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Central
Statistics
Office

Standard Report on Methods and Quality for Pig Survey

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This documentation applies to the reporting period:

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1 Overview

The Pig Survey is a relatively small biannual survey of approximately 350 specialised pig farms in the country. The purpose of the survey is to estimate the pig population in the state on each of the reference dates, the 1st of June and the 1st of December. The survey is a de facto census of the specialised pig farms that are responsible for the vast majority of pig farming within the state. The survey was carried out as a postal survey up until June 2015. In the June 2015 pig survey, we (the Central Statistics Office (CSO)) introduced a pig web survey and pig farmers are now given the option to either complete the survey electronically or by post.

The principal outputs are the number of pigs in the state, broken into breeding and other pig categories. The data is used by EU organisations, government departments, semi-state agencies, farming organisations and private sector companies.

Questions on the number of pigs on farms have been included in farm surveys since the mid 1800s. In 1973, as a result of EU regulation, pig specific surveys were carried out in April, June, August and December. Since 1998, the pig survey has been carried out in June & December only.

2 General Information

2.1 Statistical Category

Primary statistical survey.

2.2 Area of Activity

Agricultural statistics.

2.3 Organisational Unit Responsible, Persons to Contact

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2.4 Objectives and Purpose; History

The simple objective is to compile data on the total number of pigs in the country, broken down into breeding stock and fatteners and their respective subcategories. Information in relation to the total number of pigs held on farms has been collected in various farm surveys since 1847. In 1901, data was collected for the first time in relation to the number of female breeding pigs. Pig farming has undergone an "industrialisation" process from a situation in 1973 where the average pig herd size was 29 pigs to 2014 where 96% of the national pig total was in herds of 1,000 and over.

From 1975 to 1997 the survey was conducted on a quarterly basis. From 1998 the survey is conducted in Ireland on the same reference dates as the main livestock surveys (June 1st and December 1st). The number of pig categories increased significantly in 1975 in line with EU legislation.

2.5 Periodicity

Biannual

2.6 Client

General EU & National Requirements

2.7 Users

- Eurostat (the statistical service of European Commission).
- EU Commission.
- Department of Agriculture, Food and the Marine (DAFM).
- Other sections within the CSO.
- Semi-State organisations such as Teagasc.

2.8 Legal basis

Regulation (EC) No. 1165/2008 concerning livestock and meat statistics.

3 Statistical Concepts, Methods

3.1 Subject of the Statistics

Livestock numbers

3.2 Units of Observation/Collection Units/Units of Presentation

The survey's unit of observation are breeding pigs broken down into the sub-categories of boars, sows in pig, other sows, gilts, gilts in pig and other pigs based on weight classifications. The units of collection are farms with more than 200 pigs.

A farm is defined in accordance with the definition adopted for the EU surveys as a single unit, both technically and economically, which has a single management, and which produces agricultural products. Farms with less than 1 hectare may be included if they are engaged in intensive production. This is the case with some specialist pig producers who are not involved in other agriculture activities.

Results are presented at State level – the unit of presentation is the number of head of livestock. In the annual 'Crops and Livestock Survey June Final Results' publication, pig results are also presented at regional NUTS 2 & NUTS 3 levels.

3.3 Data Sources

None, as this is a primary survey.

3.4 Reporting Unit/Respondents

Pig farms

3.5 Type of Survey/Process

Postal and Web Survey

3.6 Characteristics of the Sample/Process

3.6.1 Population and Sampling Frame

An independent, standalone CSO register of pig farms is used, which holds all identifiable specialised pig farms in the state. (Comparisons with DAFM CCS were made in 2015 and additional Pig Farms were identified and added to CSO register.) It is linked to the general CSO farm register by reference number. For respondent management purposes, it is stored electronically within the CSO farm register.

3.6.2 Sampling Design

The survey is a census of the large pig farms (greater than 200 head) which are responsible for the vast majority of pig farming within the state.

3.7 Survey Technique/Data Transfer

The survey is carried out by post and email. The option to return the form electronically is also available. Follow up to non-response is by email and/or telephone.

3.8 Questionnaire (including explanations)

The questionnaire is a two-page questionnaire which is simple in design to allow easy usage.

Please see the following URL to view the survey form =>

<http://www.cso.ie/en/methods/surveyforms/pigsurvey/>

3.9 Participation in the Survey

The survey is a voluntary survey on respondents.

3.10 Characteristics of the Survey Process and its Results

Data are collected for the following categories of pig

Breeding Pigs

- Boars
- Sows in pig
- Other Sows
- Gilts in pig
- Gilts not yet served

Other Pigs by live weight

- Pigs under 20 kg
- Pigs 20 – 50 kg
- Pigs 50 – 80 kg
- Pigs 80 – 110 kg
- Pigs 110 kg and above

Results are published for all of the above collection categories with the exception of the pigs 80 – 110 kg and pigs 110 kg and above which are combined.

The response rate to the survey is between eighty-eight and one hundred per cent. As there is no statutory requirement for respondents to make a return, a matched sample methodology is used to estimate non-responses in aggregating results.

3.11 Classifications used

The classifications used are listed at 3.10 above and are based on Eurostat legal requirements.

3.12 Regional Breakdown of Results

A regional breakdown of pig numbers is published as part of the 'June Crops & Livestock Final Results' publication. However, the female breeding pig categories listed above are combined, and the other pigs by live weight categories are also combined into pigs under 20 kg and pigs greater than 20kg. NUTS2 (Nomenclature of Territorial Units for Statistics) data for all the categories listed at 3.10 above are submitted to Eurostat, however much of the data are marked as confidential. The Nomenclature of Territorial Units for Statistics (NUTS, for the French nomenclature d'unités territoriales statistiques) is a geo-code standard for referencing the subdivisions of countries for statistical purposes.

From the 1st January 2018 an Amendment of the EU NUTS legislation came into effect. This reflects the new regional assembly structure and the other changes under the 2014 Local Government Act. These changes included:

- The amalgamation of the local authorities of Tipperary North and South, Limerick City and County Councils, Waterford City and Councils.
- The establishment of three Regional Assemblies (Northern & Western, Southern, Eastern & Midland).
- At NUTS3 level, South Tipperary was transferred from the South-East into the Mid-West NUTS 3 Region and County Louth was moved from the Border to the Mid-East NUTS 3 Region.
- The establishment of the three NUTS 2 Regions which correspond to the three Regional Assemblies and are groupings of the new NUTS 3 Regions.

The composition of the new Regions breakdown is outlined below.

Northern & Western NUTS 2 Region

Border Cavan, Donegal, Leitrim, Monaghan, Sligo
West Galway City, Galway County, Mayo, Roscommon

Southern NUTS 2 Region

Mid-West Clare, Limerick City & County, Tipperary
South-East Carlow Kilkenny Waterford City & County
South-West Cork City, Cork County, Kerry

Eastern & Midland NUTS 2 Region

Dublin Dublin City, Dun Laoghaire-Rathdown, Fingal, South Dublin
Mid-East Kildare, Meath, Wicklow, Louth
Midland Laois, Longford, Offaly, Westmeath

4 Production of the Statistics, Data Processing, Quality Assurance

4.1 Data Capture

Postal forms are scanned and combined with electronic returns, the dataset is then entered into the Data Management System (DMS) for edit checks etc.

A clean dataset is exported from the Data Management System to SAS for analysis.

4.2 Coding

No coding used within survey process.

4.3 Data Editing

Data editing is performed using the DMS. Edit rules focus on difference between current and previous year's returns.

4.4 Imputation (for Non-Response or Incomplete Data Sets)

Imputation is not used as the Survey has a greater than 88% response rate.

4.5 Grossing and Weighting

Results are based on a matched sample methodology, so no grossing or weighting is used.

4.6 Computation of Outputs, Estimation Methods Used

The results are based on a matched sample methodology. A series of SAS programmes are run to identify all farmers who responded in the current year and in the previous year. Then, for each category of pig, the percentage change between the two years is calculated. This percentage change is then applied to the published totals for the previous year to come up with estimates for the totals for the current year.

In determining the percentage change for each category of pig, every farm in which the change from one year to the next is outside certain bounds is identified. In cases where the difference is deemed to be incorrect, the farm is excluded from the sample for that category of pig.

The matched sample methodology data are compared to the Census of Agriculture data collected every ten years. Matched sample results are subject to revision after each Census. This ensures that pigs held by non-specialist pig producers are captured within the overall figures.

4.7 Other Quality Assurance Techniques Used

- Cross referencing of surveys results against other surveys within Agriculture division and DAFM's Pig Census.
- Consistent Macro edits within DMS are performed which compare totals over number of years.
- Consultation with experts within industry to ascertain reasons behind emerging trends.

5 Quality

5.1 Relevance

The information is used at European level to monitor the operation of Irish pig farms. The results are used within the CSO for agriculture and national accounts. They are also used by government departments, companies and semi-state organisation to monitor trends within the industry.

5.2 Accuracy and Reliability

5.2.1. Sampling Effect & Representativity

The farms surveyed represent all large pig farms in the state. Farms with less than 200 pigs are not surveyed. The total number of pigs held on these farms is relatively small. The amount is accounted for in published totals by use of a matched sample methodology whose base years includes these smaller pig farms.

5.2.2. Non-Sampling Effects

5.2.2.1 Quality of the Data Sources used (other than survey register)

No other data sources used in preparation of results.

5.2.2.2 Register Coverage

Register is intended to cover all specialist pig farms. Whereas there is likely to be some minor coverage issues, these are unlikely to effect results due to match sample methodology,

The register of specialist pig farms is updated after each Farm Structure Survey with the addition of farms with greater than 200 pigs. Farm Structure Surveys are carried out at intervals in the period between each complete Census of Agriculture. The last Farm Structure Survey took place in 2016. The Farm Structure Survey is considered a representative sample of all farms in the state and includes new farms obtained from administrative records held by the Department of Agriculture and Teagasc.

5.2.2.3 Non-response (Unit and Item)

Farms who fail to respond are removed from the analysis and calculation of percentage change. It should be noted that there is a very high response rate to the survey (greater than 88%).

At item level, as many farms do not contain all categories these are included in analysis as actual zero.

5.2.2.4 Measurement Errors

Measurement errors are not formally calculated for the Survey. The questionnaire is clear and unambiguous and easily understood by respondents.

5.2.2.5 Processing Errors

Processing errors are limited due to well defined processes within the DMS. Numerous edit checks are performed to ensure reasonableness of the data used at aggregation stage. Macro edit checks, where totals for each category are compared with previous years are performed on all results to ensure consistency and to identify processing errors.

5.2.2.6 Model-related Effects

Model used is a census methodology thus no known model related effects.

5.3 Timeliness and Punctuality

5.3.1 Provisional Results

No provisional results.

5.3.2 Final Results

June Pig Survey results are published within t+16 weeks of the reference date.

Results from the December survey are published as part of the December Livestock Survey which is published at t+16 weeks after the reference date of the survey.

Data are transmitted to Eurostat in adherence with deadlines in Regulation (EC) No. 1165/2008.

5.4 Coherence

Results from the DAFM's Pig Census are examined for coherence, however due to different methodologies and reference dates it is difficult to compare results from the DAFM's Pig Census with the CSO Pig survey.

5.5 Comparability

As a common legislative framework is in place across the European Union for this survey, results are comparable against other European Union countries.

In terms of time series, results are comparable from 1975 to date. However as there has been major consolidation in the pig industry care should be taken in comparing results for the start of the time series with the most recent data.

5.6 Accessibility and Clarity

5.6.1 Assistance to Users, Special Analyses

All assistance within the bounds of maintaining confidentiality is given to users. Decisions on whether to perform special analyses are taken on a case by case basis.

5.6.2 Revisions

Revisions do not usually occur from one survey to the next, but revision may take place due to revisions in methodologies and data collection methods. These revisions are highlighted on the front page of the release.

5.6.3 Publications

5.6.3.1 Releases, Regular Publications

The Pig Statistics release is published electronically on the CSO website.

<http://www.cso.ie/en/statistics/agriculture/pigsurvey/>

The data are also uploaded to the CSO databank on the day of release. The data are also used by Eurostat in many datasets available publicly.

5.6.3.2 Internet

The data are available from the CSO databank

<http://www.cso.ie/px/pxeirestat/Statire/SelectVarVal/Define.asp?maintable=AAA05&PLanguage=0>

And on the Eurostat website at:

<http://ec.europa.eu/eurostat/web/agriculture/data/main-tables>

5.6.4 Confidentiality

All data received are treated as strictly confidential as stated in the Statistics Act 1993. Care is taken to ensure that disclosure of potentially confidential results is avoided.