

**Documentation of statistics for  
Felling of Wood in the Danish Forests 2019**

## 1 Introduction

The purpose of the felling statistics is to calculate physical 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 1950.

## 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. The felling distributed by tree species and items. An important detail is the distinction between timber and firewood.

### 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 m<sup>3</sup> 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 felling 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 is the Danish area with forestry.

### **2.7 Reference area**

Denmark.

### **2.8 Time coverage**

2006-18

### **2.9 Base period**

Not relevant for these statistics.

### **2.10 Unit of measure**

- Number of forestry farms
- Hectares with forestry
- Felling and sales of tree, m<sup>3</sup> 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 and size groups..

The questionnaires are completed online. Before publication the answers are validated where each single question is subject to a control for reliability.

### **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

The smallest of forests of 0,5-4,9 hectares constitutes one stratum only irrespective of region, and thereby has sample all in all 17 strata. The sample is extrapolated to a total level by choosing the area with forest in Denmark as target. The area with forestry is calculated by Institute for Geo Science and Nature at the University of Copenhagen.

For the 2017-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**

There is no survey on user satisfaction but the main impression is a high degree of satisfaction, however many users would like to have figures for area with forestry 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.

## **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 felling of trees is 1.7 pct. is about 2 per cent.

### **5.1 Overall accuracy**

The sample error of the total felling is about 2 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 small 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 2008-16. The study is described in "Skove og plantager 2017".

### **5.2 Sampling error**

The sample error of the total felling of tree was is about 2 per cent.

### **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 2018 was 5.943 forestry farms.
- The survey is subject to a normal sample error. The sample error of the total felling is about 2 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

Only final data are published.

## 6 Timeliness and punctuality

The statistics are published in November the year after the reference year. The figures for 2018 were thus published November 18 2019.

### 6.1 Timeliness and time lag - final results

The survey is normally published in November 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 m<sup>3</sup> should be seen as reliable whereas the results recent years before 2012 most likely are underestimated by about 500.000 m<sup>3</sup>.

### **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 statistics are comparable back to 1950.

### **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>

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.

### **8.6 On-line database**

- [Felling](#)
- [Forestry farms](#)

### **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**

The administrative placement of this statistics is in the division of Business Statistics. The person responsible is Karsten Larsen, tel. +45 39 17 33 78, e-mail: kkl@dst.dk

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