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Agricultural Production Statistics (Final): June 2007

Highlights

At 30 June 2007:

- Sheep numbers fell to 38.5 million, down 4 percent from 2006.
- Dairy cattle numbers reached 5.3 million, up 2 percent from 2002.
- Dairy milking cows and heifers numbered 4.2 million, up 8 percent from 2002.
- The area planted in kiwifruit rose to 13,250 hectares, up 12 percent from 2002.
- There were 29,620 hectares planted in wine grapes, 17,170 hectares were in Marlborough.

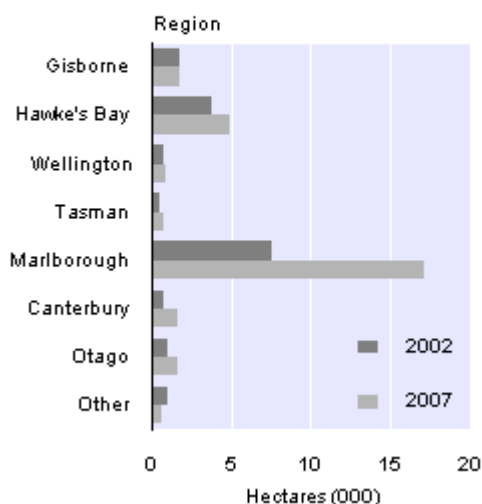
During the year ended 31 March 2007:

- New area planted in forestry fell to 2,600 hectares, down 92 percent from the 33,700 hectares recorded in the 2002 Agricultural Census.

Area Planted in Wine Grapes

By region

At 30 June, 2002 and 2007



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There is a companion Media Release published – [Agricultural Production Statistics \(Final\): June 2007](#).

Commentary

This release contains final results from the 2007 Agricultural Production Census. The census covered livestock and arable farming, horticulture and forestry, and included questions on farming practices.

The 2007 Census was part of the current programme of censuses and surveys of agricultural production. This programme began with a census in 2002 and then annual sample surveys were carried out from 2003 to 2006. Before the current programme, the last census was held in 1994.

Estimates from sample surveys are subject to sampling errors. Refer to the Technical notes for further information.

Figures in this release have been rounded. All percentages in this release have been calculated using unrounded figures.

Sheep

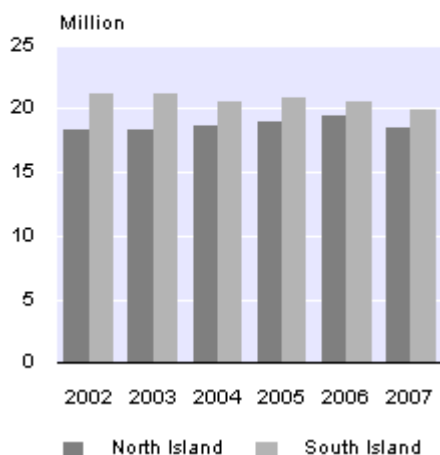
Total sheep numbers were 38.5 million at 30 June 2007 compared with 39.6 million in 2002, a 3 percent decrease.

North Island sheep numbered 18.5 million in 2007, a 5 percent decrease from the 19.5 million recorded in 2006. In the drought-affected Hawke's Bay, numbers were down 14 percent to 3.6 million. North Island sheep numbers in 2007 were at a level similar to 2002 when there were 18.4 million sheep.

South Island sheep numbers, at 19.9 million, were 6 percent lower than they were in 2002. The Canterbury and Southland regions had the greatest decreases. In Canterbury, sheep numbers were down 8 percent to 7.2 million and in Southland, they were down 5 percent to 5.7 million. As the dairy industry expanded, sheep made way for dairy cattle.

Sheep Numbers in the North and South Islands

At 30 June, 2002–2007



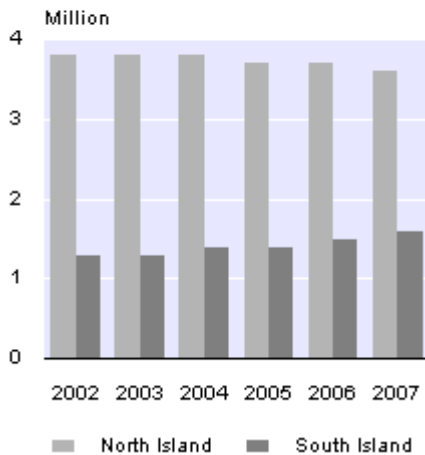
Total sheep numbers have fallen 45 percent over the past 25 years to 38.5 million in 2007. At the same time, lambing percentages have increased from 98 percent in 1982 to 123 percent in 2007.

Dairy

The national dairy herd increased 2 percent from 5.2 million in 2002 to 5.3 million in 2007. The North Island had 3.6 million dairy cattle, the South Island 1.6 million.

Dairy Cattle Numbers in the North and South Islands

At 30 June, 2002–2007



Dairy numbers in the South Island increased 24 percent from 1.3 million in 2002 to 1.6 million in 2007. The regions contributing the most to the increase were Canterbury (up 39 percent to 755,000), Otago (up 7 percent to 218,000) and Southland (up 21 percent to 433,000).

The number of dairy cows and heifers in milk or calf at 30 June in the South Island increased from 1.0 million in 2002 to 1.3 million in 2007, an increase of 31 percent. North Island numbers, at 2.9 million, are only 22,000 above those recorded in 2002.

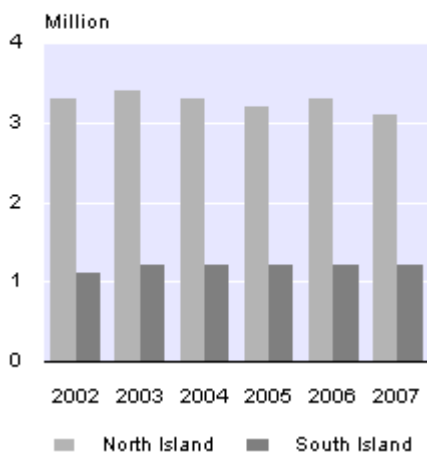
The proportion of the herd recorded as in milk or calf has risen from 74 percent in 2002 to 79 percent in 2007. The North Island had the highest proportion at 80 percent, compared with 78 percent in the South Island. The difference between the North Island and the South Island reflects the higher proportion of replacement and carry-over cows being carried on South Island farms as the dairy industry increases at a faster rate than in the North Island.

Beef

Total beef cattle numbered 4.4 million at 30 June 2007 compared with 4.5 million in 2002, a 2 percent decrease.

Beef Cattle Numbers in the North and South Islands

At 30 June, 2002–2007



Beef farming is based predominantly in the North Island, which had 3.1 million beef cattle in 2007, 6 percent fewer than in 2002 when there were 3.3 million. The regions with the most beef cattle are Manawatu-Wanganui with 681,000 and Waikato with 677,000.

In 2002, there were 1.1 million steers, slightly more than the 1.0 million non-breeding bulls recorded. In 2007, the balance between steers and non-breeding bulls changed in favour of steers – steer numbers increased to 1.3 million while non-breeding bulls decreased to 800,000.

Deer

In 2007, there were 1.4 million deer, down 12 percent from the 2006 estimate of 1.6 million. At 30 June 2007, there were 680,000 female deer mated, 8 percent fewer than the 2006 estimate.

The deer farming industry has grown in the past quarter century from just 109,000 deer in 1981 to 1.4 million in 2007. Deer farming is now concentrated in the South Island, which accounted for almost 70 percent of total deer numbers in 2007.

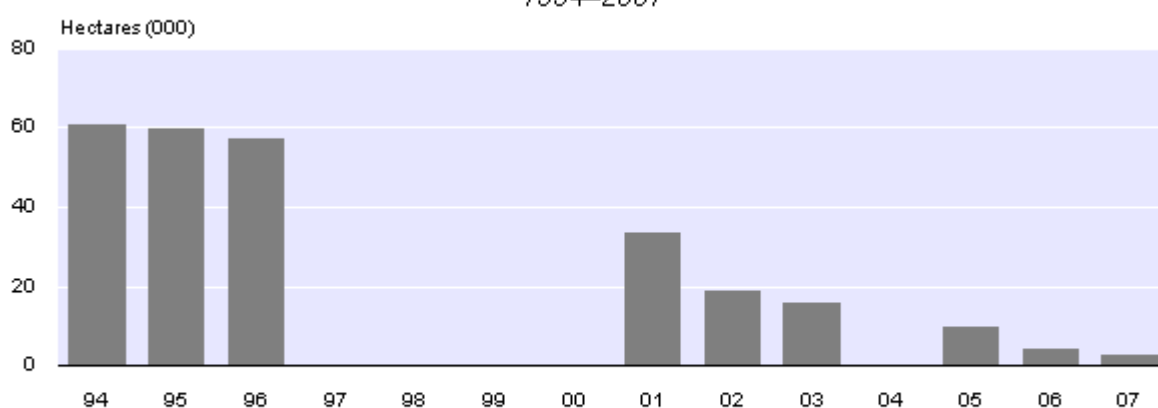
Forestry

The area of exotic forest harvested during the year to 31 March 2007 was 40,800 hectares, similar to levels recorded in recent years. The regions recording the largest areas harvested were Bay of Plenty with 9,100 hectares and Waikato with 7,200.

During the year to 31 March 2007, the area of new plantings (on land not previously in forest) was 2,600 hectares, down from 4,200 hectares in the previous year. The 2007 figure is 8 percent of the 33,700 hectares recorded in the 2002 Agricultural Production Census.

New Area Planted in Production Forest

1994–2007



Note: No Agricultural Production Survey was conducted for 1997, 1998 or 2001. The 1999 survey related only to livestock and arable farming. In 2000 the survey related only to horticulture. Figures before 2001 are for the year to 30 June. Figures for 2001, 2002 and 2003 are for the year to 31 December. Figures from 2005 onwards are for the year to 31 March.

In 2007, there were 33,000 hectares of exotic forest replanted, down 9 percent from the previous year.

Grain crops

Wheat

Favourable weather conditions in the main growing regions resulted in an increase in the area and tonnage of wheat harvested. From 2006 to 2007, the area harvested increased 7 percent to 40,500 hectares and the tonnage harvested increased 32 percent to 344,400 tonnes. Canterbury harvested 87 percent of the national area harvested.

Barley

Barley production also benefited from favourable weather conditions during the 2007 growing season. The area harvested increased to 51,500 hectares, 9 percent more than in 2006. The tonnage harvested increased 21 percent to 335,600 tonnes. Canterbury harvested 72 percent of the national area harvested.

Fruit

Wine grapes

The total area planted in wine grapes has continued to increase. By 2007, plantings covered 29,620 hectares, 71 percent more than the 2002 figure of 17,300 hectares and over four times the 1994 figure.

The regions with the largest areas of wine grapes were Marlborough with 17,170 hectares and Hawke's Bay with 4,930 hectares. Since 2002, there has been a 128 percent increase in Marlborough. Canterbury had a 125 percent increase, taking its plantings from 750 hectares in 2002 to 1,680 hectares in 2007. During the same period the area planted in Otago increased 56 percent from 1,050 to 1,640 hectares.

Apples

The area in apples has continued to fall – there were 9,250 hectares in 2007, down from 11,720 hectares in 2002.

The main apple growing regions were Hawke's Bay with 5,210 hectares and Tasman with 2,440 hectares.

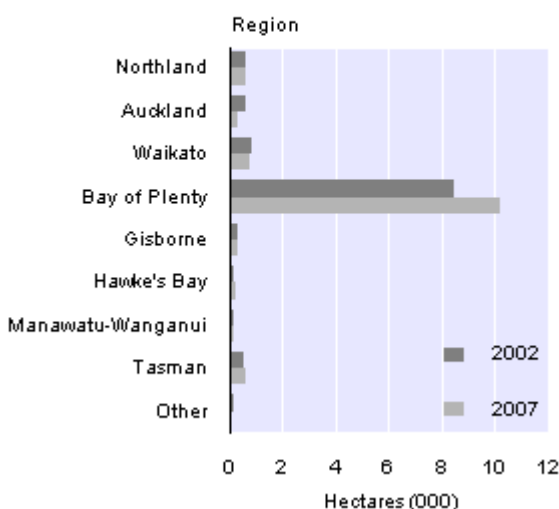
Kiwifruit

In 2007, the canopy area of kiwifruit was 13,250 hectares, up 12 percent from 2002. The Bay of Plenty region accounted for 77 percent of the total area with 10,250 hectares.

Canopy Area Planted in Kiwifruit

By region

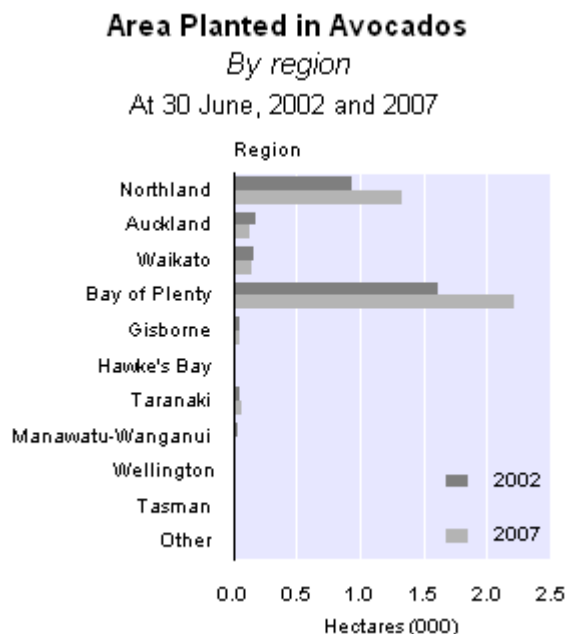
At 30 June, 2002 and 2007



The green variety of kiwifruit was 81 percent of kiwifruit grown in 2007, while the newer gold variety accounted for 17 percent.

Avocados

In 2007, there were 4,000 hectares planted in avocados, 29 percent more than in 2002 and almost three times the area planted in 1994. The main regions were the Bay of Plenty with 2,210 hectares and Northland with 1,330 hectares.



Vegetables

Squash

The area of squash harvested during the year to 30 June 2007 was 7,770 hectares, 19 percent higher than the 6,560 hectares harvested in the 2002 year. The main regions for growing squash were Hawke's Bay with 3,120 hectares and Gisborne with 2,770 hectares.

Onions

During the year to 30 June 2007, there were 4,590 hectares of onions harvested, down 18 percent from the 5,620 hectares harvested in the 2002 year. Auckland and Waikato were the main growing regions, between them harvesting 3,010 hectares in 2007 (65 percent of the national total).

Potatoes

The area of potatoes harvested during the year to 30 June 2007 was 10,050 hectares, down 9 percent from the 11,080 hectares harvested in the 2002 year. The main growing regions were Canterbury and the Waikato, which had 4,270 and 2,020 hectares harvested in 2007.

Changes between provisional and final results

Provisional results of the 2007 Agricultural Survey were released on 11 February and 17 March 2008.

Changes between the provisional and final results for estimates at the national level			
	Provisional	Final	% change
Ewe hoggets put to ram	2,545,800	2,524,700	-1
Breeding ewes 2-tooth and over put to ram	26,156,200	26,063,300	0
Total sheep	38,568,100	38,460,500	0
Lambs born to ewe hoggets	1,503,700	1,448,100	-4
Lambs born to ewes	31,986,000	31,557,400	-1
Total lambs	33,489,700	33,005,500	-1
Female deer mated	681,000	680,100	0
Total deer	1,396,000	1,396,000	0
Fawns born on the farm	538,100	536,600	0
Dairy cows and heifers in milk or calf	4,182,300	4,167,100	0
Total dairy cattle	5,279,600	5,260,800	0
Beef cows and heifers in calf (aged 1–2 years)	169,600	167,200	-1
Beef cows in calf (aged 2 years and over)	1,031,200	1,027,900	0
Total beef cattle	4,416,900	4,393,600	-1
Calves born alive to beef heifers/cows	994,100	1,015,100	2
Area replanted in forestry (hectares)	34,100	33,000	-3
Exotic timber harvested (hectares)	43,000	40,800	-5
Exotic timber harvested (cubic metres)	18,889,400	18,280,400	-3

**Changes between the provisional and final results
for estimates at the national level (continued)**

	Provisional	Final	% change
Grain crops			
Wheat harvested (tonnes)	346,700	344,400	-1
Wheat area harvested (hectares)	40,900	40,500	-1
Barley harvested (tonnes)	336,700	335,600	0
Barley area harvested (hectares)	53,800	51,500	-4
Oats harvested (tonnes)	28,600	27,500	-4
Oats area harvested (hectares)	5,900	5,800	-3
Maize grain harvested (tonnes)	192,600	185,600	-4
Maize grain area harvested (hectares)	17,700	17,000	-4
Other cereal grains harvested (tonnes)	14,500	13,700	-6
Other cereal grains area harvested (hectares)	2,400	2,300	-5
Area planted in outdoor fruit (hectares)			
Apples	9,340	9,250	-1
Peaches	520	530	1
Avocados	3,990	4,000	0
Kiwifruit (canopy area)	13,170	13,250	1
Wine grapes	29,680	29,620	0
Harvested area of outdoor vegetables (hectares)			
Onions	4,660	4,590	-1
Potatoes	10,010	10,050	0
Squash	7,690	7,770	1

Next release ...

Agricultural Production Statistics (Provisional): June 2008 will be released in February 2009.

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Technical notes

Background

This release contains the final results from the 2007 Agricultural Production Census. This census is part of an ongoing programme of agricultural production statistics conducted in partnership with the Ministry of Agriculture and Forestry. It is the second census in the current Agricultural Production Statistics programme. This programme began with an agricultural production census in 2002 and was followed by yearly sample surveys from 2003 to 2006.

Target population

The target population for the 2007 Agricultural Production Census was all businesses engaged in 'agricultural production activity' (including livestock, cropping, horticulture and forestry) or that owned land intended for agricultural activity. The target population included businesses that were engaged in agriculture or forestry production as a secondary activity.

The target population was defined in terms of the Australian and New Zealand Standard Industrial Classification 2006 (ANZSIC06) classification. It specifically included businesses classified as:

- A01 Agriculture
- A0301 Forestry (excluding native forestry)

and 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 target population specifically excluded:

- 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 frame

The 2007 Agricultural Production Census includes all units identified on Statistics New Zealand's Business Frame as having agricultural activity. The Business Frame is a list of businesses in New Zealand, based on their registration for goods and services tax (GST) with Inland Revenue. In the case of agriculture, the Business Frame includes:

- those units registered for GST (and filing a non-zero GST return) that have indicated involvement in agricultural activity (as defined above)
- those businesses with more than \$200,000 of GST sales or purchases, or that are an employer, whose main activity is not agriculture but that have indicated some secondary agricultural activity.

The compulsory registration level for GST is \$40,000, so there is a partial and unquantifiable coverage of units below this level.

Responses from farmers and foresters in the 2007 Agricultural Production Census have resulted in an estimated eligible population of 63,000 enterprises.

Time series consistency

Population changes

Users should note that there have been changes to the frame from which the population has been drawn for agricultural production surveys.

From 1981 to 1991, the population was sourced from an agricultural directory. This was maintained by Statistics NZ by tracing transfers of farming, horticulture and forestry land. In 1992, this agriculture directory was merged with Statistics NZ's Business Frame. For the 1992 and 1993 surveys, population units were drawn from the Business Frame by industrial classification. In the 1994 Agricultural Production Census, for the first time the population was extracted using both the industrial classification and GST registration information.

Between 1994 and 1996, the population was all businesses, sourced from the Business Frame, that were registered for GST and classified to agriculture. The 1999 Agricultural Production Survey population was sourced solely from AgriBase (a geospatial database owned and managed by AgriQuality New Zealand Ltd). The population for the 2000 Horticulture Production Survey was sourced from the Business Frame, supplemented by AgriBase and growers' lists. For the 2002 Census, the population was sourced from the Business Frame and the Inland Revenue Client Register. These sources were checked against industry lists and AgriBase to ensure all large units were included in the population. The Business Frame was used for the 2003, 2004, 2005 and 2006 surveys, and the 2007 census.

Survey content changes

Users should note that there have been changes to the core information collected in agricultural production collections.

Since 1994, agricultural production collections have collected information on livestock and arable farming, horticulture and forestry with the following exceptions:

- In 1999 the survey collected information on livestock and arable farming only.
- In 2000 the survey collected horticulture production information only.
- In 2004 and 2006 the surveys collected information on livestock and arable farming, and forestry (horticulture production information was not collected).

2007 questionnaire changes

Sale or lease of entire farm

Questions in this category were modified to make it easier for survey participants to provide the information required.

Kiwifruit

The kiwifruit question was expanded to include the type of kiwifruit grown (green, gold, other).

Irrigation

The irrigation question was expanded to ask about the type of irrigation system.

Nitrification inhibitor

A question on the use of nitrification inhibitors was included.

Nutrient budgets

A question on the preparation of nutrient budgets was included.

Past questionnaire changes relevant for 2007

Grazing

The questions relating to 'grazing of livestock owned by someone else' and 'grazing of your livestock elsewhere' were expanded in 2006 and 2007 to help reconcile the grazing and main livestock questions.

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 Agricultural Production Survey to align more closely with the National Exotic Forest Description survey (NEFD) run by the Ministry of Agriculture and Forestry.

For the 2002 Census, and the 2003 and 2004 surveys, the year ended date was 31 December. For Agricultural Production collections prior to 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. This change takes into account industry recommendations. In 1994, 1995, 1996, 1999, 2003, and 2004, data related to fawns weaned on the farm. In 2002, data related to fawns born on the farm.

Deer

Users should note that deer figures since the 2004 survey are not directly comparable with 2002 and 2003 figures. Improvements 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, Statistics NZ estimates an undercount of about 70,000 deer at 30 June 2002 and 50,000 at 30 June 2003.

Imputation

Values have been imputed for farmers and foresters who did not return a completed questionnaire. Imputation involves replacing missing items with values based on other information available.

The method of imputation used is random 'hot deck' imputation. A proportion of non-respondents were estimated as ineligible. The remaining non-respondents were grouped into imputation cells based on regional council area, ANZSIC06 (Australian and New Zealand Standard Industrial Classification 2006) group, and previous years' production data. Each non-respondent was then randomly assigned to a respondent in the same imputation cell, and the farm production data of the respondent was copied across to the non-respondent. In order to improve the imputation process, respondents with uncharacteristically high levels of agricultural activity were removed from their respective imputation cells, as it was considered unlikely that any of the non-respondents would have similar characteristics to them.

Imputation levels for the 2007 Agricultural Production Census	
	% of total estimate imputed
Breeding ewes 2-tooth and older put to ram	12
Ewe hoggets put to ram	11
Total sheep	12
Lambs born to ewe hoggets	11
Lambs born to ewes	11
Total lambs	11
Beef cows and heifers in calf (aged 2 years and older)	11
Beef cows and heifers in calf (aged 1–2 years)	11
Total beef cattle	11
Calves born alive to beef heifers/cows	11
Dairy cows and heifers, in milk or calf	16
Total dairy cattle	15
Female deer mated	10
Total deer	10
Fawns born on the farm	10
Area planted in apples (hectares)	9
Canopy area planted in kiwifruit (hectares)	11
Area planted in peaches (hectares)	12
Area planted in wine grapes (hectares)	9
Area planted in avocados (hectares)	10
Harvested area of potatoes (hectares)	9
Harvested area of onions (hectares)	5
Harvested area of squash (hectares)	5

Imputation levels for the 2007 Agricultural Production Census (continued)	
	% of total estimate imputed
Area of new forestry plantings (hectares)	6
Area of forestry replantings (hectares)	2
Exotic timber harvested (hectares)	4
Exotic timber harvested (cubic metres)	3
Wheat tonnage harvested	11
Wheat area harvested (hectares)	11
Barley tonnage harvested	12
Barley area harvested (hectares)	12
Oats tonnage harvested	9
Oats area harvested (hectares)	11
Maize grain tonnage harvested	10
Maize grain area harvested (hectares)	10
Other cereal grains tonnage harvested	17
Other cereal grains area harvested (hectares)	17

Response rates

The estimated proportion of eligible businesses that responded to the 2007 Agricultural Production Census was 87 percent. These businesses represent 89 percent of the total estimated value of agricultural operations.

Reliability of sample survey estimates

This release contains statistics from the 1991, 1992, 1993, 1995, 1996, 1999, 2003, 2004, 2005 and 2006 Agricultural Production Surveys, which are sample surveys. Users should note that estimates from sample surveys are subject to sampling and non-sampling errors.

Sampling error arises from selecting a sample of businesses and weighting the results, rather than taking a complete enumeration, and is not applicable when there is a census. The 1981-1990, 1994, 2002 and 2007 Agricultural Production Censuses and the 2000 Horticultural Production Survey are not subject to sampling error.

Non-sampling error arises from biases in the patterns of response and non-response, inaccuracies in reporting by respondents, and errors in the recording and classification of data. Statistics NZ adopts procedures to detect and minimise these types of errors, but they may still occur and are not easy to quantify.

Confidentiality

Data collected and information contained in this release must conform to the provisions of the Statistics Act 1975. This requires that published information maintains the confidentiality of individual respondents.

More information

For more information, follow the [link](#) from the Technical notes of this release on the Statistics New Zealand website.

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Tables

The following tables are printed with this Hot Off The Press and can also be downloaded from the Statistics New Zealand website in Excel format. If you do not have access to Excel or higher, you may use the [Excel file viewer](#) to view, print and export the contents of the file.

1. Selected livestock numbers
2. Sheep numbers
3. Lamb numbers
4. Dairy cattle numbers
5. Beef cattle numbers
6. Deer numbers
7. Forestry
8. Grain crops
9. Area planted in outdoor fruit
10. Harvested area of outdoor vegetables
11. Livestock by island
12. Breeding ewes and lambing percentage