schemes - one for broadcast air-assisted sprayers, one for horizontal boom sprayers, which allow farmers to reduce buffer zones laid down to protect water.		Allows reduced buffer zones according to local circumstances.  Requirement to protect water courses from contamination by keeping sprays out of water.
Code of Practice for the Safe Use of Pesticides on Farms and Holdings	Statutory Code giving practical advice on storing, using and disposing of plant protection products.	2006 new code published.	Code revised to cover amenity and forestry uses of plant protection products as well as on-farm use.
EC and UK legislation on pesticide maximum residue levels	Set maximum residue levels for active substances in a range of crops, foods and feeding stuffs.	2006-7 consolidating EU regulation due for adoption.	Users must comply with good agricultural practice.  Potential loss of valuable products as a result of MRL setting exercise.
Proposed EC thematic strategy for the sustainable use of plant protection products	Package of measures to control risks from the use of plant protection products.	Proposal expected mid 2006.	Not possible to be precise at this stage. Those complying with current legal requirements plus Voluntary Initiative measures may find there is little more that they might do.
Food Standards Agency (FSA) action plan to minimise pesticide residues in food	FSA has developed an action plan to reduce residues in food. This will focus on developing best practice guidance and considering, with stakeholders, in particular assurance schemes, how this might contribute to existing pesticide minimisation initiatives.	Action Plan agreed May 2004.	Voluntary measures to reduce residues in food, with an acknowledgment that levels typically found in food are not a safety concern.

## Environment policies

Title of measure	Description of measure	Key Dates	Risks & Opportunities for users of plant protection products
<p>EC Water Framework Directive (2000/60/EC) and Decision establishing the list of priority substances (2455/2001/EC)</p>	<p>Requires all waters to reach at least "good status" by 2015.</p> <p>Establishes river basin district structure within which demanding ecological objectives will be set and decisions made about measures to tackle pollution.</p> <p>Requires progressive reduction of pollution from priority substances and phase out of priority hazardous substances.</p>	<p>2004-2015.</p>	<p>There will be stricter controls and/or increased stewardship to limit pesticide movement to water. Measures will vary from area to area according to pressure in each River Basin District.</p> <p>Will lead to a reduction in the range of products.</p>
<p>Groundwater Daughter Directive</p>	<p>Proposed directive for assessing compliance with good groundwater status.</p>	<p>Agreement in Council 2005, second reading in EP 2006, existing EC Directive to be repealed in 2013.</p>	<p>Expected that the measures will entail more stringent controls over use.</p>
<p>Catchment Sensitive Farming England and Wales</p>	<p>This is a project to design and implement measures to reduce diffuse water pollution from agriculture and help achieve requirements under Water Framework Directive.</p>	<p>Third consultation launched 17 June 2004.</p>	<p>A further consultation is planned later in 2006. Meanwhile the England Catchment-Sensitive Farming Delivery Initiatives being launched in 40 priority catchments from April 2006, to raise awareness and stimulate voluntary action ahead of WFD implementation. For Wales there is also the Environmental Strategy for Wales, Farming for the Future, and the Farming Connect Environmental Strategy.</p>
<p>Diffuse Water Pollution from Non-Agriculture Sources</p>	<p>Measures to reduce diffuse water pollution from non-agricultural sources</p>	<p>Ongoing.</p>	<p>Currently under development, the proposed strategy could possibly lead to further restrictions and voluntary schemes to control use in the leisure industry, amenity sector, on roads, rail tracks and runways and for domestic and garden use.</p>
<p>The Convention for the Protection of the North East Atlantic Ocean (the OSPAR Convention)</p>	<p>Agreement to prevent pollution of the maritime environment by continuously reducing discharges and losses of hazardous substances with the ultimate aim of achieving concentrations close</p>	<p>Ongoing.</p>	<p>Six pesticides have been identified for priority action. To date, the main action recommended has been to use EU legislation to achieve the necessary controls.</p>

Title of measure	Description of measure	Key Dates	Risks & Opportunities for users of plant protection products
	to zero.		
Habitats Directive and Birds Directive	Habitats Directive provides for the designation of Special Areas of Conservation while the Birds Directive provides for the classification of Special Protection Areas. Together these are known as Natura 2000 sites and are subject to various conservation requirements.	Ongoing.	Consent to spray in these areas must be sought from English Nature (and SNH as appropriate) to limit chemical damage.
Waste Framework Directive	Controls over the disposal of agricultural waste to protect human health and the environment.	2004.	New approaches required for dealing with surplus product and used containers.
Registration, Evaluation and Authorisation of Chemicals (REACH)  Current UK and EC chemicals policy	<p>Proposed EC regulatory framework for chemicals. Manufacturers and importers will have to gather information on their substances, which will help manage substances safely, and submit the information to a central database. More hazardous materials will face higher hurdles.</p> <p>A range of EC legislation exists to assess risks posed by chemicals and take action required. Much of this is too slow and fails to address long-term risk properly. UK policy looks to identify and act quickly (on a voluntary basis) against chemicals of particular concern.</p>	Proposal issued 2003. Once agreed, registration and other requirements begin to take effect quickly	<p>REACH proposals may lead to higher prices if testing and registration costs are passed to users. Proposals may also result in some substances and preparations being withdrawn if safety issues are identified or if compliance costs make production unprofitable.</p> <p>Need to reformulate products if constituents withdrawn from use.</p>
UK Biodiversity Action Plan	The UK Biodiversity Action Plan is a series of plans (with associated biodiversity targets) to protect wildlife plant and animal species.	Ongoing.	Action to address pesticide issues is a feature of Biodiversity Action Plans for many farmland bird and plant species. For example, the BAP for the corn bunting proposes the following actions "Seek uptake of a more cautious and targeted use of pesticides and fertilisers on farmland to reduce the impacts on potential food sources for the corn bunting. This could include encouraging integrated crop management, organic farming and the more

<b>Title of measure</b>	<b>Description of measure</b>	<b>Key Dates</b>	<b>Risks &amp; Opportunities for users of plant protection products</b>
			widespread adoption of initiatives such as the recently begun Scottish 'TIBRE' project.”
Nature Conservation (Scotland) Act 2004	A new general biodiversity duty will apply to all public bodies and office holders. The duty will oblige public authorities to “further the conservation of biodiversity” in the course of exercising their functions.	Ongoing.	Under this legislation, biodiversity issues will be integrated into agri-environment schemes, measures to protect water and so on. This may impact on the future use of plant protection products.
Countryside and Rights of Way Act 2000	The Act, amongst other things, places duties on Government Departments to have regard to conserving biological diversity.	Ongoing.	Under the Act it is important to ensure that the future use does not lead to further declines in, or recovery of, biodiversity.

### Agriculture policies

<b>Title of measure</b>	<b>Description of measure</b>	<b>Key Dates</b>	<b>Risks &amp; Opportunities for users of plant protection products</b>
English Rural Development Programme	The ERDP contributes to the delivery of the Strategy for Sustainable Farming and Food by helping farmers and foresters to respond better to consumer requirements and become more competitive, diverse, flexible and environmentally responsible.	Ongoing.	Components of the scheme deal with use.
A Forward Strategy for Scottish Agriculture	The Strategy sets out where the Scottish Executive' in conjunction with stakeholders believes agriculture should be going and provides some action points for moving towards a better future for agriculture in Scotland.	Ongoing.	Action 43 -The Prevention of Environmental Pollution from Agricultural Activities Code offers practical guidance on farming in ways which minimise risks to the environment. The Code includes guidance to help farmers tackle water pollution and waste which will have implications for use/disposal
Custodians of Change	Established in response to the Forward Strategy by identifying the environmental issues that		Priority area of diffuse pollution identified. Promotion of the PEPFAA Code in relation to the management of pesticides.

Title of measure	Description of measure	Key Dates	Risks & Opportunities for users of plant protection products
	could impact on farming and the food industry over the next 5-10 years.		
CAP Reform: Set-Aside	Compulsory set-aside is retained at 10% but switches to a permanent non-rotational basis (except for duly justified, principally environmental, reasons). There are options for the management of set-aside land, in particular environmental criteria for allowing a minimum strip width of 5 metres. Set-aside land has to comply with wider cross-compliance conditions.	Ongoing.	New set-aside rules could offer farmers an incentive to have no-spray, or much reduced spraying, strip widths on their land. This could enable improved protection of water and of biodiversity in and around field margins.
CAP Reform: Cross Compliance	To get the single payment, farmers will have to comply with the requirements of a range of EC legislation, including Directive 91/414/EEC, and keep their land in good agricultural and environmental condition.	Ongoing.	In England and Wales cross-compliance requirements will include uncultivated/untreated areas next to living boundaries such as hedges and ditches. There are potential benefits for water/biodiversity but costs for farmers.
Forest Stewardship Council: Chemical Pesticides in Certified Forests	A good practice guide for forest managers to promote the development and adoption of environmentally friendly non-chemical methods of pest management and the avoidance of the use of chemical pesticides in managed forests.	Ongoing.	The guide covers good practice for the use of herbicides, insecticides, fungicides and rodenticides in managed forests, minimisation and integrated pest management. The guide also prohibits the use of certain products in forestry.
Organic Farming Regulations (EEC No. 2092/91)	EC regulations laying down standards for the organic production of agricultural products and foodstuffs. A Defra funded scheme is in place to encourage the expansion of organic production in England. A SEERAD-funded scheme is in place to encourage expansion of organic production in Scotland.	Ongoing.	The regulations lay down, amongst other things, those substances, micro-organisms and substances from traditional use in organic farming that are permitted for use in organic production.
Agri-Environment Schemes: land- based	Defra schemes include Countryside Stewardship and the	2005 introduction of new Environmental	A number of options under Entry Level Stewardship include restrictions of use of

<b>Title of measure</b>	<b>Description of measure</b>	<b>Key Dates</b>	<b>Risks &amp; Opportunities for users of plant protection products</b>
schemes to promote environmentally sensitive farming practices.	Environmentally Sensitive Areas scheme (now closed to new applicants) and the new Environmental Stewardship Scheme. This comprises Entry (Organic Entry) Level Stewardship which aims to cover most of the farmed area and Higher Level Stewardship, which is targeted at high priority situations.	Stewardship Scheme.	herbicides in particular. Crop Protection Management Plans are also encouraged as are management options such as Field Margins that may compensate for intensive practices in crop.
Codes of Good Agricultural Practice	Advice on minimising risks of pollution to soil and water and air.	Ongoing.	Provides practical guidance on storing, applying and disposing of plant protection products so as to protect soil, water and air.
Whole Farm Approach	Defra initiative to integrate farm regulation and business management to minimise unnecessary bureaucracy.	Pilot November 2004, rollout 2007.	Not obvious at this stage but proposals may impact on regulation including use.
Environmental Management Systems for Farming	Environment Agency Scheme for integrating environmental management into farming.	2007.	A system for farmers to use to help reduce pollution. Possible implications for plant protection product use but these are not yet known.

### **Non-Government Schemes**

<b>Title of measure</b>	<b>Description of measure</b>	<b>Key Dates</b>	<b>Risks &amp; Opportunities for users of plant protection products</b>
The Voluntary Initiative	An industry-led 5-year programme (started in 2001) of measures to reduce environmental damage caused by plant protection products. Key measures include Crop Protection Management Plans, National Register of Sprayer Operators and the National Sprayer Testing Scheme.	Initiative is due to finish in 2006.	Wider adoption of good practice including new measures such as skylark squares and text messaging services to farmers.  Consequent benefits for biodiversity and water quality.
Farm Assurance Schemes	Industry-funded schemes to assure standards for food produce e.g. Red Tractor label.	Ongoing.	Various schemes contain crop protocols which stipulate which products can be used and at what dose rates, harvest intervals etc. All the protocols embrace the application of

			Integrated Crop/Pest/Farm Management.
Retailer protocols	Contracts between retailers and growers which require growers to follow strictly defined practices.	Ongoing.	Agreements often include permissive lists of those products that may be used and restrictions on use.
Linking Environment and Farming (LEAF)	One of several organisations set up to promote and encourage the uptake of Integrated Farm Management (IFM) techniques.	Ongoing.	LEAF's Integrated Farm Management (IFM) techniques will influence pesticide use. In addition to LEAF there are a number of similar self-assessment environmental audits such as the Farm and Wildlife Advisory Group and the National Trust.

## PESTICIDE INDICATORS

Pesticides Forum Indicator	Description
Agronomic indicator	Pesticide usage information (area sprayed, active substance applied, average dose rates) accompanied by measures of: Crop areas; drilling dates; weed, pest and disease risk and timing of pesticide applications.
Pesticides in surface water indicator	Pesticide concentrations in surface waters.
Aquatic pollution indicator	Use of Environment agency data on substantiated pollution incidents involving crop protection products.
Aquatic risk indicator	Use of Central Science Laboratory's aquatic risk indicator as a measure of pesticide risk to the aquatic environment.
Terrestrial wildlife population trends indicator	Use of population information on the Grey Partridge and Corn Bunting.
Impacts on terrestrial wildlife indicator	Wildlife Incident Investigation Scheme data on vertebrate related incidents.
Cereal field margins indicator	Use of data on the adoption of Cereal Field Margins (in England).
Operator and human exposure	Use of data set collected by Health and Safety Executive (HSE) field officers and reviewed by the Pesticides Incidents Appraisal Panel (PIAP).
Residues in food indicator	Use of maximum residue level data available from the Pesticide Residues Committee.

<b>Voluntary Initiative Indicator</b>	<b>Voluntary Initiative Final Target (by 1 April 2006 unless otherwise stated)</b>
Frequency of detection of individual pesticide in untreated surface water at levels above 0.5 and 0.1 parts per billion	30% reduction in detection levels above 0.1 ppb by 2006.
Trends in the top ten agricultural and amenity pesticides in untreated surface water at levels above 0.1 parts per billion	30% reduction in detection levels above 0.1 ppb by 2006.
Achievement of local catchment targets	Target set by catchment but all catchments to show a downward trend by January 2004.
Reduction of aquatic risk	Current trend to reduce aquatic risk from crop protection products maintained and increased.
Substantiated pollution incidents (relating to the use of agricultural pesticides)	To maintain and if possible reduce the current very low levels.
Area of cereal field margins (of value to biodiversity)	Support Government target to maintain, improve and restore by management the biodiversity of 15,000 ha of cereal field margins of suitable soil types by 2010.
Terrestrial wildlife population trends for grey partridge	Support Government target of halting decline by 2005 and ensuring the population is above 150,000 pairs by 2010.
Terrestrial wildlife population trends for corn bunting	Support Government's long-term target to increase numbers to at least 50% of 1996 numbers and expand the birds' range by 2008.
Number of agronomists who have undertaken a recognised additional environmental training/qualification (BETA)	750
Number and land area of farmers who have obtained the new Farm Environmental Management – Crop Protection certificate	50% (estimate 1250) of all eligible farmer decision-makers trained and registered.
Number of products with Environmental Information Sheets published	All professional products marketed by CPA members .
Percentage of sprayed area under Crop Protection Management Plans	30% (1,200,000 ha) of all sprayed farm land.
Number and percentage of operators on the National Register of Sprayer Operators	17,500 members with Adjunct target of 70% arable area.
Number of half day Operator Roadshow events	530
Number of product labels amended in line with CPA guidance on clarity	All professional pesticides marketed by CPA members by April 2005.
Percentage of active agronomists on Professional Register	100% compliance by former CPA distributor members by end 2003.
Number and percentage of eligible sprayers with independent sprayer tests	10,000 with Adjunct target of 50% arable area.
Adoption of key improved practices following analysis of Farm Application Survey Results	50% of arable area to show measures taken to improve pesticide handling facilities and drift management practices by end 2004.

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