STATISTICS DENMARK

Documentation of statistics for Felling of Wood in the Danish Forests 2013

Statistics Denmark
Sejrøgade 11
DK 2100 København Ø

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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. The statistics has been compiled since 1946/47.

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

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 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

Below the content of felling statistics and the compiling of economic accounts for forestry is described.

Felling survey

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. Beach, oak and other broadleaves are split up in the following products:

- Veneer-and sawn wood logs
- Industrial logs
- Other timber
- Firewood
- Wood for energy production as chips and as logs on total broadleaves (before 2003 only question on chips, but no single groups)

Conifer is split up in the following products:

- Timber, rafters
- Short timber
- Industrial wood
- Other timber
- Firewood
- Wood for energy production as chips and as logs

The production of decorative greenery is split up in Christmas trees and greenery:

- Caucasian fir

- Noble fir
- Other conifers

The sale of the felling for forest with a total forest area more than 100 ha is split up in the following products:

Beech:

- Veneers logs
- Beech logs, class A
- Beech logs, class B
- Beech logs, class C, D
- "Junker" logs
- Other timber
- Firewood

Conifer:

- Full-length stems, class A
- Full-length stems, class B
- Full-length stems, class C, D (Incl. masts, shavings, poles for piling and fishing stakes)
- Short timber
- Cellulose wood
- Chip board
- Box board
- Other timber
- Firewood
- Wood for energy production as well as chips and as logs

The main purpose for compiling the statistics is national results. However, results are also compiled for size groups and regions.

Economic accounts for Forestry

A simplified account is compiled based on the core forestry products. Hunting, tourism, services and other inseparable activities are not dealt with and the compiling is not according to newest guidelines.

The calculations are based on volume time prices.

- The volumes are from the felling statistics. The nursery plant production is estimated.
- The value of Christmas trees and ornamental branches is part of Economic Accounts for Agriculture in line with NACE rev2

The prices on wood are based on information from Danish Forestry Association. Prices on Christmas trees etc. on foreign trade statistics, assuming that producer prices are somewhat lower than what traders got by exporting.

The value of raw materials and auxiliaries are based on estimated relation between output and costs. The estimation method is now revised recently.

2.2 Classification system

The surveys includes all local units in the Business Register having at least 0,5 hectares with forestry, also if the NACE code is different from forestry, for example agriculture.

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 with at least 0.5 hectares with forestry.

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

1990-2013

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, but the owner of the forest is allowed to complete the questionnaire based on the recent final financial year.

2.12 Frequency of dissemination

Yearly.

2.13 Legal acts and other agreements

The Act on Statistics Denmark

EU directive 130/1989

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 and Statistics Denmark's Business Register.

3.2 Frequency of data collection

Yearly.

3.3 Data collection

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

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3.4 Data validation

The survey is validated in three different steps:

1. When completing the questionnaire online all questions must be answered, also yes/no questions.
2. 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.
3. 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.

3.6 Adjustment

No adjustments bedsides 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. The principles for compiling (simplified) Economic Accounts for Forestry are described in section 1.1.

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 7.1 pct. in 2012.

5.1 Overall accuracy

The sample error of the total felling was in 2012 7.1 percent. This relatively high sample error is due to the fact that many forests, about 50 per cent, have no felling at all whereas others have a big felling. 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. As a forest can have, and often does have, a big wooded area together with a small or no felling at all, it is more difficult to detect a too small felling than a too big. It indicates that the felling could be underestimated. However, it is not possible to calculate this underestimation.

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 2013".

5.2 Sampling error

The sample error of the total felling of tree was in 2012 7.1 percent.

5.3 Non-sampling error and A4. Unit non-response - rate for U and A5. Item non-response - rate for U

A certain underestimation of the felling is possible since it is more difficult to detect a too small felling than a too big.

The register base is somewhat uncertain and contains most likely a good part of units which are not really forest but rather agricultural farms or institutions with nature areas.

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 2012 was 6.984 forestry farms.
- The survey is subject to a normal sample error. The sample error of the total felling is 2012 is 7.1 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 or December the year after the reference year. The figures for 2013 were thus published December 11 2014.

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 are not compiled similar statistics covering whole Denmark.

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 statistikbanken.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.

8.3 User access

Statistics are always published at 9:00 a.m. at the day announced in the release calendar. No one outside of Statistics Denmark can access the statistics before they are published. Theme publications etc. may be published at other times of the day. The National Statistician can decide that such publications may be released before their official publication time, e.g. to the media and other stakeholders.

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8.2 Release calendar access

Release Calendar

8.4 News release

News release

8.5 Publications

In addition to statistikbanken.dk the survey is published in Statistical Yearbook only.

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 tor 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 3917 3378, e-mail: kkl@dst.dk

9.1 Contact organisation

Statistics Denmark

9.2 Contact organisation unit

Agriculture, Business Statistics

9.3 Contact name

Karsten Larsen

9.4 Contact person function

Responsible for the statistics

9.5 Contact mail address

Sejrøgade 11, 2100 Copenhagen

9.6 Contact email address

kkl@dst.dk

9.7 Contact phone number

+45 3917 3378

9.8 Contact fax number

+45 39 17 39 99