

Assessment of compliance with the Code of Practice for Official Statistics

Statistics on Pesticide Usage in the UK and Fertiliser Usage in GB

*(produced by the Department for Environment, Food and Rural
Affairs; and the Agri-Food and Biosciences Institute, Northern
Ireland)*

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About the UK Statistics Authority

The UK Statistics Authority is an independent body operating at arm's length from government as a non-ministerial department, directly accountable to Parliament. It was established on 1 April 2008 by the *Statistics and Registration Service Act 2007*.

The Authority's overall objective is to promote and safeguard the production and publication of official statistics that serve the public good. It is also required to promote and safeguard the quality and comprehensiveness of official statistics, and good practice in relation to official statistics.

The Statistics Authority has two main functions:

1. oversight of the Office for National Statistics (ONS) – the executive office of the Authority;
2. independent scrutiny (monitoring and assessment) of all official statistics produced in the UK.

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(produced by the Department for Environment, Food and Rural Affairs; and the Agri-Food and Biosciences Institute, Northern Ireland)

ASSESSMENT AND DESIGNATION

The *Statistics and Registration Service Act 2007* gives the UK Statistics Authority a statutory power to assess sets of statistics against the *Code of Practice for Official Statistics*. Assessment will determine whether it is appropriate for the statistics to be designated as National Statistics.

Designation as National Statistics means that the statistics comply with the *Code of Practice*. The *Code* is wide-ranging. Designation can be interpreted to mean that the statistics: meet identified user needs; are produced, managed and disseminated to high standards; and are explained well.

Designation as National Statistics should not be interpreted to mean that the statistics are always correct. For example, whilst the *Code* requires statistics to be produced to a level of accuracy that meets users' needs, it also recognises that errors can occur – in which case it requires them to be corrected and publicised.

Assessment reports will not normally comment further on a set of statistics, for example on their validity as social or economic measures. However, reports may point to such questions if the Authority believes that further research would be desirable.

Assessment reports typically provide an overview of any noteworthy features of the methods used to produce the statistics, and will highlight substantial concerns about quality. Assessment reports also describe aspects of the ways in which the producer addresses the 'sound methods and assured quality' principle of the *Code*, but do not themselves constitute a review of the methods used to produce the statistics. However the *Code* requires producers to "seek to achieve continuous improvement in statistical processes by, for example, undertaking regular reviews".

The Authority may grant designation on condition that the producer body takes steps, within a stated timeframe, to fully meet the *Code's* requirements. This is to avoid public confusion and does not reduce the obligation to comply with the *Code*.

The Authority grants designation on the basis of three main sources of information:

- i. factual evidence and assurances by senior statisticians in the producer body;
- ii. the views of users who we contact, or who contact us, and;
- iii. our own review activity.

Should further information come to light subsequently which changes the Authority's analysis, it may withdraw the Assessment report and revise it as necessary.

It is a statutory requirement on the producer body to ensure that it continues to produce the set of statistics designated as National Statistics in compliance with the *Code of Practice*.

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1 Summary of findings

1.1 Introduction

1.1.1 This is one of a series of reports¹ prepared under the provisions of the *Statistics and Registration Service Act 2007*². The Act requires all statistics currently designated as National Statistics to be assessed against the *Code of Practice for Official Statistics*³. The report covers the sets of statistics produced by the Department for Environment, Food and Rural Affairs (Defra) and the Agri-Food and Biosciences Institute, Northern Ireland (AFBI) and reported in the following publications:

Defra

- *Pesticide Usage Survey Reports*⁴ (*Pesticide Usage*).

AFBI

- *Pesticide Usage in Northern Ireland Survey Reports*⁵ (*Pesticide Usage NI*).

1.1.2 The Act also allows departments to request an assessment of other official statistics in order for them to gain National Statistics status. This report is in response to such a request in relation to the following statistics, produced by Defra:

- *The British Survey of Fertiliser Practice*⁶ (*Fertiliser Practice*).

1.1.3 Section 3 of this report adopts an ‘exception reporting’ approach – it includes text only to support the Requirements made to strengthen compliance with the *Code* and Suggestions made to improve confidence in the production, management and dissemination of these statistics. This abbreviated style of report reflects the Head of Assessment’s consideration of aspects of risk and materiality⁷. The Assessment team nonetheless assessed compliance with all parts of the *Code of Practice* and has commented on all those in respect of which some remedial action is recommended.

1.1.4 This report was prepared by the Authority’s Assessment team, and approved by the Board of the Statistics Authority on the advice of the Head of Assessment.

¹ <http://www.statisticsauthority.gov.uk/assessment/assessment-reports/index.html>

² http://www.opsi.gov.uk/Acts/acts2007/pdf/ukpga_20070018_en.pdf

³ <http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html>

⁴ <http://www.fera.defra.gov.uk/scienceResearch/science/lus/pesticideUsageFullReports.cfm>

⁵ <http://www.afbini.gov.uk/index/services/services-specialist-advice/pesticide-usage/pesticide-reports-table.htm>

⁶ <http://www.defra.gov.uk/statistics/foodfarm/enviro/fertiliserpractice/>

⁷ <http://www.statisticsauthority.gov.uk/assessment/assessment/guidance-about-assessment/criteria-for-deciding-upon-the-format-of-an-assessment-report.pdf>

1.2 Decision concerning designation as National Statistics

- 1.2.1 The Statistics Authority judges that the statistics covered by this report are readily accessible, produced according to sound methods and managed impartially and objectively in the public interest, subject to any points for action in this report. The Statistics Authority confirms that the statistics published in *Pesticide Usage* and *Pesticide Usage NI* are designated as National Statistics, and has determined that *Fertiliser Practice* can be designated as a new National Statistic, subject to Defra and AFBI implementing the enhancements listed in section 1.5 and reporting them to the Authority by October 2012.
- 1.2.2 Defra and AFBI have informed the Assessment team that they have started to implement the Requirements listed in section 1.5. The Statistics Authority welcomes this.

1.3 Summary of strengths and weaknesses

- 1.3.1 Defra and AFBI engage with users of these statistics from government, agriculture industry and academia, but do not adequately document the needs of other users such as environmental campaign groups.
- 1.3.2 Defra produces individual farm reports for respondents to the *British Survey of Fertiliser Practice*, which provide summary statistics about their farm's use of fertilisers compared with the national picture. We regard this as an example of good practice.
- 1.3.3 The arrangements for managing the production of *Pesticide Usage* are complicated and inadequately documented.
- 1.3.4 *Fertiliser Practice* includes some good commentary, particularly to explain the trends in the use of nitrogen as a fertiliser. *Pesticide Usage* and *Pesticide Usage NI* do not include adequate commentary and contextual information and the statistics are not sufficiently accessible. None of the releases includes enough information about methods and quality.

1.4 Detailed recommendations

- 1.4.1 The Assessment team identified some areas where it felt that Defra and AFBI could strengthen its compliance with the *Code*. Those which the Assessment team considers essential to enable designation as National Statistics are listed in section 1.5. Other suggestions, which would improve the statistics and the service provided to users, but which are not formally required for their designation, are listed at annex 1.

1.5 Requirements for designation as National Statistics

- Requirement 1** Take steps to engage more widely with users of the statistics; publish the relevant information and assumptions and use them to better support the use of the statistics (para 3.1) – (Defra and AFBI).
- Requirement 2** Document the arrangements for managing the production of *Pesticide Usage* and explain who is responsible for decisions about the release (para 3.2) – (Defra).
- Requirement 3** Publish more information about the methods used to produce these statistics (para 3.3) – (Defra and AFBI).
- Requirement 4** Improve the information about the quality of these statistics in relation to their use and potential use (para 3.4) – (Defra and AFBI).
- Requirement 5** Review the processes for ensuring that errors are corrected, and stakeholders alerted, promptly (para 3.5) – (Defra).
- Requirement 6** Review how the quality of the statistics presented in *Pesticide Usage* is assured, to minimise the risk of errors in the publication (para 3.5) – (Defra).
- Requirement 7** Report annually the cost to respondents of responding to the surveys that underpin these statistics (para 3.7) – (Defra and AFBI).
- Requirement 8** Improve the commentary in all the releases and improve the presentation of the statistics in *Pesticide Usage* and *Pesticide Usage NI*, to aid user interpretation (para 3.11) – (Defra and AFBI).
- Requirement 9** Improve the accessibility of these statistics (para 3.12) – (Defra and AFBI).
- Requirement 10** Review the Statement of Administrative Sources to ensure it covers all the elements of the *Code of Practice* (para 3.14) – (AFBI).

2 Subject of the assessment

- 2.1 Defra produces fertiliser statistics for GB and is responsible for pesticide usage statistics for the UK. AFBI collects and publishes pesticide usage statistics for Northern Ireland, which are used in the UK reports. The Scottish Government also produces pesticide statistics that are used in the UK statistics; however, the Scottish Government's statistics are not currently National Statistics and it did not request that its statistics be included in the scope of this assessment.
- 2.2 *The British Survey of Fertiliser Practice (Fertiliser Practice)* is an annual release that provides information about fertiliser use on the major crops and grass grown in mainland Britain, derived from the British Survey of Fertiliser Practice (BSFP). BSFP is a sample survey of around 1,400 farms in GB that are greater than 20 hectares (ha) in size. The main purpose of the survey is to estimate average application rates of fertilisers (nitrogen, phosphate and potash) used for crops and grassland. Data are also collected on applications of sulphur fertilisers, organic manures and lime. The survey work and analysis is carried out under contract by the Food and Environment Research Agency (FERA) and GFK Kynetec⁸. The contract, which Defra awarded through open competition, also covers the work that underpins the pesticide usage statistics for England and Wales. The European Commission is currently exploring the feasibility of Europe-wide regulations on the use of fertilisers.
- 2.3 *Pesticide Usage Survey Reports (Pesticide Usage)* is a series of annual releases, each of which presents information about the amount and types of pesticides used on a different crop (for example, arable, soft fruit and potato stores) in the UK. The statistics are based on an annual survey of farmers. The Chemical Regulations Directorate (CRD) oversees the production of these statistics on behalf of Defra; CRD became a directorate of the Health and Safety Executive (HSE) in April 2009. Defra still retains overall responsibility for these statistics. FERA and GFK Kynetec run the survey in England and Wales and publish the UK results on FERA's website – combining the survey data that they collect with survey data collected by AFBI and the Scottish Government. FERA also publishes an online analysis tool⁹ for users to access and analyse the pesticide usage statistics. FERA is an executive agency of Defra. CRD also works closely with the independent Advisory Committee on Pesticides (ACP), which is a statutory body established in 1985 to advise on all matters relating to the control of pesticides. CRD publishes information about ACP¹⁰ – including the group's Terms of Reference and minutes of meetings – on its website.
- 2.4 *Pesticide Usage in Northern Ireland Survey Reports (Pesticide Usage NI)* presents the results of AFBI's annual survey of pesticide usage in Northern Ireland. In common with *Pesticide Usage*, it is a series of annual releases, each of which presents information about the amount and types of pesticides used on a different crop in Northern Ireland. AFBI runs the survey, collects and analyses the data and publishes the releases. AFBI is an executive agency of

⁸ <http://www.gfk.com/gfk-kynetec/>

⁹ <http://pusstats.csl.gov.uk>

¹⁰ <http://www.pesticides.gov.uk/guidance/industries/pesticides/advisory-groups/acp>

the Department of Agriculture and Rural Development (DARD) in Northern Ireland.

2.5 Official statistics on fertiliser use in England & Wales have been published since 1942; the statistics were subsequently extended to include Scotland in 1983. Official surveys of pesticide usage on a variety of agricultural and horticultural crops began in 1965 in England and Wales, in 1976 in Scotland and in 1989 in Northern Ireland. The monitoring of pesticide use became a legal requirement under the *Food and Environment Protection Act (1985)*¹¹. In 1990, the programme of surveys was fixed so that arable crop surveys are conducted every two years, with all other crop groups surveyed on a 4-year cycle within England and Wales (Scotland and Northern Ireland have similar arrangements). Since 2009, the UK has been required to collect pesticide usage data and submit annual returns to the European Commission under *Statistics Regulation (EC) No. 1185/2009*¹².

2.6 The statistics from *Fertiliser Practice* are used by:

- Defra to monitor whether farms are following best practice in their use of fertiliser;
- the fertiliser industry to monitor trends in the use of particular organic and inorganic fertilisers to aid planning for future production; and
- academics and researchers who use the statistics to model the environmental impact of fertiliser use, such as the impact on air and water quality.

2.7 The statistics from *Pesticide Usage* and *Pesticide Usage NI* are used by:

- CRD to help inform its pesticide risk assessment (approval) process, informing programmes that monitor pesticide residues in food and the environment, such as the Wildlife Incident Investigation Scheme¹³ to help identify the potential misuse of pesticides;
- Defra and DARD to develop policies on the use and restriction of pesticides in the UK;
- the European Commission to monitor the sustainable use of pesticides; and
- environmental agencies and academics to monitor the levels and types of pesticides in the air and in water courses.

2.8 Defra told us that the annual cost of producing *Fertiliser Practice* is £171,000. This includes the cost of running BSFP and producing the release. The production and publication of pesticide usage statistics in the UK is entirely funded by a levy on the pesticide production industry. Defra told us that it costs £250,000 each year to produce *Pesticide Usage*. AFBI told us that it costs £130,000 each year to produce *Pesticide Usage NI*.

¹¹ <http://www.legislation.gov.uk/ukpga/1985/48>

¹² <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009R1185:EN:NOT>

¹³ <http://www.pesticides.gov.uk/guidance/industries/pesticides/topics/reducing-environmental-impact/wildlife>

3 Assessment findings

- 3.1 Defra and AFBI engage with government and industry users of these statistics through relevant fora and bilateral meetings. For example, Defra told us that it has regular contact with the fertiliser industry through the Agricultural Industries Confederation¹⁴ (AIC). ACP has a Working Party on Pesticide Usage Surveys¹⁵ that brings together representatives from government and industry to advise CRD on the development of the pesticide usage statistics. In 2009 CRD consulted users of pesticides usage statistics in the UK and published the results¹⁶. However, the statisticians have not documented the full range of users and uses for these statistics and there is no active ongoing engagement with users outside government, academia and the agriculture industry (other than responding to enquiries). The statistics are likely to be used by environmental campaign groups, but neither Defra nor AFBI has formally engaged with these groups or documented their needs. As part of the designation as National Statistics, Defra and AFBI should take steps to engage more widely with users of the statistics; publish the relevant information and assumptions and use them to better support the use of the statistics¹⁷ (Requirement 1). We suggest that Defra and AFBI establish user lists, inform users when these statistics are published and invite feedback on the publications.
- 3.2 FERA produces *Pesticide Usage*; the work is overseen by CRD, which is part of HSE, and ACP advises on the development of the surveys, but Defra told us that it is ultimately responsible for the statistics. Defra's Head of Profession (HoP) for statistics is responsible for ensuring that those involved in the production of the statistics are protected from any political pressures that might arise; and for deciding on the statistical methods and the content and timing of releases. Defra told us that this complicated arrangement reflects CRD's responsibility for pesticides regulation and Defra's wider responsibility for statistics about farming practices and strategic policy on pesticides. During the course of this Assessment it emerged that Defra had not followed a formal publication timetable for publishing pesticide usage statistics, and the publications were not consistently published at 9.30am. Defra attributed this breach of the *Code of Practice* to 'indirect and complex governance arrangements'. It told us it has addressed the issue and it has reported¹⁸ the breach to the Statistics Authority. The statisticians in CRD told us that they have a clear understanding of the lines of accountability, but in the interests of transparency the Assessment team felt that the arrangement should be clearly documented, including explaining how the statisticians are protected from any political pressure that might arise. As part of the designation as National Statistics, Defra should document the arrangements for managing the production of *Pesticide Usage* and explain who is responsible for decisions

¹⁴ <http://www.agindustries.org.uk/content.template/30/30/Home/Home/Home.msp>

¹⁵ <http://www.pesticides.gov.uk/guidance/industries/pesticides/topics/reducing-environmental-impact/pesticides-usage-survey-group>

¹⁶ http://www.pesticides.gov.uk/Resources/CRD/Migrated-Resources/Documents/P/PUS_summary_of_responses_new.pdf

¹⁷ In relation to Principle 1, Practice 2 of the *Code of Practice*

¹⁸ <http://www.statisticsauthority.gov.uk/assessment/code-of-practice/breach-reports/index.html>

about the release¹⁹ (Requirement 2). We suggest that Defra review whether there may be simpler arrangements for managing the production of *Pesticide Usage*, for example whether the statistics could be produced under the direction of HSE's HoP.

- 3.3 *Fertiliser Practice* includes a good summary of the methods underpinning BSFP. The release also includes a table with statistics about the quantities of the main nutrients used, which is supplied by AIC. *Fertiliser Practice* does not include any explanation of the methods that AIC uses to produce these statistics. Defra told us that AIC produces the statistics using data from BSFP, with some adjustment to include the smaller farms (which are otherwise excluded from BSFP) and to extend the geographical coverage to Northern Ireland. AIC also uses confidential sales data to assure the quality of the final statistics. *Pesticide Usage* and *Pesticide Usage NI* each include a brief description of the survey that is used to collect the statistics. However, neither includes sufficient information about how the data are processed nor how the quality of the data is assured. Neither includes much information about the sampling frames for the respective surveys nor how limitations in the sampling frame are overcome. Defra told us that the sampling frame it uses does not have detailed information for the full range of crops and so for some releases it uses additional sources to produce survey estimates. This is not explained in any detail. *Pesticide Usage* covers the UK, but it does not explain whether identical methods are used in each of the constituent countries, or what this means for the quality of the statistics for the UK. It also does not explain that the statistics for Scotland are not National Statistics, what this means and how Defra has ensured that they are of sufficient quality for this purpose. As part of the designation as National Statistics, Defra and AFBI should publish more information about the methods used to produce these statistics²⁰ (Requirement 3).
- 3.4 *Fertiliser Practice* includes good discussion of some aspects of the quality of the statistics in relation to use. It presents response rates and standard errors in an appendix, but these should be explained more clearly, including their impact on the use and potential use of the statistics. Some aspects of the quality of the statistics are not discussed in sufficient detail: there is no explanation about the reason for, and impact of, excluding smaller farms (below 20 ha); there is no discussion of the accuracy of the data supplied by farmers, particularly in relation to the different methods of record-keeping which are documented in the release. In addition *Fertiliser Practice* includes no information about the quality of the statistics supplied by AIC on the quantities of major nutrients used, or how comparable these statistics are with the other statistics in the release. *Pesticide Usage* and *Pesticide Usage NI* include very little information about the quality of the statistics. Neither release includes any information about how farmers record information about their use of pesticides and the reliability of the information that is supplied. *Pesticide Usage Survey Report 236, Potato Stores in the UK 2010*²¹ is based on a small sample, but this release does not include confidence intervals and there is no indication of

¹⁹ In relation to Principle 1, Practice 3 and all the practices under Principles 3 and 7 of the *Code of Practice*

²⁰ In relation to Principle 4, Practice 1 of the *Code of Practice*

²¹ <http://www.fera.defra.gov.uk/scienceResearch/science/lus/documents/potatoStores2010.pdf>

- the impact that the small sample has on the quality of the statistics. Some *Pesticide Usage* releases do include an appendix that presents confidence intervals, but the explanation is technical and doesn't explain the impact on the use (or potential use) of the statistics. As part of the designation as National Statistics, Defra and AFBI should improve the information about the quality of these statistics in relation to their use and potential use²² (Requirement 4).
- 3.5 *Pesticide Usage Survey Report 236: Potato Stores in the United Kingdom 2010* included two errors that were identified by the Assessment team: an error in the Executive Summary and an error in one of the tables. The incorrect report remained on Defra's website for two weeks before Defra issued a correction. As part of the designation as National Statistics, Defra should review the processes for ensuring that errors are corrected, and stakeholders alerted, promptly²³ (Requirement 5). In addition, as part of the designation as National Statistics, Defra should review how the quality of the statistics presented in *Pesticide Usage* is assured, to minimise the risk of errors in the publication²⁴ (Requirement 6).
- 3.6 One user who contacted us in response to this Assessment suggested that Defra should consider the impact of emerging technologies on the application of fertilisers – for example other non-traditional ways of providing nutrients to the soil and stimulating crop growth. Defra told us that the use of new technology is captured in its farm practices survey²⁵ and that until new practices are widespread they are unlikely to be picked up in BSFP. Defra told us that it will include more discussion in *Fertiliser Practice* about emerging technologies and changing practices and the possible impact on trends. We also suggest that Defra improve the links in *Fertiliser Practice* to the farm practices survey and other relevant sources of statistics.
- 3.7 Defra and AFBI collect information about the burden that the surveys underpinning these statistics place on farmers. Each organisation publishes information²⁶ about the total burden its surveys place on respondents, but neither publishes information for each survey individually – so, for example it is not possible to determine the extent of the burden that the organisations place on farmers. As part of the designation as National Statistics, Defra and AFBI should report annually the cost to respondents of responding to the surveys that underpin these statistics²⁷ (Requirement 7).
- 3.8 In 2012 Defra began producing individual farm reports for respondents to BSFP. These reports, sent to all survey respondents, provide summary statistics about the farm's use of fertilisers compared with the national picture. Defra told us that it hopes the reports will encourage farmers to respond to the survey. It is seeking feedback on the reports. We view this new initiative as an example of good practice.

²² In relation to Principle 4, Practice 2 of the *Code of Practice*

²³ In relation to Principle 2, Practice 7 of the *Code of Practice*

²⁴ In relation to Principle 4, Practices 3 and 4 of the *Code of Practice*

²⁵ <http://www.defra.gov.uk/statistics/foodfarm/enviro/farmpractice/>

²⁶ <http://www.nisra.gov.uk/publications/Statistical%20Surveys%20of%20Businesses%20NI%20-%20%202009.pdf>

<http://www.defra.gov.uk/statistics/national-statistics/survey-control/>

²⁷ In relation to Principle 6, Practice 1 of the *Code of Practice*

- 3.9 The covering letters that FERA, Defra and AFBI send to farmers asking them to take part in these surveys explain that the confidentiality of the data will be protected, but could provide more reassurance by explaining the arrangements in place to protect the confidentiality of the data. We suggest that Defra and AFBI include more information in the covering letters for these surveys, to explain how the confidentiality of the data is protected.
- 3.10 Defra told us that FERA has discussed the pesticide usage survey with some manufacturers of farm management software to explore the feasibility of extracting farm records to be used for statistical purposes. The covering letter that FERA sends to farmers asking them to take part in the pesticide usage survey includes a good explanation about how the final statistics are used, to emphasise the importance of taking part in the survey. It explains how farmers can extract the relevant data from some of the most widely used farm management computer software. We regard these elements of the covering letter as examples of good practice. We suggest that AFBI review the letter that is sent to farmers asking them to participate in the pesticide usage survey in Northern Ireland, to take on board this good practice.
- 3.11 *Fertiliser Practice* includes some good commentary, drawing in useful contextual information about the weather conditions in the survey year and the size of farms, and explaining the impact that these can have on trends in fertiliser use. The statistics are well-presented and some of the explanation is good, particularly in relation to trends in nitrogen use, but some of the language used is technical and should be clearly explained the first time it is used. Defra's use of technical names for fertilisers is unavoidable, but the different types of fertilisers could be more clearly explained at the outset, for a non-technical audience – including any factors that might impact on the trends in their use (for example, relative costs, means of application and environmental impact). There is no commentary accompanying the statistics about the quantities of the major nutrients used (supplied by AIC). *Fertiliser Practice* states that AIC's statistics are 'considered to be the official figures for fertiliser usage', but does not explain what this means or how the statistics relate to the rest of the release. The commentary in *Pesticide Usage* and *Pesticide Usage NI* is limited; describing rises and falls without discussing the likely reasons underlying the trends. The releases do not include sufficient context, for example about policies and practices that might influence the trends. In both publications, some of the presentation of the statistics in three-dimensional charts is not good practice, and in some cases could lead to misinterpretation of the statistics. Some of the presentation of percentages in some of the *Pesticide Usage* releases could also cause confusion. *Pesticide Usage NI* does not reference or link to comparable statistics for the rest of the UK. As part of the designation as National Statistics, Defra and AFBI should improve the commentary in all the releases and improve the presentation of the statistics in *Pesticide Usage* and *Pesticide Usage NI*, to aid user interpretation of the statistics²⁸ (Requirement 8). We suggest that in meeting this requirement Defra and AFBI should consider the points detailed in annex 2.
- 3.12 Defra and AFBI do not make these statistics sufficiently accessible for users:

²⁸ In relation to Principle 8, Practice 2 of the *Code of Practice*

- Although Defra publishes *Fertiliser Practice* on its website, with the option to download the tables of statistics, it is not straightforward to navigate to *Fertiliser Practice* from Defra's homepage. Defra's website does not include or link to the statistics on pesticide usage.
- FERA publishes the suite of *Pesticide Usage* releases on its website, on a single web page where all reports dating back to 1996 can be downloaded. This page is difficult to navigate to from FERA's homepage. The page presents a confusing mix of reports covering Northern Ireland, the UK and GB. CRD told us that, from 2010, all *Pesticide Usage* releases will cover the UK, but this is not explained on FERA's website and there is nothing that explains the publication schedule.
- There is no option to download spreadsheet formats of the tables presented in *Pesticide Usage*. However, FERA provides an online tabulation tool²⁹ that enables users to create bespoke tabulations of pesticide usage statistics. This is a useful tool, but it does not offer the option to download the tables it creates and it is accessible alongside the reports.
- FERA's website does link to CRD's website³⁰, which includes a lot of information for users interested in pesticides; however, it would be more useful if FERA linked directly to the content that is likely to be most relevant to users of the pesticide usage statistics (for example, to the relevant advisory groups etc).
- There are no links from FERA's website to useful information about the statistics, such as a publication timetable.
- AFBI does not provide a facility for users to download tables of statistics in useful formats that encourage analysis and re-use. It does not explain the publication schedule that *Pesticide Usage NI* follows.

As part of the designation as National Statistics, Defra and AFBI should improve the accessibility of these statistics³¹ (Requirement 9).

- 3.13 *Pesticide Usage* includes the name and address of the responsible statistician, but it does not include a contact telephone number or email address. We suggest that Defra include a contact telephone number and email address for the responsible statistician, in *Pesticide Usage*.
- 3.14 *Pesticide Usage NI* is not based on administrative data, but there may be scope for AFBI to use administrative sources in the production of these or other official statistics in the future. AFBI's Statement of Administrative Sources³² simply states that AFBI will investigate the potential for use of farm management software in future surveys. AFBI should expand this document to explain more fully which administrative sources have the potential to be used in the production of its official statistics and the steps it is taking to engage with the owners of those sources. As part of the designation as National Statistics, AFBI

²⁹ See footnote 9

³⁰ <http://www.pesticides.gov.uk/guidance/industries/pesticides>

³¹ In relation to Principle 8, Practices 3, 4 and 6 of the *Code of Practice*

³² http://www.afbini.gov.uk/afbi_statement_of_administrative_sources.pdf

should review the Statement of Administrative Sources to ensure it covers all the elements of the *Code of Practice*³³ (Requirement 10).

³³ In relation to Protocol 3, Practice 5 of the *Code of Practice*

Annex 1: Suggestions for improvement

A1.1 This annex includes some suggestions for improvement to Defra and AFBI's pesticide and fertiliser usage statistics, in the interest of the public good. These are not formally required for designation, but the Assessment team considers that their implementation will improve public confidence in the production, management and dissemination of official statistics.

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|---------------------|--|
| Suggestion 1 | Establish user lists, inform users when these statistics are published and invite feedback on the publications (para 3.1) – (Defra and AFBI). |
| Suggestion 2 | Review whether there may be simpler arrangements for managing the production of <i>Pesticide Usage</i> , for example whether the statistics could be produced under the direction of HSE's HoP (para 3.2) – (Defra). |
| Suggestion 3 | Improve the links in <i>Fertiliser Practice</i> to the farm practices survey and other relevant sources of statistics (para 3.6) – (Defra). |
| Suggestion 4 | Include more information in the covering letters for these surveys, to explain how the confidentiality of the data is protected (para 3.9) – (Defra and AFBI). |
| Suggestion 5 | Review the letter that is sent to farmers asking them to participate in the pesticide usage survey in Northern Ireland, to take on board good practice (para 3.10) – (AFBI). |
| Suggestion 6 | Consider the points detailed in annex 2, in seeking to improve the statistical releases (para 3.11) – (Defra and AFBI). |
| Suggestion 7 | Include a contact telephone number and email address for the responsible statistician, in <i>Pesticide Usage</i> (para 3.13) – (Defra). |

Annex 2: Compliance with Standards for Statistical Releases

- A2.1 In October 2010, the Statistics Authority issued a statement on *Standards for Statistical Releases*³⁴. While this is not part of the *Code of Practice for Official Statistics*, the Authority regards it as advice that will promote both understanding and compliance with the *Code*. In relation to the statistical releases associated with the producers' fertiliser and pesticide usage statistics, this annex comments on compliance with the statement on standards.
- A2.2 In implementing any Requirements of this report (at paragraph 1.5) which relate to the content of statistical releases, we encourage the producer bodies to apply the standards as fully as possible.

Appropriate identification of the statistics being released

- A2.3 All these releases include titles that describe the content and coverage of the release and the time period to which the statistics relate. *Fertiliser Practice* also includes an explanation of the geographical coverage and frequency of the statistics in the foreword.
- A2.4 *Fertiliser Practice* and *Pesticide Usage NI* include the name and contact details of the responsible statistician. *Pesticide Usage* includes the names and address of the producer team, but does not include a contact email address or phone number. All the releases include a summary that provides a brief account of what is included in the release and makes it clear which statistics are new. *Pesticide Usage* includes an out-of-date National Statistics logo, while *Pesticide Usage NI* does not include the National Statistics logo at all. Both also refer to the (out-of-date) National Statistics Code of Practice, rather than the current *Code of Practice for Official Statistics*.

Include commentary that is helpful to the non-expert and presents the main messages in plain English

- A2.5 In all these releases, the summary identifies the main trends in the use of the different types of fertiliser or pesticide. Some of the language used is technical, so it isn't very accessible to a non-expert audience. The releases explain some of the technical terms in lists of 'definitions', but the main terms should be explained clearly when they are first used. In all the releases there could be more explanation about the different fertilisers or pesticides: for example, to explain what they are used for, whether more than one type can be applied and other attributes that might help interpret trends in their use.
- A2.6 The commentary in *Fertiliser Practice* is good, particularly in relation to farmers' use of nitrogen: the trends are presented clearly and the key factors influencing the trends are explained. *Fertiliser Practice* does not include quite the same depth of commentary in relation to other types of fertiliser, but does include some useful context about the extent of farmland and the effect of weather on fertiliser use. In general, the commentary in *Pesticide Usage* and *Pesticide Usage NI* is less useful, describing rises and falls rather than adding insight

³⁴ <http://www.statisticsauthority.gov.uk/news/standards-for-statistical-releases.html>

about the factors that are influencing the trends. Both present the statistics in three-dimensional charts, which can be difficult to interpret.

A2.7 *Fertiliser Practice* covers GB. There is no reference or link to comparable statistics for other countries, although the foreword states that the data are used to meet EU legislative obligations. *Pesticide Usage* covers the UK and includes links to comparable statistics produced by Scottish Government and AFBI. *Pesticide Usage NI* does not reference or link to comparable statistics for the rest of the UK.

Use language that is impartial, objective and professionally sound

A2.8 The text in all these releases is impartial. In *Fertiliser Practice*, sampling and non sampling variability are discussed in the text, but the terms 'standard error' and 'confidence level' are used without sufficient explanation. In 2012, some of the tables in section D of *Fertiliser Practice* had no information about the units being presented.

A2.9 Some of the *Pesticide Usage* releases include confidence intervals in an appendix, but not all, and the presentation is technical without sufficient explanation in relation to the use of the statistics. *Pesticide Usage Survey Report 236: Potato Stores in the United Kingdom 2010* relies on small sample sizes, but does not include confidence intervals. It also included errors in Table 10 and the Executive Summary, which were identified by the Assessment team. *Pesticide Usage Survey Report 237: Soft Fruit in the United Kingdom 2010*³⁵ omitted the use of soil sterilants from some of the charts, to avoid masking the changes in other pesticide groups (it accounts for 57 per cent of the weight of pesticide applied), but this was not made clear in the titles of the relevant charts. The presentation of percentages in figure 6b (in the same release) is very difficult to interpret.

A2.10 *Pesticide Usage NI* does not discuss sampling variability, but otherwise is impartial and professionally sound.

Include information about the context and likely uses

A2.11 The foreword to *Fertiliser Practice* includes factual information about the uses of the statistics, which include assessing the impact of government policies on water quality, but the publication does not explain what the statistics show in the context of those policies or provide links to where this information may be found. *Pesticide Usage NI* includes some information about the uses of the statistics, but this could be expanded to illustrate the importance of the statistics. *Pesticide Usage* includes very little information about the uses of the statistics.

A2.12 *Fertiliser Practice* includes some useful information about the quality of the statistics, outlining some key issues that might affect their use. However, quality measures are included without sufficient explanation of their impact on the use of the statistics. *Fertiliser Practice* includes a table that shows total

³⁵ <http://www.fera.defra.gov.uk/scienceResearch/science/lus/documents/softFruit2010.pdf>

fertiliser use, drawn from BSFP, but compiled by AIC, and includes no commentary about the quality of these statistics and how they relate to the rest of the statistics in the report.

A2.13 *Pesticide Usage* and *Pesticide Usage NI* do not include sufficient information about the quality of the statistics: in particular, neither discusses how potential sources of error may affect the quality and use of the statistics, nor how the quality of the data is assured.

Include, or link to, appropriate metadata

A2.14 *Fertiliser Practice* includes good information about the underlying survey and clear information about the revisions policy. The survey is explained in sufficient detail, and the explanation is accessible to the non expert. The release includes insufficient explanation of the methods that AIC uses to produce the table that shows the quantities of fertilisers used.

A2.15 *Pesticide Usage* and *Pesticide Usage NI* include a brief explanation of the underlying survey methods, but includes no information about how the data are processed and their quality assured, nor copies of (or links to) the questionnaires used. This can make it difficult to interpret the statistics. For example, in *Pesticide Usage Survey Report 236: Potato Stores in the United Kingdom 2010* one of the pesticides used is ethylene, which (where used) is applied as a gas throughout the period that the potatoes are stored. The release does not explain how this continuous application is interpreted in terms of the number of applications, and so its impact on 'total tonnage treated' (which is defined as the total tonnes of potatoes multiplied by the number of applications of pesticide).

Annex 3: Summary of assessment process and users' views

A3.1 This assessment was conducted from April to June 2012.

A3.2 The Assessment team – Jacob Wilcock and David Duncan-Fraser – agreed the scope of and timetable for this assessment with representatives of Defra and AFBI in April. The Written Evidence for Assessment was provided on 16 May. The Assessment team subsequently met Defra and AFBI during May and June to review compliance with the *Code of Practice*, taking account of the written evidence provided and other relevant sources of evidence.

Summary of users contacted, and issues raised

A3.3 Part of the assessment process involves our consideration of the views of users. We approach some known and potential users of the set of statistics, and we invite comments via an open note on the Authority's website. This process is not a statistical survey, but it enables us to gain some insights about the extent to which the statistics meet users' needs and the extent to which users feel that the producers of those statistics engage with them. We are aware that responses from users may not be representative of wider views, and we take account of this in the way that we prepare Assessment reports.

A3.4 The Assessment team received 20 responses from the user consultation. The respondents were grouped as follows:

Government department - GB	9
Government department - NI	2
Research and academia	8
Industry body	1

A3.5 The majority of the pesticide usage statistics users told us that they make extensive use of the statistics from the survey. All users told us that they were happy with the level of engagement with FERA and AFBI statisticians. One user was particularly impressed by the amount of data available online from FERA. Another user told us that the information available online wasn't suitable for their needs, but that FERA is always willing to provide bespoke datasets. One user told us that they felt that there was scope to raise the profile of the pesticides statistics by summarising key outputs in a more user friendly manner.

A3.6 The fertiliser usage statistics are used by contractors working on inventories of greenhouse gas and ammonia emissions from agriculture. The statistics are also used in other research contracts ranging from water and air quality to climate change science. One user told us that it may be useful for *Fertiliser Practice* to present information about trends in the use of plants that have little requirement for fertilisers.

Key documents/links provided

Written Evidence for Assessment Document

