



Department
for Environment
Food & Rural Affairs

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Summary quality report for Total Income from Farming releases

1. Introduction

This report is an overview note that pulls together key qualitative information on the various dimensions of quality as well as providing a summary of methods used to compile the output. It relates to estimates of Total Income from Farming and aim to provide users with information on usability and fitness for purpose of these estimates. Methods and terminology used in the economic accounts for agriculture can be obtained from the following publications:

[Manual on the Economic Accounts for Agriculture and Forestry EAA/EAF 97
Agriculture in the United Kingdom](#)

2. Summary of quality

2.1 Relevance

The degree to which the product meets user needs for both coverage and content.

Economic accounts for agriculture provide the basis for analysing the economic performance of the agricultural industry and are used by government and the European Commission to make decisions on support for the agricultural industry. The accounts have a legal basis in the EU regulation (EC) No 138/2004 of the European Parliament and of the Council of 5 December 2003 on the economic accounts for agriculture in the Community (as subsequently amended). They are compiled in accordance with the European System of Accounts 1995 (ESA 95), adapted to the economic and structural developments in agriculture. Under EU law, ESA 95 is itself consistent with the standards set out in the United Nations System of National Accounts (SNA 93).

The EU regulation does not oblige any Member State to use the EAA methodology in compiling agricultural accounts for its own purposes. The UK, when compiling agricultural accounts, including the calculation of Total Income from Farming, follows the EAA methodology but differs in some respects, principally the inclusion of Gross Fixed Capital Formation of livestock in the value of total livestock production.

Total Income from Farming is income generated by production within the agriculture industry including subsidies and represents business profits and remuneration for work done by owners and other unpaid workers. It is the preferred measure of aggregate income for the agricultural industry in the UK and is designed to show the performance of the whole of the agricultural industry.

Two estimates of Total Income from Farming for the UK are published by Defra each year. A first estimate is published four months after the end of the reference year (end of April) and a second estimate is published eleven months after the end of the reference year (end of November).

2.2 Accuracy

The closeness between an estimated result and the (unknown) true value.

There is no simple way of measuring the accuracy of Total Income from Farming – that is, the extent to which the estimate measures the underlying ‘true’ value of Total Income from Farming for a particular period – because it is compiled from multiple data sources.

One dimension of measuring accuracy is reliability, which is measured using evidence from analyses of revisions to assess the closeness of early estimates to subsequently estimated values. The following analyses use successive annual estimates of key aggregates and identifies reasons for revisions.

2.2.1 Revisions - general

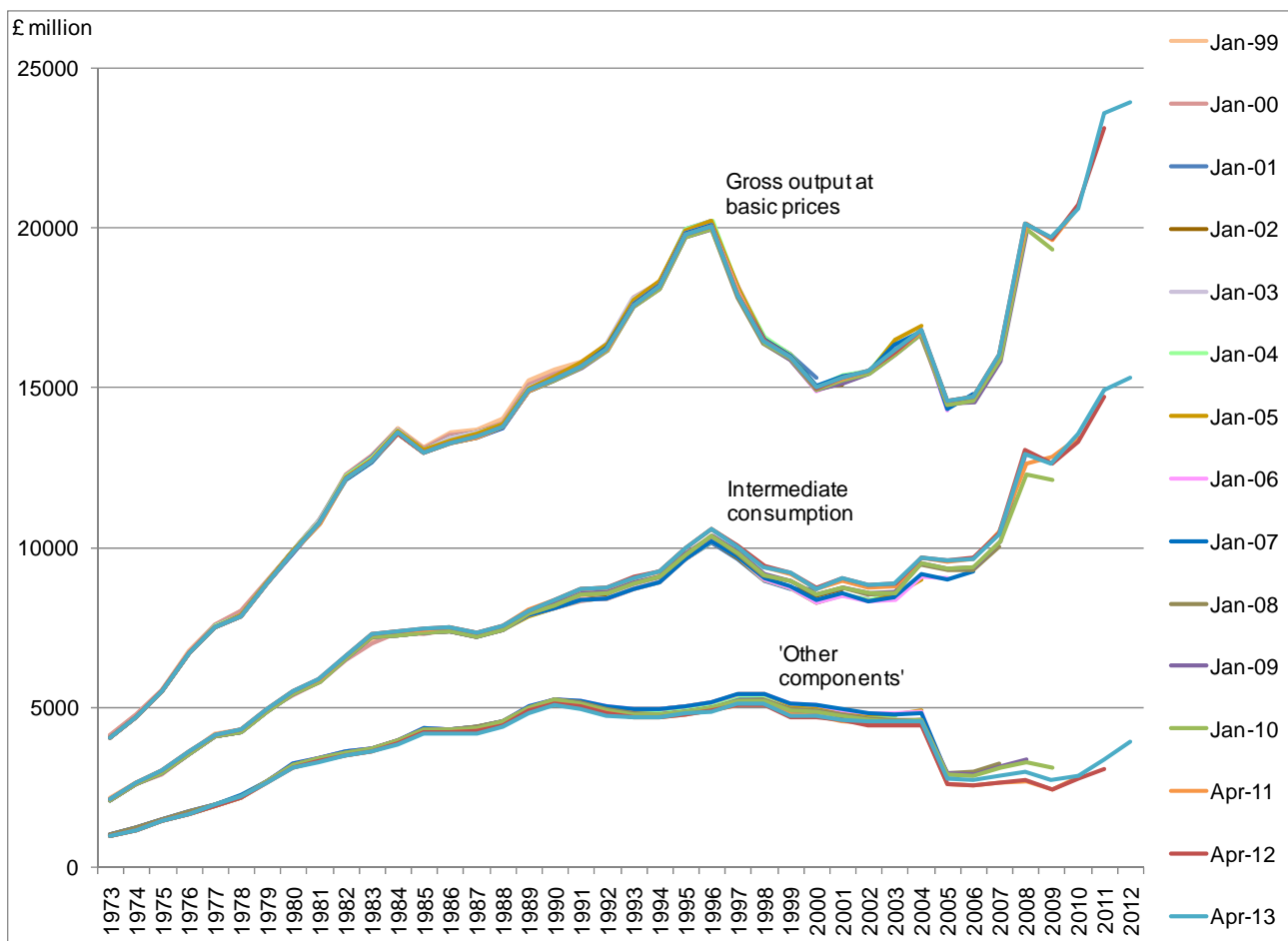
There is a trade-off between accuracy and timeliness and the consequence is that statistics need to be revised. Revisions can only be avoided if either the first publication is delayed until after the final piece of information is received or if information which becomes available after the time of first publication is ignored, even if it suggests a different picture. Revisions are therefore treated as improvements in quality. They may be categorised as:

- Revisions to a source. These occur when data becomes available after statistics are compiled. This is particularly relevant to the first estimate of Total Income from Farming, which may have elements based on incomplete data for the calendar year.
- More sources. For some parts of the accounts, e.g. for most elements of intermediate consumption, forecasts are made until the actual source becomes available.
- New methods. The methods used to compile the accounts are the subject of continuous improvement as new sources become available or new methods for making estimates are developed.
- New international standards. The economic accounts for agriculture are compiled in line with international frameworks, standards and definitions. Meeting new international standards will often lead to revisions.

2.2.2 Revisions to gross output at basic prices, intermediate consumption and 'other components'

Chart 1 shows successive estimates of the current price value measure of gross output at basic prices, intermediate consumption and 'other components' made in annual estimates released from January 1999 to April 2013.

Chart 1: Revisions to gross output at basic prices, intermediate consumption and 'other components', current prices values



Gross output at basic prices

The chart shows that the picture was relatively unchanged over the period. Revisions have occurred owing to:

- first estimates being updated with more complete data for the year
- some 'subsidies on products' were re-classified as 'other subsidies on production' to meet new international standards [January 2008]
- new estimates of fodder maize were incorporated into output of forage plants [April 2011]

The average size of the revision between the first estimate and that in the following year for the period between 1998 and 2011 was 0.9%. The revisions ranged between -2.0% (2000) and +2.0% (2011).

Intermediate consumption

The chart shows that the overall trend is consistent but the path has shifted upwards over time. Revisions have occurred owing to:

- estimates for most inputs are initially forecasted and then updated with actual data
- a new data source was used for estimating the value of seeds inputs [Jan 2008]
- estimates of consumption of fodder maize were incorporated into animal feed [April 2011]
- estimates of FISIM were introduced to meet new international standards [April 2011]
- an adjustment was made to the method of estimating value of fertiliser consumed following a period of volatility in prices [April 2012]

The average size of the revision between the first estimate and that in the following year between 1998 and 2011 was 1.7%. The revisions ranged between -5.4% (2008) and +5.7% (2009).

'Other components'

'Other components' is used here to refer to the aggregated value of consumption of fixed capital, other taxes on production, other subsidies on production, compensation of employees, rents and interest. It may also be calculated as the value of Gross Value Added at basic prices *minus* the value of Total Income from Farming.

The chart shows a picture that is relatively unchanged to 1990 but revisions are more pronounced from 2005. Revisions have occurred owing to:

- estimates being initially forecasted and then updated with actual data
- some 'subsidies on products' reclassified as 'other subsidies on production' to meet new international standards [January 2008]
- the inclusion of a new data source in the estimate of rents payable [April 2011]
- an improved method of estimating compensation of employees [April 2011]
- adjustment to estimates of interest to remove FISIM [April 2011]
- revisions to estimates of consumption of fixed capital in buildings owing to revisions to a data source [April 2013]

The average size of the revision between the first estimate and that in the following year between 1998 and 2011 was 4.6%. The revisions ranged between -22% (2009) and +11% (2008).

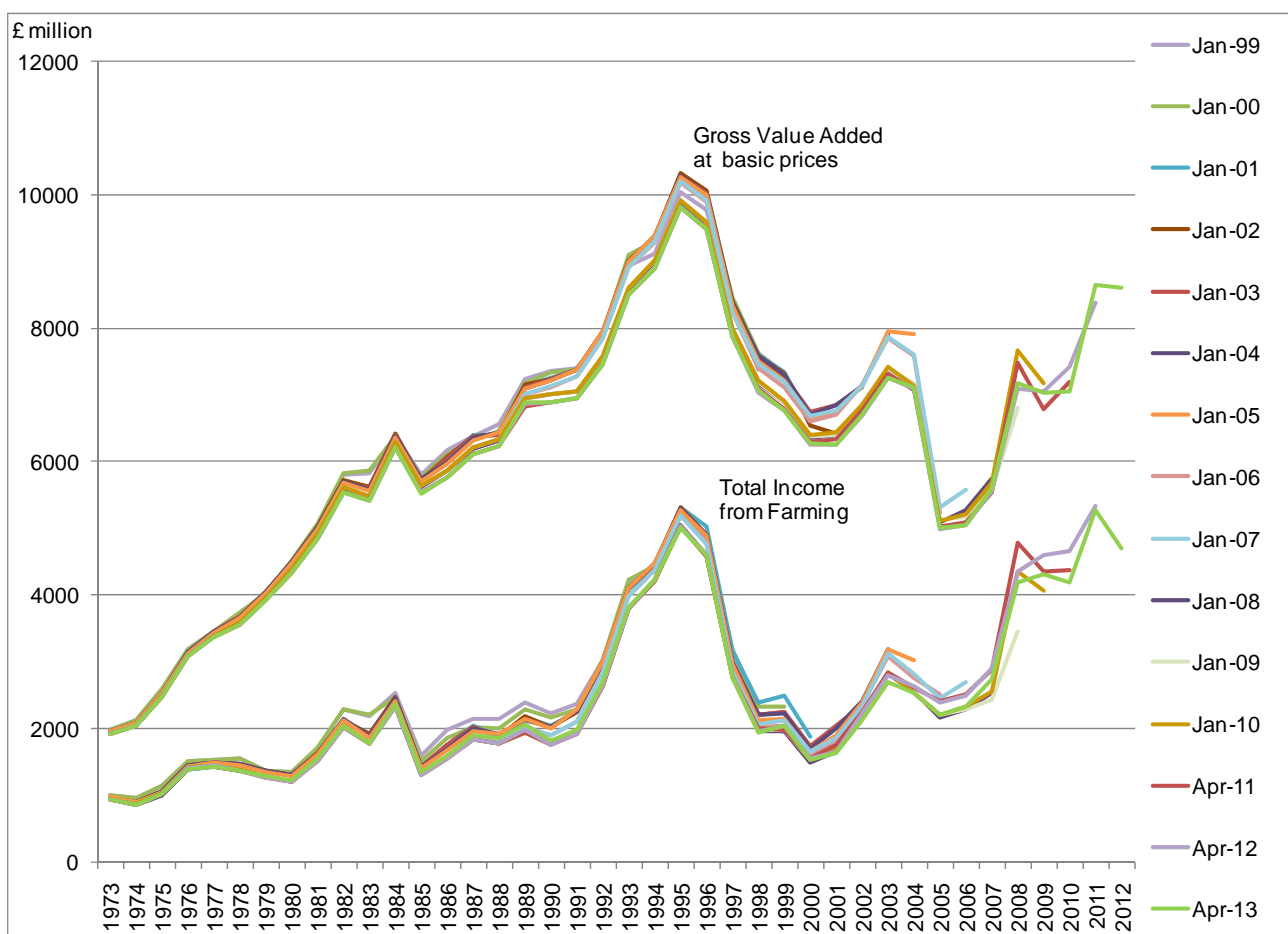
2.2.4 Revisions to Gross Value Added at basic prices and Total Income from Farming

Gross Value Added at basic prices is derived as the difference between the value of output and the value of intermediate consumption, while Total Income from Farming is derived as Gross Value Added at basic prices *less* consumption of fixed capital, other taxes on production, compensation of employees, rents and interest *plus* other subsidies on production (i.e. the 'other components' referred to on page 3).

As a result, both Gross Value Added at basic prices and Total Income from Farming are sensitive to small percentage revisions in the values of output and intermediate consumption, and in the case of Total Income from Farming, revisions to the 'other components' (see also the sensitivity analysis on page 8).

Chart 2 shows successive estimates of the current price value measure of Gross Value Added at basic prices and Total Income from Farming made in estimates published from January 1999 to April 2013.

Chart 2: Gross Value Added at basic prices and Total Income from Farming, current prices values



Gross Value Added at basic prices

The series follows a consistent path although the impact of the aggregated revisions to output and intermediate consumption are clearly seen.

The average size of the revision between the first estimate and that in the following year between 1998 and 2011 was 3.6%. The revisions ranged between -5.4% (2006), a consequence of a -1.6% revision to output and +0.7% revision to intermediate consumption, and +12.3% (2008), a consequence of a +0.7% revision to output and -5.4% revision to intermediate consumption.

Total Income from Farming

The cumulative impact of revisions to the many elements that make up Total Income from Farming is seen in Chart 2. The chart shows that the overall trend of the path of Total Income from Farming is broadly consistent over the period but, as it is sensitive to small percentage revisions in the values of output, intermediate consumption and the 'other components', revisions can be very pronounced.

The average size of the revision between the first estimate and that in the following year between 1998 and 2011 was 8.9%. The revisions ranged between -19.6% (2000) and +26.2% (2008).

2.2.7 Sensitivity analysis of Total Income from Farming

The estimate of Total Income from Farming is sensitive to changes in output, intermediate consumption and 'other components'. 'Other components' refers to the aggregated value of consumption of fixed capital, other taxes on production, other subsidies on production, compensation of employees, rents and interest, which may also be calculated as the difference between the values of Gross Value Added at basic prices and Total Income from Farming.

The extent to which Total Income from Farming is dependent on small shifts in the values of output, intermediate consumption and 'other components' is illustrated in Table 1. If the value of output was to move by +1.0%, then the value of Total Income from Farming would move by 5.1% while if the value of intermediate consumption was to move by +1.0%, then the value of Total Income from Farming would move by -3.3%. Total Income from Farming is less sensitive to changes in the value of 'other components'; if this was to move by +1.0% then the value of Total Income from Farming would move by -0.8%.

In practice, revisions are likely to occur to all of these aggregates. Scenario 6 illustrates a situation where output moves by -1.0% and intermediate consumption and 'other components' each move by +1%, which leads to a -9.2% revision to Total Income from Farming.

Table 1: Sensitivity Analysis – Total Income from Farming

	Baseline (2012) £m	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
Output	23 927	1.0%	0.0%	0.0%	1.0%	0.0%	-1.0%
Intermediate Consumption	15 322	0.0%	1.0%	0.0%	1.0%	1.0%	1.0%
Gross Value Added at basic prices	8 605	2.8%	-1.8%	0.0%	1.0%	-1.8%	-4.6%
Other Components ¹	3 901	0.0%	0.0%	1.0%	1.0%	1.0%	1.0%
Total Income from Farming	4 704	5.1%	-3.3%	-0.8%	1.0%	-4.1%	-9.2%

¹ The value of 'other components' is the aggregated value of consumption of fixed capital, other taxes on production, other subsidies on production, compensation of employees, rents and interest, or the difference between the values of Gross Value Added at basic prices and Total Income from Farming.

2.2.8 Other analysis

Broader measures of examining accuracy include:

- analysis of the amount of data available at different stages of the publication process for Total Income from Farming. Approximations of the amount of data available for each stage are presented in the table below:

Approx. amount of data available at different stages of the publication process for Total Income from Farming as a % of value

	Stages of the publication process		
	April year n+1	November year+1	April year+2
Output	90%	98%	100%
Intermediate consumption	30%	80%	100%
Subsidies data	100%	100%	100%
Other costs	55%	90%	100%

- describing how basic 'raw' data are transformed by a series of adjustment to give the statistical estimates that are used to compile the agricultural accounts. An inventory of methods will be published in due course.

2.3 Timeliness and punctuality

Timeliness refers to the lapse of time between publication and the period to which the data refer. Punctuality refers to the time lag between the actual and planned dates of publication.

A first estimate of Total Income from Farming is published four months after the end of the reference period. A second estimate is published eleven months after the end of the accounting period. The first estimate for 2011 was published on 1 May 2012 and the second on 29 November 2012.

The release of Total Income from Farming is bound by an advance release calendar. Release dates up to one year in advance are recorded on the UK Statistics Authority's Publication Hub, which is the official calendar of releases published by Defra.

2.4 Accessibility and clarity

Accessibility is the ease with which users are able to access the data, also reflecting the format(s) in which the data are available and the availability of supporting information. Clarity refers to the quality and sufficiency of the metadata, illustrations and accompanying advice.

Total Income from Farming statistics are disseminated in the form of a .PDF document and as an .XLS dataset. These may be downloaded from the GOV.UK website free of charge at 9.30am on the day of release. Different formats may be requested. Contact details for general enquiries about the Total income from Farming series are published on releases.

2.5 Comparability

The degree to which data can be compared over time and domain.

Every effort is made to ensure that the series is comparable over time. A comparable time series is available back to 1973. Where possible, changes to methodology are applied to the whole series to ensure this comparability is maintained.

Since international standards such as SNA 93 and ESA 95 are used in the production of the agricultural accounts and methods are defined in EU legislation, the figures should be directly comparable with the accounts of other countries and Member States. The revision policy of other countries may differ however and caution should be exercised when comparing historic data.

2.6 Coherence

The degree to which data from different sources or methods, but which refer to the same phenomenon, are similar.

Data in the Total Income from Farming releases are broadly consistent with the following Defra output:

Farm Business Income

Inconsistencies occur because:

- Farm Business Income is designed to compare performance across different types of farming while Total Income from Farming assesses the economic situation for the whole of the UK agricultural sector.
- Farm Business Income covers the 12 month period March to February while Total Income from Farming covers calendar years.
- The Farm Business Survey, which produces estimates of Farm Business Income, has a higher threshold for inclusion than the aggregate agricultural accounts, which produces Total Income from Farming.
- Farm Business Income treats stocks as the change in the book value of stocks between the start and end of the accounting year while Total Income from Farming treats stocks as the physical change in stocks valued at average calendar year prices.
- The first estimate of Total Income from Farming produced in April is made before results from the Farm Business Survey are available for use in making estimates of inputs and other costs so estimates of Farm Business Income that are published in October following the accounting year will be inconsistent with estimates of Total Income from Farming until these are revised in the following November.

3. Summary of methods

Defra produces a comprehensive set of annual production and income accounts twice yearly of which the main components are Total Income from Farming estimates. Indicators of economic activity such as output, intermediate consumption, gross value added and net value added, are all integrated within the accounts.

The accounts are estimates of an underlying reality using an output or production approach based on statistical surveys, administration data, forecasts and model-based estimates, and are not compiled through 'accounting' in the common sense of the word.

For the first estimate published in April, forecasts and models are used to estimate components, such as intermediate consumption, for which survey results or other data are not yet available. Later estimates are based on more complete information. A single estimate of Total Income from Farming is then derived and published.

The key principle that drives estimation of Total Income from Farming in the UK is that the purpose is to analyse the production process and primary income generated by the

agricultural industry thus the accounts are based on the industry concept rather than institutional sectors or sub-sectors.

3.1 Production stages

The main stages of the production process for Total Income from Farming are outlined here.

3.1.1 First estimate. This estimate is published four months after the end of the reference year.

It is based on 65 per cent 'actual' data by value from survey results and administration data, and on model-based estimates largely for output or production data, with most intermediate consumption and other costs being derived from price data, estimates of volume changes based on professional advice, and a variety of modelling techniques.

A full dataset for the production and income account with revisions to previous years is published (see also 'Third estimate'). Other analyses, such as of productivity and volume indices are published in the following month in the statistical compendium, 'Agriculture in the United Kingdom'.

3.1.2 Second estimate. This estimate is published eleven months after the end of the reference year.

The estimate of Total Income from Farming is improved by basing most estimates of intermediate consumption and other costs on the results of the Farm Business Survey results for England that are published in October. At this point, Total Income from Farming is based on 90 per cent of actual data by value. A revised dataset for the aggregate agricultural accounts is published.

3.1.3 Third estimate. This estimate is published in April of year $n + 2$ following the reference year at the same time as the first estimate for the next reference year (see 'First estimate' above).

In this release, Defra publishes a full dataset incorporating estimates made by the devolved administrations in compiling agricultural accounts for Scotland, Wales and Northern Ireland. At this point, the estimate of Total Income from Farming is based on 100% 'actual' data by value.

Methodological improvements may also be made and, where possible, applied to the whole series to ensure comparability of the time series is maintained.

3.2 Deflation

Aggregate agricultural accounts are produced at current prices and give the value of Total Income from Farming at specific points in time. Growth in Total Income from Farming at current prices reflects the effect of inflation as well as real growth in Total Income from

Farming. Total Income from Farming is ordinarily expressed in real terms, i.e. excluding inflationary issues. It is deflated using the annual Retail Price Index.

4. Sources of data and methods of calculation for compiling economic accounts for agriculture

One of the main characteristics of economic accounts for agriculture is the adoption of the 'quantity x price' formula when measuring the output of the large majority of products.

The valuation of crop output is normally based on resources, i.e. the estimate of quantities produced (harvested) based on estimates of areas under crops and yields, or on uses, i.e. on estimates of purchases by the user branches of agricultural products, exports net of imports, to which should be added certain quantities used for intermediate consumption by the agricultural industry, changes in producer stocks and use for own account (much of which is own final consumption). The latter approach can be highly appropriate in cases where the buyers of these agricultural products are readily identifiable and the four other components of uses are limited (for example, products requiring preliminary processing before they can be used, such as sugar beet, tobacco, etc.).

Statistics on slaughtering, exports/imports of live animals and the size of herds are the main sources of data for measuring the output of animals. The output of animal products (mainly milk) is generally estimated using sales to user branches (dairies, packers) because of the specific uses to which they are put.

Most intermediate goods (seeds and planting stock, fertilisers, pesticides, etc.) are largely based on representative samples of farm business accounts with averages being raised by information from farm structure surveys.