



The Australian Bureau of Statistics (ABS) makes the following submission to the Rural and Regional Affairs and Transport References Committee' s inquiry into the performance of Australia's dairy industry and the profitability of Australian dairy farmers since deregulation in 2000. This submission has focussed on item b. from the Terms of Reference for this Inquiry, namely the accuracy of statistical data collected by [...] the Australian Bureau of Statistics.

The ABS are available to answer any questions that might arise from this submission or to provide the Committee with any further information should it be required.

### **Effective provision of key statistics and use of data**

The ABS is well regarded as the National Statistical Organisation which supports and promotes the efficient and effective delivery of high quality official statistics for Australia.

There are a number of elements to data quality, including accuracy, relevance and interpretability. The statistical processes applied by the ABS in producing its outputs are designed within a [Data Quality Framework](#). The ABS uses this framework to assess data quality based on its "fitness for purpose" which evaluates each output with specific reference to its intended objectives or aims. The elements of data quality are described in the quality declaration attached to each ABS product.

Extensive effort is invested in form design, sample selection, collection and processing procedures in order to ensure high quality statistics. Each statistical production area works with methodological and technical experts to reduce, as much as possible, the four principal influences on data quality; respondent error, processing error, partial or non-response and undercount.

### **Data collected by the ABS related to Australia' s dairy industry**

The ABS produces a range of data on the dairy industry, primarily through its Agricultural Statistics program. A description of the relevant items and the most recent figures are provided below:

#### *Number of animals on holding and unit counts - Agricultural Commodities, Australia 7121.0*

This collection surveys farms to produce annual estimates of the size and composition of the dairy cattle herd and the number of farms reporting dairy cattle breeds. A farm for the purposes of this survey is defined as each location where a business (ABN) undertakes agricultural activities.

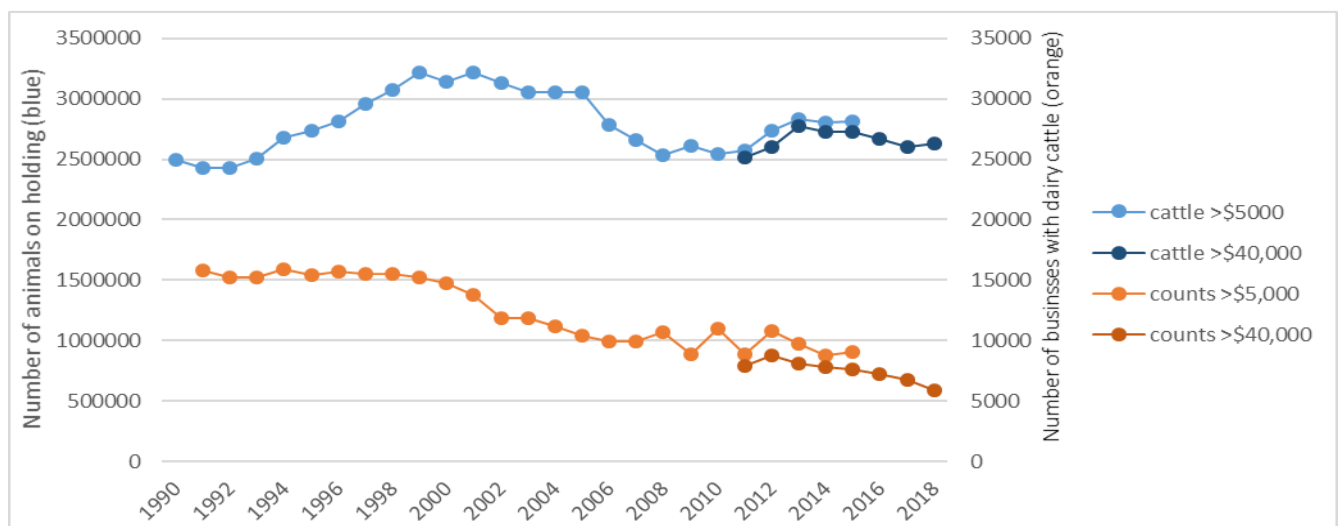


Both herd and farm counts are published in Agricultural Commodities, Australia (cat. no. 7121.0).

At 30 June 2018, the total dairy cattle herd was 2.6 million head. Of this, 1.5 million were cows, in milk and dry. Figures describing the size of the cattle herd have fluctuated over the last 30 years, while the number of farms reporting dairy cattle has decreased. These data are described in table 1 in blue and orange respectively.

- Data is collected annually from a sample of businesses through the Rural Environment and Agricultural Commodities Survey. A full enumeration of all businesses in scope of the survey is conducted once every 5 years through the Agricultural Census.
- Since 2015-16 data has been collected from agricultural businesses which have an estimated value of agricultural activity of or over \$40,000.
- Prior to 2015-16 data was collected from businesses with an estimated value of agriculture activity of or over \$5,000. The change in scope allowed the ABS to decrease the reporting burden on small farmers whilst not having a significant impact on data quality.
- The impact of the scope change is indicated in table 1 below, which shows the number of animals (blue) and number of businesses (orange) for businesses with a value of operation above \$5,000 (light line) and \$40,000 (darker line).
- The Agricultural Census and REACS have traditionally achieved response rates of around 80%. The ABS takes this expected response rate into consideration when it selects businesses to be surveyed each year, to ensure an accurate estimate is achieved for a number of key commodities (including the size of the dairy cattle herd) across different geographic regions. The relative standard error for the ABS' s estimated size of the Australian dairy cattle heard was 3.9% for 2017-18 meaning there is a 2 in 3 chance that the real population estimate is within 3.9% of what has been published.

Table 1: Dairy Cattle number of animals on holding (left axis) and number of agricultural businesses (right axis)





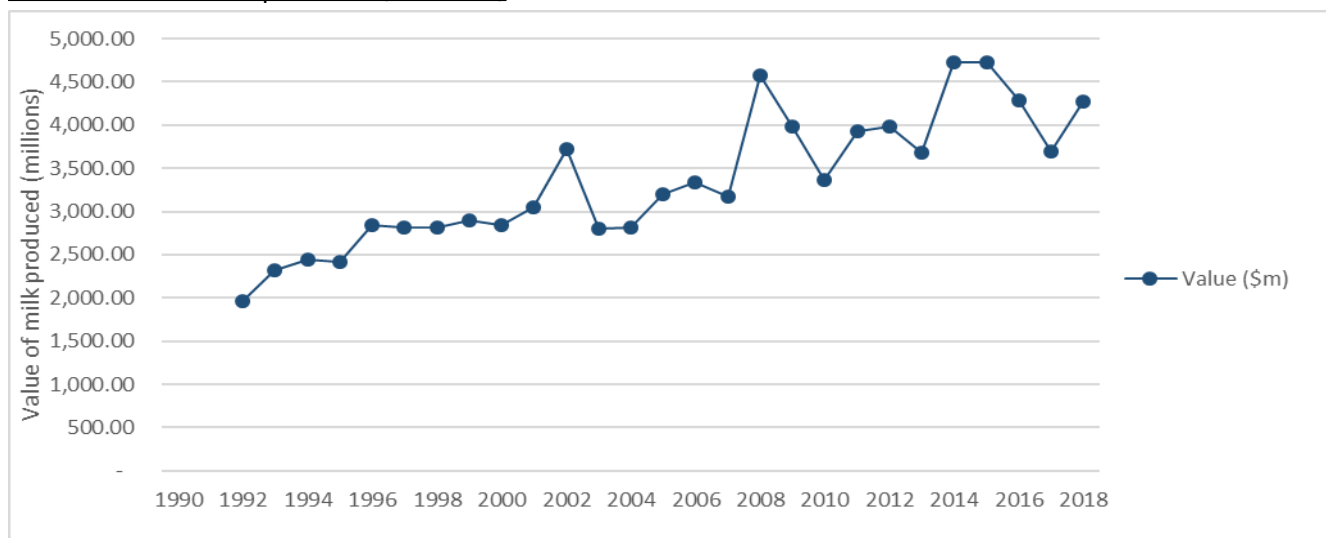
Value of milk produced - Value of Agricultural Commodities Produced, Australia (7503.0)

Annual estimates on the value of milk produced are published in Value of Agricultural Commodities Produced, Australia (cat. no. 7503.0).

In 2018-19 the farm-gate value for milk produced in Australia was \$4.27million, with estimates for this series presented in blue in table 2 below.

- Data for this series are sourced directly from Dairy Australia at the state & territory level.
- The ABS allocates these state and territory level estimates of the value of milk produced to smaller geographic areas based on the number of cows in milk and dry in each region.
- The ABS does not publish estimates on the volume of milk produced and has not directly collected milk volumes produced by farmers since the mid-1990s.

Table 2: Value of milk produced (\$ millions)



Dairy and related products price index - Consumer Price Index (cat. no. 6401.0)

Data describing the change in price paid by households for dairy and related products are published for the March, June, September and December quarters in the ABS' s Consumer Price Index, Australia (catalogue number 6401.0).

Between June quarter 2000 and June quarter 2018, the average price paid by households for dairy and related products increased 34%. This data is shown in blue (CPI) in table 3 below.

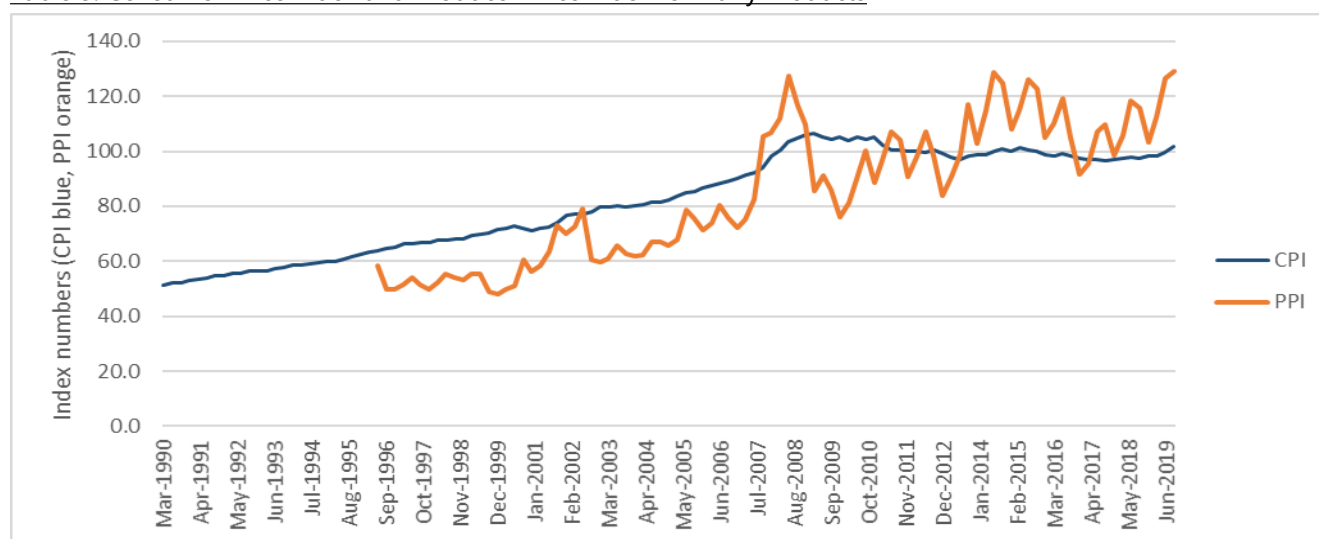
- Further detail on the change in price for milk, cheese and ice-cream and other dairy products is also published with data also available for each state / territory capital city.
- The CPI measures price movements (i.e. percentage changes) rather than actual price levels (dollar values)



- CPI series were compiled from price observations directly collected by ABS officers in each capital city up until March Quarter 2014. From 2014 onwards, these estimates have been derived from transactions data obtained from retailers.
- In 2017 the ABS introduced a new method to maximise the use of the scanner data. This new method enables:
  - The use of the entire range of products available at the retailer, rather than a sample.
  - Prices to be derived from all transaction made at the retailer each quarter.
  - Use of the expenditure information contained in the scanner data. This allows changes in consumer preferences, such as product substitution, to be captured in the CPI each quarter.

More information on the use of scanner data in the CPI can be found in the information paper [An Implementation Plan to Maximise the Use of Transactions Data in the CPI](#).

Table 3: Consumer Price Index and Producer Price Index for Dairy Products



*Input to manufacturing dairy cattle farming price index - Producer Price Indexes (cat. no. 6427.0)*

Data describing the change in price paid by manufacturers for products supplied from dairy cattle farming are published quarterly in the ABS' s Producer Price Indexes, Australia (cat no 6427.0).

Between June quarter 2000 and June quarter 2019, the average price paid by manufacturers for dairy and related products increased 148%. This data is shown in orange (PPI) in table 3 above.

- Data are directly collected from major processors within the industry on a quarterly basis.



- The PPI measures price movements (i.e. percentage changes) and not actual price levels (dollar values)
- The average response rate over the period from September 1996 to September 2019 is 97.3% from a sample of units.

#### Other ABS data related to dairy

- Monthly data is available on request on international imports and exports of dairy products and live dairy cattle with estimates compiled from customs declarations from the Department of Home Affairs, for more details see International Trade in Goods and Services, Australia (cat. no. 5368.0).
- Estimates on aspects of employment within the dairy industry are available on request from the Census of Population and Housing.

#### **Links to other organisations and use of non-ABS data**

The ABS relies on collaborative relationships with a number of other organisations to ensure the ongoing quality of ABS outputs. Teams across the ABS work closely with the Department of Agriculture, the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES), industry organisations and Research and Development Corporations (RDC' s) including Dairy Australia, to make sure that ABS outputs are responsive to emerging requirements.

The ABS has also recently established the Regional and Agricultural Statistics Advisory Group; with senior representation from across government and industry, to advise the ABS in shaping the future direction of Australian statistics related to the agricultural industry, land and resource use, community-place based socio-economic conditions, and environmental economic accounting.

Data produced by other organisations are important comparators to ABS outputs and are used extensively to understand and explain ABS estimates. In a small number of cases these data are used directly in the place of ABS collections.

#### **Document reference list**

[7121.0 - Agricultural Commodities, Australia, 2017-18](#)



[7503.0 - Value of Agricultural Commodities Produced, Australia, 2017-18](#)

[6401.0 - Consumer Price Index, Australia, Sep 2019](#)

[6461.0 - Consumer Price Index: Concepts, Sources and Methods, 2018](#)

[6427.0 - Producer Price Indexes, Australia, Sep 2019](#)

[6429.0 - Producer and International Trade Price Indexes: Concepts, Sources and Methods, 2014](#)