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OECD SURVEY ON COUNTRIES' APPROACHES TO THE COLLECTION AND USE OF AGRICULTURAL PESTICIDE SALES AND USAGE DATA: SURVEY RESULTS

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FOREWORD

This document is the report of the OECD *Survey on Countries' Approaches to the Collection and Use of Agricultural Pesticide Sales and Usage Data* that was carried out in 2008 as part of the OECD Pesticide Programme (www.oecd.org/env/pesticides), within the context of its Risk Reduction Project. The survey focused principally on what type of data are collected and how these data are used. Twenty countries participated in the survey.

The 2008 survey updated a previous OECD survey carried out in 1997 which focused exclusively on agricultural pesticide *sales* data. (The results from the 1997 survey have been published as Document 7, in the OECD Series on Pesticides, reference ENV/JM/MONO(99)1.)

This document presents the survey results firstly on sales data and secondly (and in more detail) on usage data.

The draft report and results of the survey were approved by the 24th meeting of the Working Group on Pesticides that took place on 29-30 June 2009.

The Joint Meeting of the Chemicals Committee and the Working Party on Chemicals, Pesticides and Biotechnology of the OECD agreed that this document be unclassified and made available to the public. It is being published on the responsibility of the Secretary-General of the OECD.

OECD Survey on Countries' Approaches to the Collection and Use of Agricultural Pesticide Sales and Usage Data: Survey Results

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INTRODUCTION

1. This paper presents highlights of the *Survey of OECD countries' approaches to the collection and use of agricultural pesticide sales and usage data* that was carried out in the second to third quarter of 2008. (The questionnaire used in the survey can be found in Annex 1.) The survey updates a previous OECD survey carried out in 1997 which focused exclusively on agricultural pesticide sales data. (The results from the 1997 survey have been published as Document 7, in the OECD Series on Pesticides, reference ENV/JM/MONO(99)1.)

2. Twenty countries, i.e. nineteen OECD countries and one non-member country (Slovenia), responded to the 2008 survey, compared with 22 countries in 1997:

2008 Respondents	1997 Respondents
Australia (APVMA, DEWHA[a], Tasmania), Belgium, Canada, Czech Republic, Denmark, Finland, Germany, Ireland, Japan, Korea, Netherlands, Norway, **New Zealand**, **Poland**, Portugal, **Slovenia**, Sweden, Switzerland, United Kingdom, United States	Austria, **Australia**, **Belgium**, **Canada**, **Czech Republic**, **Denmark**, **Finland**, **Germany**, Greece, Hungary, **Ireland**, **Japan**, **Korea**, Mexico, **Netherlands**, **Norway**, **Portugal**, Slovak Republic, **Sweden**, **Switzerland**, **United Kingdom**, **United States**
In **bold, countries** that responded in 2008 (not in 1997)	In **bold, countries** that also responded to the 2008 questionnaire

SALES DATA HIGHLIGHTS

3. All 20 countries that responded to the survey collect data on agricultural pesticide sales, and in all but New Zealand[b] the data collection is mandatory. Nineteen countries collect data annually (the Czech Republic collects data quarterly), and New Zealand also collects certain data (on monetary value) quarterly. In all but four countries (Japan, Korea, Norway, Sweden) the data are treated as confidential or protected in some other way, for example by being published only in an aggregated form.

4. All 20 countries collect sales data from individual pesticide manufacturing companies (some countries specified that data was collected from the "authorisation/approval holders"), and several countries also collect data from other sources including pesticide manufacturers associations, retailers, wholesalers, importers and exporters, and national plant protection industry associations. This is generally done using a written form. In all but two countries the data are collected by government authorities: in Korea they are collected by the Korea crop protection association, and in New Zealand they are collected by an independent consultancy. Most of the 20 countries collect data on all sales nationwide, and most collect the data by volume of both formulated products and active ingredients. Several countries also collect data on monetary value.

[a] DEWHA : Department of the Environment, Water, Heritage and the Arts

[b] In New Zealand, the data is collected from voluntary participants. It is estimated that the survey covers 85% of the New Zealand market.

5. In all countries but Australia the data on pesticide sales are used for "general information," and most countries also use the data for other purposes such as to track the use of specific products or to formulate strategies or policies. Three countries (Poland, Slovenia, and Switzerland) use the data to track pesticide use on specific crops. Australia and the United Kingdom use the data to calculate pesticide product levies which are used to fund the pesticide review and registration process. Several other countries also use the data to calculate levies or environmental taxes (but they did not say specifically how the money from the levies and taxes is used) and also as a basis to calculate risk trends (in Norway). The Czech Republic indicated that data collected was also used for compliance purposes, e.g. to control the quantity of products placed on the market. Ireland alone said it submits pesticide sales data to Eurostat as part of its obligations under Directive 91/414/EC, and the United Kingdom noted that a proposed EU statistics regulation under the EU "thematic strategy for the sustainable use" of pesticides, which will require collection of pesticide sales data, is likely to come into force in 2010/2011.

6. Regarding measures or indicators used to assess whether the sales information collected contributed to desired outcomes, various responses were provided. For example, some countries use the level of levies/taxes collected, others input sales data into an index or indicator (e.g. HAIR) or assess the level of industry accuracy/compliance with the collection of data. Countries were generally satisfied with the level of success achieved, although some recognised that data did not seem to be "very reliable" and that the collection process needed improvement. Different types of success were mentioned ranging from levies/taxes obtained and adequately funding the collection system, cases of non-compliance (e.g. illegal products), reduction in pesticide use and environmental impacts, restriction on highly toxic pesticides or data well submitted by the registrants.

7. All countries collecting pesticide sales data maintain the data electronically. Database management systems are most frequently used, followed by spreadsheet packages. In the majority of countries, access to the raw data is restricted to domestic governments. In Finland and the Netherlands, access is even limited to the officers in charge of collecting and analyzing the data. On the contrary, the Czech Republic also provides access to foreign governments and the European Commission, while Portugal provides open access to the raw sales data (and publishes them).

8. With the exception of the Czech Republic, all countries that collect pesticide sales data, aggregate the data and all but Switzerland aggregate it by type of pesticide (fungicide, herbicide, insecticide, growth regulators, etc.). Half of the countries also aggregate the data by chemical family and four (Denmark, Finland, Sweden and United States) aggregate it by use (examples: crop classes; forestry vs. agricultural). Twelve countries provide access to the aggregated data to the public. The others (i.e., Australia, Finland, Germany, Ireland, Japan, New Zealand and the US) limit the access to domestic governments or to Eurostat in the EU. All countries except Ireland and the United States publish the aggregated/analysed data and make these publications publicly available. Descriptions of the contents or examples of the publications were provided by all responding countries and many indicated that the documents were available on the Internet.

9. All but four countries (Australia, Ireland, Japan and Poland) carry out analyses of the sales data. The analyses are carried out for several purposes, including: to detect year to year trends and reasons for important changes in the sales of the active ingredients and/or formulated products; to assist in the calculation of areas treated and frequency of applications; to control and verify production of products placed on the market, imports and exports; and to correlate with collected usage data.

USAGE DATA HIGHLIGHTS

10. Thirteen of the 20 countries that responded to the survey collect data on pesticide usage, and several more plan to begin within the next five years. The collection of pesticide usage data is mandatory, or is expected to be mandatory in the future (e.g. under an anticipated EU requirement), in half of the countries (Belgium, Czech Republic, Finland, Ireland, Poland, Portugal, Slovenia, the United Kingdom).

Currently collect pesticide usage data	**Plan to collect pesticide usage data within the next 5 years**
Australia (private company collects data for the Australian agricultural chemical industry; Tasmania collected data for a water monitoring project in 2006), **Belgium, Canada, Czech Republic, Germany, Ireland, Netherlands, Norway, Poland, Sweden, Switzerland** (collects data for lake water projects), **United Kingdom, United States**	Australia (APVMA), Denmark, Finland, Korea, Portugal, Slovenia

Who Collects the Data, and from Whom?

11. In all 13 countries that collect pesticide usage data, the data are, have been, or will be collected by one or more government authorities, sometimes in co-operation with farmer/grower groups or other organisations. Canada and the United States also obtain some of their pesticide usage data from proprietary sources. Australia is currently the exception, as all of its pesticide usage data (except those collected by Tasmania in 2006) are collected by a private market research company on behalf of the Australian agricultural chemical industry.

Who collects the data	**Countries**
• agricultural authority (incl. extension service, co-operation, research institute)	• Canada, Germany, Switzerland, United States
• pesticide authority	• Canada, Czech Republic, Ireland, United Kingdom (PSD commissions data collection to CSL)
• national statistics authority/service	• Canada, Netherlands, Norway, Sweden, US
• public health authority	• Belgium
• environmental / water authority	• Australia (Tasmania), Switzerland
• plant health and seed inspection service	• Poland
• state authority or service	• United States
• farmer/grower organisations	• Germany

• pesticide manufacturers association	• United States
• proprietary sources (e.g. private marketing research company)	• Australia (industry), Canada, United States

12. All 13 countries collect data on pesticide usage from farmers and/or "professional users," and several countries obtain data from other sources as well.

From whom are the data collected	**Countries**
• farmers	• Australia (industry, Tasmania), Belgium, Canada, Czech Republic, Germany, Ireland, Netherlands, Norway, Poland, Sweden, Switzerland, United Kingdom, United States
• professional users	• Canada, Germany, Ireland, Netherlands, Sweden, United Kingdom, United States
• users (gardeners)	• Germany
• individual pesticide manufacturing companies	• Canada
• retailers	• Australia (Tasmania)
• network of accountancies	• Belgium
• seed merchants and seed certification authority	• Ireland
• expert polls (farmer focus groups and extension personnel)	• Canada
• top-down surveys (farmers, pesticide distributors, co-operatives, university and government crop experts, grower associations, etc.)	• Canada

The Collection Process

13. The majority of the 13 countries use a written form to collect pesticide usage data, and more than half also use telephone interviews and/or visits. The frequency of data collection varies among the 13 countries from quarterly to annually to once every several years. A number of countries survey different crops or crop categories (e.g. arable) each year. The majority of the countries organise their data collection by crop, farm, and region/river basin.

14. The majority of the 13 countries also collect data on "representative samples"; only two countries (Netherlands, and Sweden) collect data on "all pesticide usage nation-wide," and only Australia (Tasmania) has collected data on "chemical products of concern." Most responding countries use data on

pesticide applications from farm log books, and most verify the accuracy and completeness of their pesticide usage data.

Types of Data Collected

15. All 13 countries collect data on the volume of formulated products. Six countries (Australia (Tasmania), Canada, Netherlands, Poland, Sweden, United States) collect data on the volume of active ingredients, and four countries (Czech Republic, Germany, Ireland, Switzerland) said they derive statistics on active ingredients from the data on formulated products. Most of the 13 countries subdivide usage data of formulated products by geographic region, by use or by crop. Four countries (Czech Republic, Poland, Switzerland, United Kingdom) aggregate the data they collect on formulated products or active ingredients by chemical group, and one country (Belgium) aggregates data on both formulations and active ingredients by "functional groups" (e.g. selective herbicides). Finally, only two countries (Canada, United States) collect data on monetary value.

How the Data are Used

16. Almost all countries use pesticide usage data "for general information" and "to formulate strategies or policies." Most of the countries also use the data "to track use on specific crops." Seven countries use the data "to track use of specific products" and three countries (Poland, UK, US) use the data "to target residue monitoring." Several countries provided additional uses of pesticide usage data, including: to monitor trends in pesticide usage, to produce pesticide risk indicators, to support parts of the pesticide registration process, to control uses of products and compliance with subsidy conditions, to inform food and water monitoring programmes, to inform research and development projects, to analyse regional differences, and to inform studies of agricultural management effects on lake water quality.

Success in Achieving Desired Outcomes and Measures/Indicators of Success

17. The 13 countries provided widely diverging answers (or no answers at all) to the survey questions regarding their "success in achieving desired outcomes" through the collection of pesticide usage data, and "measures or indicators used to assess whether the information collected contributed to the success." Regarding "measures" or "indicators", some countries mentioned that they use the data themselves or some calculated indexes/indicators; other countries indicated that they could develop national pesticide action plans based on the data. Regarding "success", while a few countries recognized that success was limited or difficult to assess, most countries mentioned that collection of usage data have helped monitor risks more accurately (e.g. through more targeted monitoring, identification of pesticide risk hot spots), control legal use, refine risk assessments, recommend reduced dose rates and develop pesticide policy.

What Data are Collected?

18. The 13 countries collect a considerable range of data related to pesticide usage.

Identifier	**Countries**	
• field identifier	4	Czech Republic, Germany, Ireland, United Kingdom
• farmer identifier	9	Australia (Tasmania), Belgium, Czech Republic, Germany, Ireland, Netherlands, Norway, Sweden, United Kingdom
• GIS identifier	3	Belgium, Germany, Ireland

Crop	Countries	
• crop treated	13	All countries
• area of crop grown	12	Australia (industry, Tasmania), Belgium, Czech Republic, Germany, Ireland, Netherlands, Norway, Poland, Sweden, Switzerland, United Kingdom, United States
• base area treated	9	Australia (Tasmania), Canada, Germany, Ireland, Norway, Poland, Sweden, United Kingdom, United States
• total area treated	10	Australia (industry), Canada, Czech Republic, Germany, Ireland, Netherlands, Norway, Sweden, United Kingdom, United States

Product	Countries	
• product used	13	All countries
• amount used	12	Australia (industry), Belgium, Canada, Czech Republic, Ireland, Netherlands, Norway, Poland, Sweden, Switzerland, United Kingdom, United States
• average product rate of application (kg/ha)	12	Australia (industry, Tasmania), Canada, Czech Republic, Germany, Ireland, Netherlands, Norway, Poland, Sweden, Switzerland, United Kingdom, United States
• active ingredient amount used	8	Belgium, Canada, Ireland, Netherlands, Sweden, Switzerland, United Kingdom, United States
• average active ingredient rate of application	7	Canada, Ireland, Netherlands, Sweden, Switzerland, United Kingdom, United States

Application	Countries	
• biological control methods	7	Australia (Tasmania), Canada, Germany, Netherlands, Switzerland, United Kingdom, United States
• sample size	5	Ireland, Netherlands, Switzerland, United Kingdom, United States
• timing of application	11	Australia (industry, Tasmania), Canada, Czech Republic, Germany, Ireland, Netherlands, Norway, Poland, Switzerland, United Kingdom, United States
• formulation (in addition to product used)	8	Australia (industry, Tasmania), Canada, Ireland, Netherlands, Poland, Switzerland, United Kingdom, United States
• average number of applications	8	Australia (Tasmania), Canada, Ireland, Netherlands, Sweden, Switzerland, United Kingdom, United States

• method of application	10	Australia (Tasmania), Canada, Czech Republic, Ireland, Netherlands, Norway, Sweden, Switzerland, United Kingdom, United States
• application volume	6	Canada, Czech Republic, Ireland, Switzerland, United Kingdom, United States
• mitigation measures	3	Netherlands, Sweden, United States
• buffer width	2	Sweden, United Kingdom

Cost	**Countries**	
• expenditures	2	Canada, United States
• average product price	3	Belgium, Canada, United States
• average cost per base area treated	3	Belgium, Canada, United States
• average cost per total area treated	4	Australia (industry), Belgium, Canada, United States

Additional data listed by survey respondents	**Countries**
• IPM practices (biological control and mechanical control)	• Canada, Netherlands
• application practices and subsequent activities pertaining to occupational exposure assessment	• Canada
• crop management data (date of sowing, sowing method), water volume, cover crops where applicable, seed dressing information	• Canada, Ireland, United Kingdom
• target pests and/or diseases	• Canada, Czech Republic, United States

Management and Use of Raw Data

19. All 13 countries that collect pesticide usage data maintain the data electronically. Databases and spreadsheet packages are the most frequently used storage systems.

20. In almost all countries, access to the raw data is restricted to domestic governments, often a single federal department or agency. In Australia and the United States, access is limited to the team or organization that collected the usage data. Only the Czech Republic provides access to foreign governments and the European Commission on request.

Aggregation and Analysis of the Data

21. With the exception of Canada, all countries that collect pesticide usage data, aggregate the data. In particular:

- Ten countries (i.e. all but Australia and Poland) aggregate it by use (i.e., mostly by crop) on a regular basis.
- Ten (i.e., all but Australia and Norway) also aggregate it by type of pesticide (fungicide, herbicide, insecticide, growth regulators, etc.).
- Four countries (Czech Republic, Ireland, Poland and United Kingdom) aggregate the data by chemical family.
- In Belgium and Sweden, data are also aggregated by geographic locations and regions.
- In Australia, since the collection is carried out by a private company, the raw data is aggregated as required by the company's clients.

22. Most countries provide public access (sometimes with a fee) to the aggregated usage data. The Czech Republic and Norway limit the access to domestic and/or foreign governments. All countries publish the aggregated/summarized data and make these publications publicly available. Descriptions of the contents or examples of the publications, such as yearly reports and articles in scientific journals, were provided by most responding countries and many indicated that the documents were available on the Internet.

23. All but the United States carry out analyses of the usage data. The analyses are carried out for various purposes, including:

- to follow the evolution of pesticide usage over time;
- to calculate risk indicators (in combination with other data) and other indexes;
- to control use of registered products;
- to compare with sales data; and
- to prepare specific sector reports (e.g. arable, horticulture) on pesticide usage.

Annex 1 – Survey Questionnaire

Survey on Collection and Use of Agricultural Pesticide Sales and Usage Data

A. SALES DATA

General

1. Does your country collect data on agricultural pesticide sales?

   ___ yes ___ no

   If yes, go to question 3.
   If no, go to question 2.

2. Is your country planning to, or considering whether to, start collecting data on pesticide sales within the next five years?

   ___ yes ___ no

   If yes, go to question 4.
   If no, please give the main reasons (e.g. lack of mandate, lack of financial resources). Then go to question 29.

3. When did your country begin collecting data on pesticide sales?

4. Is the collection of pesticide sales data mandatory (or will it be mandatory)?

   ___ yes ___ no

   If yes, please provide the title of the law or other order which requires the collection of pesticide sales data.

5. Why are sales data collected and how are the data used? (tick √ as appropriate)

   ___ for general information
   ___ to track use of specific products
   ___ to track pesticide use on specific crops
   ___ to formulate strategies or policies
   ___ other (please explain)

   5.1 What measures or indicators are used to assess whether the information collected contributes to the desired outcomes sought in Question 5?

5.2 What success has your country had in achieving these desired outcomes through the collection of pesticide sales data?

6. Are the pesticide sales data protected as confidential information or in other ways?

___ yes ___ no

If yes, how are they protected?

Type of Data Collected

7. Do you collect pesticide sales data by volume (e.g. tonnes), monetary value, or some other measure? (tick √ as appropriate)

___ volume (go to question 8)
___ monetary value (go to question 9)
___ both volume and monetary value (answer questions 8 and 9)
___ other (please explain)

8. *(For respondents who collect pesticide sales data by volume.)* Do you collect data on volume of formulated products, volume of active ingredients, or both? (tick √ as appropriate)

___ formulated products (go to question 8.1)
___ active ingredients (go to question 8.2)
___ both formulated products and active ingredients (answer questions 8.1, 8.2)
___ other (please explain)

8.1 Are the data on volume of formulated products:

provided for individual products?	___ yes	___ no
aggregated by chemical groups (e.g. organophosphate herbicides)?	___ yes	___ no
subdivided by different uses (e.g. agriculture, horticulture, forestry, gardening, amenities, etc.)?	___ yes	___ no
subdivided by geographic regions?	___ yes	___ no
other (please explain)		

8.2 Are the data on volume of active ingredients:

provided for individual active ingredient?	___ yes	___ no
aggregated by chemical groups (e.g. organophosphate herbicides)?	___ yes	___ no
subdivided by different uses (e.g. agriculture, horticulture, forestry, gardening, amenities, etc.)?	___ yes	___ no
subdivided by geographic regions?	___ yes	___ no
other (please explain)		

9. *(For respondents who collect pesticide sales data by monetary value.)* Do you collect data on the value of formulated products, the value of active ingredients, or both or the value aggregated by chemical groups (e.g. organophosphate herbicides)? (tick √ as appropriate)

___ value of formulated products
___ value of active ingredients
___ value of both formulated products and active ingredients
___ aggregated by chemical groups
___ other (please explain)

10. Do you collect data on all pesticide sales nationwide, representative samples of sales, or other? (tick √ as appropriate)

___ all sales nationwide
___ representative samples (please explain)
___ other (please explain)

11. Do you supplement the sales data with data on actual pesticide use?

___ yes ___ no

12. Do sales data include export sales? ___ yes ___ no

If yes, can you segregate the export sales from sales for use within your country?

___ yes ___ no

If yes, how do you do it?

Collection Process

13. What ministry, agency or organisation is responsible for collecting the data?

14. How much staff time (i.e. man hours) and resources are required for the data collection?

15. From whom are the data collected? (tick √ as appropriate)
    ___ pesticide manufacturers associations
    ___ individual pesticide manufacturing companies
    ___ retailers
    ___ other (please explain)

16. Are the data collected using (tick √ as appropriate):
    ___ a written form?
    ___a telephone interview?
    ___visits?
    ___some other method?

17. How frequently are the data collected?

18. Do you verify the accuracy and completeness of the data?

    ___ yes ___ no

    If yes:

    - how much staff time and resources are involved?

    - describe by which methods the accuracy and completeness of the data is verified.

Storage and Use of the Raw Data

19. Are the pesticide sales data maintained in a computerized data base?

___ yes ___ no

If yes, please identify the data base software.
If no, please explain how the data are stored.

20. Who has access to the raw pesticide sales data that have been collected? (tick √ as appropriate)

___ domestic government
___ foreign governments
___ pesticide industry
___ the public
___ other (please explain)

21. Are the raw sales data published?

___ yes ___ no

Use of Aggregated Data

22. Once pesticide sales data are collected, are they aggregated in any way for purposes of analysis or dissemination?

___ yes ___ no

If yes, go to question 23.
If no, go to section C.

23. Are the data aggregated by: (tick √ as appropriate)

___ chemical family?
___ type of pesticide? (please indicate in the space below how pesticides are grouped)
___ use? (please explain)
___ other? (please explain)

24. Who has access to the aggregated data? (tick √ as appropriate)

___ domestic government
___ foreign governments
___ pesticide industry
___ the public
___ other (please explain)

25. Are the data analysed in any way?

___ yes ___ no

If yes, please explain what sorts of analyses are done.

26. How much staff time and resources are involved in aggregating and/or analysing the data?

27. Are the aggregated/analysed sales data published?

___ yes ___ no

If yes, please describe the contents of the publication(s). Please include a sample, if possible.

28. To whom is the publication available? (tick √ as appropriate)

___ domestic government
___ foreign governments
___ pesticide industry
___ the public
___ other (please explain)

B. USAGE DATA

General

1. Does your country collect data on agricultural pesticide usage?

   ___ yes ___ no

   If yes, go to question 3.
   If no, go to question 2.

2. Is your country planning to, or considering whether to, start collecting data on pesticide usage within the next five years?

   ___ yes ___ no

   If yes, go to question 4.
   If no, please give the main reasons (e.g. lack of mandate, lack of financial resources). Then go to section C.

3. When did your country begin collecting data on pesticide usage?

4. Is the collection of pesticide usage data mandatory (or will it be mandatory)?

   ___ yes ___ no

   If yes, please provide the title of the law or other order which requires the collection of pesticide usage data.

5. Why are usage data collected and how are the data used? (tick √ as appropriate)

   ___ for general information
   ___ to track use of specific products
   ___ to track pesticide use on specific crops
   ___ to formulate strategies or policies
   ___ to target residue monitoring activity
   ___ other (please explain)

   5.1 What measures or indicators are used to assess whether the information collected contributes to the desired outcomes sought in Question 5?

   5.2 What success has your country had in achieving these desired outcomes through the collection of pesticide usage data?

Type of Data Collected

6. Do you collect pesticide usage data by volume (e.g. tonnes), monetary value, or some other measure? (tick √ as appropriate)

___ volume (go to question 7)
___ monetary value (go to question 8)
___ both volume and monetary value (answer questions 7 and 8)
___ other (please explain)

7. *(For respondents who collect pesticide usage data by volume.)* Do you collect data on volume of formulated products, volume of active ingredients, or both? (tick √ as appropriate)

___ formulated products (go to question 7.1)
___ active ingredients (go to question 7.2)
___ both formulated products and active ingredients (answer questions 7.1, 7.2)
___ other (please explain)

7.1 Are the data on volume of formulated products:

provided for individual products?	___ yes	___ no
aggregated by chemical groups (e.g. organophosphate herbicides)?	___ yes	___ no
subdivided by different uses (e.g. agriculture, horticulture, forestry, gardening, amenities, etc.)?	___ yes	___ no
subdivided by geographic regions?	___ yes	___ no
other (please explain)		

7.2 Are the data on volume of active ingredients:

provided for individual active ingredient?	___ yes	___ no
aggregated by chemical groups (e.g. organophosphate herbicides)?	___ yes	___ no
subdivided by different uses (e.g. agriculture, horticulture, forestry, gardening, amenities, etc.)?	___ yes	___ no
subdivided by geographic regions?	___ yes	___ no
other (please explain)		

8. *(For respondents who collect pesticide usage data by monetary value.)* Do you collect data on the value of formulated products, the value of active ingredients, or both or the value aggregated by chemical groups (e.g. organophosphate herbicides)? (tick √ as appropriate)

___ value of formulated products
___ value of active ingredients
___ value of both formulated products and active ingredients
___ aggregated by chemical groups
___ other (please explain)

9. Do you collect data on all pesticide usage nationwide, representative samples of usage, or other? (tick √ as appropriate)

___ all usage nationwide
___ representative samples (please explain)
___ chemical products likely to be of concern
___ other (please explain)

10. Do you collect the following data (tick √ as appropriate)?

___ field identifier

___ farmer identifier

___ GIS identifier

___ crop treated

___ area of crop grown

___base area treated

___total area treated

___ product used

___ amount used

___ average product rate of application (kg/ha)

___active ingredient amount used

___average active ingredient rate of application

___ any biological control methods used

___sample size

___ timing of application

___ formulation (in addition to product used)

___ average number of applications

___ method of application

___ application volume

___ mitigation measures

___ buffer width

___expenditures

___average product price

___average cost per base area treated

___average cost per total area treated

___ any additional data (please explain)

Collection Process

11. What ministry, agency or organisation is responsible for collecting the data?

12. How much staff time (i.e. man hours) and resources are required for the data collection?

13. From whom are the data collected? (tick √ as appropriate)
    ___ pesticide manufacturers associations
    ___ individual pesticide manufacturing companies
    ___ retailers
    ___ farmers
    ___ users (gardeners)
    ___ professional users
    ___ other (please explain)

14. Are the data collected using (tick √ as appropriate):
    ___ a written form?
    ___a telephone interview?
    ___visits?
    ___some other method?

15. How frequently are the data collected?

16. Are data from record keeping on treatments (log books) used?

    ___ yes ___ no

17. Are administrative data collected for specific purposes (e.g. hygiene control) used?

    ___ yes ___ no

18. Is data collection organised by crop, farm, or region (or river basin) (tick √ as appropriate)?

    ___ by crop
    ___ by farm
    ___ by region (or river basin)

19. Do you verify the accuracy and completeness of the data?

___ yes ___ no

If yes:

- how much staff time and resources are involved?

- describe by which methods the accuracy and completeness of the data is verified.

Storage and Use of the Raw Data

20. Are the pesticide usage data maintained in a computerized data base?

___ yes ___ no

If yes, please identify the data base software.
If no, please explain how the data are stored.

21. Who has access to the raw pesticide usage data that have been collected? (tick √ as appropriate)

___ domestic government
___ foreign governments
___ pesticide industry
___ the public
___ other (please explain)

22. Are the raw usage data published?

___ yes ___ no

Use of Aggregated Data

23. Once pesticide usage data are collected, are they aggregated in any way for purposes of analysis or dissemination?

___ yes ___ no

If yes, go to question 24.
If no, go to section C.

24. Are the data aggregated by: (tick √ as appropriate)

___ chemical family?
___ type of pesticide? (please indicate in the space below how pesticides are grouped)
___ use? (please explain)
___ other? (please explain)

25. Who has access to the aggregated data? (tick √ as appropriate)

___ domestic government
___ foreign governments
___ pesticide industry
___ the public
___ other (please explain)

26. Are the data analysed in any way?

___ yes ___ no

If yes, please explain what sorts of analyses are done.

27. How much staff time and resources are involved in aggregating and/or analysing the data?

28. Are the aggregated/analysed usage data published?

___ yes ___ no

If yes, please describe the contents of the publication(s). Please include a sample, if possible.

29. To whom is the publication available? (tick √ as appropriate)

___ domestic government
___ foreign governments
___ pesticide industry
___ the public
___ other (please explain)

C. To Provide More Information...

If you would like to provide more information, please attach as many additional pages as needed and reference your information with the number of the corresponding question.

D. Contact Information

Please provide:

Name of person completing the questionnaire

Address

Telephone number

Fax number

E-mail address