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General Details

Introduction

A Census of Agriculture was conducted in June 2000 in accordance with the Statistics (Census of Agriculture) Order, 2000 (S.I. No. 132 of 2000). This is the first full Census of Agriculture to be conducted since 1991. It is in line with the general practice since 1980 of conducting a full Census approximately every ten years to update structural information in agriculture and to provide benchmark data for the annual sample surveys of crops and twice-yearly surveys of livestock. Previously Censuses had been conducted every five years between 1960 and 1980 and annually between 1847 and 1953.

The 2000 Census of Agriculture was the first to be conducted entirely by post.

This publication presents the detailed results together with revised livestock aggregates from earlier periods.

Coverage

The objective in the Census was to identify every operational farm in the country and collect data on agricultural activities undertaken on them.

- Definition of a farm

A *farm* was defined, in line with the definition adopted for the EU surveys on the structure of agricultural holdings (Article 5 of Council Regulation 571/88¹) as:

A single unit, both technically and economically, which has a single management and which produces agricultural products.

The production of agricultural products covers the growing of all crops (including horticultural crops) and the raising of all livestock (including those in intensive units).

The definition of a farm means that

- A farm can consist of two or more separate pieces or parcels of land provided that they are being worked together as a single unit i.e. using the same management, labour force and other means of production such as machinery.
- Two or more persons or concerns can be involved in the management of a farm provided that a single independent decision-making entity exists and that the partners involved share the profits or losses.
- A farm may consist entirely of owned land, entirely of rented land or a combination of both.
- In the case of highly intensive horticultural or livestock production units, a farm may consist of buildings only on a very small land area.

- Size threshold

The scope of the Census was all farms where the agricultural area used for farming (AAU) was at least 1 hectare (2.47 acres). In addition farms with less than 1 hectare were included if they were engaged in intensive production (e.g. of pigs or poultry). In the presentation of Census results, all farms under 1 hectare which made a Census return have been included, as in the 1991 Census of Agriculture.

The AAU or area farmed is the combined area under crops, silage, hay, pasture and rough grazing land in use (including fallow and set-aside land). Areas taken up by roads, tracks, water, bog, marsh, rocks, unused rough grazing land, buildings etc. are excluded. Commonage used by the farm is not included as part of the area farmed but livestock etc. held on such land are returned as belonging to the farm.

¹ Council Regulation (EEC) No 571/88 of 29 February 1988, as last amended by Commission Decision 98/377/EC – Official Journal of the European Communities No L 56 of 2 March 1988 and No L 168 of 13 June 1998 respectively

Register

The carrying out of a postal Census required that an up-to-date register of active farms was available. The basis for this was already present since the 1991 Census. That CSO register, adjusted to take account of births and deaths of farms each year, was used as a sample frame for the regular sample surveys of crops and livestock.

For the 2000 Census of Agriculture, a new register was drawn up based on the main client file of the Department of Agriculture and Food (DAF). This comprised persons who had registered with DAF either to avail of agricultural subsidies or to comply with agricultural regulations. It was considered to include the vast majority of active farms. The DAF also provided other specialised registers, e.g. registers of pig farmers, poultry farmers etc. An Bord Glas (the Horticultural Development Board) provided specialised registers of growers in horticulture. A separate client file from Teagasc (the Agriculture and Food Development Authority) was also used. Finally a small number of specialised farms from the existing CSO register were included.

All of these sets of records were initially combined to produce a preliminary draft Census register. Since there was considerable overlap between the various registers an exercise was undertaken to eliminate duplicates. This was done initially by eliminating duplicate DAF register numbers and then by using string search techniques to find duplicates of farmer name, address etc. A record was eliminated as a duplicate only if there was clear evidence that this was the case. The resulting register contained some 190,000 farms. The indications were that the number of active farms in 2000 would be in the region of 140,000 so, while questionnaires were sent to all 190,000 possible farms it was expected that there would be about 50,000 duplicates, redundant names and addresses etc. These would be identified either by the recipients signalling that they had received more than one questionnaire, or were no longer engaged in farming etc., and by extensive searching for duplicate returns.

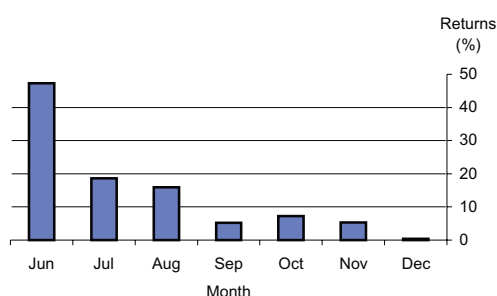
Collection and processing of the Census

- Collection

Questionnaires were sent to the 190,000 possibly active farms on the register. The reference date for which information was requested was 1 June 2000 and respondents were asked to return the completed questionnaire by 9 June. A copy of the questionnaire is reproduced in Appendix 1. A supplementary pig questionnaire was sent to larger pig farmers requesting information in addition to that requested in the Census questionnaire.

Since this was the first full postal Census it was anticipated that a succession of postal reminder notices would be needed to maximise response. In all six stages of reminder were required between mid-June and early November. This resulted in an eventual response rate of 97% of active farms.

Figure 1: Census response by month



- Processing

Returns were scrutinised and keyed into an electronic database. Where necessary, queries raised by edit checks were pursued with the respondent.

Some imputations had to be made for non-response. For this purpose, the main source used was an administrative payments file of DAF. This was a file of every farmer in the State who received a payment for agricultural activity during 2000. This file listed the number of animals and the area of land for which payment was received under the various schemes, for the vast majority of farmers on the Census.

In the case of partial non-response, missing items were estimated by reference to the payments file, adjusting for differences at an aggregate level between payment data and survey data. If a farm had not responded at all (full non-response) and the payments file indicated that the farm was active in 2000, Census details were estimated by reference to the payments file and to other farms in the Census with similar characteristics.

In all, imputation for partial non-response affected 2% of the Census of Agriculture returns and 3% of records were fully imputed.

Intercensal revisions

For June of each year a sample survey of at least 30,000 farms is conducted to provide estimates for years of livestock and crops. The annual estimates are based on the trend in a matched sample of respondents in successive years. The Census of Agriculture provides a reference benchmark for the annual time series. Comparing the annual series with the results of the full Census of Agriculture normally reveals differences for certain crops and livestock categories. These differences arise from the combined effect of sampling errors, accumulated biases resulting from the use of annual matched sample estimation procedures over long time periods and the absence of a completely up-to-date statistical farm register.

Tables A and B set out the extent of the differences for cereals, potatoes, cattle and sheep. In general, the Census results and the matched sample estimates for June 2000 were in broad agreement. As the difference between the two series had accumulated over the period since the last Census of Agriculture, in 1991, the intercensal series has been revised. The revisions apply only to cattle and sheep. For crops, it was not considered necessary to calculate a revised series, due to the generally smaller magnitude of the estimated crop areas.

Table C shows the revised intercensal series for cattle and sheep. The revisions apply to all categories except for *other sheep under one year*.

- Census data on other sheep under one year

For June 2000 a significant additional factor giving rise to differences was the delayed response by some farmers to the Census of Agriculture. This was considered to affect particularly the numbers in the category *other sheep under one year*.

Many late returns gave the number of sheep on the date of return, instead of on 1 June 2000 as required, and this considerably reduced the recorded number of lambs (the bulk of the category *other sheep under one year*) which are subject to significant seasonality. The Census figure for lambs was 2,446,300 compared with the matched sample estimate of 3,109,800. The CSO considers the latter figure to be the best estimate for the number of other sheep under one year on 1 June 2000.

To correct for these differences revisions were made to cattle and sheep categories except for the category *other sheep under one year*. The differences for other categories of crops etc. were not sufficiently large or else the content was not sufficiently comparable to warrant or allow intercensal revisions.

Definitions of main variables

- Location

The place where the farm headquarters (usually the farm residence) is located. In a small number of cases this definition results in farms located in one county being classified to another county.

- Type of farm and economic size

An EU-wide system known as the Community Farm Typology is used to classify farms into homogeneous groups, based on the type of farming activity involved, and also to derive a measure of the economic size of farms.

This is done, at the level of the farm, by applying standard economic coefficients per unit area of crops or per head of livestock - standard gross margin (SGM) coefficients - to the area of each crop and the number of each type of livestock for that farm.

- An SGM coefficient for a particular type of crop or livestock is calculated for each region within each EU Member State. It is derived from the value of gross agricultural output less certain specific variable costs. It is considered to be a close estimate of potential gross value added per unit of area or per head of livestock.
- At the level of the farm the number of each category of livestock or area of each category of crop production is multiplied by the corresponding SGM coefficient to give an SGM for that category.

- For that farm the SGMs for each category are added together to give a total SGM. This total SGM is a value which determines the *economic size* of the farm. It is expressed in terms of an EU unit of measure the *European size unit* (ESU). The ESU used for the 2000 Census corresponds to a value of €1,200, calculated using 1996 SGMs (see Appendix 2).
- The *type* of farm is determined by the composition of its total SGM. A farm is deemed to be of a particular type if the sum of the SGMs relevant to that type of farming make up the bulk of the total SGM of that farm (see Appendix 2 for further details).

- Family farms

These are farms which were operated as family based enterprises (including any which were registered as commercial concerns). Only those farms registered as companies which paid all their workers as employees (including management) as well as farms connected with institutions (e.g. schools, colleges, religious communities, prisons etc.) were classified as not being family farms. For purposes of analysis the holder of a family farm was included as part of the farm labour force irrespective of whether they contributed to the labour input of the farm.

- Farm manager

The person responsible for the day-to-day running of the farm.

- Annual work unit (AWU)

The labour input of each person who worked on the farm was measured in terms of AWUs. For each family or regular non-family worker the time spent on farmwork was collected in terms of the number of weeks (excluding holidays and sick leave) worked on the farm in the previous year and the average number of hours worked per week. This was converted to AWU; one AWU being defined as 1,800 hours or more of labour input per person per annum. Time worked by casual, relief and contract workers was collected in terms of person-days and these were converted to AWUs by regarding one person-day as equivalent to 8 hours.

- Importance of farmwork

- *Sole occupation*
If an individual had no other occupation from which an income was obtained then farmwork was a sole occupation.
- *Major occupation*
If farmwork took up the greater part of a worker's time it was regarded as a major occupation.
- *Subsidiary occupation*
If the time spent on gainful non-farming activity exceeded that spent on farmwork then farmwork was regarded as a subsidiary occupation. Gainful non-farming activity includes paid farmwork on other farms and all other non-farming activities from which an income was obtained, whether undertaken on or off the farm being surveyed.

- Parcel of land

Any piece of land belonging to the farm which is completely surrounded by land of other holdings or by roads, forests, water etc.

- Farm tourism

Activities on the farm like bed and breakfast, farm holidays, coffee shop etc.

- Recreational activities

Activities on the farm like riding, golf, pony trekking, pitch and putt, fishing etc.

- Farms keeping accounts

A farm was categorised as keeping accounts if regular accounts were maintained for the purpose of managing the farm.

Table A Comparison of matched sample estimates with Census results, June 2000 - Crops

Description	Matched sample	Census	Difference	
	'000 ha	'000 ha	'000 ha	%
Wheat - total	84.3	78.0	-6.4	-7.5
Winter wheat	62.7	58.8	-3.9	-6.2
Spring wheat	21.6	19.1	-2.5	-11.5
Oats - total	17.6	16.8	-0.8	-4.7
Winter oats	10.2	9.6	-0.6	-5.9
Spring oats	7.4	7.2	-0.2	-3.1
Barley - total	180.6	182.3	1.7	1.0
Winter barley	24.6	24.1	-0.5	-1.9
Spring barley	156.0	158.2	2.2	1.4
Main cereals¹	282.6	277.1	-5.5	-1.9
Potatoes	13.8	13.5	-0.3	-1.8

¹ Wheat, oats and barley

Table B Comparison of matched sample estimates with Census results, June 2000 - Livestock

Description	Matched sample	Census	Difference	
	'000	'000	'000	%
Total Cattle	7,232.2	7,037.4	-194.7	-2.7
Breeding Cattle	2,765.7	2,752.2	-13.6	-0.5
Dairy cows	1,270.3	1,177.5	-92.9	-7.3
Other cows	1,149.9	1,187.0	37.1	3.2
Dairy heifers	201.7	206.5	4.8	2.4
Other heifers	99.1	125.1	26.0	26.2
Bulls	44.6	56.1	11.5	25.7
Other Cattle	4,466.5	4,285.3	-181.2	-4.1
Male: 2 years and over	792.1	721.6	-70.5	-8.9
Female: 2 years and over	345.7	294.7	-51.1	-14.8
Male: 1-2 years	955.0	912.4	-42.5	-4.5
Female: 1-2 years	616.3	604.7	-11.6	-1.9
Male: under 1 year	908.0	919.4	11.4	1.3
Female: under 1 year	849.3	832.5	-16.8	-2.0
Total sheep	7,637.5	6,891.5	-746.0	-9.8
Breeding Sheep	4,305.5	4,216.3	-89.2	-2.1
Ewes: 2 years and over	3,504.9	3,398.3	-106.6	-3.0
under 2 years	692.1	708.6	16.5	2.4
Rams	108.5	109.5	0.9	0.9
Other Sheep	3,332.0	2,675.2	-656.9	-19.7
1 year and over	222.2	228.9	6.7	3.0
under 1 year	3,109.8	2,446.3	-663.5	-21.3

Table C Revised Intercensal series for Cattle and Sheep, June 1992 - 2000

Description	June 1992	June 1993	June 1994	June 1995	June 1996	June 1997	June 1998	June 1999	June 2000
	'000								
Total cattle	6,951.4	6,981.8	6,996.5	7,034.0	7,313.5	7,532.7	7,640.0	7,387.0	7,037.4
Breeding Cattle	2,467.5	2,579.4	2,616.8	2,678.9	2,785.8	2,891.9	2,890.2	2,802.6	2,752.2
Dairy cows	1,277.9	1,263.5	1,260.6	1,256.2	1,266.4	1,251.7	1,233.8	1,200.6	1,177.5
Other cows	889.1	979.7	1,011.0	1,039.1	1,112.7	1,201.9	1,247.9	1,217.3	1,187.0
Dairy heifers	174.5	187.9	203.9	224.1	231.4	243.9	228.8	213.6	206.5
Other heifers	94.5	111.5	101.5	117.2	128.8	143.5	126.7	116.5	125.1
Bulls	31.5	36.7	39.7	42.3	46.5	50.9	53.0	54.6	56.1
Other Cattle	4,483.9	4,402.4	4,379.7	4,355.1	4,527.7	4,640.9	4,749.8	4,584.4	4,285.3
Male: 2 years and over	829.6	773.2	739.8	711.6	732.2	690.2	708.1	736.7	721.6
Female: 2 years and over	322.2	304.7	318.0	311.3	304.0	295.6	294.0	321.0	294.7
Male: 1-2 years	981.6	957.5	952.0	964.4	996.2	1,054.7	1,085.6	1,039.0	912.4
Female: 1-2 years	656.1	629.5	633.7	621.7	643.2	662.3	697.0	667.1	604.7
Male: under 1 year	888.9	913.8	903.8	915.3	974.3	1,023.0	1,054.8	965.1	919.4
Female: under 1 year	805.6	823.7	832.4	830.7	877.8	915.2	910.3	855.5	832.5
Total sheep	8,897.9	8,626.7	8,404.2	8,331.5	7,888.2	8,131.5	8,312.0	7,925.5	7,555.0 *
Breeding Sheep	4,867.7	4,839.8	4,741.2	4,613.7	4,465.8	4,491.4	4,577.4	4,398.9	4,216.3
Ewes: 2 years and over	3,953.2	3,890.7	3,752.8	3,666.4	3,526.8	3,512.0	3,536.4	3,475.8	3,398.3
under 2 years	791.6	827.7	868.6	829.5	828.8	867.3	926.9	811.4	708.6
Rams	122.9	121.4	119.8	117.7	110.2	112.1	114.1	111.7	109.5
Other Sheep	4,030.1	3,786.9	3,663.1	3,717.8	3,422.4	3,640.2	3,734.6	3,526.6	3,338.7 *

* See introductory text for further information on the June 2000 Census of Agriculture data on other sheep under one year. The Census figures for sheep have been adjusted above, to make them comparable with the time series data.