



Agricultural Production Statistics: June 2017 (Provisional)

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Agricultural Production Census: June 2017 (Provisional)

Methodology

Period-specific information

****Survey information****This release contains provisional results for key livestock, forestry, horticultural, and arable crops from the 2017 Agricultural Production Census.

Provisional results can change after further processing and analysis of data. We will release final results for all data items on 8 May 2018. These final figures will be available at a regional level.

The 2017 census was part of the current programme of agricultural production statistics that started in 2002. Previous censuses were held in 2002, 2007, and 2012, with annual sample surveys in 2003–06, 2008–11, and 2013–16.

Responses from farmers and foresters in the 2017 Agricultural Production Census resulted in an estimated eligible population of 65,200 geographic locations.
population of 52,300 geographic locations.

****2017 questionnaire changes (from 2016)******Horticulture** – in 2017, we included questions on the area of fruit trees and vines planted, and the area of vegetables and other horticulture crops harvested.

Farm Practices- in 2017, we included questions on irrigated area of the farm and systems used, effluent management system used on the farm, and main components for fertilisers

****2017 imputation levels****Imputation levels for the 2017 Agricultural Production Census

Description	% of total estimate imputed
Ewe hoggets put to ram	13
Breeding ewes (2-tooth and over) put to ram	13
Total sheep	13
Lambs born to ewe hoggets	13
Lambs born to ewes	13
Total lambs	13
Dairy cows and heifers, in milk or calf	19
Total dairy cattle	19
Calves born alive to dairy heifers/cows	20
Beef cows and heifers in calf (age 1–2 years)	13
Beef cows and heifers in calf (aged 2 years and over)	12

Description	% of total estimate imputed
Total beef cattle	13
Calves born alive to beef heifers/cows	13
Female deer mated	9
Total deer	10
Fawns born on the farm	9
Area of new forestry plantings (hectares)	16
Area of forestry replantings (hectares)	4
Exotic timber harvested (hectares)	3
Exotic timber harvested (cubic metres)	3
Wheat tonnage harvested	9
Wheat area harvested (hectares)	9
Barley tonnage harvested	10
Barley area harvested (hectares)	10
Maize grain tonnage harvested	10
Maize grain area harvested (hectares)	10
Kiwifruit	11
Wine grapes	7
Apples	5
Avocados	10
Blackcurrants	2
Cherries	6
Fresh/process peas	10
Onions	4
Sweet corn	3
Squash	1
Potatoes	10

Response ratesThe estimated proportion of eligible businesses that responded to the 2017 Agricultural Production Census for this provisional release was 84.3 percent.

General information

****About the estimates**** Figures in this release are rounded. We calculate all percentages in this release using unrounded figures. The figures from the agricultural production surveys may differ from those produced from other sources, such as the National Exotic Forestry Description Survey produced by the Ministry for Primary Industries, the Stock Number Survey from Beef and Lamb New Zealand Limited, and Dairy Statistics from Livestock Improvement Corporation Limited. These surveys use different survey frames and designs.

****Population frame**** The agricultural production surveys include all units identified on Statistics NZ's Business Register as having agricultural activity. The Business Register is a list of businesses in New Zealand, based on their registration for goods and services tax (GST) with Inland Revenue.

The compulsory registration level for GST is \$60,000, so there is a partial and unquantifiable coverage of units below this level.

****Survey population****

The survey population for the agricultural production surveys is all businesses engaged in 'agricultural production activity' (including livestock, cropping, horticulture, and forestry), or which own land intended for agricultural activity. The survey population includes businesses engaged in agriculture or forestry production as a secondary activity.

****Industries in scope**** The survey population specifically includes businesses classified to the following ANZSIC06 codes:

- A01 Agriculture
- A0301 Forestry (excluding native forestry).

It also includes parts of:

- L671200 Non-residential property operators
- M691000 Scientific research services (agriculture-related research that involves land holding (excluding universities))
- P802300 Combined primary and secondary education (agricultural high school operation)
- P802400 Special school education (special needs education involving agricultural production activity)
- P810200 Higher education (agriculture-related research undertaken by universities that involves land holding)
- R912100 Horse and dog racing administration and track operation
- R912900 Other horse and dog racing activities (racehorse training and racing stables operations)
- R892200 Nature reserves and conservation parks operation.

The survey population specifically excludes:

- A019300 Beekeeping
- part of A019900 Other livestock farming nec (worm farming, pet breeding, dog breeding, cat breeding, bird breeding (except poultry, game birds, ostriches, and emus))
- A017100 Poultry meat (except growers who also produce eggs for human consumption).

****Population changes**** For the 2002 Agricultural Production Census, we sourced the population from the Business Register and the Inland Revenue Client Register. We checked these sources against industry lists and AgriBase to ensure all large units were included in the population.

After the 2002 Census, we use the Business Register for the census and survey populations.

****Survey content changes****

Over the years, we have changed the core information we gather in agricultural production collections. Since 2002, these collections have gathered information on livestock and arable farming, horticulture, and forestry with the following exception:

In 2004, 2006, 2008, 2010, 2013, 2015 and 2016 the surveys collected information on livestock and arable farming, and forestry (we did not collect horticulture production information).

****Past questionnaire changes****

****Forestry****

The reference date for forestry production estimates changed to 31 March in the 2005 Agricultural Production Survey. This change was made to allow the forestry section of the survey to align more closely with the National Exotic Forest Description survey run by the Ministry for Primary Industries.

For the 2002 Census, and the 2003 and 2004 surveys, the year-ended date was 31 December. For agricultural production collections before the 2002 Agricultural Production Census, the year-ended date was 30 June.

Fawns

Since the 2005 survey, the data relates to fawns born on the farm that were alive at four months. In 2003 and 2004, data related to fawns weaned on the farm. In 2002, data related to fawns born on the farm. The change took industry recommendations into account.

Deer

Deer figures since the 2004 survey are not directly comparable with 2002 and 2003 figures. Improvements we made to the questions about deer in the 2004, 2005, and 2006 surveys have resulted in improved deer number estimates. While it is not possible to quantify the exact extent of the previous undercoverage, we estimate an undercount of about 70,000 deer at 30 June 2002, and 50,000 at 30 June 2003.

****Reliability of sample survey estimates****This release contains statistics from the 2002–2016 agricultural production collections. All results from these collections are subject to non-sampling error, and sampling error.

Non-sampling error arises from bias in the patterns of response and non-response, inaccuracies in reporting by respondents, and errors in recording and classifying data. Non-sampling error comprises coverage error, measurement error (which arise from respondents, questionnaires, and collection methods), non-response error, and processing error. We use procedures to detect and minimise these types of error, but they may still occur and are not easy to quantify.

Sampling error occurs because we base inferences about the entire population on information obtained from only a sample of that population. As 2003–06, 2008–11, and 2013–16 collections are sample surveys, not censuses, the results from these collections are also subject to sampling error.

****Imputation****We impute values for farmers and foresters who do not return a completed questionnaire. Imputation involves replacing missing items with values based on other information available.

The method of imputation we use is random 'hot deck' imputation.

The Agriculture Production Survey uses random hot deck imputation. Using this method, we replace missing values of one or more variables for a non-respondent with observed values from a respondent with similar characteristics. The imputation class is formed from common characteristics such as regional council area, ANZSIC06 group, and production data from previous years. We randomly assign each non-respondent to a respondent in the same imputation cell, and the farm production data of the respondent is copied across to the non-respondent.

To improve the imputation process, we remove respondents with uncharacteristically high levels of agricultural activity from their respective imputation cells. It is unlikely that any of the non-respondents would have similar characteristics to them.

****Confidentiality****Data collected and information contained in this release must conform to the provisions of the Statistics Act 1975. Published information must maintain the confidentiality of individual respondents. Prior to 2017 figures in tables affected by these provisions are denoted by 'C'. In the 2017 tables confidentiality has been implemented using an input perturbation method which involves adding noise to data at an individual farm level, and figures in output tables no longer have to be replaced with 'C's. Further information about this method has been applied to other statistics can be found [here](#).

****Quality suppression****Data with high sample errors or imputation levels are suppressed and are indicated by 'S' in the table.

****More information****[See more information about the Agricultural Production Survey](#)

Statistics in this release have been produced in accordance with the [Official Statistics System principles and protocols for producers of Tier 1 statistics](#) for quality. They conform to the Statistics NZ Methodological Standard for Reporting of Data Quality.

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