
NORWAY - Census of Agriculture 2010 – Explanatory notes

1. Historical outline

Norway conducted its first General Census of Agriculture and Livestock, in conjunction with the Census of Population in 1835. Separated censuses devoted exclusively to agriculture were first undertaken in 1907, followed by the 1918, 1929, 1949, 1959, 1969, 1979, 1989, 1999 censuses, being the Census of Agriculture 2010 the last census carried out.

2. Legal Basis and Organization

The Statistics Act of 1989 reiterated many of the provisions of the earlier Act and stipulated that Statistics Norway is the central body for preparation and dissemination of official statistics, and is subject to supervisory guidelines and financial frameworks set for its business at any time by the Government and the Storting (National Assembly).

Statistics Norway has overall responsibility for official statistics in Norway, and carries out extensive research and analysis activities. Statistics Norway reports to the Ministry of Finance and its work is governed by the Statistics Act of 1989, but is a professionally autonomous organization with a mandate to determine what it publishes, as well as when and how the publishing takes place.

There is no specific national legislation concerning the 2010 Census of Agriculture (Farm Structure Survey 2010, or FSS). Information was collected according to the Statistics Act of 16 June 1989 No 54. While section 2-2 concerns the right to impose duty to provide information, section 3-2 states the right of Statistics Norway to use administrative data registers in the state administration and in nationwide municipal organizations. The Statistics Act is also the legal basis regarding the Survey of Agricultural Production Methods (SAPM).

The Census of Agriculture 2010 and SAPM were carried out by Statistics Norway, Division for Primary Industry Statistics. Within the Division, the Census of Agriculture was organized as a separate project with its own budget and a project leader was engaged as from autumn 2008.

Within Statistics Norway a steering committee and a reference group were appointed for the project. The steering committee consisted of the director of the Department of Industry Statistics and head of Division for Primary Industry Statistics, while the reference group consisted of people from different statistical divisions; Division for IT, Division for Data Collection, Division for Information and Publishing and Division for Statistical Methods and Standards.

In addition to the internal committees, the project received advice from the Advisory Committee for Agricultural and Forestry Statistics. The members of this committee represent the most important users of agricultural statistics. In addition, important users of horticultural and permanent crops statistics were advising during preparation of the Horticulture and Permanent Crops Questionnaire.

3. Reference Period or Date

The reference dates and reference periods are:

Census of Agriculture 2010:

- (1) Utilised agricultural area by crop, number of different livestock categories, except sheep - 31 July 2010
- (2) Sheep numbers - 1 June 2010 or the date at the start of the grazing season (start of grazing season varies by region, from middle of May to middle of June).
- (3) Labour input - the 12 months period prior to 31 July 2010
- (4) Other gainful activities of the holding - 31 July 2010
- (5) Equipment used for renewable energy production - 31 July 2010
- (6) Age of temporary grassland - 2010
- (7) Manure application, sales/deliveries of manure to others - the 12 months period prior to 31 July 2010
- (8) Ditching of own and rented agricultural land - 2010
- (9) Total irrigable area - 31 July 2010

SAPM:

- (1) Tillage methods - autumn 2009/spring 2010
- (2) Soil conservation - winter 2009-2010
- (3) Crop rotation - 2008-2010
- (4) Grazing - grazing season 2010

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- (5) Animal housing by type and "places" in use - 2010
 - (6) Manure storage - 2010
 - (7) Irrigation methods, source of irrigation water, irrigated area by crop - 2010

4. Enumeration period

The agricultural census data collection was a four-month operation that began in August 2010 and ended December 2010. The SAPM sample survey was conducted from 20 April to 20 June 2011.

5. Definition of the Statistical Unit

EC Regulation 1166/2008 defines the statistical unit as an agricultural holding. "Agricultural holding" or „holding“ means a single unit, both technically and economically, which has a single management and which undertakes agricultural activities listed in Annex I to the European Parliament and Council Regulation (EC) No 1166/2008 within the economic territory of the European Union, either as its primary or secondary activity. In addition, the EU regulation determines thresholds of size.

In line with the EU legislation, only those agricultural holdings meeting one or more of the following criteria at the reference date were obliged to respond to the census/survey:

- (1) at least 0.5 hectares of utilised agricultural area: arable land, permanent grass land, permanent crops, kitchen gardens, or
- (2) at least 0.1 hectares of permanent outdoor crops included strawberries
- (3) at least 0.2 hectares of fresh vegetables, which are outdoors
- (4) at least 0.03 hectares of fresh vegetables or flowers and ornamental plants under glass or other accessible protective cover
- (5) at least 0.1 hectares of nurseries (except nurseries for forest trees)
- (6) at least 10 bovines or 20 sheep over one year old or 10 goats over one year old or 5 breeding sows or 50 other pigs or 1,000 poultry or 25 bee-hives.

6. Geographic Coverage

Covered the entire country.

7. Exclusions and Cut-Off Thresholds

None noted other than those stated as the minimum threshold of agricultural activity in the national definition of an agricultural holding.

8. Methodology

Use of the FAO Modular Approach

No

Frame

The Census of Agriculture 2010 comprised all holdings in agriculture, including livestock husbandry, horticulture and permanent crops. The general definition of a holding stated in EU Regulation 1166/2008 was the basis for the Census. Annually since 2000, Statistics Norway has created a population of agricultural holdings. The core of this population is the holdings applying for governmental production subsidies on 31 July.

The Census of Agriculture frame was the total population of agricultural holdings, based on a listing that Statistics Norway maintains and updates on an annual basis and referred to as "*the total population of agricultural holdings*". The total population of agricultural holdings was used as basis register when mailing questionnaires to the respondents. The most important administrative registers used when establishing the census frame were:

- (1) Approved applications for governmental production subsidies in 2009/2010 (application per 31 July 2009 and/or per 1 January 2010)
- (2) Recorded delivery of milk, animals for slaughtering, grain or oil-seeds etc. in 2009

The Norwegian Agricultural Authority (NAA), which is a body under the Ministry of Agriculture and Food, is responsible for several administrative registers that make basis for agricultural statistics worked out by Statistics Norway. All registers used are linked to the Farm Register via common identification characteristics and the Farm Register is used to update Statistics Norway's "*total population of agricultural holdings*" file.

Complete or Sample Enumeration Methods

The 2010 Agricultural Census was a complete enumeration of all known agricultural holdings. The Survey of Agricultural Production Methods (SAPM) was a sample survey.

Sample Design

The frame for the SAPM was the Agricultural Census 2010 population of agricultural holdings and the SAPM was a stratified random sample.

The sample design was based on two guiding principles:

- Stratification into three strata (1) 18 counties for the location strata, (2) six size categories of utilised agricultural area, and (3) nine farm types
- Probability in each stratum was proportional with the agricultural area proportion in the stratum

The Division for Statistical Methods and Standards used SAS-programs in the sample selection.

Collection Method

Administrative sources were used to great extend. The most important administrative data source exploited was the Applications for Governmental Production Subsidies. This source provided detailed information about agricultural area by crop and number of different livestock and on organic farming practices. Other administrative data sources directly exploited were: the National Cadastre System, the Farm Register, the Register on Bovine Animals, the Organic Farming Register and the Education Register.

The agricultural census questionnaires were mailed from Statistics Norway to respondents in the middle of July 2010. The respondents had to complete the questionnaires on their own. However, they might contact the local agricultural administration or Statistics Norway for support. An electronic version of the agricultural census questionnaire was also available on Internet. Twenty-four (24) percent of the respondents chose this alternative. The application used was the common national reporting web-portal Altinn.

The SAPM questionnaires were mailed from Statistics Norway to the respondents in April 2011, one month behind schedule. The further collection and entry process was equal to the FSS questionnaire with one exception; the electronic version of the questionnaire was available through Statistics Norway's own web-portal IDUN instead of Altinn.

Statistics Norway has estimated the average completion time to 30 minutes. The estimate is based on interviews of respondents in the pilot survey. A total of 50,475 Main Questionnaires, 3,674 Horticulture and Permanent Crops Questionnaires and 2,328 Area and Livestock Questionnaires were mailed to potential respondents.

Questionnaire(s)

EU Regulations require information on holding location and geo-coordinates, legal status, ownership and tenancy, land use and crops grown, irrigation, livestock, organic farming, machinery (mandatory in 2013 FSS), renewable energy installations, other gainful activities, socio-economic circumstances (full and part-time farming), labour force (family, non-family, contractors), agricultural and vocational training of the manager, inclusion in rural development support programmes, soil tillage methods, crop rotation, erosion protection, animal housing, animal grazing, manure application and manure storage and treatment facilities, maintenance and installation of landscape features.

The Agricultural Census (FSS) and the Survey of Agricultural Production Methods (SAPM) had four questionnaires. All respondents in FSS had to fill in the Main Questionnaire (Census of Agriculture 2010). This questionnaire was available in two versions, one for holdings operated by a natural person who was sole holder and one for group holdings and legal persons. The only difference between the two versions applied to the questions about labour input.

All respondents with horticultural or permanent crop areas above the thresholds completed the Horticulture and Permanent Crop Questionnaire and those that do not apply for subsidies had to fill in the Area and Livestock Questionnaire. The Survey of Agricultural Production Methods (SAPM) was the fourth questionnaire for the sampled units.

Controls to Minimize Non-Sampling Errors

After entry, the FSS and SAPM data were subject to comprehensive computerized controls consisting of completeness checks, valid value checks (included minimum and maximum values), range checks, relational checks and arithmetic checks.

The staff at Statistics Norway had online access to the Business Register at Statistics Norway, the latest version at Statistics Norway of the applications for governmental production subsidies and the latest version at Statistics Norway of tax return data.

Conformity checks at holding level between the census and the applications for governmental production subsidies were important. Items in focus were type of holder (natural person - group holding – legal person) and size of utilised agricultural area.

Innovative Methodologies

Use of data from administrative sources, data collection with electronic questionnaires on Internet (24 % of respondents)

9. Data Entry, Edits and Imputations, Estimation and Tabulation

The paper questionnaires were returned to Statistics Norway. The Division for Data Processing did the further entry of data by means of optical character reading (OCR). Software applied was Eyes and Hands.

After entry, data were loaded in an Oracle database. Data were checked and edited by means of a general data editing software application called DYNAREV, developed in Statistics Norway. Due to missing or incorrect data items, follow-up contacts to the respondents by phone or e-mail were necessary.

If item non-response could not be completed by collection of additional information, a value was imputed based on the nearest neighbour method, Restricted Neighbour Imputation (RENI). Some manual imputation was done, based on other information on the questionnaire, information from other sources or average values for similar holdings in the municipality or county.

Imputation of missing information was undertaken in a SAS application together with other controls. A total of 133 variables were edited in the SAS application. These were mainly variables related to labour input, other gainful activities, age of temporary grassland and manure application.

10. Data Dissemination and Use

Presentation of preliminary results started on Internet in December 2010, while the first final results were presented in July 2011.

The Internet is the main dissemination medium of statistics produced by Statistics Norway and tables and publications are all available free of charge. Agricultural statistics in general are presented on the site:

"Focus on Farming":

http://www.ssb.no/english/subjects/10/04/10/jordbruk_en/

In addition, a specific site was established for the Census of Agriculture 2010 (FSS):

http://www.ssb.no/english/subjects/10/04/10/landt_en/

The basic structure data (number of holdings, utilised agricultural area, livestock etc.) are available at:

http://www.ssb.no/english/subjects/10/04/10/stjord_en/

SAPM results are available at:

<http://www.ssb.no/en/jord-skog-jakt-og-fiskeri/statistikker/lu/aar-endelige/2011-12-08>

More detailed data are also available in the statistical database StatBank:

<https://www.ssb.no/en/statistikkbanken>

11. Census Data Quality

Final checks were done on aggregated results. Aggregates of various characteristics were compared with results from previous surveys.

The FSS results were compared with results from previous FSS back to the Census in 1999. Most of the SAPM characteristics, however, were collected for the first time and relevant data are not available from administrative registers or other sources.

Serious systematic measurement errors were neither discovered in the questionnaires nor in the optical reading or in the editing process. Neither the total population nor the sample survey seems to have significant under-coverage or over-coverage errors. The bulk of the holdings in both surveys is applying for governmental production subsidies and hence subject to thorough checks and audits organized by the Norwegian Agricultural Authority.

12. Data Sources

Eurostat:

http://ec.europa.eu/eurostat/statistics-explained/index.php/Agricultural_census_2010

Final report:

http://ec.europa.eu/eurostat/documents/749240/749313/NO_NMR_FSS_2010.pdf/d1f6742a-0cbd-4611-9c07-067f0fd98676

13. Contact

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