



5 September 2019

## Total Income from Farming for the Regions of England *First estimates for 2018*

This release presents the first estimates of Total Income from Farming (TIFF) for the regions of England for 2018. These estimates are based on an improved methodology to produce more reliable figures at a regional level. This methodology has also been applied to produce a time series of historical annual data from 2010. A second set of estimates based on updated data will be published in early 2020.

Total Income from Farming is the total profit from all UK farming businesses on a calendar year basis. It measures the return to all entrepreneurs for their management, labour and capital invested. Gross value added is the overall contribution to the national economy.

These statistics are based on and consistent with the data used to produce the [Total Income from Farming in England](#) results. Further statistics for the regions of England can be found in [Agricultural Facts: England Regional Profiles](#). These are a collection of factsheets providing an overview of agriculture in the England regions.

### Key Points

- Total Income from Farming (TIFF) for England was £3,358m in 2018. This was a decrease of £721 million (18%) compared to 2017.
- The East of England made the biggest contribution to England TIFF at £697m (21%), closely followed by the East Midlands at £663m (20%). The North East made the smallest contribution at £70m (2%).
- TIFF decreased between 2017 and 2018 for all regions of England, ranging from 11% (South East) to 43% (North West).
- When expressed on a “per hectare of agricultural land” basis the East Midlands had the highest Total Income from Farming in 2018 at £551/ha. The region with the lowest was the North East, at £116/ha. These compare to an England average of £368/ha.
- For every year from 2010-18, the East of England was the region with the highest Total Income from Farming and the North East the lowest. Regional shares of TIFF have remained stable over time.

## Introductory notes for users

### *Notes for users:*

- *The term ‘income’ used throughout this Notice refers to Total Income from Farming. This is the total profit from all farming businesses on a calendar year basis.*
- *All values in this publication are expressed in real terms (2018 prices), adjusted to take into account inflation to allow more meaningful comparisons between years over the longer term.*

This Statistics Notice presents an overview of the agricultural accounts for England, apportioned for each region of England (NUTS1 level). London has been combined with the South East of England due to the very low levels of agricultural production in this region. The full accounts can be found in the dataset that accompanies this notice, together with more aggregated versions of the accounts for individual counties and unitary authorities (NUTS2/NUTS3 level). ‘NUTS’ is a geographical classification refers to The Nomenclature of Units for Territorial Statistics. Further information on NUTS can be found [here](#).

## Section 1 – How did the regions contribute to Total Income from Farming (TIFF) in England in 2018?

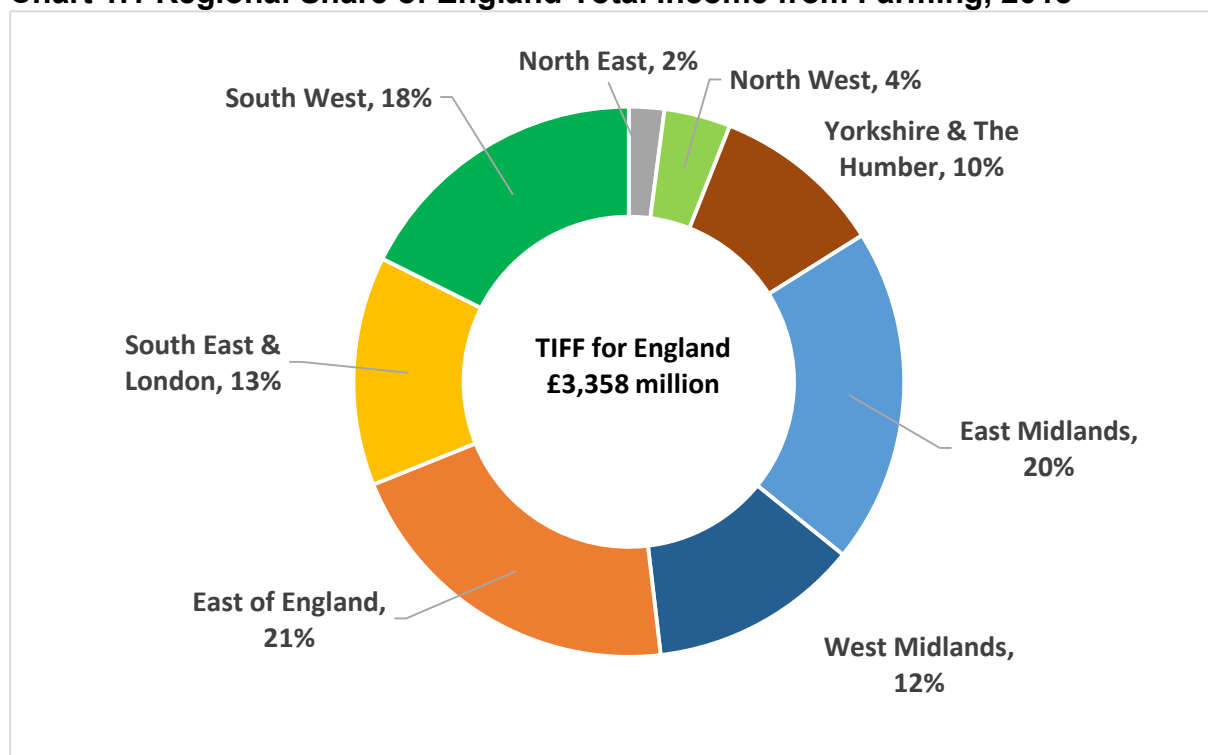
Total Income from Farming for England was £3,358m in 2018. The key drivers of agricultural income include the volume of production, commodity prices and the cost of inputs. These are themselves driven by a range of factors such as the weather, exchange rates, oil price and global supply and stocks of commodities. As a result, agricultural incomes tends to be volatile and fluctuate from year to year.

A range of external factors contribute to regional variations in farming, including climate, soils, topography and altitude. These in turn influence what commodities are produced and how efficiently and hence the value of production and incomes achieved. The regions of England also vary considerably in size and as a result total incomes are strongly linked to the total agricultural area.

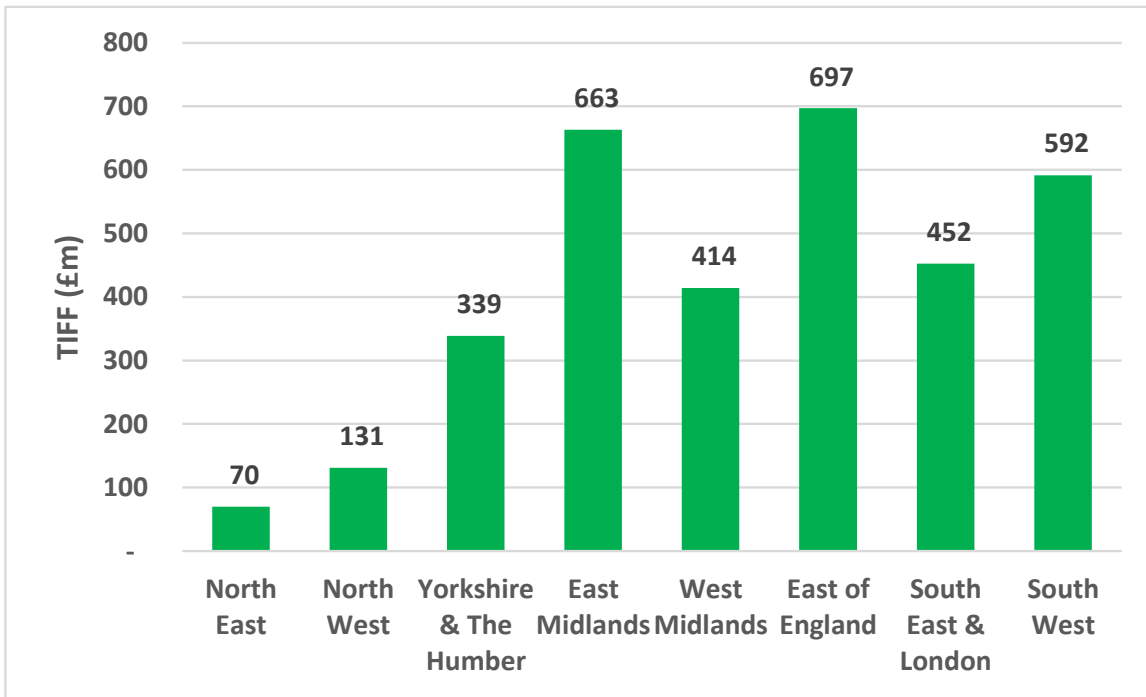
These factors are explored further in [Chart 1.3](#) (area) and [Section 4](#) (type of farming).

Charts 1.1 and 1.2 show the extent of the variation in TIFF between the regions. The East of England made the biggest contribution to England TIFF with £697m (21%), closely followed by the East Midlands at £663m (20%). The region with the lowest TIFF was the North East, at £70m (2%).

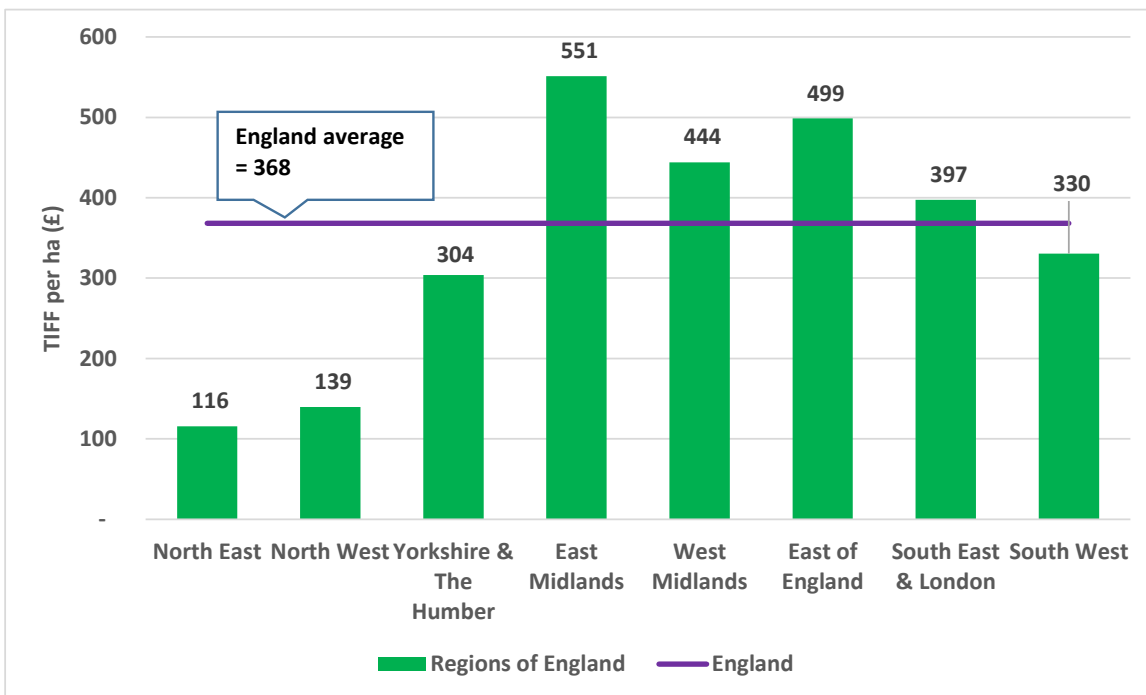
**Chart 1.1 Regional Share of England Total Income from Farming, 2018**



**Chart 1.2 - Total Income from Farming for England in 2018, by region (£m)**



**Chart 1.3 - Total Income from Farming per hectare of agricultural land in 2018, by region (£/ha)**



When TIFF is expressed per hectare of agricultural land (Chart 1.3), the extent of the variation is reduced but the overall pattern remains similar to that seen for absolute values. The East Midlands was highest at £551/ha, ahead of the East of England (£499/ha). The North East was still lowest at £116/ha, but is closer to the other regions due to having the smallest area.

The regions with the greatest TIFF per hectare in 2018 were largely lowland areas with relatively warm and dry climates, making them more suitable for growing crops. They also tended to generate more output from more intensive pigs and poultry rather than more extensive beef and sheep.

## Section 2 – How did the main components of TIFF vary between the regions of England in 2018?

**Table 2.1: Aggregate agricultural accounts values, by region, 2018**

£m

Region	Gross output At basic prices (1)	Intermediate consumption (2)	Gross Value Added at basic prices [(1)-(2)]	Total Income from farming
North East	750	552	198	70
North West	1,805	1,259	546	131
Yorkshire & The Humber	2,381	1,559	821	339
East Midlands	3,061	1,795	1,266	663
West Midlands	2,331	1,409	922	414
East of England	3,327	2,020	1,307	697
South East & London	2,119	1,278	841	452
South West	3,885	2,437	1,448	592

Table 2.1 Total (Gross) output and intermediate consumption show very similar patterns across the regions with input costs strongly linked to output values. As a result, farm incomes show the same overall variation.

The measure Gross Value Added (GVA) is equivalent to Gross Domestic Product for agriculture and tells us about the overall economic size of the industry. It is a simple calculation which subtracts Intermediate Consumption from Gross Output. Total Income from Farming (TIFF) is calculated by taking GVA, deducting fixed costs and labour costs and adding direct payments.

GVA shows a broadly similar pattern to TIFF across the regions although there are notable differences. In particular the South West has the highest GVA in spite of TIFF being considerably lower than both the East of England and the East Midlands. Similarly, the North West and Yorkshire & the Humber both show a GVA that is relatively high compared to their TIFF.

**Chart 2.1 Gross Output and Intermediate Consumption, by region, 2018**

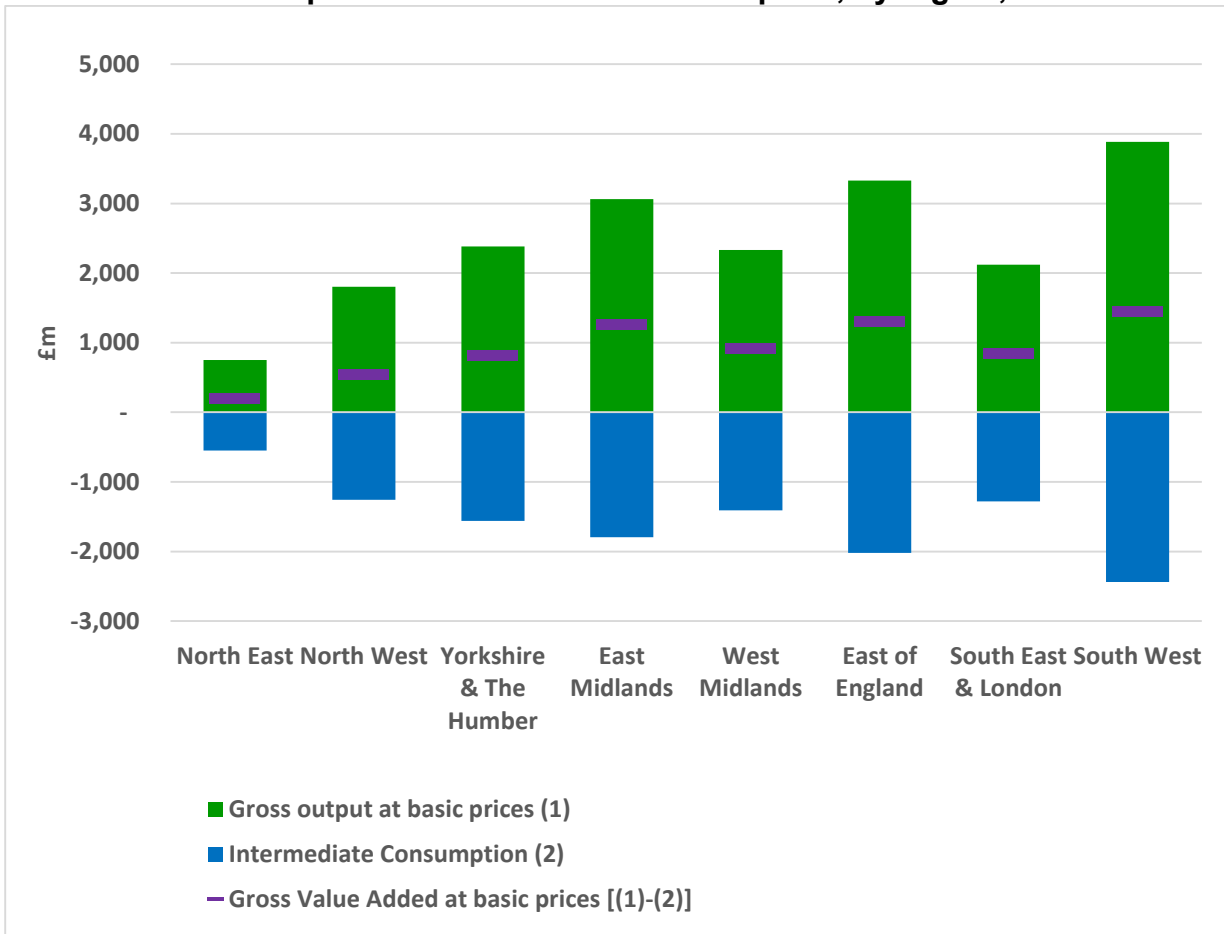


Chart 2.1 shows that the East Midlands, the East of England and the South West had very similar levels of Gross Value Added (GVA) in 2018. However, the South West had higher levels of both outputs and intermediate consumption compared to these two regions. This can be explained by the types of enterprises within each region. The South West had far more dairy and grazing livestock which led to higher input costs compared to the cropping and intensive livestock which are more prevalent in the East of England and the East Midlands.

### Section 3 – How has TIFF changed over time in the regions of England?

Chart 3.1 shows how Total Income from Farming has varied between regions and the change over time since 2010.

**Chart 3.1 – Total Income from Farming by region in real terms, 2010 to 2018 (£m)**

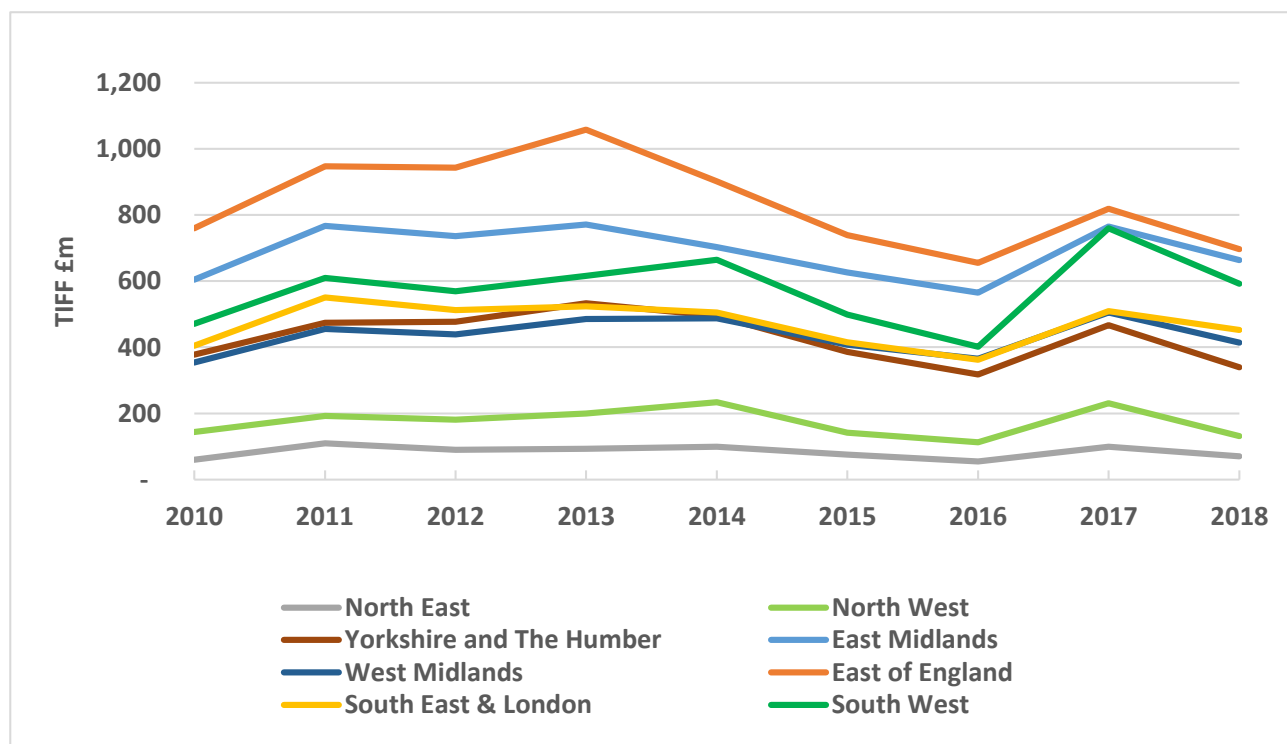


Chart 3.1 shows that Total Income from Farming has followed broadly the same trend since 2010 across all regions. More analysis of the trends in TIFF for England as a whole can be found in the [‘Total income from farming in England’](#) statistical release.

To simplify and characterise the results, the regions could be considered to be clustered into three groups with TIFF broadly around £200m (North East, North West), £400m (Yorkshire and The Humber, West Midlands, South East) and £600m (East of England, East Midlands, South West). These clusters have remained fairly stable over time, with the one exception being the South West, which between 2010 and 2018 has varied between the top of the middle cluster and bottom of the top cluster. Aside from this, the trends over this time period have been very consistent and the order of the regions when ranked by TIFF has remained almost constant.

There are widely recognised regional variations in farm types with more dairy and grazing livestock production in the West and more cropping in the East. Depending on external drivers (particularly commodity prices), some farm types can have a profitable year whilst other types have a difficult year. A typical example is when cereal prices are high then cropping farms benefit whereas livestock farms can suffer as a result of higher feed prices.

## Section 4 – How did different outputs vary between regions in 2018?

The agricultural accounts capture all farm production and hence cover a large and diverse range of outputs. In the agricultural accounts, these outputs are combined into sub-categories and categories in a hierarchy, for example wheat falls into the sub-total for “cereals” and cereals into the category “crops”. As a result, making comparisons for all output items across 8 regions is complex and difficult to present clearly. To simplify this presentation and aid analysis and interpretation, outputs have been grouped into 6 clear and logical groups (see below).

The six output groups are constructed as follows:

<b>Group name</b>	<b>Component account items</b>
Combinables & Sugar Beet	Cereals Industrial crops Forage Plants Other crop products (straw)
Veg, Hort & Potatoes	Vegetables and Horticultural Products Potatoes Fruit
Pigs & Poultry	Pigs (excluding GFCF) Poultry-meat (excluding GFCF) Eggs
Beef & Sheep	Cattle (excluding GFCF) Sheep and goats (excluding GFCF) Other (minor) livestock and livestock products
Dairy	Milk (excluding goats milk)
Diversification	Other non-separable secondary activities Equines

The account items shown above all contribute to ‘Gross Output at basic prices’. However there are some additional account items which also contribute to ‘Gross Output at basic prices’ which have been excluded from this analysis of output groups. They are as follows:

<b>Account item</b>	<b>Reason for Exclusion</b>
Gross Fixed Capital Formation (GFCF) in livestock	This is an accounting tool and is counterbalanced by ‘Consumption of Fixed Capital’ (CFC) on the other side of the account.
Agricultural Services	This represents contracting and is exactly netted off on the other side of the account as the agricultural industry is both the provider and consumer of these services.
Total subsidies on product	These have been zero since 2012 and were very small in 2010 and 2011.



**Chart 4.1 Value of outputs by region, 2018 (£m)**

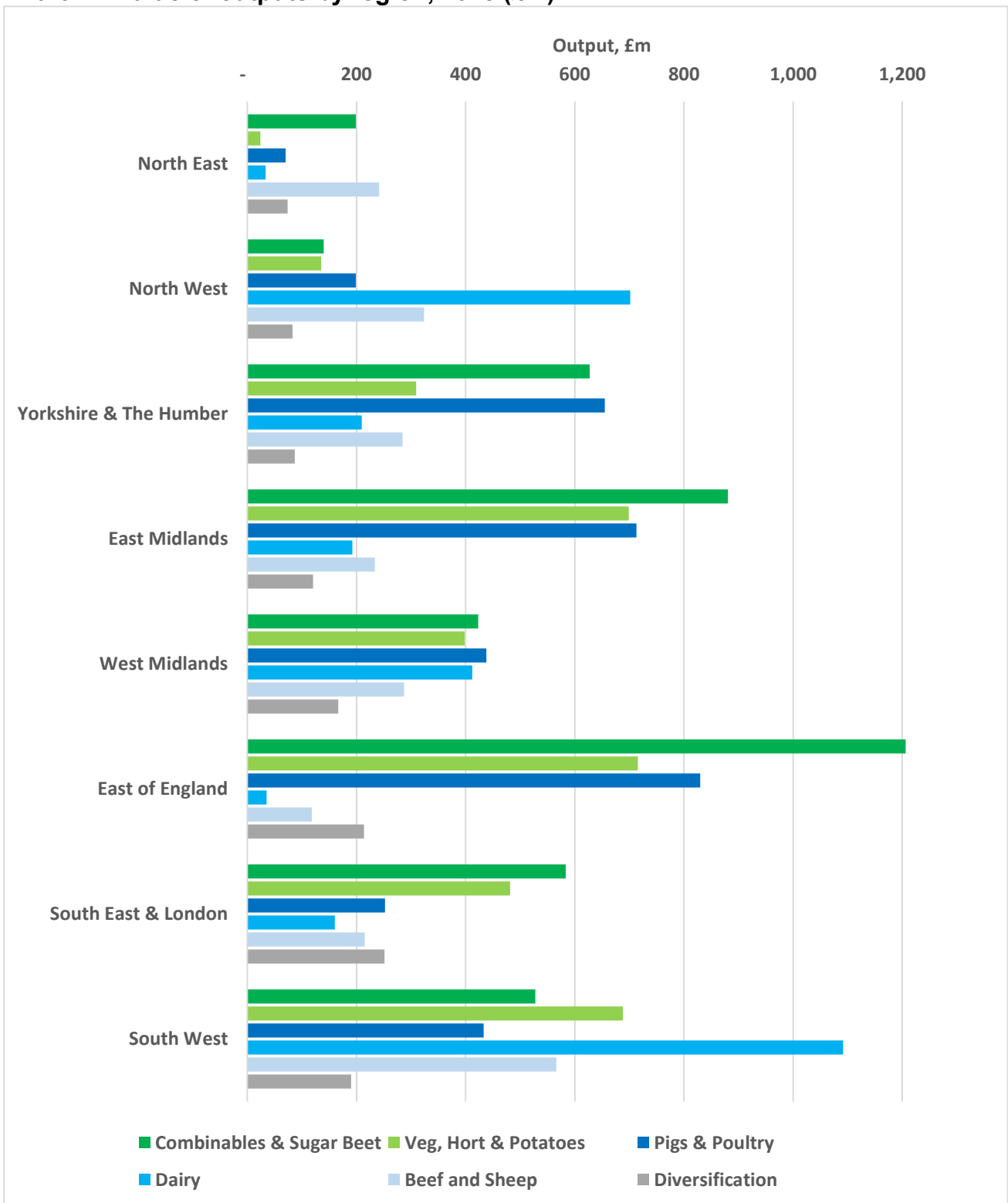


Chart 4.1 shows that whilst there are clear regional differences in the scale of output values, all regions had some level of production for all 6 of the groups.

Key points for 2018 results include:

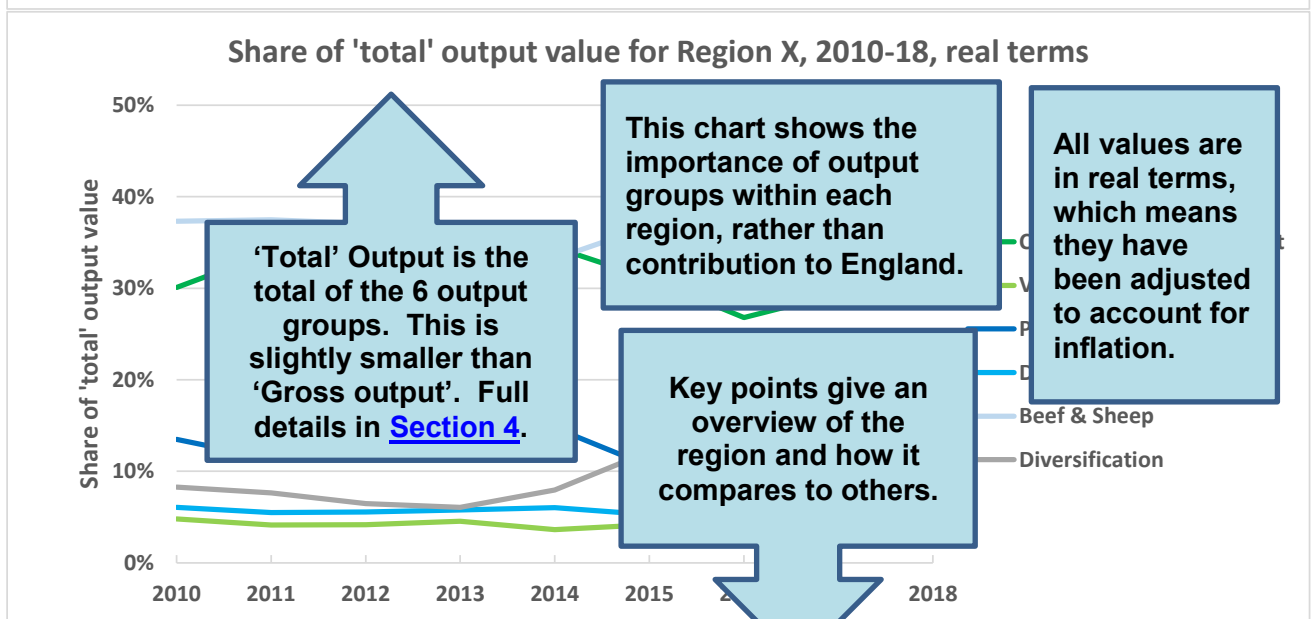
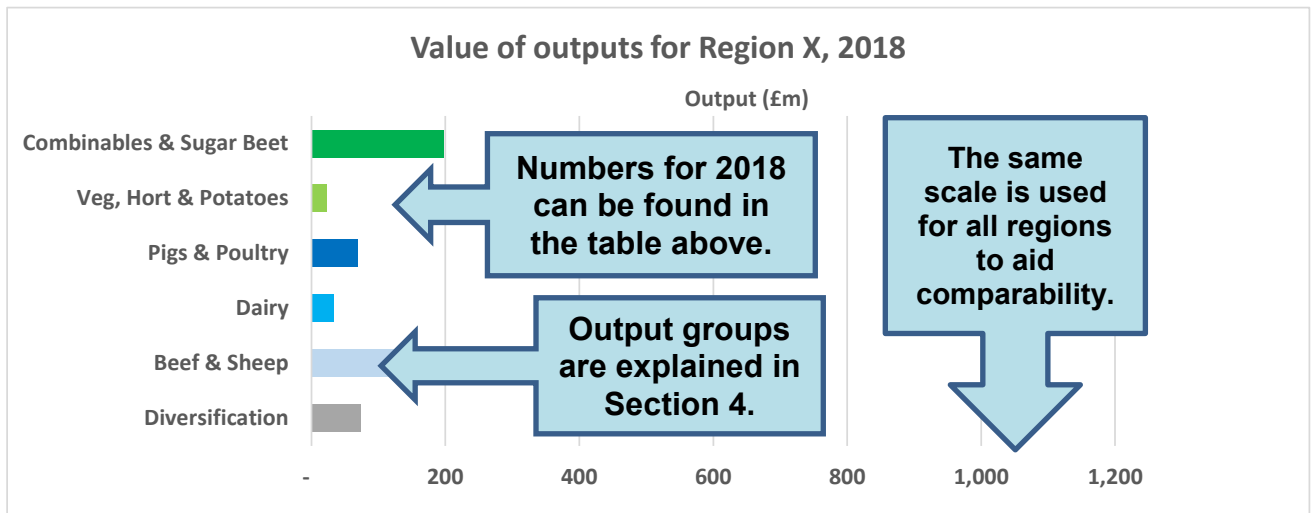
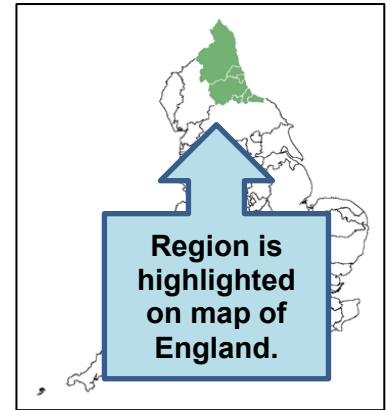
- The largest contributions in an individual region were made by 'Combinables & Sugar Beet' in the East of England and Dairy in the South West, both of which were over £1bn.
- The West Midlands had the most balanced outputs, with 4 categories ('Combinables & Sugar Beet', 'Veg, Hort & Potatoes', Pigs & Poultry and Dairy) contributing about £400m each.
- The East of England and the East Midlands both had very similar output patterns, with a prevalence of 'Combinables & Sugar Beet', 'Veg, Hort & Potatoes' and 'Pigs and Poultry'.
- In spite of a small overall contribution to TIFF (2%), the North East makes a significant contribution for 'Beef and Sheep' output, at around 11% (£200m).
- The value of 'Beef & Sheep' output was similar in the North East and the East Midlands, but was the largest output in the North East whereas three outputs in the East Midlands were considerably higher in value.

## Section 5 – Regional Profiles

Each of the eight NUTS1 regions (London is included with the South East) have a one-page profile presented in this section. The profiles are designed to provide an overview of the dominant types of agriculture in each region and their financial importance in 2018 and earlier years. A user guide is presented below to help explain the content and details of the profile sheets.

### Regional profile

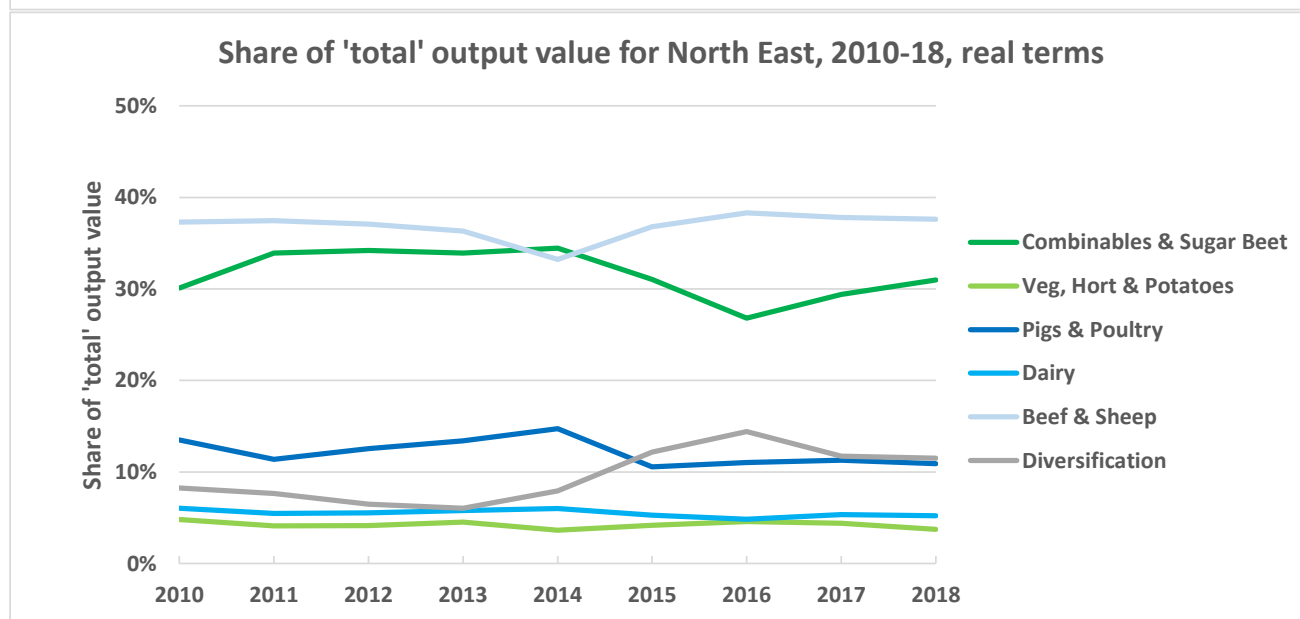
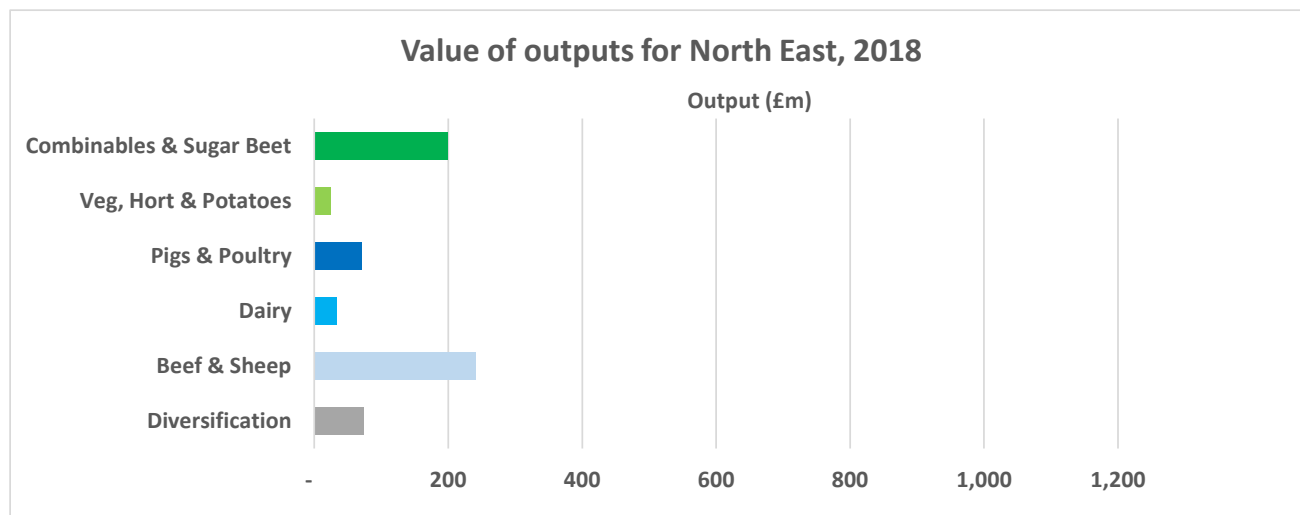
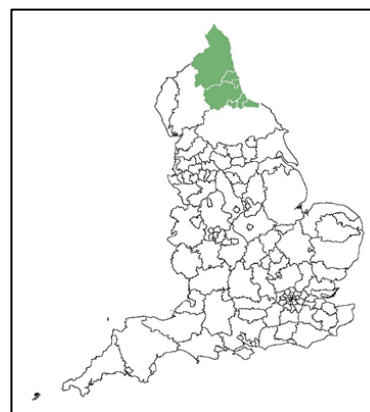
<b>Gross output at basic prices</b>		England	4%
<i>of which: Combinables &amp; Sugar</i>			4%
<i>Veg, Hort &amp; Potatoes</i>			1%
<i>Pigs &amp; Poultry</i>	70		2%
<i>Dairy</i>	33		1%
<i>Beef &amp; sheep</i>			11%
<i>Diversification</i>			6%
<b>Total intermediate consumption</b>			4%
<b>Gross value added at basic prices</b>			3%
<b>Direct payments</b>			7%
<b>Total Income from Farming</b>	70		2%



**Key Points for Region X:** Total Income from Farming for Region X is dominated by...

## North East regional profile

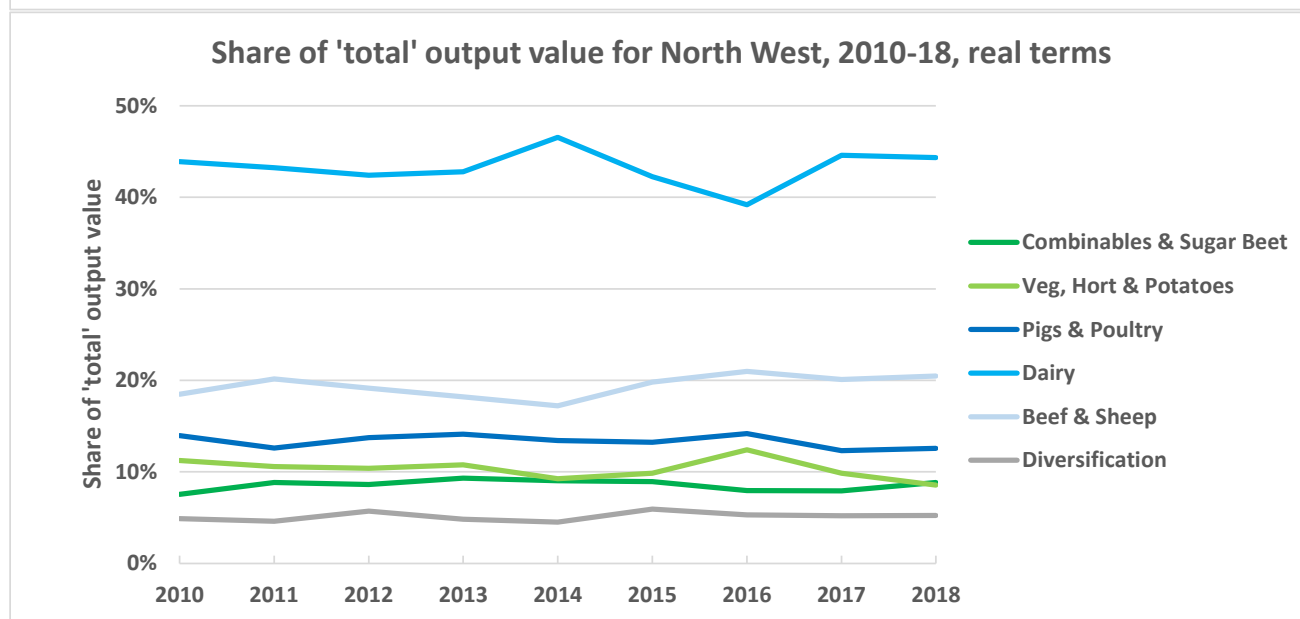
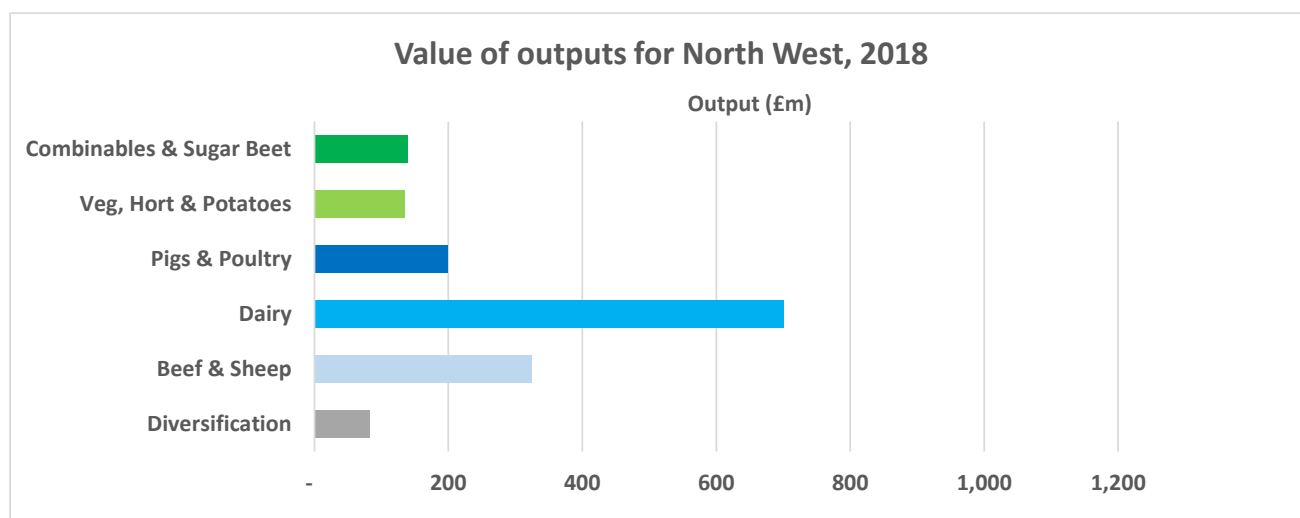
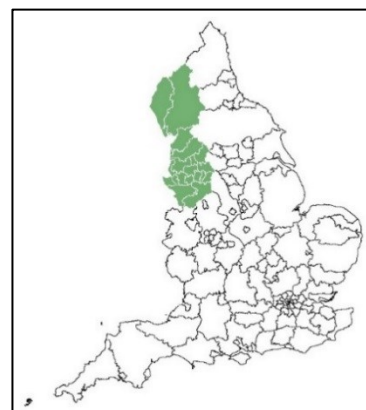
	2018 (£m)	% of England
<b>Gross output at basic prices</b>	750	4%
<i>of which: Combinables &amp; Sugar Beet</i>	199	4%
<i>Veg, Hort &amp; Potatoes</i>	24	1%
<i>Pigs &amp; Poultry</i>	70	2%
<i>Dairy</i>	33	1%
<i>Beef &amp; sheep</i>	241	11%
<i>Diversification</i>	74	6%
<b>Total intermediate consumption</b>	552	4%
<b>Gross value added at basic prices</b>	198	3%
<b>Direct payments</b>	151	7%
<b>Total Income from Farming</b>	70	2%



**Key Points for the North East region:** From 2010, the NE has had the lowest TIFF even when its relatively small farmed area is taken into account, by using a per ha measure. The NE is heavily reliant on output from 'Combinables & Sugar Beet' and 'Beef & Sheep' and has almost no output from 'Veg, Hort & Potatoes'. The contribution of Direct Payments were required to ensure a positive TIFF in the North East in every year from 2010-18.

## North West regional profile

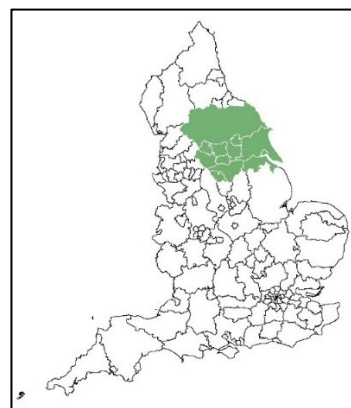
	2018 (£m)	% of England
<b>Gross output at basic prices</b>	1,805	9%
<i>of which: Combinables &amp; Sugar Beet</i>	140	3%
<i>Veg, Hort &amp; Potatoes</i>	135	4%
<i>Pigs &amp; Poultry</i>	199	6%
<i>Dairy</i>	702	25%
<i>Beef &amp; sheep</i>	324	14%
<i>Diversification</i>	83	7%
<b>Total intermediate consumption</b>	1,259	10%
<b>Gross value added at basic prices</b>	546	7%
<b>Direct payments</b>	226	11%
<b>Total Income from Farming</b>	131	4%



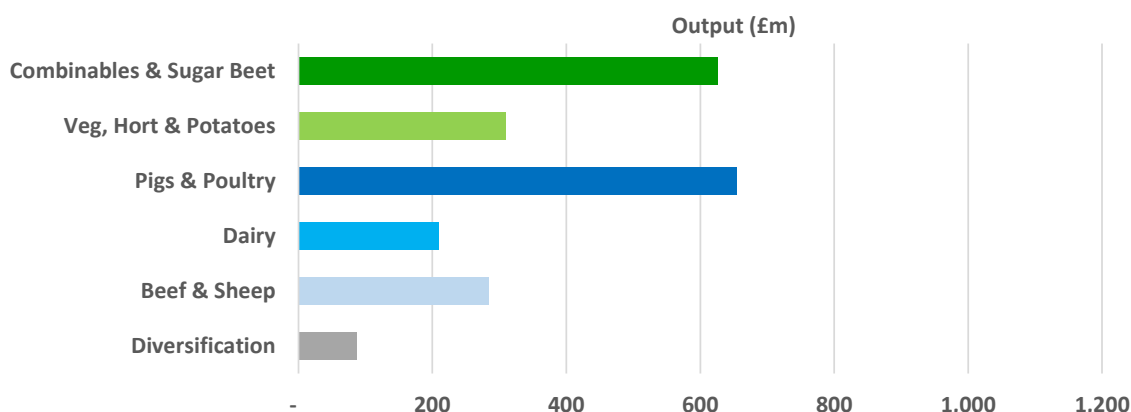
**Key Points for the North West region:** Dairy dominates output in North West, contributing about 45% of total output. The region was responsible for 25% of England Dairy output in 2018 and 14% of Beef and Sheep output. North West accounts for the second highest output from sheep, behind South West. Cropping of all kinds is very limited due to the relatively cold and wet climate and significant upland areas in the north of the region. TIFF for the North West was positive in every year 2010-18, but this relied on the contribution of Direct Payments in all but two years.

## Yorkshire & The Humber regional profile

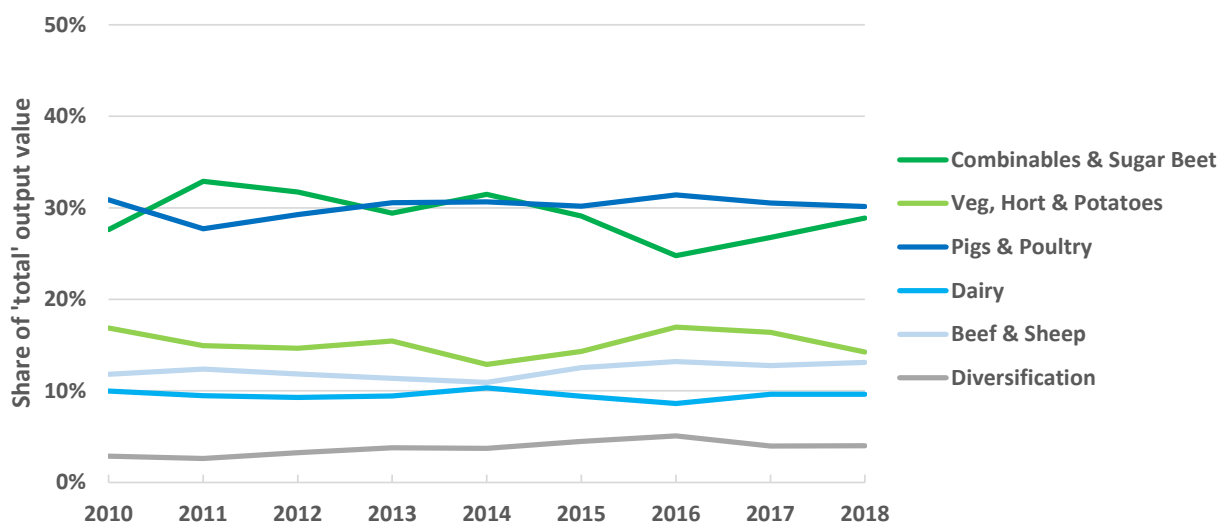
	2018 (£m)	% of England
<b>Gross output at basic prices</b>	2,381	12%
<i>of which: Combinables &amp; Sugar Beet</i>	627	14%
<i>Veg, Hort &amp; Potatoes</i>	309	9%
<i>Pigs &amp; Poultry</i>	655	18%
<i>Dairy</i>	209	7%
<i>Beef &amp; sheep</i>	284	13%
<i>Diversification</i>	87	7%
<b>Total intermediate consumption</b>	1,559	13%
<b>Gross value added at basic prices</b>	821	11%
<b>Direct payments</b>	267	13%
<b>Total Income from Farming</b>	339	10%



Value of outputs for Yorkshire & The Humber, 2018



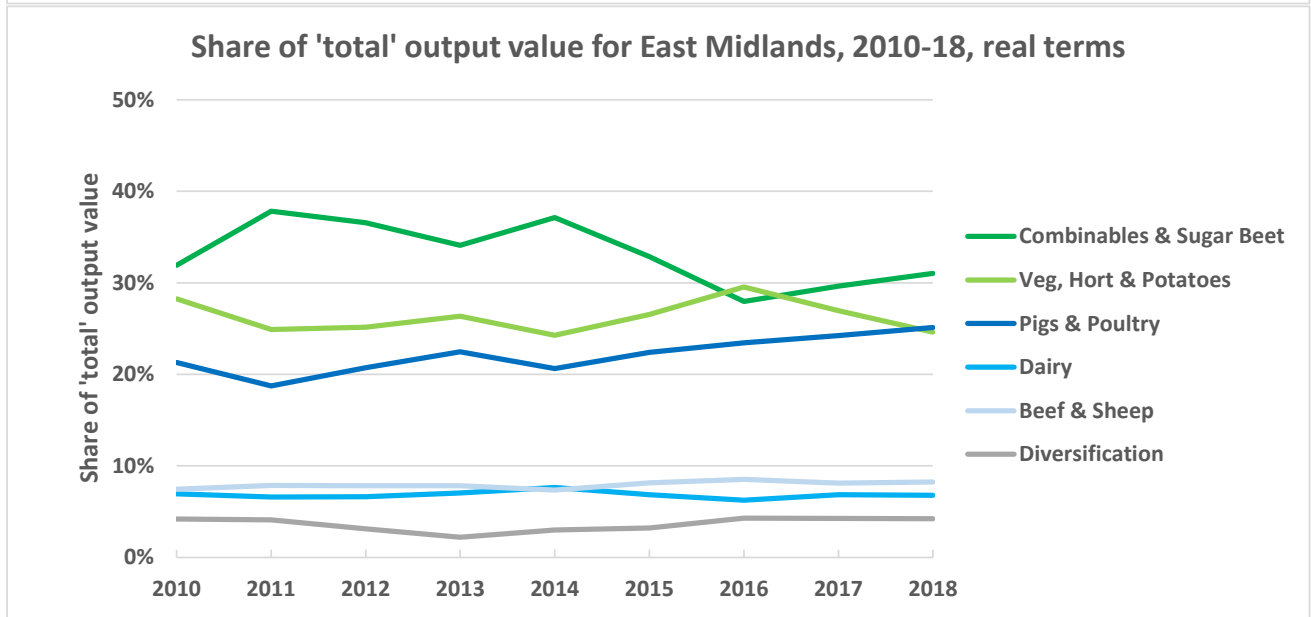
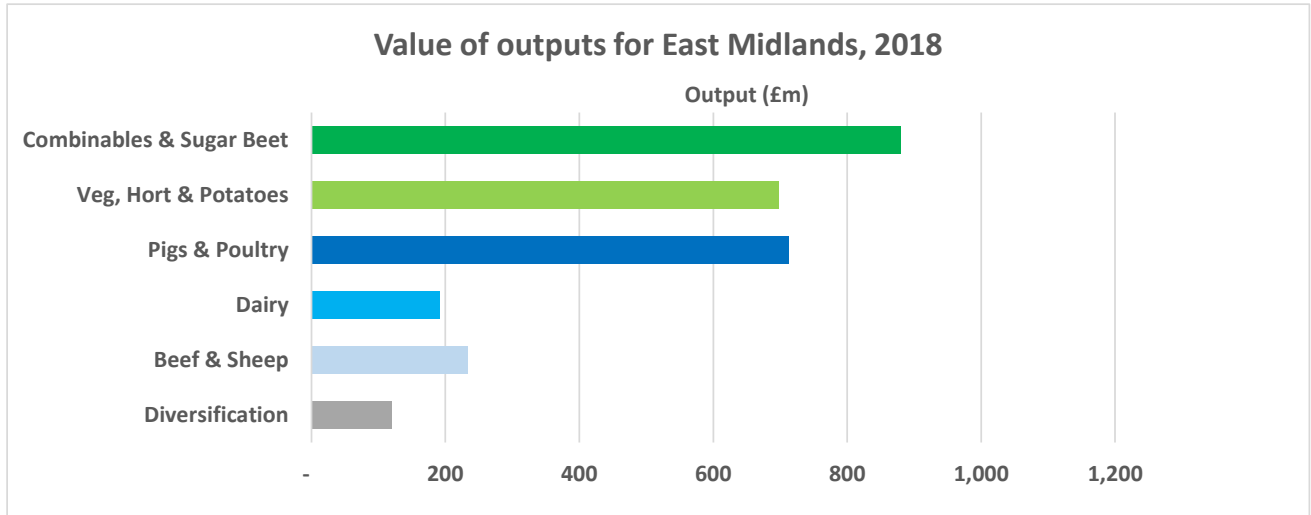
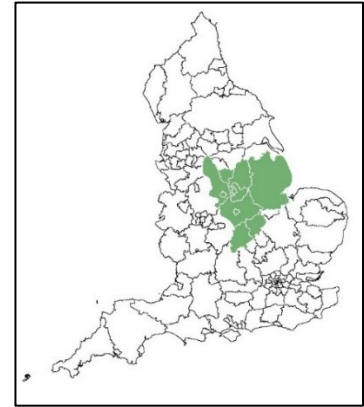
Share of 'total' output value for Yorkshire & The Humber, 2010-18, real terms



**Key Points for the Yorkshire & The Humber (Y&H) region:** 'Combinables & Sugar Beet' and Pigs & Poultry are the main contributors to output in the region with roughly 30% each over 2010-18. Y&H has the highest absolute output of any region from Pigs. The region is quite varied with upland areas in the north and west and areas more suitable for arable in the south and east.

# East Midlands regional profile

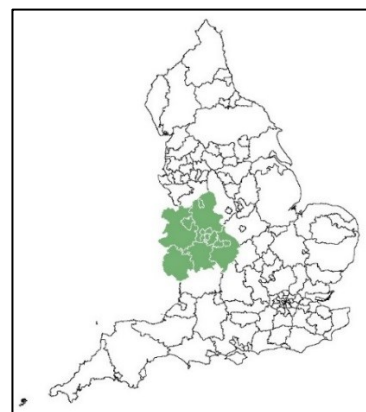
	2018 (£m)	% of England
<b>Gross output at basic prices</b>	3,061	16%
<i>of which: Combinables &amp; Sugar Beet</i>	880	19%
<i>Veg, Hort &amp; Potatoes</i>	699	20%
<i>Pigs &amp; Poultry</i>	713	20%
<i>Dairy</i>	192	7%
<i>Beef &amp; sheep</i>	233	10%
<i>Diversification</i>	120	10%
<b>Total intermediate consumption</b>	1,795	15%
<b>Gross value added at basic prices</b>	1,266	17%
<b>Direct payments</b>	274	13%
<b>Total Income from Farming</b>	663	20%



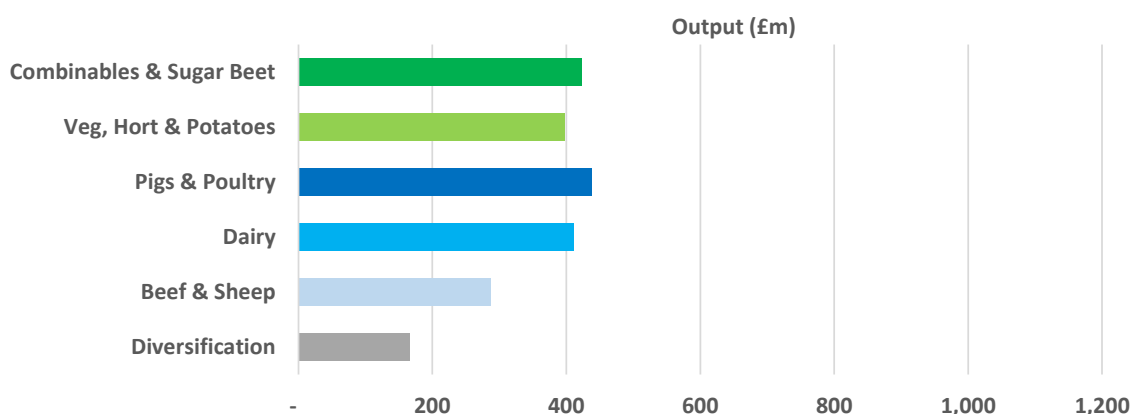
**Key Points for the East Midlands region:** TIFF has been consistently high in the East Midlands, driven by output from cropping and poultry. Lincolnshire is a particularly high output area with a TIFF comparable to many entire NUTS1 regions. The region has a higher output from 'Vegetables and Horticultural Products' than any other. Dairy and 'Beef & Sheep' contribute only 5-10% to regional output but in absolute terms these were still each worth around £200m in 2018.

## West Midlands regional profile

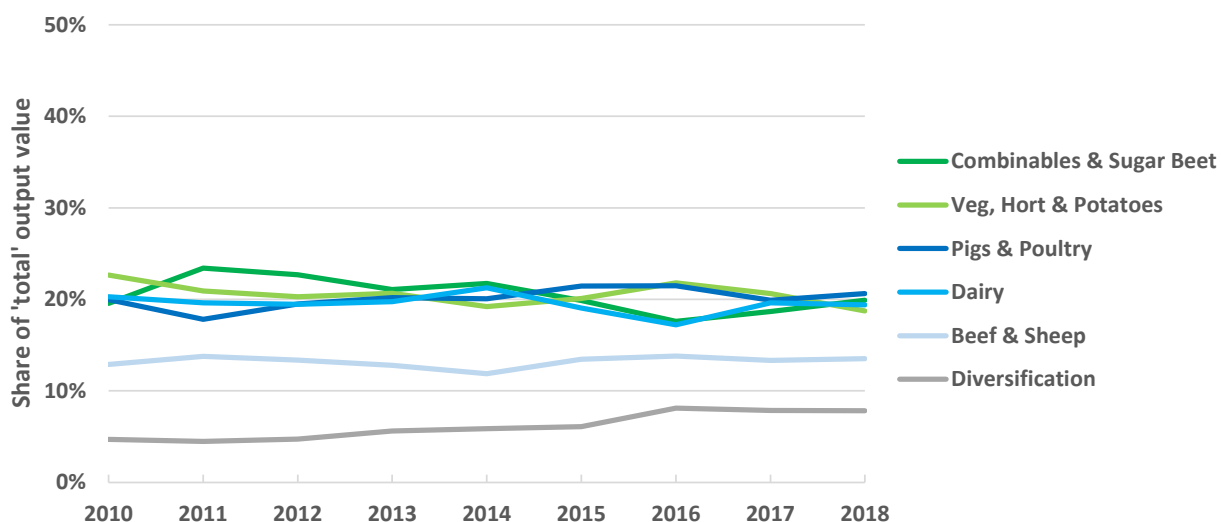
	2018 (£m)	% of England
<b>Gross output at basic prices</b>	2,331	12%
<i>of which: Combinables &amp; Sugar Beet</i>	423	9%
<i>Veg, Hort &amp; Potatoes</i>	398	12%
<i>Pigs &amp; Poultry</i>	438	12%
<i>Dairy</i>	412	15%
<i>Beef &amp; sheep</i>	287	13%
<i>Diversification</i>	167	14%
<b>Total intermediate consumption</b>	1,409	11%
<b>Gross value added at basic prices</b>	922	13%
<b>Direct payments</b>	209	10%
<b>Total Income from Farming</b>	414	12%



Value of outputs for West Midlands, 2018



Share of 'total' output value for West Midlands, 2010-18, real terms

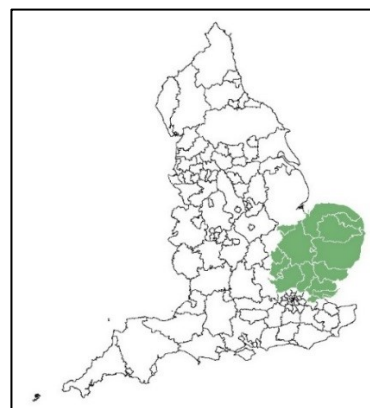


**Key Points for the West Midlands region:** The West Midlands has the most balanced range of outputs with output of around £400m from both cropping groups, Dairy and Pigs & Poultry. The south west of the region is one of the main fruit producing areas in England and the north of the region has a high concentration of dairy activity.

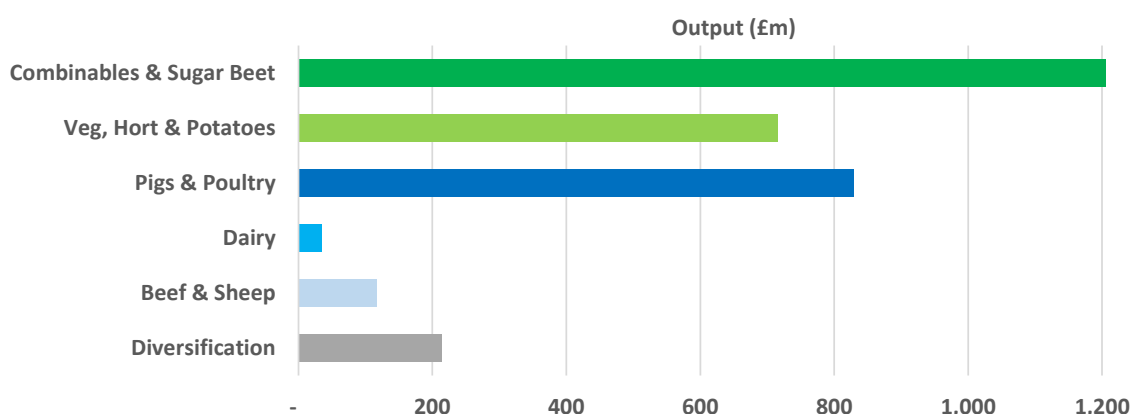


## East of England regional profile

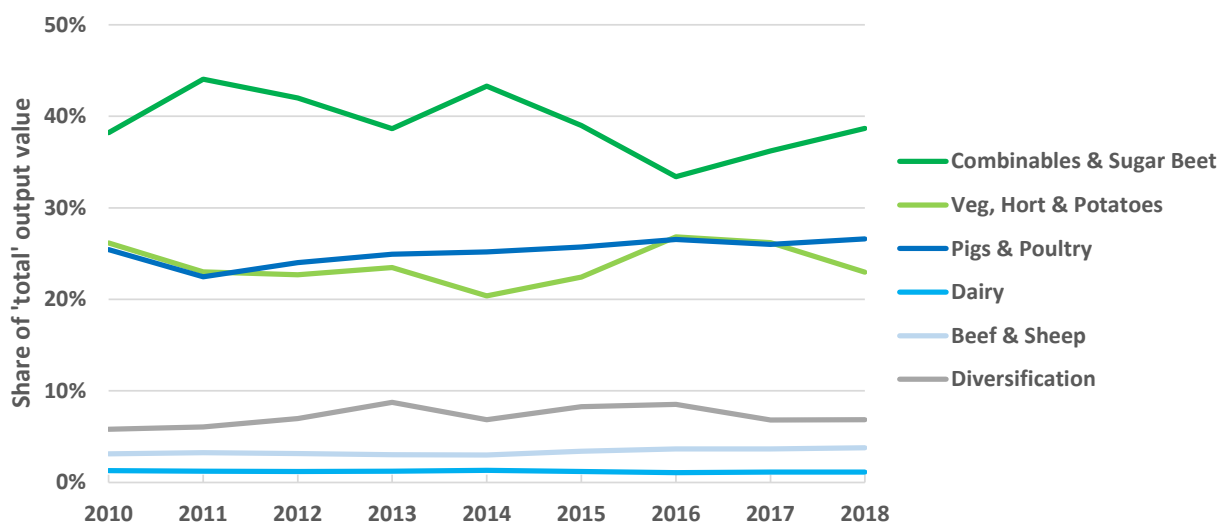
	2018 (£m)	% of England
<b>Gross output at basic prices</b>	3,327	17%
<i>of which: Combinables &amp; Sugar Beet</i>	1,206	26%
<i>Veg, Hort &amp; Potatoes</i>	716	21%
<i>Pigs &amp; Poultry</i>	830	23%
<i>Dairy</i>	35	1%
<i>Beef &amp; sheep</i>	118	5%
<i>Diversification</i>	214	18%
<b>Total intermediate consumption</b>	2,020	16%
<b>Gross value added at basic prices</b>	1,307	18%
<b>Direct payments</b>	322	15%
<b>Total Income from Farming</b>	697	21%



Value of outputs for East of England, 2018



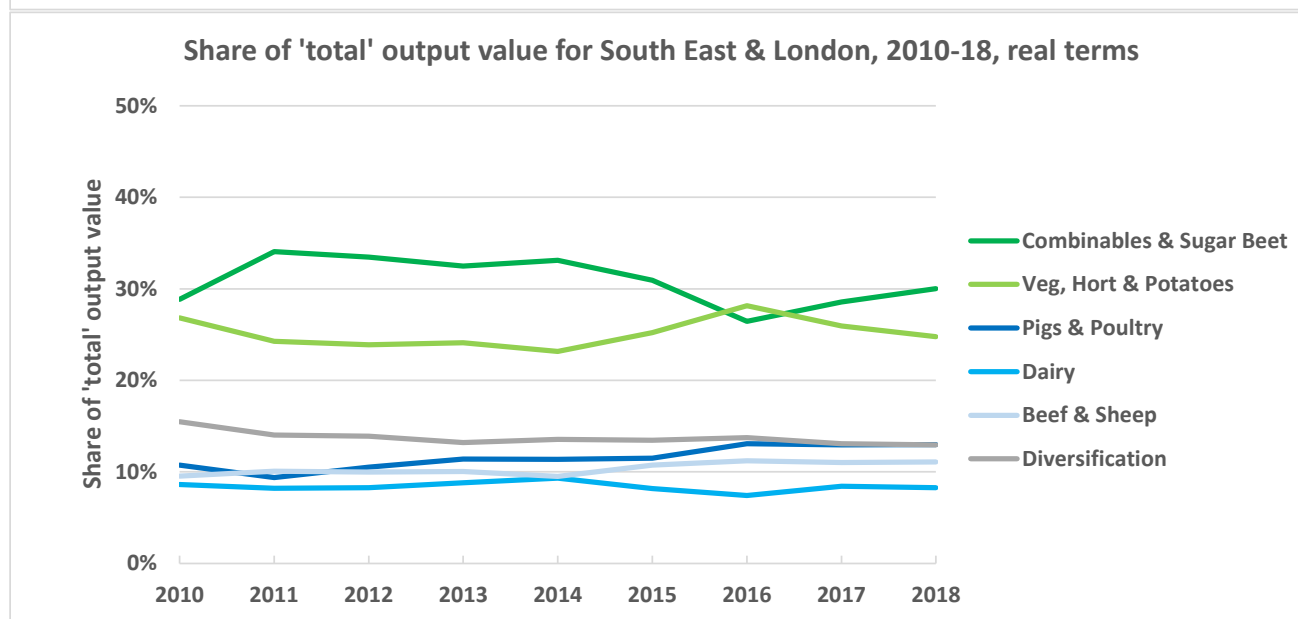
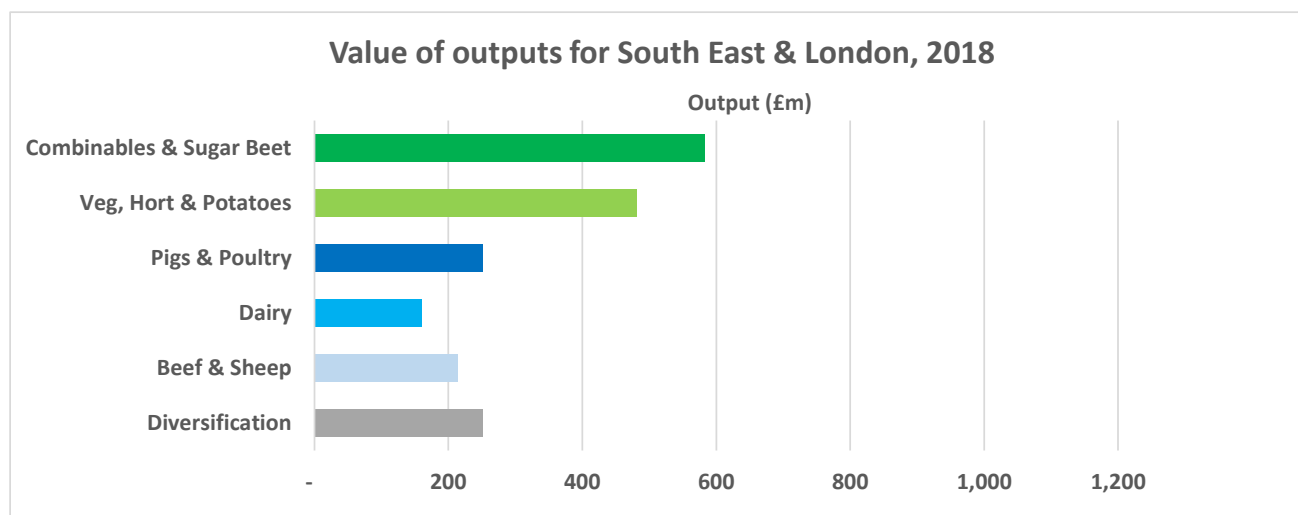
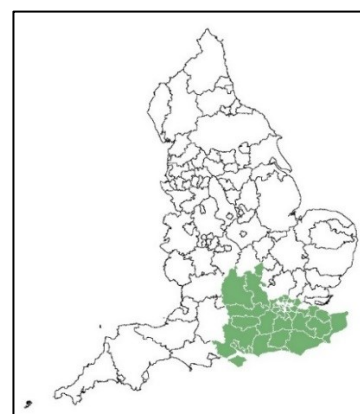
Share of 'total' output value for East of England, 2010-18, real terms



**Key Points for the East of England region:** This region has had the highest TIFF of any region in every year 2010-18, contributing 21% of England TIFF in 2018. In 2018, the East of England made the biggest contribution to England output for 'Combinables & Sugar Beet', 'Veg, Hort & Potatoes' and 'Pigs & Poultry'. Conversely there is very little in the way of Beef & Sheep and almost no Dairy with the dry climate, fertile soils and absence of uplands being much better suited to arable. The region is the primary sugar beet producing area of England.

## South East & London regional profile

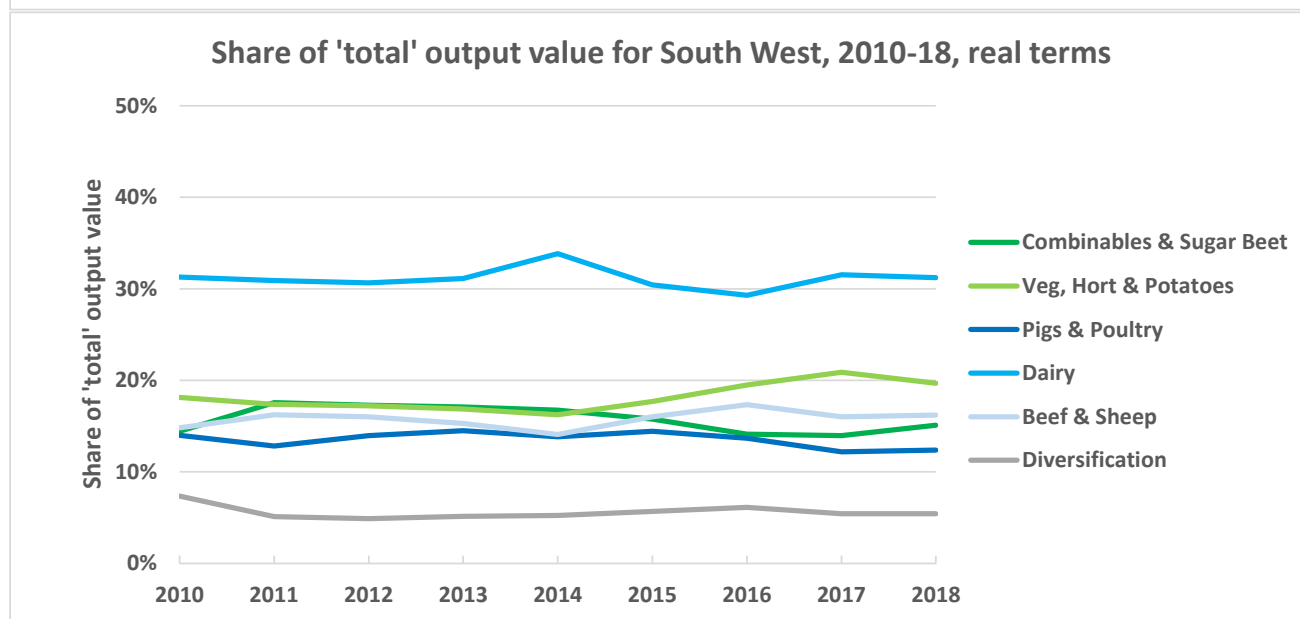
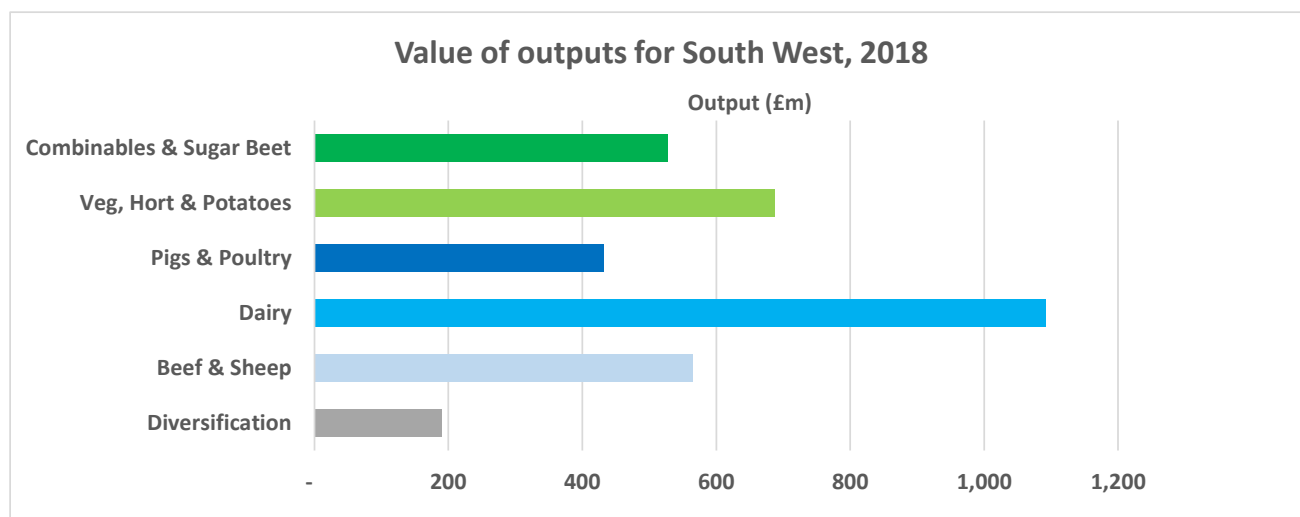
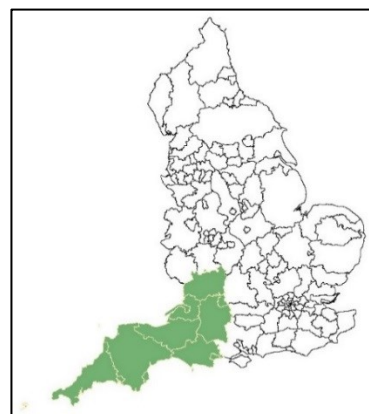
	2018 (£m)	% of England
<b>Gross output at basic prices</b>	2,119	11%
<i>of which: Combinables &amp; Sugar Beet</i>	583	13%
<i>Veg, Hort &amp; Potatoes</i>	481	14%
<i>Pigs &amp; Poultry</i>	252	7%
<i>Dairy</i>	161	6%
<i>Beef &amp; sheep</i>	215	9%
<i>Diversification</i>	251	21%
<b>Total intermediate consumption</b>	1,278	10%
<b>Gross value added at basic prices</b>	841	11%
<b>Direct payments</b>	254	12%
<b>Total Income from Farming</b>	452	13%



**Key Points for the South East & London region:** The majority of agricultural output in the South East region is from cropping, including significant fruit output from Kent. In common with the East Midlands and the East of England which also generate the majority of their output from cropping, the South East & London has little in the way of Dairy or Beef & Sheep, but also lacks significant output from Pigs & Poultry. In 2018, Pigs & Poultry output was £252m, the third lowest of the 8 regions. In 2018, diversification output in the South East & London was £251m, the highest in any region.

## South West regional profile

	2018 (£m)	% of England
<b>Gross output at basic prices</b>	3,885	20%
<i>of which: Combinables &amp; Sugar Beet</i>	528	12%
<i>Veg, Hort &amp; Potatoes</i>	688	20%
<i>Pigs &amp; Poultry</i>	433	12%
<i>Dairy</i>	1,092	38%
<i>Beef &amp; sheep</i>	566	25%
<i>Diversification</i>	190	16%
<b>Total intermediate consumption</b>	2,437	20%
<b>Gross value added at basic prices</b>	1,448	20%
<b>Direct payments</b>	407	19%
<b>Total Income from Farming</b>	592	18%



**Key Points for the South West region:** The South West has the largest farmed area and had the 3<sup>rd</sup> largest TIFF in every year 2010-18. TIFF per hectare was lower than the England average in 2018. Output from Dairy was almost £1.1bn in 2018, equating to over 30% of the region's total output and 38% of England Dairy output. The South West also had a higher output from Plants and Flowers than any other region during 2010-18.

## Annex – Background Information

### Description of ‘Total Income from Farming’ measure

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 excludes changes in the values of assets, including stocks, due to price changes but includes non-agricultural activities such as further processing or tourist activities where these cannot be separated from the agricultural business. It is the preferred measure of aggregate income for the agricultural industry conforming to internationally-agreed national accounting principles required by the UK National Accounts.

Total Income from Farming is designed to show the performance of the whole of the agricultural industry. A measure of individual farm incomes, Farm Business Income, designed to compare performance across different types of farming, is available at:

<https://www.gov.uk/government/statistics/farm-accounts-in-england>.

### Definition of terms used in this Statistics Notice and datasets

<b>Agricultural industry</b>	All activities taking place within businesses that carry out any agricultural activities. These businesses include all farms and specialist agricultural contractors.
<b>Gross Fixed Capital Formation (GFCF) in livestock</b>	The production of animals that will be used as the means of production, e.g. breeding animals.
<b>Inseparable non-agricultural activities</b>	Non-agricultural activities that are included within the business level accounts and are inseparable, e.g. some cases of bed and breakfast and recreation facilities
<b>Output at market prices</b>	Output excluding subsidies. The output of the agricultural industry includes some non-agricultural activities and transactions within the industry.
<b>Basic prices</b>	Market price plus directly paid subsidies that are linked to production of specific product. There have been no direct subsidies in England since 2013.
<b>Subsidies (less taxes) on product</b>	Subsidies and taxes linked to the production of a specific agricultural product. All subsidies are recorded on an ‘as due’ basis.
<b>Other agricultural activities</b>	Agricultural activities that do not result in sales of final product, e.g. quota leasing, contract work
<b>FISIM</b>	Financial Intermediation Services Indirectly Measured (FISIM) is an estimate of the value of services provided by financial intermediaries, such as banks, for which no explicit charges are made, and which are paid for as part of the margin between rates applied to savers and borrowers.
<b>Intermediate consumption</b>	Goods and services consumed or used as inputs in the productive process e.g. feed, seeds, fertiliser, and pesticides.
<b>Gross Value Added</b>	Gross output less intermediate consumption.
<b>Consumption of fixed capital (CFC)</b>	The reduction in value (at current prices) of capital assets used in the production process, e.g. buildings, plant, machinery, vehicles and livestock.
<b>Net Value Added</b>	Gross Value Added at basic prices less consumption of fixed capital.

<b>Other subsidies (less taxes) not linked to production</b>	Subsidies and taxes not linked to production of a specific product, e.g. Single Payment Scheme, agri-environment payments, animal disease compensation.
<b>Net Value Added at factor cost</b>	Net Value Added at basic prices plus other subsidies (less taxes) on production.
<b>Compensation of employees</b>	The full costs of employees to the business including national insurance contributions.
<b>Total Income from Farming</b>	Income to those with an entrepreneurial interest in the agricultural industry, e.g. farmers, partners, spouses and most other family workers.

## Regional classification

The Nomenclature of Units for Territorial Statistics (NUTS) provides a single uniform breakdown for the production of regional statistics for the EU. In this statistical notice, statistics are presented at the NUTS1 level of regions in England, with additional breakdowns at NUTS2 and NUTS3 in the accompanying dataset.

Information on Nomenclature of Units for Territorial Statistics (NUTS) can be found at: <https://www.ons.gov.uk/methodology/geography/ukgeographies/eurostat>.

New versions of NUTS are released every year or two to reflect (usually minor) adjustments. This publication uses the latest version, NUTS 2016 throughout. NUTS classifications for England have been unchanged since the introduction of NUTS 2013.

## Regional production and income accounts methodology

This release contains regional breakdowns of the England agricultural account, which is published in a separate release. The methodology for the England agricultural account can be found [here](#).

The regional accounts for England are constructed by apportioning each account item value (£) for England to the 133 NUTS3 regions (County/unitary authorities) using regional estimates from the Farm Business Survey (FBS) and June Survey of Agriculture and Horticulture ('June Survey') data. The FBS records detailed annual account data from a relatively small panel of farms whereas the June Survey records a snapshot of crop areas and livestock numbers as at June 1<sup>st</sup> each year. NUTS1 (regional) and NUTS2 estimates are then derived through aggregation of NUTS3 account values. Whilst this principle is well-established, a new approach to apportioning to NUTS 3 regions was introduced from the 2018 first estimates (published September 2019). This methodology replaces that used for the 2017 first estimates (published August 2018 under the 'Agriculture in the English regions' series).

### Apportionment of England output account items to NUTS3 level

For almost all output items, June Survey data has been used which has the precise geographical location of crop areas and livestock counts. The most appropriate June Survey item has been matched with each account item which can be done well for almost all account items of significant value. See 'Apportionment of other account items to NUTS3 level' below for exceptions.

### Apportionment of England cost account items to NUTS3 level

The best source of cost data comes from the FBS. Due to the small sample size FBS data becomes less reliable when split down to NUTS3 level. Therefore, for almost all account items relating to cost, farm typology has been used to provide a link between FBS cost data and output account items for which we have a NUTS3 distribution. This allocation has been weighted by the values of

outputs to take into account differences in scale and composition of farms of the same farm type in different geographical areas.

#### Apportionment of other account items to NUTS3 level

A few significant account items required different approaches. Output from 'Inseparable non-agricultural activities' (diversification) is apportioned between the regions using FBS data as there is no suitable item on the June Survey.

Both output values and costs for 'Agricultural Services' are apportioned using 'Utilised Agricultural Area' from the June Survey. Whilst not ideal, no more credible alternative is available. The same value for Agricultural Services appears as both an output and a cost in the account, so whilst the split is relevant when just considering outputs (or costs), overall, this item has no impact on TIFF. Gross Fixed Capital Formation (GFCF) and Consumption of Fixed Capital (CFC) in animals have been apportioned using June Survey items for the relevant animals.

'Direct payments' (farm subsidies) are also apportioned using 'Utilised Agricultural Area' from the June Survey. Testing using more precise RPA data suggested only small differences at NUTS1 level. As a result the extra data source has not been adopted, but will be considered further in the near future.

#### Limitations to reliability

Assumptions have had to be made about the level of variation within account items between geographical regions. In several cases the account items that are being apportioned between regions are quite broad and will cover different types of crops or livestock which could reasonably be expected to have different values and costs per hectare/head and concentrations that vary by area. Examples are 'Fresh vegetables', 'Fresh fruit', 'Cattle', 'Pigs', 'Sheep and goats' and 'Poultry' (meat). Even where an account item represents a single crop (e.g. wheat), there will be different yields and prices per hectare depending on factors such as climate, soil, use, local demand etc. However in most cases there are no sources of data. Testing of the methodology has explored the impact of making additional assumptions about the values of different groups within single account items (for example poultry, where higher value turkeys, ducks and geese are concentrated in East of England). This concluded that the impact on regional (NUTS1) TIFF was not sufficient to justify the extra complexity. Therefore, for the purpose of the regional accounts, the units used to apportion account items are assumed to be identical across regions.

The simplifications made under this methodology may reduce accuracy and the level of uncertainty will increase at finer spatial resolutions. Users should give consideration to these limitations when using these results and drawing conclusions, particularly at NUTS3.

#### Limitations of data sources

The FBS is based on an accounting year from March to February rather than calendar years. Testing with calendar year estimates constructed from two FBS years suggested negligible impact and therefore the FBS with a 10 month overlap is used as a proxy for calendar years. For example, FBS year 2017-18 is used as a proxy for 2017 in the calculation of 2017 coefficients.

Some enterprises are recognised as being particularly difficult to collect accurate regional data for, in particular intensive pigs, intensive poultry and horticulture (ornamentals, fruit and vegetables). These sectors are highly concentrated and often part of large countrywide businesses making them difficult to capture and represent accurately in both the June Survey and FBS, particularly with respect to location. Furthermore, stock numbers may fluctuate greatly in intensive livestock systems, so numbers on 1 June may not accurately reflect the annual picture. Therefore users should exercise extra caution when considering regional estimates for these sectors.

#### Level of detail of items within the accounts

Steps have been taken to prevent the publication of results with a high level of uncertainty and also to avoid disclosure of data for individual farmers. Whilst the full account is published at NUTS1 level, some of the more minor items are not shown at NUTS2 level and at NUTS3 level only headline figures are shown. For the same reasons, geographical areas have been aggregated with neighbours to ensure that they contain at least 100 farms and 10,000ha of farmland. (This is based on the 2016 June Survey, which is the last time it was conducted with an enhanced sample size and therefore is considered to be more accurate than more recent surveys). At NUTS2 level this only impacts on London, however at NUTS3 level, 133 areas have been reduced to 80, using a bespoke set of geographical areas. Despite this, users should be aware that the level of uncertainty will increase in smaller NUTS areas and that the size of NUTS areas varies enormously at both NUTS2 and NUTS3 levels.

#### Differences between first and second estimates

A specific set of coefficients has been devised for each year from 2010-17, based on June Survey and FBS data from the respective years. The first estimate of England account values for 2018 have been apportioned out using 2017 coefficients because 2018 data from the June Survey and FBS is not available yet. When second estimates are published, 2018 coefficients will be calculated and used for the 2018 account items and as a result the figures will be subject to some degree of revision.

The methodology is complex and users wishing to further their understanding should contact [farmaccounts@defra.gov.uk](mailto:farmaccounts@defra.gov.uk).

#### **Regular revision schedule**

This release publishes regional estimates of the first full estimates of the aggregate agricultural accounts for England for 2018. Each year, approximately six months after the publication of the first estimates, the England accounts are revised to reflect newly available information. These revised England accounts are then published as 'final' estimates. Shortly afterwards, 'Total Income from Farming for the regions of England' will be revised to use the 'final' England estimates and new regional coefficients, based on new versions of key data sources. Both the revised England account values and the updated coefficients should increase the accuracy of the regional estimates between the first and final versions of this publication, particularly for the most recent calendar year.

#### **Revisions due to new methodology**

This publication replaces the regional element previously published under 'Agriculture in the English Regions'. This was last published on 30 August 2018 for the 2017 first estimate. Total Income from Farming covers only regional breakdowns of the agricultural accounts, with the England level estimates now being published separately as 'Total Income from Farming for England'. All the estimates in this publication have been produced using a new methodological approach to regional results, detailed above. This therefore represents revisions to the 2010-17 results published in 'Agriculture in the English Regions'. The new methodology is intended to improve the accuracy of the results by using the same data source (June Survey of Agriculture and Horticulture) for the regional apportionment of both inputs and outputs. The old methodology that has been replaced used different data sources to provide the regional splits for inputs and outputs. It was concluded that these were sufficiently different to impact on the robustness and repeatability of the estimates.

#### **National Statistics and Official Statistics**

Publications with National Statistics status meet the highest standards of trustworthiness, quality and public value, and it is our responsibility to maintain compliance with these standards. The aggregate agricultural accounts for England and the UK are designated as National Statistics. These regional estimates are based on a method to apportion the England totals between the different England regions. Whilst this method is robust it introduces additional uncertainty such that these estimates are designated as Official Statistics in compliance with the Code of Practice for Official Statistics (<http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html>).

## Quality Assurance

Defra has in place quality assurance processes to check the accuracy and reliability of the underlying aggregate agricultural accounts that includes:

- Ongoing review of methods employed in the calculation of the accounts.
- Assessment of the quality of the estimates of components of the accounts with internal experts.
- Discussion of components of the accounts with external experts.
- Quality assessments made by Eurostat, the statistical office of the European Union.

In April 2019, Defra carried out an internal formal quality assurance of the new methodology used to apportion the England agricultural accounts to regional level. This involved inspection of the mechanics used to calculate the coefficients as well as the suitability of the data sources used. The quality assurance process was conducted by two experienced Defra economic advisors who were not involved in the production of the agricultural accounts or the regional estimates, but had a solid understanding of the available data sources and potential uses of regional accounts.

## Summary quality report

A summary quality report for the underlying data on the Aggregate Agricultural Accounts and its statistical release can be found on the GOV.UK website at <https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs/series/aggregate-agricultural-accounts>.

This is an overview note which is not release specific and was last updated in March 2019. It 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 aims to provide users with information on usability and fitness for purpose of these estimates.

## Development areas

This publication is based on a new methodology providing increased confidence in the results. Results are expected to be disseminated further and publicised wider than in the past to reach more users. Whilst many simplifications to the coefficients have had to be assumed for reasons of practicality (as explained in the methodology section above), improvements will continue to be considered. One area to be reviewed further is the apportionment of farm subsidies, which is recognised as being likely to be of particular interest to some users.

## Main users and uses of the aggregate agricultural accounts

The aggregate agricultural accounts are used in conjunction with other economic information to:

- Monitor the productivity and competitiveness of the farming industry.
- Inform policy decisions and to help monitor and evaluate current policies relating to agriculture in the UK by Government and in the European Union by the European Commission.
- Inform stakeholders of the performance of the agricultural industry.
- Inform research into the economic performance of the agricultural industry.
- Total Income from Farming sets the context when looking at a number of policies; the agricultural industry, on average, contributes around £9 billion to the national economy and accounts



for about 0.5% of national Gross Domestic Product. It is most relevant to policies relating to Common Agricultural Policy reform and the competitiveness of farming.

## **User engagement**

As part of our ongoing commitment to compliance with the Code of Practice for Official Statistics (<http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html>), we wish to strengthen our engagement with users of these statistics and better understand the use made of them and the types of decisions that they inform. Consequently, we invite users to make themselves known, to advise us of the use they do, or might, make of these statistics, and what their wishes are in terms of engagement. Feedback on this notice and enquiries about these statistics are also welcome.

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