House of Commons

Environmental Audit Committee

Pollinators and Pesticides: Government response to the Committee's Seventh Report of Session 2012–13

Second Special Report of Session 2013–14

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Environmental Audit Committee

The Environmental Audit Committee is appointed by the House of Commons to consider to what extent the policies and programmes of government departments and non-departmental public bodies contribute to environmental protection and sustainable development; to audit their performance against such targets as may be set for them by Her Majesty's Ministers; and to report thereon to the House.

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Committee staff

The current staff of the Committee are Simon Fiander (Clerk), Nicholas Beech (Second Clerk), Lee Nicholson (Committee Specialist), Andrew Wallace (Senior Committee Assistant), Anna Browning (Committee Assistant), Sayeda Begum (Committee Support Assistant) and Nicholas Davies (Media Officer).

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Second Special Report

The Environmental Audit Committee reported to the House on Pollinators and Pesticides in its Seventh Report of Session 2012–13, published on 5 April 2013 (HC 668). On 29 April the European Commission suspended the use of three neonicotinoid pesticides on crops attractive to bees from December 2013. The Government response to the Committee's Report was received on 31 July 2013 and is appended below.

Appendix—Government response

A. Introduction to the Government response

1. The need to protect populations of pollinating insects is an important and pressing issue. The Government is committed to working in partnership with all interested parties on this subject. We therefore welcome the work that the Environmental Audit Committee has done to highlight the issues and to propose points for action.

2. Our detailed responses to each of the Committee's conclusions and recommendations are set out in Section B below. In the rest of this section, we make some more general remarks about issues raised by the Committee's report.

Pollinators

3. Pollinators make an essential contribution to the diversity and resilience of wild plant species, habitats and wildlife in England. Many of our agricultural and horticultural crops also rely, at least in part, on visits by insect pollinators to produce seeds and fruits. Declines in populations of bees and other pollinators may pose risks globally to biodiversity and to long-term food security.

4. The Government is very much alive to concerns that our pollinators face declines in diversity and the geographical ranges of individual species. The causes of these changes appear to be varied, with no single dominant threat. Intensification in land-use, habitat loss, pests, diseases, invasive species, inappropriate use of agrochemicals and climate change are all thought to be playing a part.

5. The Government already has a range of activities aimed at benefitting pollinators. These include:

- The Healthy Bees Plan—working with beekeepers to provide training and respond to pest and disease threats.
- Work under the Biodiversity 2020 banner. Objectives include to have 90% of priority habitats in favourable or recovering condition and to increase the extent of

priority habitats by 200,000 hectares. Defra is providing £7.5 million funding for new nature improvement areas that deliver habitat restoration across landscapes for wildlife and people. Much of this will benefit bees and other pollinators.

- Environmental Stewardship—new options from 1 January 2013 include legume and herb rich swards, which will be beneficial to pollinators. Natural England actively helps farmers to select the most appropriate options to benefit wildlife including guidance for 'butterflies, bees and vulnerable grassland'. We are currently examining what new elements might enhance the effectiveness and quality of existing Environmental Stewardship options, including those for pollinators, which might be taken forward under the new Rural Development Programme starting in 2015.

- The £10 million Insect Pollinators Initiative to help to identify the main threats to bees and other insect pollinators. This is funded by the Research Councils, Defra, the Wellcome Trust and the Scottish Government.

6. Despite all this work, there is more that could and should be done to understand and tackle the issues. On 28 June, Defra Minister Lord de Mauley therefore announced the launch of an urgent and comprehensive review of current evidence, policy and civil society action on pollinators to identify what needs to be done to integrate and step up our approach. To launch the review, we published a discussion paper setting out the current state of evidence and policy on pollinators in England. In all of this, we must be led by the science. As part of the review Defra's Chief Scientific Adviser, Professor Ian Boyd, has therefore convened a group of independent experts to look at the evidence on the state of our pollinators.

7. The review will develop a better understanding of the various factors that can harm pollinators and the changes that government, other organisations and individuals can make to help counter their impact. This review will form the basis of a National Pollinator Strategy, which will bring together existing initiatives and to provide an umbrella for new action. It will provide every opportunity for those with an interest to contribute to the discussion and to commit to bringing their efforts and talents to the ongoing work. We will ensure full involvement of academics, NGOs, farmers, local government, businesses and others. It is important that we work together to build dialogue and to turn this into action.

Pesticides

8. Pesticides deliver substantial benefits for society. For example, they help to secure a plentiful and affordable food supply and protect transport infrastructure and urban environments from weeds, pests and diseases. However, pesticides also have the potential to harm people, wildlife and the environment. For this reason, there is a tough regulatory regime laid down by EU law to ensure that harm does not occur. The regime is based on the evaluation of comprehensive scientific data to enable the assessment of risks. Decisions on active substances are taken at EU level. Decisions on products containing approved substances are taken nationally according to common EU rules.

9. The Government fully supports strict safety regulation based on the scientific assessment of risk. Such regulation should ensure that harmful effects on human health

and unacceptable effects on the environment do not materialise. However, regulation should also recognise that the benefits of pesticides justify the tolerance of a degree of residual risk to the environment.

10. When the EU regime was introduced in 1991, the number of active substances approved in Member States stood at slightly over 1,000. Now the EU figure is a little over 400, despite the introduction of 180 new active substances. In some cases active substances have failed to meet the regulatory requirements. More frequently, companies have made a business decision not to incur the high costs of generating the necessary data for what may be a relatively niche product. Similarly, even where an active substance remains approved, the company may opt to support only the larger-scale uses, where the potential sales will better repay the costs of regulation.

11. The net result will have been gains for protection of people and the environment, although the extent of this is hard to quantify. However, the agricultural industry also reports increasing concern about the diminishing number of substances available and the potential impact on crop production. Crop protection needs must not be allowed to put people or the environment at unacceptable risk but there is a need to consider the benefits of further tightening of the regulatory requirements to ensure that they do not carry high costs for very little or no gain.

Pesticides and pollinators

12. Recent research has raised two issues for Government. First, it has shown a need, which we fully accept, to update the EU process for assessing risks to pollinators from pesticides. This work is being taken forward by the European Food Safety Authority (EFSA) with active input from UK experts. Our aim in this is to ensure that the new risk assessment guidance provides effective protection for pollinator populations without straying into disproportionately costly regulatory burdens.

13. Second, the research has highlighted the potential for serious adverse effects from three neonicotinoid insecticides, as well as a fourth non-neonicotinoid insecticide (fipronil, which is not authorised in the UK). The Government made it crystal clear that it took the issue very seriously and was prepared to take action in the light of all the evidence. We carefully considered all the scientific evidence on this issue and commissioned our own research to investigate further some key issues.

14. As this work was proceeding, the European Commission proposed some wide-ranging restrictions on the use of the three neonicotinoids. We opposed these restrictions because our assessment was (and remains) that the evidence did not point to risks to pollinators that would justify the proposed restrictions. Nevertheless, the Commission have adopted the proposals and we will implement them in full when they come into effect on 1 December. The decision includes a review of the restrictions in 2015. We believe that this should be informed by the best possible science, including new work to address the shortcomings in the current evidence. Some of this evidence will fall to industry to provide in the light of EFSA's revised risk assessment guidance. However, there is scope for other work to build a rigorous, accessible and widely-supported evidence base. We are considering what part the UK Government could usefully play in this work.

B. Detailed response to the Report's conclusions and recommendations

1. Introduction

Conclusion 1. The available evidence indicates that wild insect pollinators, such as hoverflies, moths, midges, butterflies and wild bees, are experiencing serious population declines, but there is insufficient data to be precise about the extent of such declines due to inadequate monitoring. (Paragraph 13)

Recommendation 13. Defra must introduce a national monitoring programme to generate and monitor population data on a broad range of wild insect pollinator species to inform policy making. (Paragraph 13)

15. We recognise that monitoring to detect changes in abundance and distribution of insect pollinators accurately has not been carried out systematically in the UK. However, thanks to the UK's many expert volunteers, we have some of the best data on wild bee distribution in the World and this can be used to make assessments of trends.

16. We agree that it is difficult to be precise about the extent of any declines in pollinator populations. However, the data we have shows significant changes in diversity of wild bees in parts of Britain over the last 50 years. Some areas have seen an increase in diversity, but significantly more have seen a decline. Declines in wild bee diversity are likely to be the result, at least in part, of significant range contractions for specialist species that are associated with natural or semi-natural habitat or have narrow forage requirements. Data on abundance of butterflies and moths over the last 35–40 years indicate that more species have significantly declined than have significantly increased. However, the distribution of sampling points for these species may not fully representative of the wider countryside. We therefore conclude that there have been serious declines for some pollinator species or groups of species. We have less certainty on the nature of change in pollinator populations or pollination services as a whole.

17. Defra has been exploring ways to support more systematic approaches to monitor pollinator species, in collaboration with other organisations such as the Research Councils and voluntary sector. We have invested in research and development to support more systematic monitoring of pollinators. In particular we are looking at how to build on existing expertise within the voluntary sector to develop more innovative ways to undertake monitoring. For example, we are funding research to pilot new ways of monitoring pollinators. This project is a collaboration between the Centre for Ecology and Hydrology (part of the Natural Environment Research Centre) and various volunteer recording schemes. The project aims to develop and test new standardised, repeatable survey methods that provide representative assessments of change for plants and pollinating insects within semi-natural habitats.

18. We will explore further how best to measure future trends in pollinator populations. To this end we are commissioning a comprehensive review of evidence on pollinators and will be holding expert workshops in autumn 2013. It is important that we explore this issue with experts and stakeholders before considering a new national monitoring programme for wild pollinators.

19. We agree that monitoring is important to underpin the development of policies. Information from biodiversity monitoring and surveillance is used extensively to inform policies such as protected site selection and management. It has also been used to build indicators to assess progress with *Biodiversity 2020*, our strategy for wildlife and ecosystem services in England.

2. Pesticide approvals

Conclusion 2. We agree with Defra that it would be "a good idea" if pesticide manufacturers were to publish the studies underpinning applications for pesticide approvals. The agrochemical industry has produced many studies on the environmental effect of neonicotinoids and other pesticides, but the data are allegedly confidential for commercial reasons. The lack of transparency in relation to trials and studies conducted by pesticide manufacturers has resulted in inequality between the pesticide industry on one side and academics and the public on the other. (Paragraph 26)

Recommendation 14. The agrochemical industry should place the results of its risk assessment trials in the public domain to inform academic research and increase transparency for the public. Defra should work with industry and academics to establish which, if any, genuinely commercially sensitive details should be redacted to make that possible. (Paragraph 26)

20. We do recognise that there is currently great interest in the effect of pesticides on bees and real value in having the key regulatory studies in the public domain. We are therefore considering how this could best be done. We are pleased that one of the companies holding authorisations for neonicotinoids, Syngenta, is in the process of having their honey bee field data published in a scientific journal.

21. We will consider the coverage of any new arrangements. Many hundreds of regulatory studies are submitted to the regulatory authorities every year. Some of the more complex studies can be hundreds of pages long. Much of this routine regulatory information will be of limited interest to either academic researchers or the public and the cost of publishing this information, even on the internet, would be substantial. However, we recognise that there will sometimes be greater interest in particular studies, especially in cases where those studies can inform the interpretation of academic research or the consideration of future research.

22. It may be helpful to set out the current arrangements. Under EU legislation, there are two different aspects to the protection of the information, including studies, submitted by companies seeking authorisation of pesticides:

(i) some information is confidential and cannot be made public in any form. This category of information is fairly narrow. It includes the methods of manufacture of the product and its precise composition and the names and addresses of people involved in testing involving vertebrate animals;

(ii) the remaining information is not confidential but study reports have data protection rights which mean that they may not be used for the benefit of other applicants for authorisation. The data protection rules are effective within the EU

but there remains a concern that a company could take another's study, change a few details and submit it to support an application in another part of the world. Studies are costly to produce and data protection is designed to protect this investment for a period. For this reason, regulatory studies are not published but access to them can be—and has been—granted. Interested parties are able to read the studies at the offices of the Chemicals Regulation Directorate. The data may also be accessible through access to information arrangements such as those under the Freedom of Information Act and the Environmental Information Regulations. These access rights to the regulatory studies have been used in respect of neonicotinoids.

Conclusion 3. We recognise that it is impractical to conduct individual risk assessments for the thousands of species of bees, hoverflies, butterflies, carrion flies, beetles, midges, moths and other invertebrates that contribute to insect pollination, but we are not convinced that honeybees are an appropriate proxy for all such species. (Paragraph 30)

Recommendation 15. We urge Defra to introduce a representative range of sentinel pollinator species in UK pesticides risk assessments and work to agree a similar arrangement across the EU. (Paragraph 30)

23. We agree with the Committee's conclusion that, in the light of the current scientific knowledge, it is no longer sufficient to use honeybees as the proxy for all insect pollinators. Equally, it is not possible to conduct experimental testing and risk assessments for even a small fraction of the thousands of species.

24. The EU pesticides authorisation process is harmonised and Member States are required to assess applications for authorisation in light of 'current scientific and technical knowledge using guidance documents available at the time of application'. It is not possible for the UK Government to introduce different national criteria unless these are justified on the basis of differing agricultural or environmental circumstances. For pollinators this is clearly not the case. We therefore have to work within the EU process.

25. As the Committee is aware, the European Food Safety Authority (EFSA) is developing the guidance on assessing the risks of pesticides to bees. As well as updating the toxic effects and routes of exposure considered, the new guidance will cover other bee species as well as honey bees. This is a major development in the environmental risk assessment and there are many issues to be addressed to get this right. As a subsequent step, it would be of value to consider how far the risk assessment can and should be extended to other insect families. This might not involve a full range of testing on these other species. It might be sufficient to have data on relative sensitivities of species and to take account of factors such as which species are likely to forage on a particular crop at a particular time.

Conclusion 4. For Governments, scientists and the public to have confidence in the EU-wide pesticide approvals regime, data and analysis should be rigorously scrutinised and quality checked to form a credible evidence base. The 2006 re-approval of imidacloprid for use in the EU shows two flaws in the system. First, EFSA identified the

issue of soil accumulation in its peer review, but the European Commission proceeded to sign off imidacloprid as an approved active substance for use in Member States without explicitly addressing that risk. There seems little point in EFSA's assessing risk if the Commission ignores environmental threats identified in that process. Secondly, the choice of Germany as the Rapporteur Member State in the case of a substance developed and manufactured in Germany raised a potential conflict of interest. (Paragraph 40)

Recommendation 16. We recommend that the Government exercises its influence in Europe to empower EFSA to include action points in future [pesticides approval] peer reviews which the European Commission must explicitly address before approving active substances. The Government should seek a common understanding in Europe that active substances should be assessed by the regulatory authority of a Member State other than the one in which the applicant company is based. (Paragraph 40)

26. We agree with the Committee that it is important that the pesticides approval system should be rigorous and thorough. However, we do not agree with the Committee's analysis of the review of imidacloprid in 2006.

27. The issue of the handling of a particular soil accumulation study was examined at length by the Committee. Defra addressed the specific and general issues raised in Lord de Mauley's letter of 12 January (published in the Committee's report at pages 237 to 241).

28. There are two points to pick up from the report (paragraph 39) that do not come out in the conclusions and recommendations. First, the Committee state that Defra "justified" the approval of imidacloprid on the grounds that it is not bioaccumulative. This is not the case. We simply pointed out that imidacloprid does not meet the criteria for "persistent, bioaccumulative and toxic" (which would rule it out from approval under the new rules) because it is not bioaccumulative. This does not mean it should be approved but that it needs to be put through a full risk assessment to allow an informed decision. Second, the Committee state that Defra did not engage with the question whether imidacloprid's apparent half-life in soil might constitute an "unacceptable influence on the environment". This is incorrect. We have made it clear that it is not the half life but its implications for soil organisms that is critical. This was considered in the original UK assessment of imidacloprid and is being reconsidered during the re-registration of the relevant products using the latest guidelines and the end points from the EU evaluation.

29. Next, we turn to the Committee's conclusions and recommendations. In addressing the Committee's first point about the pesticides approvals regime, it is important to understand the two tier nature of the EU regime. Active substances are assessed against the relevant safety standards and a decision is made at EU level as to whether the active substance can be approved. The relevant Regulation requires that "Authorisation to be expected to be possible in at least one Member State, for at least one plant protection product for at least one representative use". When an active substance is approved, Member States then consider applications for authorisation for products containing that active substance. Common rules apply to this process.

30. It follows from this that a decision by the European Commission to approve a substance does not mean that all possible uses of that substance will be acceptable. It is based on there being at least one use that is acceptable. The alternative—for the EU approval process to cover and decide on all possible uses in all Member States—would be an entirely impractical and unnecessary proposition. It would make it impossible to review all active substances on a regular basis and would carry the risk of stifling innovation if each new development required approval through an EU procedure. It is more effective that, once approved, each product and its related uses have to be evaluated at Member State level to establish that they meet the criteria for authorisation.

31. EFSA already identifies issues in their conclusions which the Commission address before approving a substance. The mechanisms by which Commission decisions deal with issues identified by EFSA are through placing restrictions on how Member States must act when authorising products or by identifying issues for Member States to consider.

32. In the particular case of the imidacloprid review, Germany assessed two soil accumulation studies, including the one highlighted by the Committee. When EFSA considered the Draft Assessment Report, it agreed with a number of Germany's conclusions but found that the reasons for the different findings of the two studies were not fully explained. EFSA recommended further modelling "so the degradation pattern from these sites (both German and UK sites) can be more accurately incorporated into further exposure assessments". The Commission found that one use (glasshouse use on tomatoes, for which impacts on soil dwelling organisms is not an issue) met the requirements for approval and identified the impact on earthworms and other soil macro-organisms as an issue for particular consideration by Member States considering product authorisations.

33. On the issue of potential conflicts of interest, it is relevant that multinational companies (such as Bayer Crop Sciences, the approval holder for imidacloprid) operate across a number of countries. It would not be straightforward to decide the level of presence in a country that might be considered to lead to a potential conflict of interests on the part of the country's Government.

34. More fundamentally, the recommendation does not take account of the role of the Rapporteur Member State (Germany in the case of the review of imidacloprid). The Rapporteur provides the Draft Assessment Report for an active substance based on an evaluation of the scientific dossier provided by the applicant company. The DAR is submitted to the European Food Safety Authority (EFSA). EFSA organise a peer review by experts from Member States and draw on this as they see fit in producing their own conclusions. The conclusions are sent to the Commission and this risk assessment is used by the Commission to make a risk management decision, explained in a review report. Where the risk management decision leads to a proposal for approval, this may include conditions to apply and issues requiring particular attention when Member States consider applications for product authorisation.

35. The allocation of active substances to rapporteur Member States is either a matter for the European Commission for substance reviews or a matter of choice for the applicant for new substances. The rules on this are set out in EU regulation 1107/2009. Companies' choice of rapporteur may be based on many factors, including capacity, expertise, common language and convenience to the office from which an application is made. However it

would categorically not be in a company's interest to choose a rapporteur on the basis that it might produce a more favourable evaluation. With the rigorous scrutiny by EFSA that follows submission of the rapporteur's work, such a move would be self-defeating. It would only lead to delays with the application and a reduced time to recoup the considerable investment required in the development of the substance.

3. Risk and precaution

Conclusion 5. The Henry, Whitehorn and Gill laboratory studies raised serious concerns about the potential effect of neonicotinoid insecticides on bees. While laboratory studies should as far as possible replicate field conditions, they cannot by their nature do so precisely. One of their virtues, however, is that they take place in controlled conditions. The FERA bumblebee study, which Defra commissioned to test the conclusions of the laboratory studies in the field, was, we conclude, fundamentally flawed because the bees were placed outside on different dates, some colonies had a lower starting mass than others and a different neonicotinoid from the one used in the study was present in the 'exposed' hives. The FERA bumblebee study is not therefore a compelling basis for inaction. (Paragraph 51)

36. Both laboratory studies and field studies have their place in informing the regulatory risk assessment:

- Laboratory studies are particularly useful in enabling a controlled and standardised investigation. They allow for a far greater number of replicates and are thus more appropriate for use in statistical analyses. Dosing regimes can be controlled better so the doses resulting in an effect can be identified more clearly. However, the dosing regime in a lab study is often more extreme (either in terms of quantity or type) than would be experienced in life.

- Field studies provide exposure patterns in line with those more generally experienced in real situations. However it is more difficult to determine the actual dosing received and to interpret whether any effects seen were directly attributable to the experimental exposures due to the number of other uncontrolled variables. The cost and time associated with field studies means there will be fewer replicates and such studies can be difficult to analyse using statistics (although this will depend upon the exact study design).

37. The Government agrees that there are several laboratory studies that have raised concerns by demonstrating the potential for effects of neonicotinoids on bees. However, long experience shows that effects found in laboratory conditions are not always replicated in the field. This issue is addressed for neonicotinoids in the Defra document "An assessment of key evidence about neonicotinoids and bees" published in March. This document points to aspects of the Henry et al, Whitehorn et al and Gill et al studies that are not realistic in replicating field conditions. It also draws on the findings of a number of field trials which consistently show no unacceptable effects.

38. The Fera bumble bee study placed bumble bee colonies within landscapes known to contain oilseed rape (OSR) treated with neonicotinoids. The researchers measured

colony growth rate, production of queens, neonicotinoid residues in nectar and pollen, and the kind of pollen being collected by the bees. They found no relationship between colony growth and neonicotinoid residues within pollen or nectar in the colonies. The bumble bee colonies grew to up to twice the mass of the untreated groups in the Whitehorn et al study.

39. The Fera study had design limitations because of the field conditions under which it was conducted. Even without these limitations, it is still just one piece of evidence and the Government has always taken its view from the totality of the evidence. The Fera study is not therefore the sole basis or even the main basis for the Government's conclusions. However, it is representative of an increasing number of field-realistic studies that have failed to find an effect of neonicotinoids on bees. It is on the basis of this broad view and not the Fera study alone that the Government presently considers that the risk to bee populations from neonicotinoids, as they are currently used, is low.

Conclusion 6. Neonicotinoid pesticides are not fundamental to the general economic or agricultural viability of UK farming, although there may be specific issues in relation to oilseed rape that might require careful management if neonicotinoids were not available to growers. (Paragraph 68)

40. Neonicotinoids are widely used on a range of crops in the UK and in every other EU country. Agriculture is a resilient industry and UK farming could, very likely, manage without neonicotinoids. However, they are one of only a handful of classes of insecticides and have considerable advantages over the alternatives in some situations. It is likely, as agronomist witnesses reported to the Committee, that the impacts of loss of neonicotinoids on crop productivity would be variable. Some farm operations in some years might be significantly affected, while others might be affected more lightly.

41. We were extremely disappointed that the European Commission, in preparing their proposals for precautionary restrictions on neonicotinoids, made no effort to assess the likely knock on implications. These include the high risk that current localised resistance to alternative insecticides will become more widespread and the environmental risks posed by these alternatives. The Committee's report mentions oilseed rape. This is an important crop because it is a profitable rotational crop in cereal production. As it is grown on a substantial scale and is attractive to bees, it has been a likely focus for restrictions. The key issues in the use of neonicotinoids as seed treatments for oilseed rape (and crops such as maize, sweetcorn and linseed) include:

- Neonicotinoid seed treatments assist in crop establishment by reducing feeding damage by flea beetles, and control of the aphid virus vector Myzus persicae. The risk of total crop failure at this stage is thus much reduced;

- The main alternatives to neonicotinoid seed treatments would be pyrethroid foliar sprays. They have three main disadvantages when compared with neonicotinoid seed treatments from an agronomic perspective:

    — First, sprays cannot be applied to crops until they have grown to the point where they have a significant leaf area. They are therefore of little use in dealing with pest attacks when the crop first emerges or before it emerges.

— Second, effective virus control requires very rapid knockdown of the carrying insect pest. This means that the crop needs to be treated at the time of insect attack, not subsequently. To achieve this with pyrethroids may require a considerable number of sprays.

— Third, there are already significant pockets of resistance of aphids to pyrethroids in the UK and reported instances of resistance of flea beetles elsewhere in Europe. Increased use without the alternative control method provided by neonicotinoid seed treatment will increase the resistance pressure for pyrethroids. It is likely that these active substances would in a short period become relatively ineffective against Myzus persicae, leaving no alternative chemical control measures available.

- Widespread pyrethroid resistance in Myzus populations would impact various crop sectors because of its broad range of host crops. Impacts would therefore not be confined only the production of oilseed rape.

- Without adequate pest control, growers would suffer financial losses. These might result from reduced yields of oilseed rape itself. It is also possible that growers would no longer use oilseed rape as a rotational crop with cereals, which would lead to reduced cereal yields. Other possible cereal break crops are problematic.

- All insecticides on the market have passed a risk assessment in order to be authorised. However, they all carry their own environmental risks. Pyrethroid sprays are generally acutely toxic to honey bees, although under field conditions they tend to pose a reduced risk. Pyrethroids also pose a risk to aquatic life and as a result buffer zones are required. In addition, pyrethroids pose a risk to non-target arthropods and as a result carry risk mitigation phrases.

42. Other crops which are not attractive to bees are also heavily dependent upon neonicotinoid seed treatments because of resistance issues with alternative products. These crops include maize and autumn-sown cereals.

43. The Committee noted suggestions that restrictions on neonicotinoids in Italy had not resulted in serious implications for growers. Such evidence from other countries would need to be considered with care. There are clearly differences in climate, crops and pests between Italy and the UK. Furthermore, the Italian restrictions on neonicotinoids have been applied only to some uses and for a few years and so the consequences may not be the same as for broader or longer-term changes. That said, such evidence would clearly be valuable. However, the Government is not aware of anything other than anecdotal accounts.

44. The Government has considered what it can do to help farmers and growers affected by the restrictions on neonicotinoids. In the short-term, we have negotiated a longer lead-in time for the restrictions, similar to that recommended by the Committee, to reduce the scope for dislocation of the seed supply chain. We are providing advice to ensure that the nature of the restrictions is clear. For the longer-term we are considering, in discussion with interested parties, the further evidence needed to inform the 2015 review of the restrictions and future decision-making. We are continuing work on alternative pest

control products and techniques under the Integrated Pest Management banner and this is described in a little more detail in the response to recommendation 18 below.

Conclusion 7. Defra policy on pesticides must be evidence-based. Where the available scientific evidence is either incomplete or contradictory, Defra must apply the precautionary principle rather than maintaining the status quo while waiting for further evidence. Defra policy in relation to neonicotinoids is not currently founded on the precautionary principle as set out in the 1992 United Nations Rio Declaration and the Lisbon Treaty, in that Defra will not countenance imposing a moratorium if it would not be "proportionate". Ministers currently consider that a decision on a moratorium should be informed by potential economic impacts as well as by clearer proof about harm to bees than is currently available or is likely to be produced in the near future. We recognise the agricultural value of neonicotinoid insecticides, but economic factors should not blur environmental risk assessment and risk management, where the protection of people and the environment must be paramount. (Paragraph 69)

Recommendation 17. Defra must review how it exercises the precautionary principle. Economic considerations should not form part of environmental risk management decision making, but rather should be a function of a distinct and transparent subsequent political process. (Paragraph 69)

45. The Government agrees with the Committee that policy on pesticides must be evidence based and that the precautionary principle applies in this area where there is a potentially serious threat and the science is uncertain. We also agree that it will sometimes be necessary to take a decision on the available information and not to wait indefinitely for better information to come to light. We do not, however, entirely agree with the Committee's view as to how the precautionary principle should operate.

46. The Committee mention the 1992 Rio Declaration on Environment and Development. Principle 15 of the Rio Declaration states "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

47. It is therefore clear that economic issues are relevant when the precautionary principle is invoked. This is not to say that economic issues trump environmental concerns. On the contrary, serious environmental threats must be tackled, even if this carries costs. But economic factors are relevant because the precautionary principle requires that before a decision is taken, the available evidence is to be used to carry out the best possible assessment of the risks and the options for action. Extreme cases illustrate the point that action should be informed by consideration of the knock-on consequences. It would evidently be right to tackle even a remote risk of serious environmental damage if this action carried no cost. It would not be right to tackle the same remote risk if the action needed would cripple the economy.

48. We do not understand the Committee's recommendation that there should be a political process, including economic considerations, after the risk management decision has been made. Economic and other policy factors cannot be taken into account after a decision has been made. Perhaps the issue is one of terminology. We see there being two parts to the process—risk assessment and risk management. Economic considerations, if

relevant, form part of the second, risk management, stage. The risk assessment stage looks only at the evidence on risks and does not consider the practicalities of action.

49. The European Commission set out a clear description of the application of the precautionary principle in the EU in a Communication in 2000. This Communication describes a structured approach to evaluating the evidence (the risk assessment) and making a decision on whether and how to act (risk management). The risk assessment process considers the available science and reaches the best possible view as to the potential negative effects and their magnitude and probability. The outputs of this process are then considered by the risk managers. Their decision-making brings in a number of other issues, including considerations of proportionality, non-discrimination, consistency, benefits and costs of action or lack of action and examination of scientific developments.

50. The system for regulating pesticides requires that pesticide active substances and products must be authorised before they can be used. Products need to satisfy a quantitative risk assessment before they are authorised and no other factors are considered; possible economic considerations do not form part of the assessment. The legislation clearly sets out that safety takes precedence over economic need. This kind of science-based assessment before authorisation is in itself an expression of the precautionary principle.

51. On the specific issue of neonicotinoids and their effects on pollinators, the Government has always made it clear that it is prepared to act if the scientific evidence suggests an unacceptable risk. In this situation, economic aspects would simply guide the action taken. If there were multiple approaches that would reduce the risk to acceptable levels, we would choose the option that carried the least costs.

52. However, our current assessment of the evidence is that there is not an unacceptable risk to pollinators from the present uses of neonicotinoids. We therefore regard sweeping restrictions on neonicotinoids as unnecessary and the resultant costs as unjustified.

Conclusion 8. That it was necessary to take legal advice whether the UK National Action Plan for the Sustainable Use of Pesticides complied with the minimum requirements of the EU directive suggests that the UK failed to take this opportunity to address pesticide use to benefit human health and the environment. It is difficult to see how pesticide use will change without the implementation of the objectives, timetables, measures and targets that officials dismissed as "meaningless". (Paragraph 74)

53. It is normal good practice to ensure that the UK meets the legal requirements when implementing EU legislation. The Government has clear policies on the need to avoid unnecessary regulation in general and, in particular, to avoid gold-plating EU requirements. The UK has long had comprehensive legislation and policies to protect people and the environment from adverse effects of pesticides. Our standards are amongst the highest in Europe and so no major changes were needed to meet the requirements of the EU Directive on the sustainable use of pesticides. We made it clear in our response to the public consultation on this issue that we would consider further action if, and only if, there was compelling evidence that this was needed to tackle real risks.

54. The UK National Action Plan does meet the requirements of the Sustainable Use Directive. It contains quantitative objectives, targets, measures, timetables and indicators. It

does not contain quantitative use reduction targets. These are not a requirement of the Directive and it has been a long-held Government view that such use reduction targets are not meaningful and effective in terms both of reducing risk and of providing evidence of progress or otherwise. They can be counterproductive, for example by driving users towards more active pesticides used in lower quantities. They can also be thrown off course as the amounts of pesticides used in any year will be dependent on factors such as market prices for produce and the weather.

Conclusion 9. In the interests of the environment, food security, minimising resistance among pests and maximising agricultural incomes, it is desirable that the minimal possible amount of chemical pesticides is used in agricultural production. This means moving away from any excessive use of chemical pesticides and utilising integrated pest management. Such an approach would prevent any ban on neonicotinoids necessarily causing the increased use of potentially more harmful substances. (Paragraph 80)

Recommendation 18. Defra must develop the UK National Action Plan for the Sustainable Use of Pesticides in line with both the spirit and the requirements of the European Directive on the Sustainable Use of Pesticides. To that end, Defra should prioritise the development of the action plan in its business plan and accordingly provide an appropriate level of resource. The UK plan should include quantitative objectives, targets, measures, timetables and indicators, as stipulated by the directive. The promotion of integrated pest management principles is a key feature of the EU Directive on the Sustainable Use of Pesticides, and Member States are required to implement the provisions on IPM by 1 January 2014. Defra should introduce clear incentives for farmers to drive take up of IPM. (Paragraph 80)

55. There are clear advantages to avoiding the unnecessary or excessive use of agricultural inputs. However, cases where pesticide use is entirely unnecessary or unarguably excessive are likely to be very rare, particularly given the costs of products. In more marginal cases, there is not likely to be a clear minimum possible quantity as there is likely to be a trade-off between quantity and degree of control of pests, diseases or weeds. This may particularly be an issue where the need to manage resistance concerns means that more than one pesticide needs to be used. It is also the case, as discussed under *Conclusion 8*, that a larger quantity of pesticide may carry a lower risk of adverse effects if it is an inherently less toxic product or if the timing or mode of use is such as to reduce risk.

56. For these reasons, the Government agrees that an Integrated Pest Management (IPM) approach has much to recommend it. IPM requires the growers to use a range of techniques to minimise the need for plant protection measures, to use threshold measurements where possible to determine when such measures are needed and to prefer physical or biological control to chemicals. Where chemicals are needed, selective and lower toxicity products are to be preferred.

57. The UK National Action Plan recognises the legal requirements around IPM set out in Directive 2009/128/EC on the sustainable use of pesticides. Equally it recognises the advantages of developing and encouraging IPM techniques, which can do much to support sustainable crop protection given the declining range of available chemicals. The Plan itself clearly states that it will be developed as a living document and that arrangements for priority areas such as achieving the uptake of IPM will be developed.

58. Defra already spends a significant sum on the pesticides work carried out by the Chemicals Regulation Directorate of HSE, including development of the National Action Plan and the work of the Pesticides Forum to support it. Defra also spends a significant proportion of its pesticides research and development budget on issues that are relevant to IPM, including alternatives to using conventional chemical pesticides and resistance management. Industry has made a substantial investment in the pesticides Voluntary Initiative which is one of the primary delivery mechanisms for the action plan objectives.

59. In seeking to develop IPM, we are starting from a position where many farmers and growers adopt practices which are in line with IPM, in part because practices consistent with the general principles of IPM are required by Assured Food Standards schemes. Specific standards are set for individual crops.

Recommendation 19. Defra should prepare to introduce a moratorium in the UK on the use of imidacloprid, clothianidin and thiamethoxam on crops that are attractive to bees by 1 January 2014, and support such a proposal in the EU. (Paragraph 81)

60. The Government's view of the current evidence is outlined in our response to Conclusion 5 above. We do not consider that the evidence points to unacceptable risks to bees. We do not, therefore, consider that it supports the course of action proposed by the Committee. For the same reason we voted against the very similar proposal made by the Commission and now in place as Commission Implementing Regulation (EU) 485/2013.

61. Nevertheless, as previously discussed, the Commission have adopted the proposals and we will implement them in full. We are considering what part the UK Government can usefully play in building a widely-supported evidence base in time for a review of restrictions in 2015.

Conclusion 10. There is no compelling economic or agricultural case for neonicotinoid use in private gardens and on amenities such as golf courses, which provides Defra with an opportunity to exercise its stated commitment to the precautionary principle. (Paragraph 84)

Recommendation 20. Defra must immediately withdraw the approvals for use in the UK of neonicotinoid pesticides marketed for amateur application in private gardens and on amenities in order to create neonicotinoid-free zones for pollinators in non-agricultural areas. (Paragraph 84)

62. The Government's view is that, given our current assessment of the risk to bees from agricultural use, there is no basis for taking action on amateur use. Garden use is on a significantly smaller scale than agricultural use and many garden products are based on acetamiprid and thiacloprid, which are of much lower toxicity to bees than are the other neonicotinoids. Amenity use is focussed on use on turf. This cannot be considered to be attractive to bees and can have a significant economic value, for example in the case of high quality sports turf.

63. Nevertheless, a ban on amateur use for clothianidin, imidacloprid and thiamethoxam is contained in Regulation 485/2013. The ban does not extend to amenity use or to products based on acetamiprid and thiacloprid.

4. Supporting pollinators

Recommendation 21. In its forthcoming review of advice, incentives and voluntary initiatives for farmers, Defra should give prominence to measures which would support bees and other pollinators, including leaving land un-cropped. (Paragraph 88)

64. The Review of Advice, Incentives and Partnership Approaches was published on 27 March. The Review focussed on looking at the generic picture of advice delivery, how advice complements incentive payments such as Environmental Stewardship and how it could be improved and streamlined rather than specific types of advice.

65. One of its key recommendations was to recognise the potential role of voluntary/partnership approaches in environmental advice delivery. An existing scheme, the Campaign for the Farmed Environment, is seen as an exemplar of an industry led, voluntary approach in partnership with Government, delivering environmental outcomes. The first phase of the Campaign, now completed, focussed on encouraging farmers to leave land un-cropped to mitigate the effects of losing set aside. It also encouraged pro-active environmental management through targeting option choice in ELS towards the more beneficial in field options and promoting voluntary environmental management. This included options and voluntary measures which encouraged planting of wild flower mixes beneficial to pollinating insects.

66. The next phase of the Campaign has just begun, learning lessons from, and building on the earlier phase. The new Campaign will focus on proactive environmental management (right environmental option, right management, right place) on small areas of land, again through ELS and voluntary measures. Again the industry-led initiative will give prominence to birds and pollinators and encourage farmers to plant wild flower seed mixes beneficial to pollinating insects as well as other beneficial activities such as leaving field margins uncropped and uncultivated, maintaining low input, permanent pasture and planting legume and herb rich swards. In response to the Review's recommendation on streamlining advice, the Campaign will also combine messages with other industry initiatives, such as the pesticides Voluntary Initiative (VI), which encourages responsible use of pesticides to minimise the impact on the environment and wildlife.

67. As CAP Reform develops, the Campaign will want to adapt its focus as required to other areas where it has the potential to provide added value. These may include greening and enhancing the environmental benefits of future agri-environment schemes.

Conclusion 11. While much detail remains to be negotiated in the European Commission and between Member States, the prospective CAP package for the next seven years offers opportunities for significant additional 'greening' measures, including programmes which could support greater use of 'buffer strips' and other pollinator habitats. (Paragraph 91)

Recommendation 22. The Government's stance in negotiations in Europe on the new CAP package should be to push measures which offer meaningful pollinator support within the environmental schemes qualifying for payment. And from that baseline, the Government should then follow a similar outlook in designing qualifying initiatives in England (the devolved Administrations would manage their own schemes). (Paragraph 91)

68. CAP reform negotiations in Brussels concluded in the last few days of June. At the time of writing we await the legal texts of the new regulations, including the precise arrangements for the greening of the CAP. We believe that these should give Member States flexibility, if they wish, to design alternative, but equivalent, greening measures to those proposed by the European Commission. Such alternatives would be introduced through a Certification Scheme and would consist of measures which deliver at least equivalent environmental benefits to those proposed by the Commission. This could give the opportunity, for instance, to focus on delivering benefits for pollinators. If the Certification Scheme approach is not taken up, it is expected that the Regulations would provide opportunities for Member States to select their preferred options for Ecological Focus Areas which, again, might focus on delivering benefits for pollinators.

69. Once we are clear on the legal texts, there will be opportunities for stakeholders to comment on how they think greening should be implemented in England. The extent to which greening measures might contribute to the enhancement of pollinator habitats could then be considered alongside other priorities.

70. From 1 January this year we have introduced specific changes to Environmental Stewardship options, including new payments for options such as legume and herb rich swards, which will benefit pollinators including bees. We are currently examining what new elements might enhance the effectiveness and quality of existing scheme options, including those for pollinators, which might be taken forward under the new Rural Development Programme starting in 2015.

Conclusion 12. The conservation of pollinators is crucial to maintaining biodiversity in the UK. In addition, pollinators have a significant economic value as an ecosystem service to UK agriculture. Farmers and environmentalists therefore have a shared interest in conserving pollinators. The data on the value and health of pollinator populations is currently insufficiently precise to inform a marketised approach that could capture the benefits and costs of pesticide use. (Paragraph 95)

Recommendation 23. Defra should prioritise its work on valuing ecosystem services and at an early stage in that work address the particular case study of pollinators to ensure that policy making on insecticides fully reflects not only direct financial costs but wider environmental costs. (Paragraph 95)

71. We have already done a great deal of work to understanding the value of ecosystem services. For example, the UK National Ecosystem Assessment (NEA) gives us a compelling evidence base on the importance of nature's services. We have ongoing follow-on activities but we agree that there are still evidence gaps in this area.

72. The economic value of pollination services in the UK is uncertain due to the small number of existing studies. Current estimates of the direct value of market benefits from pollinator services are in the order of hundreds of millions of pounds, but it must be noted that these estimates rely on incomplete scientific information. Further evidence would improve these estimates. For example, it could help us to capture the value of marginal changes in pollination services, as well as capturing social and environmental value more broadly.

73. To help develop our understanding in this area, we intend to convene workshops in autumn 2013 to bring together national experts from government and non-government organisations for an open debate on the value and health of pollinator populations. This will look at the most recent scientific progress made on pollination, including gaps in our knowledge, and the policies that affect pollinators.

74. On the issue of the effects of pesticides in general and neonicotinoids in particular on pollinators, we should emphasise once more that the safety regulation of pesticides is aimed at avoiding unacceptable risks. It does not allow high economic benefits of pesticide use to be traded against otherwise unacceptable risks.