

**Documentation of statistics for
Sales of Pesticides and Pesticides Usage in Crop Farming 2014**

1 Introduction

The purpose of the statistics is to show changes in sales of pesticides and developments in the use of pesticides in crop farming. The statistics have been produced since 1992. The statistics for 1992 show the figures for the years 1981-1991. As regards sales of pesticides, Statistics Denmark has figures from 1975. The Danish Environmental Protection Agency has been collecting sales figures since 1956/57. Since 2002 only main figures have been published in annual publications.

2 Statistical presentation

The sales statistics show developments in the sales of pesticides by area of use: crop protection, wood protection and other protection. Sales of pesticides are estimated in tonnes of active substances, tonnes of pesticides and number of products. The figures are indexed. The statistics on the use of pesticides in crop farming show changes in sales of pesticides analysed by herbicides, plant growth regulators, fungicides and insecticides. The figures for the use of pesticides in crop farming are compiled in tonnes of active substances and kilogrammes of active substances per hectare. These figures are indexed. Furthermore, the figures are calculated as kilogrammes of active substances per hectare per application. Finally, statistics of frequency of application per hectare by crop products, pesticide groups and types of farming are compiled. From 2002 only main figures compiled in the Environmental Protection Agency have been published.

2.1 Data description

The statistics show the development in sale and use of pesticides in crop farming. The statistic is compiled on the basis of primary data on all legal substances used in farming, both regarding quantities and active substances in these

2.2 Classification system

Work in progress.

2.3 Sector coverage

Agriculture.

2.4 Statistical concepts and definitions

Sales of pesticides are estimated in tonnes of active substances, tonnes of pesticides and number of products. The domestic production excludes exports. The sold quantities can vary from the use because of changes in stocks. The changes in stocks can sometimes be considerable, e.g. in connection with notices of tax increases.

The use of pesticides in crop farming is estimated in tonnes of active substances and kilogrammes of active substances per hectare. Furthermore, the figures are calculated on kilogrammes of active substances per hectare per application. Finally, statistics of frequency of application per hectare by crop products, pesticide groups and types of farming are compiled.

Only the products that are used in the field crops for combating weeds, diseases and vermin and for regulating plant growth are included in the calculation of the use of pesticides in crop farming. The areas treated with pesticides in crop farming consist of arable land with cereal, dried pulses, root crops, seeds for industrial use, seeds for sowing, green maize, grass and clover field in rotation, green fodder and vegetables grown in the open. Arable lands for fruit and soft fruit, nursery areas, permanent grassland and greenhouse plant production are not included. Fallow land is not included. From 1997 onwards, the organic areas are not included. The area covered in the statistics includes 97 per cent of the arable land in rotation in 1999.

The pesticides used in crop farming account for 80 per cent of the sales of pesticides in 1999. The Danish Environmental Protection Agency and the Danish Crop Protection Association assess how many pesticides are used in crop farming.

The indicator of frequency of application is used as an indicator of the general environmental impact of pesticides. This indicator includes the volume of active ingredients sold, spraying frequency and the area of arable land in Denmark.

Variables included:

Pesticide Active Ingredient:

Pesticide use: total sales of a given pesticide in a given year for use in crop farming.

Total area of arable land in rotation in Denmark in crop farming (hectare).

Frequency of application (calculated number of applications per year based on annual statement from industry describing the total volume of products sold).

Recommended rate of application per hectare cultivated.

General knowledge of patterns of use.

Total volume of pesticide usage in crop farming.

Methods for combining variables:

Frequency of Application (FA) = $(\text{kg a.}iij/\text{rate})i \times 1000 \text{ hectare}j$

Kg active substances per hectare per application = $(\text{total}j/\text{hectare}j)/\text{FA}$

where: rate = recommended application rate per hectare cultivated (kg a.i./hectare) hectare = area of arable land in Denmark i = a certain pesticide active ingredient j = a particular year (e.g., 1985)
total = pesticide usage in crop farming

2.5 Statistical unit

Legal entities

2.6 Statistical population

The sales statistics are compiled on the basis of primary data submitted by the Environmental Protection Agency, which collects information about the annual sales of pesticides from all the 116 producers and importers which have been approved by the Agency. The domestic production excludes exports. Subsequently, the data are summarised before being published.

The statistics on the use of pesticides in crop farming are compiled on the basis of data reported by producers and importers. Only products which are used in field crops for combating weeds, diseases and vermin and for regulating plant growth are included. They are estimated to account for 88 per cent of the total sales of pesticides for crop protection. The products intended for other outdoor purposes (e.g. fruit growing and market gardens) are as far as possible excluded.

The Environmental Protection Agency makes an assessment of the pesticides sold by crop type. Data on areas with the respective crops are extracted from the annual agricultural and horticultural census.

2.7 Reference area

Denmark.

2.8 Time coverage

1981-

2.9 Base period

Not relevant for these statistics.

2.10 Unit of measure

Kilo.

2.11 Reference period

Year.

2.12 Frequency of dissemination

Annually.

2.13 Legal acts and other agreements

The Act on Statistics Denmark (Lov om Danmarks Statistik), Section 6.

2.14 Cost and burden

Irrelevant in this survey.

2.15 Comment

For further information please contact Statistics Denmark.

3 Statistical processing

Not relevant. Data gathered and manipulated by other public agency.

3.1 Source data

The sales statistics are compiled on the basis of primary data submitted by the Environmental Protection Agency, which collects information about the annual sales of pesticides from all the 116 producers and importers which have been approved by the Agency. The domestic production excludes exports. Subsequently, the data are summarised before being published. The statistics on the use of pesticides in crop farming are compiled on the basis of data reported by producers and importers. Only products which are used in field crops for combating weeds, diseases and vermin and for regulating plant growth are included. They are estimated to account for 88 per cent of the total sales of pesticides for crop protection. The products intended for other outdoor purposes (e.g. fruit growing and market gardens) are as far as possible excluded. The Environmental Protection Agency makes an assessment of the pesticides sold by crop type. Data on areas with the respective crops are extracted from the annual agricultural and horticultural census.

3.2 Frequency of data collection

Yearly.

3.3 Data collection

Administrative sources.

3.4 Data validation

When the data are collected in the database by the Environmental Protection Agency, they are examined to check whether the product volumes tally with the volumes of active substances.

The sales figures for the active substances are compared with the figures for the previous year. Statistics Denmark sums up the data and checks that the total figures are correct.

In the event of misunderstandings or mistakes or surprising developments, contact is made with the Environmental Protection Agency.

3.5 Data compilation

Not relevant for these statistics.

3.6 Adjustment

Not relevant for these statistics.

4 Relevance

The statistics cover the need for information on which substances and amounts of pesticides that are being used. This information is used along with the documentation used in connection with approval of pesticides, as an essential prerequisite in order to assess some of the environmental and health risks associated with the use of pesticides.

4.1 User Needs

Local authorities, counties, ministries, organisations, international organisations, the media, private companies, institutions of education and private individuals who take an interest in pesticide sales and the use of pesticides in crop farming.

4.2 User Satisfaction

Not evaluated.

4.3 Data completeness rate

Work in progress.

5 Accuracy and reliability

None.

5.1 Overall accuracy

The technical quality of the statistics is very high, among other things because the statistics cover the total area and there is a very high response rate. When the data are collected in the database by the Environmental Protection Agency, they are examined to check whether the product volumes tally with the volumes of active substances. The sales figures for the active substances are compared with the figures for the previous year. Statistics Denmark sums up the data and checks that the total figures are correct. In the event of misunderstandings or mistakes or surprising developments, contact is made with the Environmental Protection Agency.

5.2 Sampling error

Not relevant for these statistics.

5.3 Non-sampling error

Not relevant for these statistics.

5.4 Quality management

Statistics Denmark follows the recommendations on organisation and management of quality given in the Code of Practice for European Statistics (CoP) and the implementation guidelines given in the Quality Assurance Framework of the European Statistical System (QAF). A Working Group on Quality and a central quality assurance function have been established to continuously carry through control of products and processes.

5.5 Quality assurance

Statistics Denmark follows the principles in the Code of Practice for European Statistics (CoP) and uses the Quality Assurance Framework of the European Statistical System (QAF) for the implementation of the principles. This involves continuous decentralized and central control of products and processes based on documentation following international standards. The central quality assurance function reports to the Working Group on Quality. Reports include suggestions for improvement that are assessed, decided and subsequently implemented.

5.6 Quality assessment

Data collected by another agency, and it is therefore difficult to come up with an accurate assessment of the statistics overall quality. However, validity is checked using other sources for comparison, and consequently it is estimated to be of reasonable quality.

5.7 Data revision - policy

Statistics Denmark revises published figures in accordance with the [Revision Policy for Statistics Denmark](#). The common procedures and principles of the Revision Policy are for some statistics supplemented by a specific revision practice.

5.8 Data revision practice

No provisional statistics are published. The pesticide statistics from the Danish Plant Protection Agency are published at the end of February and at the beginning of March. The statistics only include sales from members. According to the Danish Crop Protection Association the pesticide statistics include 95 per cent of sales. If these data were to be used to publish provisional statistics, it would be necessary to make an enumeration of the last 5 per cent of sales.

6 Timeliness and punctuality

The statistics was published according to schedule.

6.1 Timeliness and time lag - final results

Annually. The statistics was published within two weeks of Statistics Denmark receiving data from the Danish Environmental Protection Agency.

6.2 Punctuality

The statistics was published according to schedule.

7 Comparability

The Danish Crop Protection Association also collects data about sales of pesticides. However, the material is not suitable for use in connection with the compilation of pesticide statistics as the association only has nineteen members. The statistics can give a rough idea about developments. The statistics are published earlier than data are received from the Danish Environmental Protection Agency.

7.1 Comparability - geographical

No or poor comparison with international statistics.

7.2 Comparability over time

The Environmental Protection Agency evaluates and approves the pesticides. In the light of new information some pesticides can be phased out. Some substances which used to be characterised as active substances can now be characterised as adhesive substances. Therefore, data break may be seen.

7.3 Coherence - cross domain

The Danish Crop Protection Association also collects data about sales of pesticides. However, the material is not suitable for use in connection with the compilation of pesticide statistics as the association only has nineteen members. The statistics can give a rough idea about developments. The statistics are published earlier than data are received from the Danish Environmental Protection Agency.

7.4 Coherence - internal

Not relevant for these statistics.

8 Accessibility and clarity

Environment and Energy (*Statistical News*) and *StatBank Denmark*.

8.1 Release calendar

The publication date appears in the release calendar. The date is confirmed in the weeks before.

8.2 Release calendar access

The Release Calendar can be accessed on our English website: [Release Calendar](#).

8.3 User access

Statistics are always published at 8:00 a.m. at the day announced in the release calendar. No one outside of Statistics Denmark can access the statistics before they are published.

8.4 News release

There is no separate news release for this statistic.

8.5 Publications

Annual publications: *Statistical Yearbook* and *Statistical 10-year Review*.

8.6 On-line database

PEST1 and PEST2

8.7 Micro-data access

The National Environmental Protection Agency keeps the data at micro level. As regards sales of pesticides, Statistics Denmark has figures from 1975. As regards the use of pesticides in crop farming, Statistics Denmark has figures from 1981. For both statistics, only data from 1981 onwards are stored electronically.

8.8 Other

Access to micro data can be applied for at the Agency for Environment.

8.9 Confidentiality - policy

[Statistics Denmark Confidentiality politic](#)

8.10 Confidentiality - data treatment

Not relevant for these statistics.

8.11 Documentation on methodology

The documentation is stored in an internal Word document.

8.12 Quality documentation

Results from the quality evaluation of products and selected processes are available in detail for each statistics and in summary reports for the Working Group on Quality.

9 Contact

The administrative placement of this statistic is in the division of Food Industries. The person responsible is Mads Meyer-Dissing, tel. +45 3917 3381, e-mail: mdi@dst.dk

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Statistics Denmark

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