

**Documentation of statistics for  
Harvest of Cereals etc. 2015**

## 1 Introduction

Statistics Denmark compiles statistics on the Danish harvest of cereal including production and use of straw on the basis of data reported by farmers.

Statistics on coarse fodder is based on yield estimates from experts combined with information on areas. Harvests of cereals for silage or green fodder are included in the survey of the harvest of coarse fodder.

Finally, the statistics on cereals production includes a forecast for sowed areas with winter rape for harvesting in the subsequent year. Since 2002, these estimates have been based on the amounts of certified seed grains. The results are of importance to forecasts of the forthcoming harvest. Forecasts have been conducted since 1967. As part of the crop yields, statistics on the production of seeds for sowing are also compiled.

Statistics on coarse fodder are available as far back as 1900. Since 1964 questionnaires covering questions about the yield per hectare of grass have been sent to plant breeder consultants. In 1980 the questionnaires were extended to include grass and green fodder products: In 1982 questions about beet roots and potatoes were added to the questionnaires. From 2002 there are separate questions on organic and conventional production. Data on grass seeds and other seeds has been received from Ministry of Agriculture since many years.

## 2 Statistical presentation

**\*\* The harvest of cereals, rape, pulses and straw \*\*** : Statistics of the Danish grain harvest based on reports from farmers. Total production and use of straw is included.

Crops covered : winter wheat, -barley, -raps, spring wheat, -barley, -raps, rye, oats, triticale and field peas.

**\*\* Harvest of roughage \*\*** : Includes the harvest of sugar beets, potatoes and fodder, grain and corn harvested for silage or green feed. The crops are divided into two groups; grasses and roots.

**\*\* Areas planted with winter crops \*\*** : Forecast of areas planted with winter crops for harvest the following year.

**\*\* Seeds \*\*** : Results for seeds (areas, yields per hectare and total production) are compiled for about 20 types.

### 2.1 Data description

**\*\* The harvest of cereals etc \*\***

Calculation of the Danish grain harvest based on reports from farmers. Final harvest statistics go back to 1875. In addition the total production and use of straw is measured.

Crops covered: winter wheat, -barley, -raps, spring wheat, barley, rape, rye, oats, triticale, cereals and field peas.

Annual statistics on straw has been produced since 1970, and straw application since 1972.

The statistics on harvest of cereals etc. is first and foremost a production inventory.

Includes harvest of winter wheat, winter barley, winter rape, wheat, barley, rape, rye, oats, triticale,

cereals, field peas and mixed crops. For each crop, questions are asked on arable land, total yield (hekto kilo), average yield (hekto kilo / hectare) and water percent if the production does not appear in dried weight. Water percentage is used to calculate standard moisture content (15 per cent for cereals and peas and 9 per cent for rape).

Harvest of grain maize and corn cob mix is included in the statistics from 2011.

Statistics on straw show the production and use of straw by the above-mentioned crops. Output is measured as a relation between yield (grain, rape and peas) and expected straw yield, while the use of straw is based on questionnaire information on the distribution of straw areas used for firing, for fodder, for other purposes.

From 2006 the results are compiled for the new administrative structure in Denmark (regions). Regions are divided on specific agricultural land (sub-divisions of regions).

**\*\* Harvest of roughage \*\***

Includes harvest of sugar beet, potatoes and roughage plus grain and corn harvested for silage or green fodder.

Data collection: yield estimates from experts. Information is collected from approximately 50 crop consultants about the yield per. hectare of lucerne, grass (in and outside rotation), green fodder (maize and whole seed), beets (trade beet and fodder beet) and potatoes (consumption, industrial and seed). For grass, whole seed and potatoes, specific information on organic production has been collected since 2002.

From the National Office of Crop central yield estimates are obtained for subsequent crops plus conversion factors between volumes and fodder units. Yield data is combined with area data from the Ministry of Food, Agriculture and Fisheries (since 2005) and Statistics Denmark, from which the total roughage harvest can be calculated.

**\*\* Areas planted with winter crops \*\***

Forecast of areas planted with winter crops for harvest the following year. Crops include: winter wheat, winter barley, rye, triticale and winter rape. The results only calculate total areas, but the results are used for estimation of the size of the next harvest. Forecasts have been conducted since 1967. It is since 2002 based on the quantities of certified seeds.

The forecast is from 2016 prepared by DAKOFO and the Association of Danish plant breeders. DAKOFO is a trade association for grain and feed trade in Denmark.

The basis of data from The Danish AgriFish Agency of certified seed quantity in tonnes. These are compared with historical relations between sowing and cultivated. In addition, an assessment of the following factors: • sales in the Danish market • how much farmers actually sowed. • how much is exported • The time of the sowing and the resulting changes in the seed volumes per hectare.

The assessments are made on the basis of expert estimates and reports from seed companies and Grovvarerelskab are. Due. the element of discretion to the final figures differ from the forecast in a certain extent.

Projections to 2015 are compiled by Statistics Denmark, also based on data from The Danish AgriFish Agency as well as estimates from Seges.

**\*\* Seeds\*\***

Results for seeds (areas, yields per hectare and total production) are compiled for about 20 types. Yield is measured in purified quantity. The statistics are based on data from the Ministry of Food,

Agriculture and Fisheries on crop land (administrative information) and production (yield estimates).

## **2.2 Classification system**

**\*\* Regional breakdown \*\***

The harvest of cereals etc. are 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

**\*\* Crops \*\***

All crops follows the EU classifications.

## **2.3 Sector coverage**

The agricultural sector.

## 2.4 Statistical concepts and definitions

(in preparation)

\*\* The harvest of cereals, rape and peas and pulses \*\*

- Application area
- Area under cultivation
- Total production
- Average yield
- Dried weight
- Water Percentage

\*\* Harvest of roughage \*\*

- Fodder units per. ha
- Root hektokilo per. ha
- Area under cultivation
- Conventional
- Organic
- Average yield
- Total yield

\*\* The forecast for winter \*\*

Harvested areas

\*\* Seed\*\*

- Area under cultivation
- Total production
- Average yield

## 2.5 Statistical unit

The statistics are not published on data collection units.

## 2.6 Statistical population

The target population are farmers with production of the covered crops (cereals, canola, pulses, fodder crops).

## 2.7 Reference area

Denmark.

## 2.8 Time coverage

The statistics in their present form are available from 1990. However, see 'Comparability over time' for specification.

## 2.9 Base period

The statistics cover harvest in the calendar year

## 2.10 Unit of measure

- Land: 1000 hectare.
- Average yield: hektokilo per. hectare.
- Production: million kilo.

## 2.11 Reference period

\*\* The harvest of cereals, rape etc. \*\*

01-10-2014

The end of the harvest each year (typically in early September). In practice, most crops are harvested by the end of September. However, Grain maize and corn cob mix have often later harvest in November.

\*\* Harvest of roughage \*\*

31-11-2014

The end of the harvest each year (typically medio November). In practice, most crops are harvested by the end of September. However, Grain maize and corn cob mix have often later harvest in November.

\*\* Areas planted with winter crops \*\*

15-10-2014.

This date is usually the latest possible time of sowing.

## 2.12 Frequency of dissemination

The statistics are published annually.

## 2.13 Legal acts and other agreements

The Act on Statistics Denmark, corresponding to request in EU regulation on crop statistics, including forecasts. Statistics on coarse fodder are based on voluntary reporting as the respondents (consultants) are not legally liable to report data.

Council Regulation 543/2009 relating to crop statistics and forecasts. Directive 1989/130 relating to production of straw incorporated in the Economic Accounts for Agriculture.

## 2.14 Cost and burden

1.1 man-years.

## 2.15 Comment

Additional information can be obtained from Statistics Denmark.

## 3 Statistical processing

**\*\* Water Percentage \*\*** The crop production is calculated according to standard humidity percentages. These are based on optimal, average values of the individual crops at harvest, estimated by SEGES and other experts.

In the study of the harvest of cereals etc. the individual farm states the percentage if it deviates from the standard percentage, and production/yield is converted proportionately. For other crops agricultural consultants correspondingly indicates if the actual harvest differs from the standard rate.

- Used standard water rates \*
- Cereals, field peas and other dry pulses: 15 pct.
- Rape seeds: 9 pct.
- Temporary grasses and grazings: 25 pct.
- Lucerne: 55 pct.
- Green maize: 45 pct.

### 3.1 Source data

In general areas are obtained from the Integrated Administration and Control System (IACS) by the Danish Veterinary and Food Administration, supplemented by Statistics Denmark's Agricultural and horticultural survey.

**\*\* The harvest of cereals, rape and peas and straw \*\***

- Questionnaire Based.
- Gross sample of about 2,800 farms (about 8 per cent of all farms). Net Sample: about 2,700 farms.
- Random, stratified sampling.

**\*\* Harvest of roughage \*\***

Questionnaire for crop consultants.

**\*\* The forecast for winter crops\*\***

Seed information from the Danish Veterinary and Food Administration and from the Knowledge Centre for Agriculture.

**\*\* Seed\*\***

Information from the Danish Veterinary and Food Administration.

### 3.2 Frequency of data collection

Annual.

### 3.3 Data collection

Web form:

- [Questionnaire and guide in Danish for 'The Harvest of grain etc.'](#)
- [Questionnaire and guide in Danish for 'The Harvest of roughage'](#)

### 3.4 Data validation

The submitted forms to the 'Harvest of cereals etc.' are validated against deviation from average yields.

### 3.5 Data compilation

**\*\* Water Percentage \*\*** The crop production is calculated according to standard humidity percentages. These are based on optimal, average values of the individual crops at harvest, estimated by SEGES and other experts.

In the study of the harvest of cereals etc. the individual farm states the percentage if it deviates from the standard percentage, and production/yield is converted proportionately. For other crops agricultural consultants correspondingly indicates if the actual harvest differs from the standard rate.

- Used standard water rates \*
- Cereals, field peas and other dry pulses: 15 pct.
- Rape seeds: 9 pct.
- Temporary grasses and grazings: 25 pct.
- Lucerne: 55 pct.
- Green maize: 45 pct.

### 3.6 Adjustment

No further corrections of data in addition to what has already been described in 'Data validation' and 'Data processing'.

## 4 Relevance

The users are mainly EU and agricultural organizations. The results are included in the agricultural gross factor income. Information on the use of straw for fuel is used, among other things by the DEA.

User needs are covered in the User Committee for food statistics. Statistics Denmark is also in regular contact with key users, including the Ministry of Food and research institutions.

### 4.1 User Needs

The most important users are the EU and agricultural organisations. The data on production are also used in compiling the Economic Accounts for Agriculture (EAA). The use of straw for fuel is used by, e.g. the Danish Energy Agency.



## **4.2 User Satisfaction**

User needs are covered in the User Committee for Food statistics. Statistics Denmark is also in regular contact with key users, including the Ministry of Food and research institutions.

## **4.3 Data completeness rate**

Data comply with EU regulations and guidelines.

## **5 Accuracy and reliability**

Sampling errors have been calculated annually as from 2004. The standard deviation of errors with respect to the total harvest of cereals, rape and pulses is about 0.3 per cent, corresponding to about 30.000 tonnes of cereals. Concerning crops with a small total area, the standard deviation of errors may reach up to 5 per cent. The errors are within the accepted limits in the EU Regulation on crop statistics. Due to the greater spread of the use of straw than is the case with respect to crop yields, the margins of statistical uncertainty concerning the use of straw for different purposes will be relatively greater than the statistical uncertainty concerning the harvest of cereals, rape and pulses. The relationship between the areas in the forecast and the later established areas indicates that there is a statistical uncertainty in the region of 5 per cent for the total areas with winter seeds.

Sampling errors have been calculated annually as from 2004. The standard deviation of errors with respect to the total harvest of cereals, rape and pulses is about 0.3 per cent, corresponding to about 30.000 tonnes of cereals. Concerning crops with a small total area, the standard deviation of errors may reach up to 5 per cent. The errors are within the accepted limits in the EU Regulation on crop statistics. Due to the greater spread of the use of straw than is the case with respect to crop yields, the margins of statistical uncertainty concerning the use of straw for different purposes will be relatively greater than the statistical uncertainty concerning the harvest of cereals, rape and pulses. The relationship between the areas in the forecast and the later established areas indicates that there is a statistical uncertainty in the region of 5 per cent for the total areas with winter seeds.

### **5.1 Overall accuracy**

The overall accuracy in the survey of the harvest of grain, peas and rape can be described as good. However, there is some uncertainty for crops grown in small regions at national level, particularly with regard to spring rape.

For coarse fodder, reliability must be considered reasonable for average yields, while it is high for area information.

The reliability of the forecast for winter areas must generally be described as less good than the harvest survey.

## 5.2 Sampling error

\*\* The harvest of cereals, rape and peas and pulses \*\*

Sample of approximately 2,800 farms (about 8 per cent of all farms). The response rate in the survey is generally over 95 per cent, and does not give rise to significant uncertainty.

The coefficient of variance of the total harvest of cereals, rape and pulses is about 0.3 per cent., corresponding to ca. 30,000 tons. grain. For crops with limited distribution, the uncertainty is typically up to 5 per cent.

The statistical uncertainty meets the quality requirement in EU act on harvest statistics.

Because of greater spread in the use of straw than in crop yields, the uncertainty of straw use for different purposes is relatively larger than the uncertainty harvest of cereals, rape and peas.

### Harvest of coarse fodder

The response rate in the study of forage harvest is somewhat smaller than 100 per cent., which is a source of uncertainty.

\*\* Areas planted with winter crops \*\*

No sampling errors as such. The ratio of the areas in the forecast and recent areas recorded indicates an uncertainty of the order of 5 per cent of the total areas with winter seed.

\*\* Coefficient of variance (CV) for the main variable in 2013 \*\*

- The harvest of cereals, rape and peas and pulses \*
- Yield \*
- Total cereals 0.3
- Winter wheat 0.3
- Spring wheat 1.6
- Rye 0.9
- Triticale 2.2
- Winter barley 0.6
- Spring barley 0.4
- Grain maize and corn cob mix 4.4
- Oats and mixed grain total of 1.3
- Havre 1.3
- Mixed grain 4.7
- Rape, total 0.6
- Winter rape 0.6
- Spring rape 14.3
- Pulses 4,6
- Field peas 4.6

## 5.3 Non-sampling error

Under preparation.

#### **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 overall accuracy in the survey of the harvest of grain, peas and rape can be described as good. However, there is some uncertainty for crops grown in small regions at national level, particularly with regard to spring rape.

For coarse fodder, reliability must be considered reasonable for average yields, while it is high for area information.

The reliability of the forecast for winter areas must generally be described as less good than the harvest survey.

#### **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**

Provisional results for harvest of cereals, pulses and rape seed are in line with final results published later on.

Other results are only prepared once every year, and consequently provisional and final figures cannot be distinguished.

## **6 Timeliness and punctuality**

The statistics are usually published without delay to the scheduled date.

Preliminary data for the harvest of cereals, rape and pulses are published in late November. Final statement, including results for provinces and regions are published April of the following year, where the coarse fodder harvest also is published. End of reference Period: October 1. Harvesting of roughage is published April of the following year. End of reference Period: end of November. The forecast for the following year's winter land released in early December. End of reference Period: October 15

### **6.1 Timeliness and time lag - final results**

The statistics are published annually.

Provisional figures for the harvest of cereals, rape and pulses are published at the end of November. Final figures are available in April of the following year, together with the statistics on the harvest of roughage.

The forecast for areas with winter seeds of the following year appear at the beginning of December.

Data on seeds for sowing appear in Statistics Denmark's Statbank.

### **6.2 Punctuality**

The statistics are usually published as scheduled.

## **7 Comparability**

Similar statistics are produced among EU members and are available from the Eurostat's website. The statistics comply with EU standards.

Harvest figures are in principle comparable back to 1900 but with methodological changes along the way. The current calculation method has in principle been used since 1971. The statistics for the new regions of the country are made from 2006. Thus there for 2006 is both a statement of the then counties, and the current regions.

### **7.1 Comparability - geographical**

Similar statistics are produced among EU members and are available from the Eurostat's website. The statistics comply with EU standards.

## 7.2 Comparability over time

The final figures on crop yields are, in principle, comparable as far back as 1900. Changes in methodology must be taken into account, but the present compilation method has been used since 1971. The results on crop yields at regional level are only comparable as from 2006 due to a new administrative structure of regions in Denmark. For 2006, results are compiled on the basis of the former counties as well as the present regions. Figures on coarse fodder are fully comparable as from 1982 and onwards. The change in methodology, which applied for the 2001 survey to the 2002 survey (taking specific account of organic production) as well as the change in the basis of areas (from 2005) may, to a minor extent, have an impact on the data comparability.

## 7.3 Coherence - cross domain

Similar statistics are produced among EU members and are available from the Eurostat's website. The statistics comply with EU standards.

The forecast for areas with winter seeds can be compared with the later results according to the Agricultural and Horticultural Survey.

## 7.4 Coherence - internal

Data is internally consistent, deriving from the same source.

## 8 Accessibility and clarity

The provisional statistics on crop yields\* appear in *Nyt fra Danmarks Statistik* (News from Statistics Denmark). The final harvest inventory are published in Statbank, added regional results.

Annual publications: \*Statistical Yearbook\* and *Statistisk Tiårsoversigt* (Statistical Ten-Year Review).

### 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

[Newsletter and Statbank tables](#)

## 8.5 Publications

[Statistical Yearbook](#) (selection of results from Statbank)

## 8.6 On-line database

[Newsletter and Statbank tables](#)

Individual Statbank tables:

- [Harvest by crop and unit](#)
- [Harvest by region, crop and unit](#)
- [Forecast on winter crop products for harvest by crop and unit](#)
- [Frøproduktion efter afgrøde og enhed](#)
- [Halmudbytte og halmanvendelse efter område, afgrøde, enhed og anvendelse](#)

## 8.7 Micro-data access

The survey data can be made available as anonymised micro-data under a special arrangement for researchers.

Harvesting of roughage: 1993-2003, questionnaires registered in Blaise. From 2004 to Excel.

## 8.8 Other

No further accessibility.

## 8.9 Confidentiality - policy

[Confidentiality policy](#)

## 8.10 Confidentiality - data treatment

The statistics are not published on a level that requires confidentialisation.

## 8.11 Documentation on methodology

No other general method documents.

## 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 these statistics are in the division of Food Industries. The persons responsible are:

- Martin Lundø, tel. +45 39 17 38 73, e-mail: mlu@dst.dk (methods)
- Jamila Buzquurz, tel. 39 17 33 66, e-mail: jbu@dst.dk (cereals)
- Agnete Nilsson, tel. + 45 39 17 33 89, e-mail agn@dst.dk (seed for sowing)
- Mads Meyer-Dissing tel. +45 39 17 33 81, e-mail: mdi@dst.dk (coarse fodder)

### **9.1 Contact organisation**

Statistics Denmark

### **9.2 Contact organisation unit**

Food Industries, Business Statistics

### **9.3 Contact name**

Martin Lundø

### **9.4 Contact person function**

Responsible for the statistics

### **9.5 Contact mail address**

Sejrøgade 11, 2100 Copenhagen

### **9.6 Contact email address**

mlu@dst.dk

### **9.7 Contact phone number**

+45 39 17 38 73

### **9.8 Contact fax number**

+45 39 17 39 99