# Documentation of statistics for Agricultural investments 2023

# 1 Introduction

The statistics concern agricultural investments and depreciations in farm buildings, land improvements and machinery and equipment. The statistics show e.g. if depreciations exceed investments whereby the capital of the agricultural sector is subject to loss and tear. The statistics have been compiled since 1947 and in its presents it is comparable from 2005 onwards.

# 2 Statistical presentation

The statistics are a yearly calculation of the investments and depreciations of the the agricultural sector by type of investment and both at current and constant prices.

## 2.1 Data description

The statistics contain a compilation of the value of investments of the agricultural sector. The agricultural investments are compiled at both current and constant prices (2015-prices).

When investing a firm increases and improves its capacity of production with the aim of obtaining a higher output and earning or in order to meet legal requirements on e.g. environment and animal welfare.

The agricultural investments consist of three main types:

*Farm buildings*, which e.g. could be animal houses for cattle and pigs, silos for cereals and green houses.

*Machinery and equipment*, which e.g. include tractors, milking machines and slurry silos.

*Land improvements*, e.g. planting of new fruit trees and draining of the land.

While a firm invests also a deterioration of the capital stock takes place. The value of this deterioration is called depreciations, and the difference between depreciations and investments is called net *investments*.

## 2.2 Classification system

The investments, depreciations and net investments are distributed by type of investments:

- Farm buildings
- Machinery and equipment
- Plantations and land improvements

Farm buildings are further divided into:

- Animal houses for cattle
- Animal houses for pigs
- Other farm buildings

## 2.3 Sector coverage

Agriculture, including horticulture.

## 2.4 Statistical concepts and definitions

Standard output: The average value of the agricultural output at farm-gate price, in euro per hectare or per head of livestock.

EURO loans: A euro loan is a loan in euro obtained through a Danish credit institute.

## 2.5 Statistical unit

Investments are calculated at million Danish kroner, both at current and constant prices. 2015 is pt. the base year for the calculation at constant prices.

## 2.6 Statistical population

All agricultural farms in Denmark.

## 2.7 Reference area

Denmark.

## 2.8 Time coverage

These statistics cover the time period from 2005 and onwards.

## 2.9 Base period

The investments are calculated at current and constant prices with 2015 as the base year.

## 2.10 Unit of measure

Million Danish kroner

## 2.11 Reference period

Yearly.

## 2.12 Frequency of dissemination

Yearly.

### 2.13 Legal acts and other agreements

EU1217/2009 is the basic act about Denmarks responsibility towards EU's Farm Accountancy Data Network, FADN, supplemented by EU1198/2014. The collection of data from the accountants are based on acceptance from the farmer. A register of farms from which there are acceptance are kept by Statistics Denmark.

Another important regulation is EU2015/220 with later amendments. This implementing regulation defines the farm return tables. EU1915/83 defines dates and payment for data.

### 2.14 Cost and burden

No response burden is estimated as participation in the survey is voluntary.

### 2.15 Comment

For more information see Agricultural economics.

## 3 Statistical processing

The statistics are based on information from Accounts Statistics for Agriculture. The Accounts Statistics for Agriculture include only farms of at least 25.000 euro in standard output. To cover also small farms below this threshold the results for investments are increased by 1,39 per cent for buildings and also 1,39 per cent for machinery and inventory. This regulation of the investments also takes into account that small farms invests less than larger farms. Calculation at constant prices is made by means of price indexes for agricultural investment goods.

### 3.1 Source data

The main source for compiling the statistics is accounts data for farms, whose accounts are prepared by accounts offices, which are organized within DAAS. The data for the statistics are collected electronically from the accounts system Ø90, where additional and necessary information is supplemented by the accounts offices. In addition to this, accounts data for a number of enterprises, mainly gardening are collected from private accounts offices, which report the data electronically on questionnaires. Another source is the Farm Structure Survey maintained by Statistics Denmark. The register forms the basis for determining the population. Finally, register-based data on paid-out subsidies from the Danish Agricultural Agency are used.

The selection plan is optimized according to the Neumann-criteria, including three target variables. The Neumann allocation is based on the observed spread within strata defined by EU-type * size. The three target variables are Net profit, Debt ratio and investments in agricultural assets and weighted, respectively ½, ¼ and ¼. The selection is divided into 6 main types of agriculture; conventional full-time and part-time holdings, ecological full-time and part-time holdings, and full-time and part-time horticulture.

The Danish sample to FADN is in regulated to 1.600 farms.

## 3.2 Frequency of data collection

Yearly.

## 3.3 Data collection

Accounts offices, which are organized within SEGES, report data electronically from the accounts system Ø90, where additional and necessary information is supplemented by the accounts offices. In addition to this, accounts data for a number of enterprises, mainly gardening are collected from private accounts offices, which report the data electronically on questionnaires. The information from Ø90 is collected as system-to-system reports. Finally, register based information is collected from the Register of Business Statistics by Statistics Denmark and subsidies from the Danish Agricultural Agency.

## 3.4 Data validation

Before accounts are delivered to Statistics Denmark there are a number of tests, also stop-tests, in the accounting system Ø90 and in the questionnaires. After receiving the data at Statistics Denmark a sophisticated test is performed for each holding. The test is particular sophisticated because individual data are delivered to FADN, DG Agri.

## 3.5 Data compilation

There are five types of investments:

Stables for cattle Stables for pigs Other farm buildings Machinery and equipment Land improvements

Stables for cattle, Stables for pigs and machinery and equipment appear in the accounts statistics as identical items whereas other farm buildings are an aggregation of "greenhouses and "buildings not mentioned elsewhere" and plantations and land improvements an aggregation of "land improvements" and "strawberry plants".

When publishing the figures stables for cattle, stables for pigs and other farm buildings are aggregated to "farm buildings, total" and all items to "investments, total".

The extrapolation from the sample of the accounts statistics is done by applying an extrapolation factor for each farm in the sample. The accounts statistics include only farms of least 10.0 hectares or at least 15.000 euro in standard. To cover small farms below this threshold the results are raised by 3.0 per cent.

The calculation at constant prices is done by applying three different price indexes taken from here

Materials, investments, total Buildings, investments Other structures (drainage etc.)

Depreciations express the value of the wear and tear of fixed capital and are calculated at current prices only. For machinery and equipment a living time of 12 years is assumed whereas buildings have a living time of 100 years. For land improvements depreciations are assumed to be zero.

Net investments are calculated by deducting the depreciations from the investments. Net investments may be negative if depreciations exceed investments.

### 3.6 Adjustment

None.

# 4 Relevance

The statistics are of interest for e.g. Danish authorities, EU and organizations. Users are satisfied.

### 4.1 User Needs

The statistics are interesting for e.g. Danish authorities, EU and agricultural organizations and additionally as input in national accounts.

### 4.2 User Satisfaction

Statistics Denmark has user group for agricultural statistics as well as an advisory group for accounts statistics for agriculture where the users can tell their opinion. Additionally there is also a user group for economic statistics where national accounts subjects are discussed.

The users express their satisfaction.

### 4.3 Data completeness rate

The statistics are in accordance with the European Parliament (EC) no 138 on community agricultural accounts.

# 5 Accuracy and reliability

The statistics are based on a sample and consequently subject to statistical uncertainty. The sample is stratified with the aim of being representative for all farms. The uncertainty differs for each individual item, and the largest degree of uncertainty is seen for items such as investments, which may vary considerably. From the population of small farms, where the variation is small, a relatively small sample is selected, while a larger sample is used for bigger farms. Loss of sample farms are countered by higher selection rates in strata where losses do occur (based on experience).

### 5.1 Overall accuracy

The statistics are compiled on the basis of a sample population and consequently, the results are subject to some degree of statistical uncertainty, although the data extract is representative with a stratification taking into account that all farms are represented. The statistical uncertainty differs for each individual item, and the largest degree of uncertainty is seen for the item investments, which may vary considerably among the farms over time. Participation in these statistics are voluntary for the farmer which adds to the uncertainty.

## 5.2 Sampling error

Overall accuracy: The statistics are compiled on the basis of a sample population and consequently, the results are subject to some degree of statistical uncertainty, although the data extract is representative with a stratification taking into account that all farms are represented. The statistical uncertainty differs for each individual item, and the largest degree of uncertainty is seen for the item investments, which may vary considerably among the farms over time.

The overall accuracy is considered high. From the population of small farms, where the variation is small, a relatively small sample (1 to 2 pct.) is selected, while from the population of large farms, where the variation is greater, a sample of up to 20 pct. is used. In the case of special types of farming, e.g. poultry additional agricultural holdings are selected in order to be able to show reliable results.

## 5.3 Non-sampling error

In relation to the target population, which is Danish agriculture, more than 99 per cent of the Standard Output is covered. Selection in each strata is increased to facilitate loss of responses. In 2023 loss of responses was about 10 per cent. Some of the loss is due to that the population is not known at the time of selection. Farm can for example be sold or being bankrupt in the time from selection to the actual accounting year.

## 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 sample survey covers about 9 pct. of the entire population within agriculture as a whole. If the sub-populations are considered, the selection ratio, however, varies considerably, partly to take account of the greater spread of results among the large farms, partly to achieve a sufficiently large number of farms in order to be able to represent the small sub-populations. In connection with the selection procedure, we have aimed at including the greatest possible number of farms in the statistics over several years in succession.

### 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

Preliminary data for agriculture are published in the beginning of July when 50-60 per cent of the data has been a thorough examination.

## 6 Timeliness and punctuality

These statistics are published in October of the following calendar year after the reference year. Publications are released on time, as stated in the release calendar.

### 6.1 Timeliness and time lag - final results

These statistics are published in October of the following calendar year after the reference year.

### 6.2 Punctuality

These statistics are published without delay, with reference to the announced time of publication in the release calendar.

## 7 Comparability

These statistics are comparable from 2005 onwards whereas there is a break in the comparability between 2004 and 2005. Apart from an increment for small farms the statistics are comparable with the accounts statistics for agriculture.

### 7.1 Comparability - geographical

The data collected are submitted to EU's Directorate General for Agriculture (DG Agri) and are used in EU's information network for Agricultural Book-Keeping, The data of each country are compiled by DG Agri, thereby producing an overall statistic covering the EU as a whole and statistics for each individual country on the basis of common concepts, definitions and homogeneous rules for selection and weighting.

### 7.2 Comparability over time

Statistics on agricultural investments at current and constant prices date back to 1947 and is available in Statistisk Årbog 1961. The figures were based on accounts results from about 7.000 agricultural farms.

Figures from 1975 onwards are available in the statbank.

The figures are perfectly comparable from 2005 onwards. Till 2004 the statistics did not include horticultural and mink farms. Inclusion of these farms has increased the level with about 5 per cent.

### 7.3 Coherence - cross domain

The statistics on agricultural investments are comparable with the accounts statistics for agriculture, apart from an increment for small farms of 1,39 percent (2023) not included in the accounts statistics. Small farms have less than 25.000 euro in standard output.

### 7.4 Coherence - internal

No inconsistencies occur as all results are calculated from the same sample and and with use of one extrapolation factor only for each farm.

## 8 Accessibility and clarity

These statistics are published in the StatBank under Agricultural economics.

### 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 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.

### 8.2 Release calendar access

The Release Calender can be accessed on our English website: Release Calender.

### 8.4 News release

These statistics are published in a Danish press release.

### 8.5 Publications

Publications only in Danish.

## 8.6 On-line database

These statistics are published in the StatBank under Agricultural economics in the following tables:

- JB4: Fixed gross investments in agriculture by by type of investment and amount
- JB2: Depreciation and net investments in agriculture by type of investment

## 8.7 Micro-data access

Researchers and other analysts from authorized research institutions, can be granted access to the underlying micro-data by contacting Research Services.

## 8.8 Other

Not relevant for these statistics.

## 8.9 Confidentiality - policy

Data Confidentiality Policy for Statistics Denmark.

## 8.10 Confidentiality - data treatment

These statistics are published at a level of aggregation that does not necessitate discretion.

## 8.11 Documentation on methodology

There are no documentation on methodology for these statistics.

## 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 is in the division of Food Industries. The contact person is Henrik Bolding Pedersen, tel.: + 45 2057 8887, and e-mail: HPE@dst.dk.