

**Documentation of statistics for
Felling of Wood in the Danish Forests 2016**

1 Introduction

The purpose of the felling statistics is to calculate physical yearly production of wood, broken down by type and use, in the Danish forests, first and foremost for calculating gross value added for the forestry.

A secondary goal is to describe the structure of the Danish forestry sector, for example number of forestry farms by region and size.

The statistics have been compiled since 1946/47.

2 Statistical presentation

The base for the statistics is a questionnaire survey among Danish forests with at least 0.5 hectares of wood land.

The statistics consist of four main subjects:

Area with wood land distributed by tree species, including Christmas trees, non-wooded land and temporarily non wooded land. Production of Christmas trees and decorative greenery The felling distributed by tree species and items. An important detail is the distinction between timber and firewood. Sales of beech tree and conifer.

2.1 Data description

Questions relating to the following domains are included: Total forest area including beech, oak, conifers, decorative greenery, temporary uncovered area, uncovered area, total forest area and Christmas trees and decorative greenery. The felling of beech, oak, other broadleaves and conifers are calculated to m³ solid mass, equivalent to dry matter in conifer logs.

2.2 Classification system

Regions

The felling of tree is divided in specific agricultural regions (subdivision of administrative regions). It is chosen to show results for Copenhagen city, Copenhagen and North Zealand region collectively as "Copenhagen and North Zealand" and similar for the provinces East Zealand and West Zealand, which coincides with Region Zealand. North Jutland Region is not divided further. The breakdown is as follows: • The whole country • Capital Region • Copenhagen city, Copenhagen area and North Zealand • Bornholm • Region Zealand • South Denmark • Funen incl. islands • South Jutland • Mid Jutland • East Jutland • West Jutland • North Jutland

Types of tree

The feeling is divided by broad-leaved and coniferous tree and in turn by firewood and timber.

2.3 Sector coverage

The population consists of all local units in the Business Register marked as active in forestry and with at least 0.5 hectares with forestry, also if the NACE code is different from forestry. Many local units having their most important activity in agriculture have also forestry as a secondary activity. They are also included in the population.

As such there is no coverage of specific sectors based on an enterprise classification.

2.4 Statistical concepts and definitions

Forestry Farm: A forestry farm is defined as a local unit in the Business Register with at least 0,5 hectares wood land.

2.5 Statistical unit

The survey unit is a local unit in the Business register.

2.6 Statistical population

The population consists of all local units in the Business Register with at least 0,5 hectares with forestry.

2.7 Reference area

Denmark.

2.8 Time coverage

1990-2015

2.9 Base period

Not relevant for these statistics.

2.10 Unit of measure

- Number of forestry farms
- Hectares with forestry
- Production of Christmas trees, number of trees
- Production of decorative greenery, kg
- Felling and sales of tree, m³ solid mass

2.11 Reference period

The calendar year.

2.12 Frequency of dissemination

Yearly.

2.13 Legal acts and other agreements

The Act on Statistics Denmark, article 8.

2.14 Cost and burden

156.000 Danish kroner in 2013.

2.15 Comment

Not relevant for these statistics.

3 Statistical processing

The base of the statistics is sample survey with questionnaires. The sample is representative for regions, size groups and types of forests.

3.1 Source data

Information from questionnaires from forestry farms.

3.2 Frequency of data collection

Yearly.

3.3 Data collection

The survey is based on questionnaires. The questionnaire has to be completed online.

3.4 Data validation

The survey is validated in three different steps:

When completing the questionnaire online all questions must be answered. In the next step the answers are checked for unrealistic values. Mistakes are corrected immediately, sometimes after having contacted the owner of the forestry by phone. In the last step the results by regions are studied. In this step it will often be possible to find a few big mistakes which have been overlooked in the first two steps.

3.5 Data compilation

The survey is a stratified sample survey where the stratification has three dimensions:

1) Size with wood land, five groups:

- 0.5-4.9 ha
- 5.0-19.9 ha
- 20.0-49.9 ha
- 50.0-99.9 ha
- 100.0 ha and over

2) Four regions:

- East Denmark
- Region Syddanmark
- Midtjylland
- Nordjylland

3) Two different types:

- No Christmas trees
- With Christmas trees

The smallest forestry farms smaller than 5.0 hectares constitutes just one stratum. The other size groups are combined with region and type so there all in all are 33 strata. The extrapolation into total results is at first achieved as simply dividing the number of survey units in the population by stratum with the number of answers by stratum. In the next phase the extrapolation is calculated so that area with forestry land is obtained according to the yearly forestry statistics made by The Department of Geosciences and Natural Resource Management. The statistics are published yearly by University of Copenhagen, most recent in 2013. Non response is treated as if the forestry farm never had been selected, and it means the extrapolation should be increased in the stratum where non response occurs. The 2015 survey had a non response of about 1, 0 per cent from a sample of 1200.

For the 2015-survey the results for the small forests have been estimated and they have thereby not received a questionnaire.

3.6 Adjustment

No adjustments besides what is described in “Data validation and “Data analysis”.

4 Relevance

No survey on the user satisfaction is available.

The main impression is a high degree of satisfaction but many users would like to see figures by municipalities.

4.1 User Needs

The most important users are forestry organisations, wood manufacturing industries, ministries and the European Union.

From 2012 and onwards Statistics Denmark has published figures on the number of forestry farms by size and regions meaning that the survey now also describes the structure in the Danish forestry sector.

4.2 User Satisfaction

There is no survey on user satisfaction. The farm structure survey is discussed at meetings in user board on agricultural statistics. The members may put forward suggestions regarding the statistics.

The main impression is that most users are satisfied with the statistics but often they have wishes about more detailed regional figures with figures for municipalities.

4.3 Data completeness rate

The statistics are in accordance with internationally recognised definitions of wood land as well as national accounts principles.

5 Accuracy and reliability

Due to a small sample of only 10 percent of the forests the sample error is higher than for similar agricultural surveys, also because a relatively big part of the felling is among small forests with a low coverage in the sample.

The sample error of the total felling of trees was 1.7 pct. in 2015.

5.1 Overall accuracy

The sample error of the total felling was in 2015 7.1 percent. This figure is a measure for the sample error.

It is difficult to ascertain if there is any bias in the figures in the meaning of systematically too big or too reported figures. The figures for the felling are compared with the area of wooded land.

The results of the survey are seen as reliable by experts of The Department of Geosciences and Natural Resource Management at the University of Copenhagen. The assessment is based on special investigations on increment and felling for the period 2008-12. The investigation is described in "Skove og plantager 2015".

5.2 Sampling error

The sample error of the total felling of tree was in 2015 1.7 percent.

5.3 Non-sampling error

Coverage errors: A rather substantial over coverage Measurement errors: No information Non response: 1-3 percent Calculation errors: Not relevant Model assumptions: Not relevant

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

The survey is subject to certain sources of error:

- With respect to the register base there is a certain number of forestry farms which do not really have any wooded area but rather are agricultural farms or institutions with nature areas.
- This also means that there is a substantial over coverage which in 2015 was 9.765 forestry farms.
- The survey is subject to a normal sample error. The sample error of the total felling is 2015 is 1.7 per cent.
- The figures for the felling might be underestimated as it is more difficult to detect if the reported felling is too small than if it is too big.

By combining the extrapolation of the sample results into total results an acceptable quality is obtained. The total wooded area is known with a high degree of certainty.

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

Normally only final data are published.

6 Timeliness and punctuality

The statistics are published in November the year after the reference year. The figures for 2015 were thus published November 1 2016.

6.1 Timeliness and time lag - final results

The survey is normally published in November or December the year after the reference year.

6.2 Punctuality

The figures are published as planned.

7 Comparability

The survey has always had the same standard and the same target population. Prior to the 2012 survey Statistics Denmark conducted a project aiming at improving the register of forestry farms. At the same time the extrapolation was for the first time made dependent on the total area with forestry. It means that the total felling in 2012 estimated to 3.1 million m³ should be seen as reliable whereas the results recent years before 2012 most likely are underestimated by about 500.000 m³.

7.1 Comparability - geographical

There is no internationally recognized standard for felling and forestry surveys as is the case for agriculture. However, the contribution of the forests to the gross domestic product should be included in the national accounts and on this point Denmark is in accordance with internationally recognized principles of national accounts.

7.2 Comparability over time

The questionnaire itself has remained unchanged for many years. The same is the case for the target population with inclusion of all forests of least 0.5 hectares

From 2012 onwards an improved extrapolation of the sample has been introduced where the area of the wooded land in Denmark is included. The information on the wooded area is extremely safe.

It means that the total felling in 2012 estimated to 3.1 million m³ should be seen as reliable whereas the results recent years before 2012 most likely are underestimated by about 500.000 m³.

7.3 Coherence - cross domain

The University of Copenhagen publishes every year "Skove og plantager". ("Forests and plantations").

7.4 Coherence - internal

For each survey all the collected answers are stored in one register with all survey characteristics included in the survey. There is one and only one extrapolation factor per farm. For this reason no inconsistency can occur.

8 Accessibility and clarity

The figures are published in:

- Press release: News from Statistics Denmark
- Online at <http://www.Statbank.dk>
- Statistical Yearbook

Interested users can buy statistical tables not covered by the normal publication.

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

[News release]<http://dst.dk/da/Statistik/NytHtml?cid=23275>)

8.5 Publications

In addition to <http://www.Statbank.dk> the survey is published in News from Statistics Denmark and Statistical Yearbook.

8.6 On-line database

- [Felling](#)
- [Forestry farms](#)
- [Sales of tree](#)

8.7 Micro-data access

Researchers may obtain access to anonymous Micro-data.

For each survey a final survey register is created containing all forestry farms which completed the questionnaire.

8.8 Other

Nothing to remark.

8.9 Confidentiality - policy

The tables are never so detailed that there is a risk of disclosure of individual forestry farms.

8.10 Confidentiality - data treatment

The tables are never so detailed that there is a risk of disclosure of individual forestry farms.

8.11 Documentation on methodology

Statistics Denmark published in 1990 and 2000 the publication "Skove og plantager" ("Forests and plantations" in co-operation with The Environmental Ministry. The publications were based on the forestry censuses held these years. From 2006 onwards the book has been published by The Department of Geosciences and Natural Resource Management at the University of Copenhagen.

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

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