

Agriculture in the United Kingdom 2021





Department
for Environment
Food & Rural Affairs



Agriculture in the United Kingdom 2021

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Preface

Legal Basis

Agriculture in the United Kingdom (AUK) 2021 fulfils the requirement under the Agriculture Act 1993 that Ministers publish an annual report on such matters relating to price support for agricultural produce as they consider relevant.

Changes

Some of the figures now given for past years may differ from those published in preceding issues. This is because of the use of later information, changes in scope and nature of available data, and improvements in statistical methods. Where modifications to the data are made a 'Revisions' section will be added to the chapter to explain the changes.

National Statistics status

National Statistics status guarantees that our statistics meet the highest standards of trustworthiness, quality and public value, and it is our responsibility to maintain compliance with these standards. These statistics last underwent a full assessment [Assessment Report 271 Statistics on Agriculture](#) against the [Code of Practice for Statistics](#) in 2014. Since the latest review by the Office for Statistics Regulation, we have continued to comply with the Code of Practice for Statistics. We have also made improvements to enhance the quality of this publication by improving quality assurance procedures.

Content of document

The latest available data are used throughout this document. Most of the data are on calendar year basis and for 2021. Some data for 2021 are provisional and may be revised as more data becomes available. Where 2021 data are not yet available the most recent data is presented.

The following points apply throughout:

1. All figures relate to the United Kingdom unless otherwise stated.
2. Defra is the source for all data presented in tables and charts unless otherwise stated.
3. The figures for imports and exports include those from intervention stocks and the figures for exports include re-exports. Imports are based on country of consignment. Exports are based on country of reported final destination. The source of overseas trade statistics is HM Revenue and Customs.
4. Values are expressed as either current or as a real term value:
 - Current (or nominal) value is the value expressed in historical monetary terms

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- Real term value is the current value adjusted to take account of inflation

Table and figure headings

Throughout this report, charts are referred to as figures and tables are referred to as both tables and figures. This is because this pdf report was created based on the main Agriculture in the United Kingdom 2021 publication that was published in an online format this year. In the online format, some charts (figures) are interactive, a feature that is not supported in the pdf format. Any tables that are referred to as figures in this report contain the underlying data that is available in chart format in the online version: [Agriculture in the United Kingdom 2021 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/publications/agriculture-in-the-united-kingdom-2021).

Summary

All figures relate to 2021 and the change between 2020 and 2021 unless otherwise stated.

Farm Structures

- The **Utilised Agricultural Area (UAA)** decreased by 0.2% to 17.2 million hectares, covering 71% of land in the UK.
- The **total croppable area** increased by 0.5% to 6.1 million hectares.
- The **cereal crops** area increased by 5.7% to 3.2 million hectares.
- The area of **oilseed crops** planted decreased by 15% to 352 thousand hectares.
- The total number of **cattle and calves** decreased by 0.1% to 9.6 million. The beef and dairy herds remained largely unchanged at approximately 1.5 and 1.9 million animals respectively.
- Total **pig** numbers increased by 5.3% to 5.3 million.
- **Sheep and lamb** numbers increased by 0.8% to 33.0 million.
- **The total labour** force on commercial holdings decreased by 1.0% to 467 thousand.

Incomes and productivity

- In 2020/21, the average Farm Business Income (FBI) across all UK farm types was £46,500 (at current prices) compared to £39,000 in 2019/20.
- FBI varies greatly with 16% of UK farms failing to make a positive FBI in 2020/21 while 28% of farms had a FBI of over £50,000.
- In 2021/22, higher prices for key outputs such as cereals, meat and milk coupled with increased yields are forecast to drive a rise in the value of output, although this is expected to be offset to some degree by higher costs, particularly for feed and fertilisers.
- **UK Total Income from Farming (TIFF)** in 2021 was £5,998 million, an increase of £756 million (14%) from 2020. Although costs increased in 2021, these were outweighed by increases in both total livestock and total crop outputs, resulting in the third highest TIFF, in real terms, since 2000.
- In 2021, **agriculture's contribution to the UK economy (Gross Value Added at basic prices)** was £11,222 million (0.5% of GDP). This constitutes an increase of £914 million (8.9%) compared to 2020.
- **Total livestock output** in 2021 was £16,285 million, an increase of £1,034 million (6.8%) from 2020. All major livestock outputs saw increases in value owing to high prices, with the exception of pigmeat which decreased in value by £38 million. The largest value increases were seen in milk, which increased by £344 million, and beef which increased by £310 million.

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- In 2021, **total crop output** increased by £1,802 million (20%) from 2020, to £10,876 million. High prices and generally favourable growing conditions saw many crop outputs increase in value, the largest being wheat, which increased by £1,160 million. However, fruit and potatoes saw the largest decreases in value of £123 million and £119 million respectively.
- **Intermediate consumption** increased by £2,044 million (12%) from 2020, to £18,854 million in 2021. The majority of costs increased in 2021, particularly animal feed, which increased by £978 million, and fertilisers, which increased by £559 million. Seed costs fell by £87 million in 2021, returning to more normal levels following unusually high costs in 2020.
- **Total Factor Productivity** is estimated to have increased by 2.9% between 2020 and 2021. This was driven by a decrease in the volume of all inputs and an increase in the volume of all outputs.
- The volume of all **outputs** increased by 2.6%. 2021 saw increases in volume for all crop and livestock output categories, with the exception of fruit (-10%) and potatoes (-4.3%). These small decreases were outweighed by larger increases across other outputs, particularly in the output of 'other crop products' (24%) and the output of cereals (23%).
- The volume of all **inputs** decreased by 0.3%. This small decrease in the volume of inputs is the result of a mixed pattern of increases and decreases in 2021. The inputs that saw the largest percentage increases were plant protection products (6.3%), fertilisers (4.5%) and animal feed (3.3%). Whereas those with the largest percentage decreases were seeds (-12%), other goods and services (-5.6%) and total maintenance (-4.5%).

Prices

- The annual average price index for all agricultural **outputs** increased by 10% from 2020 to 2021.
- The largest upward contribution to the annual inflation rate for agricultural **outputs** was from wheat (2.3 percentage points), followed by cattle and calves (1.8 percentage points) and milk (1.7 percentage points). The main downward contribution came from pigs (-0.5 percentage points).
- The annual average price index for all agricultural **inputs** increased by 11% from 2020 to 2021.
- The largest upward contribution to the annual inflation rate for agricultural **inputs** was from fertilisers and soil improvers (3.6 percentage points), followed by compound feedingstuffs (2.5 percentage points) and straight feedingstuffs (1.5 percentage points).

Commodities

- Harvested production of **wheat** increased by 45% to just under 14 million tonnes, following a particularly small 2020 production. The value of production was 75% higher at £2.7bn.
- Harvested production of **barley** decreased by 14% to around 6.9 million tonnes. The value of production was 9.4% higher at £1.2bn.

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- **Oilseed rape** production decreased by 5.5% to around 981 thousand tonnes, mainly due to the lowest planted area since 1986. The value of production increased by 36% to £488m due to higher prices.
- **Sugar beet** production increased by 26% to 7.4 million tonnes. The value of production was 30% higher at £216m.
- The value of **vegetable** production decreased by 0.1% to £1.7bn.
- The value of **fruit** production decreased by 12% to around £917m.
- The value of **beef and veal** increased by 10% to £3.3bn. Home-fed production decreased by 4.6% to 891 thousand tonnes.
- The value of **pig meat** decreased by 2.6% to £1.4bn. Home-fed production increased by 4.0% to 982 thousand tonnes.
- The value of **mutton and lamb** production increased by 12% to £1.5bn. Home-fed production decreased by 9.5% to 277 thousand tonnes.
- The value of **poultry meat** increased by 2.5% to £2.9bn. Home-fed production remained at 2.0 million tonnes.
- The value of **milk and milk products** increased by 7.8% to £4.8bn, mainly due to rising prices.
- The value of **eggs** for human consumption increased by 11% to £818m. Production increased by 4.1% to 1.0 billion dozens.

Environment

- In 2021 utilised agricultural land use stood at 71% of the total area of the United Kingdom.
- Since the late 1990's nitrogen and phosphate application rates have fallen.
- A comparison of soil nutrient balances (in kg per hectare) from the year 2000 to 2020 shows a 17% decrease for nitrogen and a 27% decrease for phosphate.
- Estimated greenhouse gas and air pollution emissions from agriculture have fallen between the year 2000 and 2020 (the most recent data available):
- Nitrous oxide emissions have decreased by 16%.
- Methane emissions have decreased by 12%.
- Ammonia emissions have decreased by 10%.
- The farmland bird index has decreased significantly since 1970 with the index for all farmland species in 2019 less than half of 1970 levels.

Organics

- The **area of land farmed organically** increased by 3.6% to 507 thousand hectares.
- The **area in-conversion** increased by 34% to 42 thousand hectares.
- **England has 61%** of the organically managed land, **Scotland has 21%, Wales 16%** and **Northern Ireland 2%**.
- Within England nearly **half of all organic land** falls within the South West region.
- There were 5.7 thousand **organic operators** in the United Kingdom.

Trade

- The value of **food, feed and drink exports** decreased by £1.2bn (5.6%) to £20.2bn.
- The value of **food, feed and drink imports** decreased by £2.7bn (5.5%) to £45.9bn.
- The trade gap in **food, feed and drink** decreased by £1.5bn (5.4%) to £25.6bn.

Food chain

- In 2020 the agri-food sector in the United Kingdom accounted for a total estimated **Gross Value Added (GVA)** of £115bn or 6.0% of national GVA, a decrease from 6.1% in 2019. The retailing sector increased 14% between 2019 and 2020, while the non-residential catering sector decreased by 31%.
- **Employment** in the agri-food sector grew by 0.6% over the 12-month period to the fourth quarter of 2021 to just over 4 million. The largest percent change was seen in wholesaling which fell by 2.6% (6,000 employees).
- **Total factor productivity** of the food chain increased by 0.4% in 2019 while there was an increase of 0.6% in productivity in the wider economy. In the 10 years prior to 2019, the average annual growth rate of the food chain was 0.6% while the wider economy's average annual growth rate was 0.3%.
- Excluding the effect of price rises (constant prices), **consumers' expenditure** on food and alcoholic drinks increased by 10% in 2021 and was 10% higher than in 2011. Expenditure on food eaten out increased by 35% in 2021, whilst expenditure on household food decreased by 0.8%.

Chapter 1: Key Events

Government and policy

Countryside Stewardship application round for 2022 agreements opened on 9 February 2021.

Future Farming Resilience Fund (FFRF) was launched on 25 March 2021 to support farmers and land managers through the transition.

The consultation on changes to the Basic Payment Scheme (BPS) to support farmers through the agricultural transition period was launched on 19 May 2021.

Census of Agriculture for England was opened on 2 June 2021.

A new Farming in Protected Landscapes programme was launched in June, which will provide funding to help farmers and other land managers in England based in National Parks or AONBs to make improvements to the natural environment and improve public access on their land – the next step in the Government's landmark plans for a renewed agriculture sector outside of the Common Agricultural Policy.

On 30 June 2021 we published an update to the Agricultural Transition Plan.

In October 2021 we launched the pilot for the Sustainable Farming Incentive.

More information was released concerning the first part of the Animal Health and Welfare Pathway - the Annual Health and Welfare Review on 5 October 2021.

The Farming Investment Fund was launched on 16 November 2021 and the Farming Innovation Programme was on 20 October 2021.

The Farming Transformation Fund was opened which provides grants which range from £35,000 - £500,000 to support higher-value, more complex investments which bring about transformative improvements to farmers and growers businesses.

In England and Scotland, the two meat levy bodies, the Agriculture and Horticulture Development Board and Quality Meat Scotland, suspended the statutory levy for pig farmers and producers during November 2021 – suspending payments of the levy pig farmers and producers are required to pay.

The Government provided a package of measures to help support the pig sector, including temporary work visas for pork butchers, and Private Storage Aid (PSA) and Slaughter Incentive Payment (SIP) schemes to facilitate an increase in the throughput of pigs through abattoirs. We are also working with industry to support their efforts on the longer term recruitment and retention of domestic workers.

On 24 December 2021, the government announced that the seasonal worker visa route would be extended through to 2024. The route allows overseas workers to come to the UK to harvest both edible and ornamental crops or to work in the poultry sector.

Key contextual factors

Global events

The year 2020 saw two events of global significance for agriculture and the food chain: the coronavirus (COVID-19) pandemic and the UK leaving the EU.

Exchange rates

The relationship between the Pound and Euro has a key bearing on the fortunes of UK farming as the majority of UK exports of agricultural commodities are made to the Eurozone. A weaker pound increases the competitiveness of UK exports but increases the price of imports, including inputs such as fertilisers and pesticides. The pound weakened against the Euro in 2016 and has remained relatively stable since. In 2020, the pound weakened further against the Euro before steadily increasing in strength throughout 2021.

Weather (source: Met Office)

The UK experienced slightly warmer weather on average in 2021, particularly in Northern Ireland. Northern and western areas of the UK were sunnier than usual, but the Midlands and the South East were duller than average. Rainfall returned to average levels after a particularly wet 2020. However, Scotland had a notably dry year.

Winter

January 2021 was the coldest January since 2010 with monthly mean temperatures 1.5 °C below average. The cold weather continued into the first half of February, carrying with it some severe frosts. However, the latter half of February was milder with the monthly mean 0.4 °C warmer than average. Rainfall in both January and February was above average for most of the UK (double the average in some areas), except northern Scotland. As a result, Scotland was also sunnier than average in both January (the fourth sunniest January on record) and February, but southern England and Wales were duller than usual.

Spring

Spring 2021 was colder than average with regular frosts experienced in many areas, despite brief warm spells at the end of March and May. In particular, 2021 saw the coldest April since 1989 and the coldest May since 1996 with monthly mean temperatures of 1.7 °C and 1.3 °C below average, respectively. Both March and April were drier than usual, but April the driest since 1980 (28% of average rainfall). However, May was much wetter than usual with heavy showers particularly in Wales and the South West. April 2021 was much sunnier than usual for the second time in a row, but May slightly duller than usual.

Summer

In contrast to spring, summer 2021 was warmer than average, due to monthly mean temperatures of 1.5 °C above average in western Scotland as well some particularly warm spells across the UK in the first half of June and the second half of July. However, temperatures in August were close to average. Rainfall was overall lower than average in summer. Nevertheless, during June and July some regions received around twice the average rainfall with localised heavy thunderstorms frequent in July; only western and

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northern-most regions were drier than usual. The latter half of August was much drier. Sunshine was above average in northern areas for June as well as areas away from the east in July. In contrast, August was one of the top ten dullest Augusts in history for England and Wales.

Autumn

September 2021 was the second warmest September since 1884 with monthly mean temperatures 2.1 °C above average. Rainfall in September was below average in many places but sunshine levels were contrasting between eastern and western areas with above and below average totals for September, respectively. October was also warmer than average (by 1.4 °C), but was wetter than usual across the UK and duller than average in most areas. November was only slightly warmer than usual (by 0.4 °C) and unremarkable in terms of sunshine levels, but was much drier than usual with 63% of average rainfall. December 2021 began unsettled and chilly, but also ended up warmer than usual overall with fewer frosts than normal. Rainfall in December was near average, but it was the UK's dullest December since 1956.

Animal Health

Avian influenza

In the UK there were 326 outbreaks of highly pathogenic avian influenza (HPAI), the majority in wild birds (253), with 52 outbreaks in farmed birds and 21 outbreaks in backyard flocks. In England there were 164 outbreaks of HPAI H5NI in wild birds and 10 of the H5N8 strain: 41 farm outbreaks of H5NI and 1 farm outbreak of H5N8, together with 16 outbreaks of H5NI in backyard flocks. In Northern Ireland there were 5 outbreaks of H5NI in farmed birds and a further 5 H5NI outbreaks in wild birds. Scotland reported 67 outbreaks of H5NI in wild birds, 3 in farmed birds and 3 in backyard flocks. In Wales there were 7 outbreaks of H5NI in wild birds, 1 in farmed birds and 2 in backyard birds, as well as 2 outbreaks of H5N8 in farmed birds.

Bovine Tuberculosis (bTB)

Note: More information on Bovine Tuberculosis can be found at the [TB hub](#).

Relative to 2020, England experienced in 2021 reductions in all the key headline epidemiological indicators of bTB, such as the number of new TB-positive herds (incidents), the herd incidence rate and the number (and prevalence) of TB-restricted herds. The annual reduction in the number of animals slaughtered for bTB control reasons was more marginal. Overall, the herd prevalence of the disease in England in 2021 reached its lowest level since 2010. For the full set of the 2021 official statistics for TB in cattle in GB see: [TB in cattle in Great Britain](#).

The Bovine TB Partnership was launched in 2021. A key recommendation of the Godfray Review, the Partnership was created in conjunction with industry and stakeholders to encourage shared ownership, co-ordination and decision-making surrounding England's 25 year bTB eradication strategy. The group met eight times in 2021. In January 2021 the frequency of routine TB testing for most cattle herds in the High Risk Area of England was increased from an annual to a six-monthly interval. Field trials began in England in June 2021 of a TB vaccine for cattle and an allied skin test that can detect infected cattle among vaccinates. If the trials prove successful, we

anticipate that deployment of this TB vaccine could start in some cattle herds in 2025. A new, nationwide TB Advisory Service for cattle and other livestock farmers was launched in 2021. The aim is to continue to help herd owners to improve biosecurity measures on farms and manage the risk of bringing the disease into their herds. We also upgraded the iBTB online mapping tool to better support responsible cattle movements. New Badger Disease Control (intensive cull) licences issued in 2021 could, after a minimum of two years of culling, be revoked after a progress evaluation by the UK Chief Veterinary Officer. In addition, all new supplementary badger control licences were limited to two years, as opposed to four years previously, and the issuing of new licences for previously licenced areas was prohibited. Natural England (NE) licenced seven new badger TB control areas in 2021. This brought the total number of intensive culling areas in England to forty including two in the Low Risk Area. NE also licenced 11 new supplementary badger culling areas bringing the total number of supplementary badger culling areas to 21. We continued to support privately led, licensed badger vaccination in the Edge Area. A total of 1,575 badgers were vaccinated against TB in 2021, an increase from the 1,094 badgers vaccinated in 2020.

In Wales in 2021, the number of total slaughtered cattle increased by 1.5%, from 10,488 to 10,641. In 2020, compared to 2019, there was a noticeable decrease in animals slaughtered partly due to a revised inconclusive reactor policy implemented in early 2020. In Wales, following discussions with industry, cattle continue to be removed from persistent breakdown herds if the results of their skin test are inconclusive at the standard interpretation. However, cattle testing inconclusive at severe interpretation will be subject to both a gamma interferon test and an antibody test (IDEXX). No single test, or combination of tests for bovine TB provides 100% test specificity or sensitivity. The skin test is the only official test recognised for demonstrating Officially TB-Free status. The Welsh Government is using alongside the skin test a number of ancillary tests such as the gamma test, the flexible extended gamma test and the IDEXX Antibody Test. The IDEXX Antibody test is a blood test which detects a different immune response to bovine TB from the skin TB test and the Interferon-gamma test (both of which detect the same immune response), to improve the detection of bovine TB infected animals.

On 1 November 2021, a temporary reclassification of the three Denbighshire/Conwy Valley spatial units from the Low TB area to the Intermediate TB Area North. This change has now been reflected in Defra National Statistics, and our Bovine TB Epidemiological Dashboard. The historical data have been revised to reflect the new TB area boundaries. Following this temporary reclassification there has been an increase in some measures in the Intermediate TB Area North, and a decrease in some metrics in the Low TB Area. The remaining TB Areas remain unaffected.

In Scotland during 2021, there were 7 new confirmed TB breakdowns, which is consistent with another year of officially TB-free (OTF) status. Following EU Exit, Scotland's OTF status will now be recognised under EU 2021/404 within Annex II, Part 1. In 2021 a review of the Tuberculosis (Scotland) Order 2007 (as amended) took place, with a view to holding a public consultation and making legislative changes in late 2022. Some of these proposed changes would align with the new Animal Health Law requirements, to allow for continued trade with EU states and to meet OIE standards for

global trade. In March 2022, the implementation of TB PCR testing for slaughterhouse and non-bovine samples was launched.

In Northern Ireland, herd incidence for 2021 was 8.85% with animal incidence standing at 0.786%. Herd and animal incidence both rose over the past year (from 8.44% in 2020 for herd incidence and from 0.747% for animal incidence). This rise followed a period of decline from late 2017 to early 2020. Herd and animal incidence rates may have been affected by the challenge of delivering the NI bTB programme during the coronavirus pandemic (especially given disruption to herd testing in March and April 2020).

Since the restoration of the devolved institutions in January 2020 and the appointment of Edwin Poots MLA as Minister of Agriculture, Environment and Rural Affairs, significant progress has taken place on the development of a new bTB Eradication Strategy for Northern Ireland. The Strategy has been the product of several years' work and builds on the 2016 recommendations of the TB Strategic Partnership Group and subsequent public consultation on the Department's response. Parts of the proposed Strategy were subject to a further public consultation in summer 2021, with over 3,300 responses received. The Strategy was subsequently launched by Minister Poots in a statement to the Northern Ireland Assembly on 24 March 2022.

Chapter 2: Structure of Industry

Summary

Key results for 2021 compared to 2020

- The **Utilised Agricultural Area** (UAA) decreased by 0.2% to 17.2 million hectares, covering 71% of land in the UK.
- The **total croppable area** increased by 0.5% to 6.1 million hectares.
- The **cereal crops** area increased by 5.7% to 3.2 million hectares.
- The area of **oilseed crops** planted decreased by 15% to 352 thousand hectares.
- The total number of **cattle and calves** decreased by 0.1% to 9.6 million. The beef and dairy herds remained largely unchanged at approximately 1.5 and 1.9 million animals respectively.
- Total **pig** numbers increased by 5.3% to 5.3 million.
- **Sheep and lamb** numbers increased by 0.8% to 33.0 million.
- **The total labour** force on commercial holdings decreased by 1.0% to 467 thousand.

Introduction

The tables in this chapter show the size and structure of the agricultural industry in the United Kingdom. They provide information on land use and livestock numbers, on the distribution of these between holdings, on the labour force and the age of farm holders.

Data in this chapter are sourced primarily from the June Surveys of Agriculture carried out in the four UK countries each year. The exceptions to this are the holder age data (sourced from the EU Farm Structure Survey) and most of the land use data in Scotland (sourced from Single Application Form (SAF) subsidy data). Also, cattle data are sourced from the Cattle Tracing System (CTS) in England, Wales and Scotland and from the equivalent Animal and Public Health Administration (APHIS) system in Northern Ireland.

From 2009 onwards, England data relate to commercial holdings only. Commercial holdings are defined as those with significant levels of farming activity, i.e. holdings with more than five hectares of agricultural land, one hectare of orchards, 0.5 hectares of vegetables or 0.1 hectares of protected crops, or more than 10 cows, 50 pigs, 20 sheep, 20 goats or 1,000 poultry.

For more information on the June Survey and for more detailed results, please see the pages for [England](#), [Scotland](#), [Wales](#) and [Northern Ireland](#).

Land use, crop areas and livestock numbers

Figure 2.1 Breakdown of croppable area on agricultural holdings, June 2021 compared to 2020 (thousand hectares)

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Croppable area	2020	2021
Cereals	3038	3211
Temporary grass	1181	1217
Other arable crops	719	713
Oilseeds	415	352
Uncropped arable land	362	265
Horticultural crops	166	161
Potatoes	142	137

[Download the full Structure of industry dataset.](#)

At June 2021 the Utilised Agricultural Area (UAA) was 17.2 million hectares, covering 71% of the total UK land area. UAA is made up of arable and horticultural crops, uncropped arable land, common rough grazing, temporary and permanent grassland and land used for outdoor pigs. It does not include woodland and other non-agricultural land.

On the whole, the proportion of croppable land used for each purpose remained similar between 2020 and 2021, however some categories did see value changes (see Figure 2.1).

Cereal crops accounted for 53% of the croppable area. Wheat and barley are the predominant cereal crops. In 2021 the area of wheat rose by 29% to 1.8 million hectares and the area of barley fell by 17% to 1.1 million hectares.

The area of oilseed rape decreased in 2021 by 19% to 307 thousand hectares.

In 2021, the total number of cattle and calves was 9.6 million, a decrease of 0.1% from 2020. The beef and dairy herds have remained largely unchanged in recent years at approximately 1.5 and 1.9 million animals respectively.

The number of lambs under one year old decreased by 0.5% to 16.4 million and the female breeding herd increased by 1.7% to 15.6 million. This led to a total UK sheep and lamb population of 33.0 million, an increase of 0.8% compared to 2020.

The total number of pigs in the UK increased by 5.3%, to 5.3 million in 2021.

The total number of poultry in the UK increased by 4.4% to 190 million birds in 2021 compared to 182 million in 2020. Table fowl account for 67% of the total and increased by 7.0% to 127 million birds. The breeding flock saw a decrease of 11% between 2020 and 2021 and sits at 12 million birds.

Table 2.1 Agricultural land use (thousand hectares)

Enquiries: Emma Howat on +44 (0) 3000 600 170

Email: farming-statistics@defra.gov.uk

	2019	2020	2021
UAA (Utilised agricultural area)	17,532	17,269	17,227
UAA as a proportion of total UK area	72%	71%	71%
Total agricultural area	18,849	18,628	18,631
Common rough grazing	1,197	1,194	1,194
Total area on agricultural holdings	17,652	17,434	17,436
Total croppable area	6,132	6,024	6,056
Total crops	4,714	4,481	4,574
Arable crops	4,551	4,314	4,413
Cereals	3,211	3,038	3,211
Oilseeds (includes linseed and borage)	547	415	352
Potatoes	144	142	137
Other crops	649	719	713
Horticultural crops	163	166	161
Uncropped arable land	224	362	265
Temporary grass under 5 years old	1,193	1,181	1,217
Total permanent grassland	10,193	10,042	9,965
Grass over 5 years old	6,207	6,118	6,071
Sole right rough grazing	3,986	3,924	3,894
Other land on agricultural holdings	1,328	1,368	1,416
Woodland	1,033	1,065	1,076
Land used for outdoor pigs	10	10	12
All other non-agricultural land	284	293	328

Source: UK Agriculture departments June Survey/Census of Agriculture

Notes:

1. As the results are based on sample surveys, they are subject to a degree of sampling error and do not take into account other sources of survey errors, such as non-response bias.
2. Figures for England relate to commercial holdings only.
3. UAA includes all arable and horticultural crops, uncropped arable land, common rough grazing, temporary and permanent grassland and land used for outdoor pigs (it excludes woodland and other non-agricultural land).
4. Uncropped arable land includes all arable land not in production, including land managed in Good Agricultural and Environmental Condition (GAEC12), wild bird cover and game cover.
5. Sole right rough grazing includes mountains, hills, heathland or moorland.

6. Figures are at June of each year.

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Table 2.2a to 2.2c Crop areas and livestock numbers at June of each year

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Table 2.2a Arable crop areas (thousand hectares)

Crop areas	2019	2020	2021
Total area of arable crops	4,551	4,314	4,413
wheat	1,816	1,387	1,790
barley	1,162	1,388	1,150
oats	182	210	200
rye, mixed corn and triticale	51	53	71
oilseed rape	530	380	307
linseed	15	33	41
potatoes	144	142	137
sugar beet (not for stockfeeding)	108	111	95
peas for harvesting dry and field beans	178	233	249
maize	228	228	227

Table 2.2b Horticultural crop areas (thousand hectares)

Crop areas	2019	2020	2021
Total area of horticultural crops	163	166	161
vegetables grown outdoors	115	118	112
orchard fruit	24	23	23
soft fruit & wine grapes	11	11	10
outdoor plants and flowers	11	11	13
glasshouse crops	3	3	3

Table 2.2c Livestock numbers (thousand head)

Livestock numbers	2019	2020	2021
Total cattle and calves	9,739	9,615	9,603
cows in the dairy herd	1,871	1,850	1,850
cows in the beef herd	1,527	1,509	1,485
Total sheep and lambs	33,580	32,697	32,957
female breeding flock	16,035	15,370	15,624
lambs under one year old	16,672	16,486	16,403
Total pigs	5,078	5,055	5,323
sows in pig and other sows for breeding	356	345	345
gilts in pig	57	57	54
Total poultry	187,072	181,957	190,019
table fowl	121,590	118,388	126,693
laying flock (including pullets)	41,346	39,758	40,568
breeding flock	13,385	13,785	12,271
turkeys, ducks, geese, all other poultry	10,750	10,025	10,487

Source: June Surveys/Census of Agriculture/SAF land data, Scotland Cattle Tracing System/APHIS

Notes for tables 2.2a to 2.2c:

1. Figures for England relate to commercial holdings only.
2. Orchard fruit includes non-commercial orchards.
3. Dairy cows are defined as female dairy cows over 2 years old with offspring.
4. Beef cows are defined as female beef cows over 2 years old with offspring.
5. Scotland have revised their poultry time series in 2019 to reflect new information from a poultry data provider.
6. Data is at June of each year.

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Numbers and sizes of holdings and enterprises

Table 2.3 compares the number of holdings and area by farm size in 2016 and 2021. In 2021 there were 216 thousand holdings compared to 218 thousand holdings in 2016, a decrease of 1.0%. Within the five-year period the total area on holdings has decreased by 0.2% whereas, the average area of all holdings increased by 0.8%. The average croppable area of holdings decreased by 5.7% between 2016 and 2021.

Table 2.3 Numbers of holdings and total area by size group

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	2016	2016	2021	2021
	No. holdings	Area	No. holdings	Area
Total area on holdings				
under 20 hectares	101	726	105	713
20 to under 50 hectares	43	1,428	41	1,343
50 to under 100 hectares	32	2,316	30	2,187
100 hectares and over	41	12,994	41	13,192
Total	218	17,463	216	17,436
Average area (hectares)		80		81
Average area on holdings with >=20 hectares		143		150
Croppable area				
>0 to under 20 hectares	49	321	47	283
20 to under 50 hectares	20	642	17	552
50 to under 100 hectares	14	971	13	929
100 hectares and over	17	4,139	17	4,291
Total	100	6,073	94	6,056
Average croppable area		61		64

Source: June Surveys/Census of Agriculture/SAF land data Scotland.

Notes:

1. All figures relate to June of each year.
2. Figures for England relate to commercial holdings only.
3. Numbers of holdings are in thousands.
4. Areas are in thousand hectares.
5. Croppable area is defined as land under crops, temporary grass under five years old and uncropped arable land.

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Table 2.4 Numbers of holdings and areas by size group and country at June 2021

Enquiries: Emma Howat on +44 (0) 3000 600 170

Email: farming-statistics@defra.gov.uk

	England	Wales	Scotland	Northern Ireland
Number of holdings (thousand)				
Total area on holdings				
Under 20 hectares	43	20	30	11
20 to under 50 hectares	20	6	6	8
50 to under 100 hectares	17	5	4	4
100 hectares and over	25	5	9	2
Total	105	37	48	26
Hectares (thousand)				
Total area on holdings				
Under 20 hectares	327	120	154	113
20 to under 50 hectares	675	216	185	267
50 to under 100 hectares	1,205	367	329	286
100 hectares and over	6,768	1,081	4,974	370
Total	8,976	1,784	5,641	1,036
Average area (hectares)	85	48	117	40
Average area on holdings with >=20 hectares	139	99	309	63

Source: June Surveys/Census of Agriculture/SAF land data Scotland. Notes: 1. Figures for England relate to commercial holdings only.

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Agriculture Workforce

The agricultural workforce in 2021 decreased by 1.0% to 467 thousand people compared to 2020. Farmers, business partners, directors and spouses account for the majority (64%) of the total labour force.

Table 2.5 Agricultural labour force on commercial holdings at June of each year (thousands)

Enquiries: Emma Howat on +44 (0) 3000 600 170

Email: farming-statistics@defra.gov.uk

	2019	2020	2021
Total labour force	476	472	467
Farmers, business partners, directors and spouses	299	301	301
Full time	144	147	147
Part time	155	153	153
Regular employees, salaried managers and casual workers	177	171	167

Source: June Surveys/Census of Agriculture

Notes:

1. Figures for England relate to commercial holdings only.
2. Total labour force includes farmers and spouses.
3. Part-time is defined as working less than 39 hours per week (England & Wales), 38 hours per week (Scotland) and 30 hours per week (N. Ireland).
4. Regular employees include salaried managers as not all UK countries collect separate estimates.
5. For labour force numbers in earlier years see [Structure of the agricultural industry](#). [Download the full Structure of industry dataset](#).

Age of holders

Table 2.6 shows the latest available data for proportion of holders by age group. At the time of publication data for 2021 are not yet available.

Agriculture typically has an aging workforce. In 2016, approximately 36% of all holders were over the typical retirement age of 65 years while the proportion of young people aged less than 35 years was 3%.

The proportions of holders in the central age bands of 45-54 years and 55-64 years have remained broadly unchanged over the previous decade. Since 2005 the proportion in the 35-44 years old band has decreased by 5 percentage points whilst the proportion in the oldest band, 65 years and over, has increased by 5 percentage points.

The average age of holders is defined using the median. This is the middle value when all holders' ages are ranked in order. In 2016 the median age for holders in the UK was 60 years old, an increase of 1 year from 2013.

Table 2.6 Proportion of holders in each age group

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Email: farming-statistics@defra.gov.uk

Proportion of holders (%)

	2005	2007	2010	2013	2016	2021
Holders' age						
Under 35 years	3	3	3	3	3	..
35 - 44 years	14	12	11	10	9	..
45 - 54 years	23	23	25	25	23	..
55 - 64 years	29	29	29	28	29	..
65 years and over	31	33	32	34	36	..
Median age (years)	58	59	59	59	60	..

Source: Defra

Notes:

1. The holder is defined as the person in whose name the holding is operated. The data in this table relate to all holders whether or not the holder is also the manager of the holding.
2. Holdings run by an organisation (such as limited companies or institutions) do not have a holder and are therefore excluded from these figures.
3. Figures from 2010 onwards relate to commercial holdings only for all of the UK. More information on commercial holdings can be found in the introduction section.
4. .. means 'not available'. At the time of publication data for 2021 is not yet available.
5. Data only collected in years when larger sample survey is run, i.e. every 3 to 4 years, to reduce the burden on farmers.

[Download the full Structure of industry dataset.](#)

Chapter 3: Farming Income

Summary

- In 2020/21, the average Farm Business Income (FBI) across all UK farm types was £46,500 (at current prices) compared to £39,000 in 2019/20.
- **FBI** varies greatly with 16% of UK farms failing to make a positive FBI in 2020/21 while 28% of farms had a FBI of over £50,000.
- In 2021/22, higher prices for key outputs such as cereals, meat and milk coupled with increased yields are forecast to drive a rise in the value of output, although this is expected to be offset to some degree by higher costs, particularly for feed and fertilisers.

Introduction

This chapter presents Farm Business Income. Total Income from Farming (TIFF) data can be found in Chapter 4 Accounts.

Farm Business Income (FBI) is the preferred measure for comparisons of farm type and represents the return to all unpaid labour (farmers, spouses and others with an entrepreneurial interest in the farm business) and to all their capital invested in the farm business including land and farm buildings.

Total Income from Farming (TIFF) represents business profits and remuneration for work done by owners and other unpaid workers. It is used to assess UK agriculture as a whole.

Table 3.3, found at the end of this chapter, provides more detailed information on definition, method used and similarities and differences for the two income measures.

Farm business incomes by farm type

The estimates of Farm Business Income are averages. It should be noted that across different regions and farm types, some farmers receive considerably more or less than these averages.

Estimates of Farm Business Income for 2021/22 (i.e. the year ending February 2022 and harvest 2021) at current prices are shown in Table 3.1a for England and Northern Ireland alongside outturn data for earlier years. These estimates include Basic Payment Scheme receipts which are recorded as due for the appropriate accounting year, for example receipts of the 2021 Basic Payment Scheme are recorded in the 2021/22 accounting year. Note that forecasts of Farm Business Income for 2021/22 have not been produced for Wales or Scotland.

Agriculture in the United Kingdom 2021

Higher prices for outputs such as cereals, meat and milk coupled with increased yields are expected to be a key factor influencing Farm Business Income in 2021/22, although a rise in output is forecast to be offset to some degree by higher costs, particularly for feed and fertilisers. In England, the average Basic Payment is expected to fall by around 9% across all farm types, reflecting the first year of progressive reductions to the payment.

On cereal farms in England, average income is forecast to rise by 51% in 2021/22. Favourable conditions compared to 2020 are expected to result in a return to more normal cropping patterns with a larger proportion of winter crops. This, together with higher prices (reflecting tight global supplies), is forecasted to increase crop output by 42%. This increase is expected to more than offset an 18% rise in input costs. Higher crop costs are predicted to be the main driver, notably fertiliser costs which are forecast to more than double, reflecting higher prices and the increased area of winter cropping.

On general cropping farms in England, average incomes are expected to rise by 70%. As with cereal farms, this will be primarily driven by higher crop output, particularly from cereal crops. Peas, beans, oilseed rape and sugar beet are also expected to see higher values for the 2021 harvest, coupled with increased yields compared to 2020. These are forecast to more than offset reductions in crop area for oilseed rape, potatoes and sugar beet. At the same time, input costs will rise by around 12%. Like cereal farms, fertiliser costs are expected to more than double compared to 2020/21.

Average income on dairy farms in Northern Ireland is expected to increase by 31% in 2021/22, largely driven by higher output prices. A similar picture is expected on dairy farms in England where income is forecast to rise by 21%. Output from milk is predicted to rise by 9%, with slightly lower production resulting in tight supplies and higher farmgate prices. Output from crops and other cattle enterprises will also be higher. The increased output will more than offset higher input costs (notably feed and crop costs).

In England, income on lowland grazing livestock farms is forecast to rise by 3%. Higher input costs (primarily crop related costs) will be more than offset by increased output from crops, cattle and sheep, with a tight market seeing higher average prices. Similar drivers are forecast to result in the average income on grazing livestock farms in Less Favoured Areas increasing by 4% in Northern Ireland and by 1% in England. Sheep breeding stock prices, an important source of income on upland farms, are also expected to be higher in 2021.

Forecasts for specialist pig farms are subject to a considerable degree of uncertainty, reflecting both the structure of the sector and the relatively small sample of these farms in the Farm Business Survey (FBS) in England. In England, income is forecast to fall by nearly three quarters on this type of farm as input costs rise considerably more than output. A 7% increase in output will be insufficient to offset substantial rises to costs, particularly feed costs which are expected to go up by 22% as they track price increases for key feed ingredients such as wheat. The increased feed costs also reflect more pigs on farm due to abattoir and supply chain issues.

As with pig farms, forecasts for specialist poultry farms in England are subject to a considerable degree of uncertainty, again due to the structure of the sector and the relatively small sample of these farms in the survey. In England, average income on

specialist poultry farms is expected to fall by around 51% compared to 2020/21. Input costs are forecast to rise by 14%. As with specialist pig farms, it is anticipated that higher feed costs will be a key contributing factor along with increased crop and general farming costs. The higher input costs are predicted to more than offset smaller rises in output for eggs and poultry meat.

Incomes on mixed farms in England are expected to increase by 29%. The changes reported previously for specialist farm types will all have influenced the incomes for this farm type.

Agriculture in the United Kingdom 2021

Table 3.1a and 3.1b

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Table 3.1a Farm business income by country and type of farm (Average farm business income per farm at current prices, £/farm)

Standard Output (SO) Typology	2018/19	2019/20	2020/21	2021/22 (Provisional)
England				
Cereals	67,500	63,000	71,500	108,000
General cropping	106,500	84,500	67,000	113,000
Dairy	79,500	85,000	92,500	112,000
Grazing livestock (lowland)	12,500	9,500	18,500	19,000
Grazing livestock (LFA)	15,500	23,000	33,500	34,000
Specialist pigs	29,500	37,500	48,000	13,000
Specialist poultry	74,500	88,000	77,500	38,000
Mixed	45,500	29,000	40,000	52,000
Wales				
Dairy	46,500	50,500	60,000	..
Grazing livestock (lowland)	17,000	16,500	23,000	..
Grazing livestock (LFA)	19,000	22,500	30,000	..
Scotland				
Cereals	61,000	41,000	68,500	..
General cropping	132,000	69,000	68,000	..
Dairy	68,000	51,000	99,500	..
Grazing livestock (lowland)	11,500	13,500	30,000	..
Grazing livestock (LFA)	16,000	15,500	20,500	..
Mixed	35,500	8,000	45,500	..
Northern Ireland				
Dairy	58,000	52,000	63,000	82,000
Grazing livestock (LFA)	14,500	15,000	20,500	21,000

Table 3.1b Farm business income by type of farm in the UK (Average farm business income per farm, £/farm)

Standard Output (SO) Typology	2018/19	2019/20	2020/21	2021/22 (Provisional)
At current prices				
Cereals	66,500	60,500	70,500	..
General cropping	110,500	80,500	67,000	..
Dairy	69,000	70,000	81,500	..
Grazing livestock (lowland)	12,500	10,500	19,500	..
Grazing livestock (LFA)	16,500	19,500	27,000	..
Specialist pigs	32,500	39,500	50,500	..
Specialist poultry	74,500	88,000	77,500	..
Mixed	43,000	25,500	41,500	..
ALL TYPES (Including Horticulture)	44,000	39,000	46,500	..
In real terms (at 2020/21 prices)				
Cereals	72,000	64,000	70,500	..
General cropping	120,000	85,000	67,000	..
Dairy	75,000	74,000	81,500	..
Grazing livestock (lowland)	14,000	11,000	19,500	..
Grazing livestock (LFA)	17,500	21,000	27,000	..
Specialist pigs	35,000	42,000	50,500	..
Specialist poultry	81,000	93,000	77,500	..
Mixed	46,500	27,000	41,500	..
ALL TYPES (Including Horticulture)	47,500	41,500	46,500	..

Notes for table 3.1a and 3.1b:

1. .. data unavailable.
2. Figures for 2018/19 to 2020/21 are rounded to nearest £500.
3. Forecast figures for 2021/22 are provisional and subject to revision. They have been rounded to nearest £1,000.
4. Years are accounting years ending on average in February.
5. All figures for Table 3.1a are at current prices.
6. Figures for Table 3.1b are shown at current prices and real terms. Real terms figures are adjusted for inflation using GDP deflator.
7. UK farm type averages include data for some member countries that are not presented separately in the country level breakdown in Table 3.1a.

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Distribution of farm incomes and performance

Tables 3.2a to 3.2c show the variation in the level of Farm Business Income, Net Farm Income and Cash Income across farms in England, Wales, Scotland and Northern Ireland for 2020/21.

Around 16% of farms in the UK failed to make a positive Farm Business Income, although there was some variation between countries. The proportion in Scotland and England was higher at 19% and 18% respectively, while in Wales and Northern Ireland it was slightly lower at 13% and 11% respectively. Just under a third of farms in the UK fell into the lower income brackets (zero to less than £20,000). At the top end of the scale, 28% of farms in the UK had a Farm Business Income of more than £50,000. However, there was again some variation between UK countries in this highest income category. Wales and Northern Ireland each had around a fifth of their farms in the highest income band, while for England and Scotland the proportion of farms was 31% and 26% respectively.

A greater proportion of farms fall into lower band income ranges for Net Farm Income. This is because Net Farm Income is a narrower measure of income; it is net of an imputed rent on owned land and an imputed cost for unpaid labour (apart from farmer and spouse). On this basis 29% of farms in the UK failed to make a profit.

Tables 3.2a to 3.2c All farm types: distribution of farm incomes by country 2020/21
(percentage of farms)

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Table 3.2a - Farm business income (percentage of farms)

Farm business income	England	Wales	Scotland	Northern Ireland	United Kingdom
Less than zero	18	13	19	11	16
0 to less than £5,000	6	5	8	3	6
£5,000 to less than £10,000	7	11	7	8	8
£10,000 to less than £20,000	14	18	12	26	15
£20,000 to less than £30,000	11	13	12	14	12
£30,000 to less than £50,000	14	20	17	16	15
£50,000 and over	31	20	26	21	28
Average (£ thousand per farm)	52	34	39	34	47

Table 3.2b - Net farm income (percentage of farms)

Net farm income	England	Wales	Scotland	Northern Ireland	United Kingdom
Less than zero	31	26	31	23	29
0 to less than £5,000	7	9	7	5	7
£5,000 to less than £10,000	6	10	7	11	7
£10,000 to less than £20,000	12	17	13	18	13
£20,000 to less than £30,000	9	13	10	12	10
£30,000 to less than £50,000	10	11	12	12	11
£50,000 and over	25	14	19	19	22
Average (£ thousand per farm)	37	21	25	26	33

Table 3.2c Cash income (percentage of farms)

Cash income	England	Wales	Scotland	Northern Ireland	United Kingdom
Less than zero	10	4	12	8	9
0 to less than £5,000	3	4	2	6	3
£5,000 to less than £10,000	5	6	3	6	5
£10,000 to less than £20,000	11	16	13	14	12
£20,000 to less than £30,000	9	14	10	13	10
£30,000 to less than £50,000	16	22	15	23	17
£50,000 and over	47	33	45	31	43
Average (£ thousand per farm)	88	52	63	48	77

[Download the full Farming income dataset.](#)

Figure 3.1 shows the differences in performance of farms in England for 2020/21. Performance is measured as “£ of output per £100 of input”. An imputed value for unpaid labour is added to the input costs. The chart illustrates the significant variation in performance with 52% of farms failing to recover their costs in that year.

Figure 3.1 Distribution of performance across farms 2020/21: England only (£ output per £100 input)

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£ output per £100 input	%
0 < 60	7.0
60 < 70	5.5
70 < 80	10.3
80 < 90	12.3
90 < 100	17.2
100 < 110	15.3
110 < 120	11.2
120 < 130	9.1
130 < 140	5.0
140 < 150	2.9
150 < 160	1.7
160 < 170	1.1
170 and over	1.4

Source: Farm Business Survey

Notes:

1. Performance is based on the ratio of farm business output to farm business costs which includes an adjustment for unpaid labour.

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Definitions and explanatory note

There are two main measures of agricultural income which are closely related and complement each other. Total Income from Farming provides an estimate of total income for agriculture as a whole whereas Farm Business Income provides a breakdown of average incomes by farm type. Table 3.3 compares the two measures in terms of definition, methodology and main similarities and differences.

Table 3.3 Comparison table showing main similarities and differences between Total Income from Farming (TIFF) and Farm Business Income (FBI) statistics

	Total Income from Farming	Farm Business Income
Geographic scope	United Kingdom	England
Reference period	Calendar year	12-month period March to February.
Definition	Represents business profits and remuneration for work done by owners and other unpaid workers.	Represents the return to all unpaid labour (farmers, spouses and others with an entrepreneurial interest in the farm business) and to all their capital invested in the farm business including land and farm buildings.
Data source	A wide range of data sources including industry data and Defra survey data (i.e. the Farm Business Survey).	Farm Business Survey: annual sample surveys run by each of the four UK countries.
Method	<p>Gross output at basic prices</p> <p>plus Other subsidies less taxes</p> <p>less Total intermediate consumption, rent, paid labour</p> <p>less Total consumption of fixed capital (depreciation)</p> <p>less interest</p>	<p>Total output from agriculture (includes crop and livestock valuation change)</p> <p>plus Total output from agri-environment schemes</p> <p>plus Total output from diversification</p> <p>plus Single/Basic payment scheme</p> <p>less Expenditure (costs, overheads, fuel, repairs, rent, depreciation, paid labour)</p> <p>plus Profit / (loss) on sale of fixed assets.</p>
Differences	<p>The main aggregate measure of farm income used to assess agriculture as a whole.</p> <p>Treatment of stocks: the physical changes in stocks valued at average calendar year prices.</p> <p>Does not subtract imputed rent for owner occupiers.</p>	<p>The preferred measure for comparisons of farm type.</p> <p>Treatment of stocks: the change in the book value of stocks between the start and end of the accounting year.</p> <p>Does not subtract imputed rent for owner occupiers.</p>

Similarities	Complete range of on-farm activities including income from diversified activities where they are included in the farm accounts.	Complete range of on-farm activities including income from diversified activities where they are included in the farm accounts.
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Revisions

Farm Business Survey

Compared with the provisional 2020/21 results published in the 2020 edition of AUK, the outturns (based on actual survey results from the Farm Business Survey) were higher for all farm types in England except specialist poultry farms, where the outturn was lower. For general cropping, grazing livestock LFA, grazing livestock lowland and mixed farms the forecasts were within the confidence intervals of the survey outturns. For cereal farms average income was higher than predicted, largely due to an under estimation of crop output, particularly from barley and other cereals. For dairy farms income was also higher than expected, the result of an under estimation of the value of output from cattle. On specialist pig farms average income was higher than forecast due to a substantial under estimation of output from pig enterprises. Average income on specialist poultry farms was lower than predicted; crop output was higher than forecast while enterprise output from poultry was over estimated.

In Northern Ireland, actual income on LFA grazing livestock farms matched the provisional 2020/21 income estimate. For Dairy farms, average income was slightly lower than expected due to an under estimation of the value of inputs.

Feedback

We are looking at ways to improve and possibly expand the UK Farm Business Survey data presented in Agriculture in the UK. If you have any suggestion for additions or improvements to the Farm Business Survey chapter we would very much welcome your feedback, please contact us at: fbs.queries@defra.gov.uk.

Chapter 4: Accounts

Summary

Key results for 2021 in current terms (not adjusted for inflation)

- **UK Total Income from Farming (TIFF)** in 2021 was £5,998 million, an increase of £756 million (14%) from 2020. Although costs increased in 2021, these were outweighed by increases in both total livestock and total crop outputs, resulting in the third highest TIFF, in real terms, since 2000.
- In 2021, **agriculture's contribution to the UK economy (Gross Value Added at basic prices)** was £11,222 million (0.5% of GDP). This constitutes an increase of £914 million (8.9%) compared to 2020.
- **Total livestock output** in 2021 was £16,285 million, an increase of £1,034 million (6.8%) from 2020. All major livestock outputs saw increases in value owing to high prices, with the exception of pigmeat which decreased in value by £38 million. The largest value increases were seen in milk, which increased by £344 million, and beef which increased by £310 million.
- In 2021, **total crop output** increased by £1,802 million (20%) from 2020, to £10,876 million. High prices and generally favourable growing conditions saw many crop outputs increase in value, the largest being wheat, which increased by £1,160 million. However, fruit and potatoes saw the largest decreases in value of £123 million and £119 million respectively.
- **Intermediate consumption** increased by £2,044 million (12%) from 2020, to £18,854 million in 2021. The majority of costs increased in 2021, particularly animal feed, which increased by £978 million, and fertilisers, which increased by £559 million. Seed costs fell by £87 million in 2021, returning to more normal levels following unusually high costs in 2020.

Introduction

This chapter shows production and income accounts for agriculture in the United Kingdom.

These accounts conform to internationally agreed accounting principles required by the United Kingdom's Office for National Statistics.

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, inputs, labour and capital invested. For differences between TIFF and Farm Business Income statistics presented in Chapter 3, see Table 3.3.

When comparing more recent years, values are presented at current prices (not adjusted for inflation). For long term trends in TIFF, values are presented in real terms.

Agriculture in the United Kingdom 2021

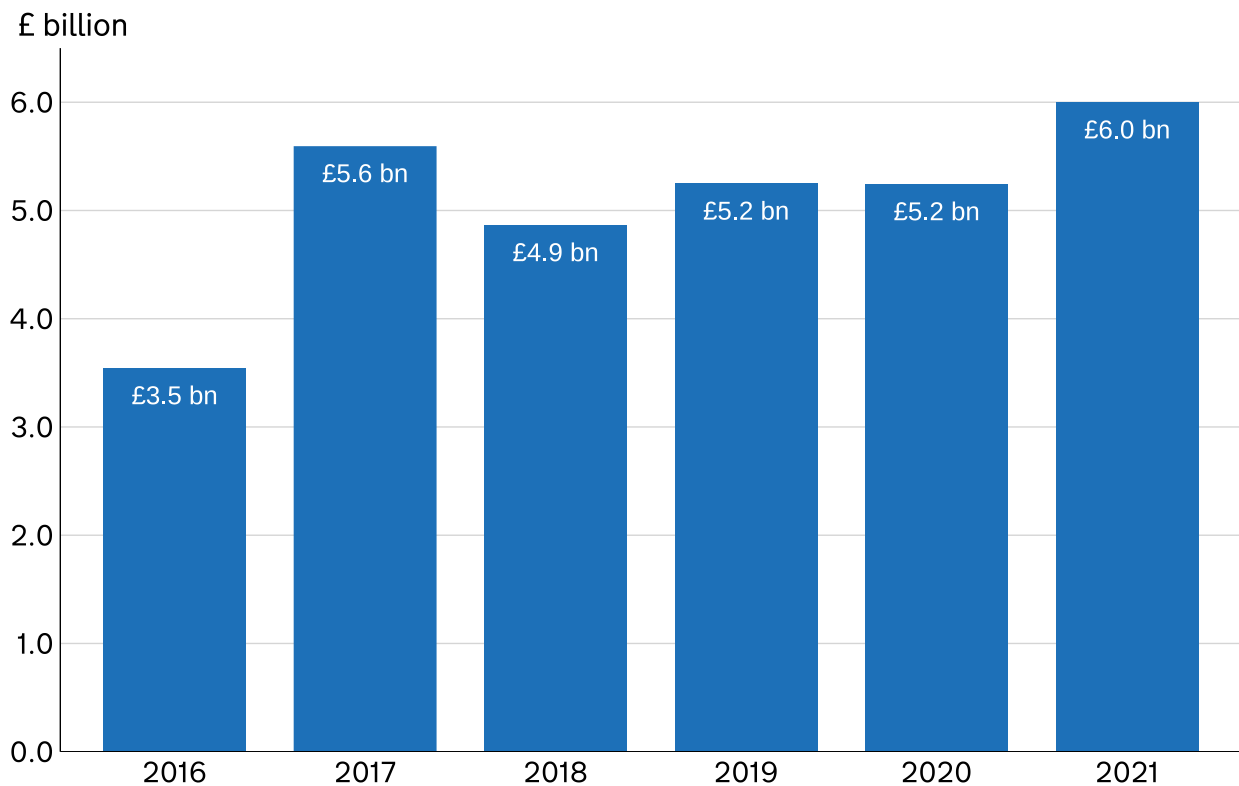
This means the figures have been adjusted to account for inflation, which allows more meaningful comparisons between years over the longer term.

TIFF in recent years

Figure 4.1: Total Income from Farming for the United Kingdom: 2016 to 2021 at current prices

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Figure 4.1 shows the value of TIFF from 2016 to 2021 at current prices. Since 2016, the average value of TIFF has been £5.1 billion, with the lowest value of £3.5 billion occurring in 2016, and the highest value of £6.0 billion occurring in 2021, an increase of £0.8 billion (14%) from 2020.

Below we provide a detailed comparison of the TIFF account from recent years in current terms. This approach is considered the most intuitive for comparisons over a short time period.

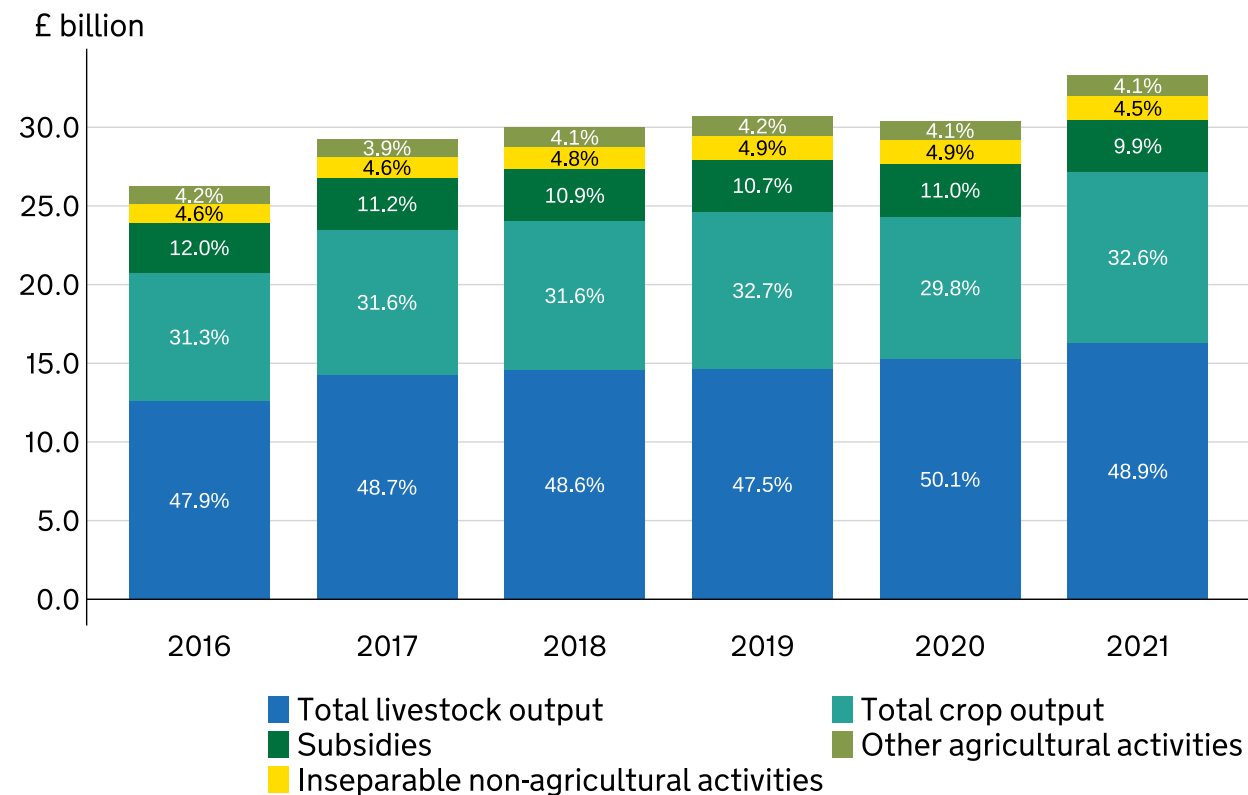
Outputs and subsidies

Overview

Figure 4.2: Summary of outputs and subsidies, 2016 to 2021

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Figure 4.2 shows the value of all outputs and subsidies from 2016 to 2021. Outputs and subsidies represent all financial incomes to farmers. Total livestock output is consistently the largest contributor to the value of all outputs and subsidies. In 2021, total livestock output was £16,285 million, an increase of £1,034 million (6.8%) on 2020. The second largest contribution to the value of outputs and subsidies in 2021 was total crop output at £10,876 million, an increase of £1,802 million (20%) on 2020. The remaining incomes to farmers in 2021 were all subsidies (£3,297 million), inseparable non-agricultural activities (£1,496 million) and other agricultural activities (£1,371 million).

Total livestock output

Figure 4.3: Main contributions to total livestock output (£ million)

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Item	2020	2021
Milk	4,426	4,770
Beef	2,955	3,265
Poultry	2,829	2,901
Mutton and lamb	1,363	1,529
Pigmeat	1,481	1,442
Livestock gross fixed capital formation	1,312	1,392
Eggs	740	828

Notes:

1. Cattle, sheep and pigs for meat have been renamed beef, mutton and lamb, and pigmeat respectively. The data used to calculate these values has not changed.

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- The largest contribution to total livestock output in 2021 was milk with a value of £4,770 million. Milk also has the largest increase in value within total livestock output, with an increase of £344 million (7.8%) from 2020. This value increase was due to an increase in the price of milk, with the price of milk per litre being 2.5p higher than in 2020. In previous years, milk prices have followed a seasonal pattern of rises and falls throughout the year. However, in 2021 milk prices generally increased throughout the year, with December 2021 seeing the first price increase from November to December since 2016. The volume of milk produced was relatively unchanged in 2021, falling by 0.1% from 2020.
- In 2021, the second largest increase in value in total livestock output was beef with an increase of £310 million (10%) on 2020. The increase in the value of beef was due to an average price increase of 6.9% in 2021, with prices increasing steadily since 2019. The volume of beef produced remains relatively consistent with a small 3.3% increase from 2020.
- The largest decrease in value was pigmeat, with a decrease of £38 million (-2.6%) on 2020. 2021 was an unusual year for pigmeat production. There was an increase to the herd size, owing to an anticipated increase in demand which didn't occur. During the summer, CO2 and butcher shortages resulted in a backlog of pigs on farms and delayed slaughtering, causing the average carcass weight to increase. Consequently, production of pigmeat increased in 2021 passing 1 million tonnes for the first time. However, this excess of pigmeat has resulted in the price falling by an average of 7.7%.

Total crop output

Figure 4.4: Main contributions to total crop output (£ million)

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Item	2020	2021
Wheat	1,544	2,705
Fresh vegetables	1,670	1,668
Plants and flowers	1,367	1,580
Barley	1,062	1,162
Fruit	1,031	908
Other crop products	472	807
Potatoes	824	706
Oilseed rape	358	488
Other industrial crops	321	431
Forage plants	217	205

Notes:

1. AHDB stopped producing potato yield data and prices in the last half of 2021. We have therefore looked at previous trends for the missing data and also sought views from stakeholders to estimate the value of the sector.
2. 'Other industrial crops' includes the value of protein crops and sugar beet.

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- The largest contribution to total crop output in 2021 was wheat with a value of £2,705 million. Wheat also saw the largest increase in value within total crop output, with an increase of £1,160 million (75%) from 2020. The value of wheat in 2020 was unusually low, owing to the lowest wheat production since 1981. In comparison to 2019, a more typical year, the value of wheat is 11% higher in 2021. The main driver of the increase in wheat value was a strong price, which increased on average by 20% in 2021. The volume of wheat produced in 2021 increased by 46% compared to 2020, but this reflects the poor growing conditions in 2020. Compared to 2019, the volume of wheat produced was 14% lower in 2021.
- In 2021, the second largest increase in value within total crop output was the output of other crop products, with an increase of £335 million (71%) from 2020. This increase in value is due entirely to increases in the value of straw and inter-farm transfers of straw, which both increased in value by 78%. 2021 saw reasonable crop yields with higher volumes of straw produced than in 2020. Additionally, the average price of straw in 2021 increased by 27% compared with 2020.
- The largest decrease in value was the output of fruit, with a decrease of £123 million (-12%) on 2020. Production of fruit was severely impacted by cold weather in 2021. Planting, bud break and early development were all delayed by wet and cold weather during February and March, and overnight frosts in April damaged

Agriculture in the United Kingdom 2021

many flowering fruit crops. This led to a reduction in fruit production overall. Furthermore, the average price of fruit fell by 8.0% in 2021 which, coupled with the decrease in production, resulted in a fall in fruit value from 2020.

Other Outputs and Subsidies

Table 4.1: Breakdown of other incomes and subsidies (£ million)

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Item	2020	2021
Subsidies not linked to production	3,297	3,249
Inseparable non-agricultural activities	1,496	1,496
Other agricultural activities	1,248	1,371
Subsidies linked to production	47	47

Notes:

1. Subsidies not linked to production are all subsidies not directly linked to production, including the basic payment scheme and agri-environment schemes.
2. Not all the data used to provisionally estimate the 2021 value for inseparable non-agricultural activities was available for this release. See section 6.2 Revisions for details.

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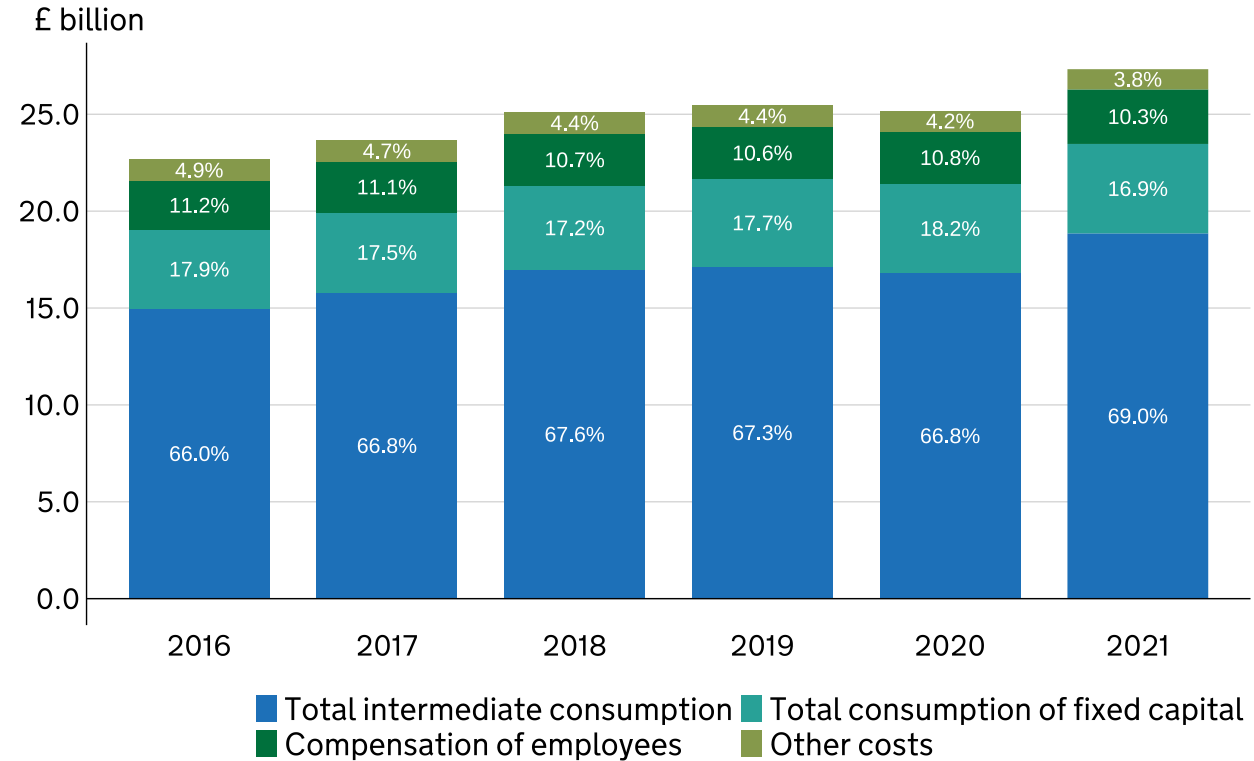
Inputs and costs

Overview

Figure 4.5: Summary of inputs and costs, 2016 to 2021

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Figure 4.5 shows the make-up of all inputs and costs from 2016 to 2021. Inputs and costs represent all money paid out by farmers during a calendar year. The make-up of all inputs and costs has been remarkably constant for the last 5 years. The largest cost facing farmers is intermediate consumption. In 2021 the value of intermediate consumption was £18,854 million, an increase of £2,044 million (12%) on 2020. The remaining costs in 2021 were total consumption of fixed capital (£4,615 million), compensation of employees (£2,814 million) and other costs¹ (£1,044 million).

¹ **Other costs** includes other taxes on production, rent and interest paid.

Inputs: Intermediate consumption

Figure 4.6: Main contributions to intermediate consumption (£ million)

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Item	2020	2021
Animal feed: compounds	3,473	4,254
Other goods and services	3,299	3,494
Total maintenance	1,845	1,903
Animal feed: straights	1,545	1,658
Fertilisers	1,058	1,617
Agricultural services	1,248	1,371
Plant protection products	896	959
Motor and machinery fuels	782	924
Animal feed: other	713	797
Seeds	863	776
Electricity and fuels for heating	452	480
Veterinary expenses	461	463

Notes:

1. Animal feed: other represents feed produced and used on farm or purchased from other farms.

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- The largest contribution to intermediate consumption was compound animal feed, with a value of £4,254 million. Compound animal feed also saw the largest increase in value in 2021, with an increase of £782 million (23%) from 2020. In 2021 the volume of compound animal feed used increased across most sectors, resulting in a 7.4% increase in volume. This increase in volume was coupled with a 14% increase in price, owing to higher prices of raw materials.
- In 2021 the second largest value increase in intermediate consumption was fertilisers, with an increase of £559 million (53%) from 2020. This rise is due to increases in both volumes used and prices of fertilisers. There was a 4.5% increase in the volume of fertilisers used in 2021, owing to a return to more fertiliser intensive winter sowing, following a switch to spring sowing in 2020. However, the main driver of this increase was higher prices, with an average increase in price of 46% across all fertilisers. This price increase was largely the result of higher energy prices raising the cost of manufacturing, coupled with higher demand.
- The largest decrease in value was seeds, with a decrease of £87 million (-10%) from 2020. The decrease in seeds seen in 2021 was the result of a return to more normal sowing practices, following an unusual 2020. In 2020, poor weather conditions during drilling of winter wheat saw many farmers switching to spring sowing of other crops, increasing seed usage. 2021 saw favourable conditions for

Agriculture in the United Kingdom 2021

both winter and spring sowing of crops, leading to a return to winter sowing and an 11% reduction in the volume of seeds used.

Other Inputs and Costs

Table 4.2: Breakdown of other inputs and costs (£ million)

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Item	2020	2021
Total consumption of fixed capital	4,585	4,615
Equipment consumption of fixed capital	2,046	2,131
Livestock consumption of fixed capital	1,464	1,369
Buildings consumption of fixed capital	1,075	1,115
Other taxes on production	-104	-104
Compensation of employees	2,731	2,814
Rent	543	545
Interest	399	395

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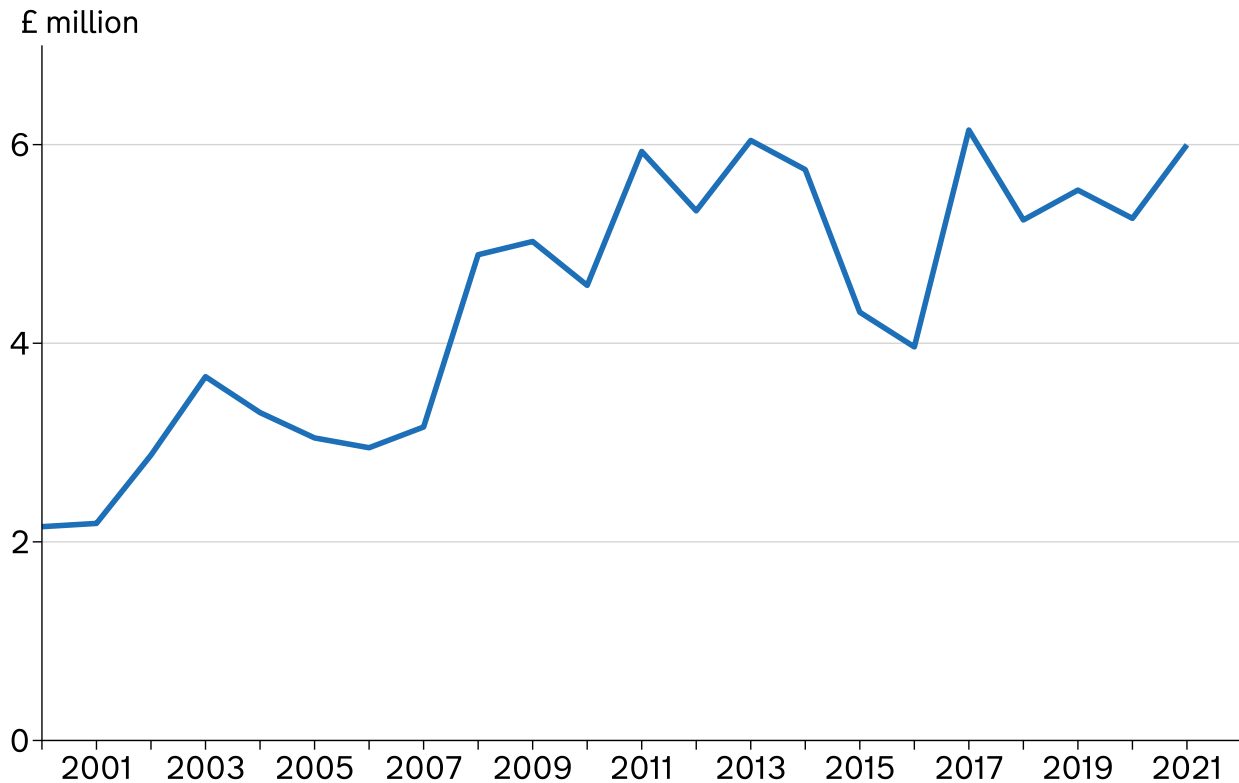
Long Term Trends in TIFF

Values in this section are expressed in real terms at 2021 prices. The figures have been adjusted to account for inflation, which allows more meaningful comparisons between years over the longer term.

Figure 4.7: Long term trends in TIFF, 2000 to 2021

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Table 4.3: Headline figures in real terms 2016 to 2021 (£ million)

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Item	2016	2017	2018	2019	2020	2021
Total crop output	9,169	10,165	10,217	10,610	9,101	10,876
Total livestock output	14,057	15,653	15,685	15,413	15,295	16,285
Total intermediate consumption	16,748	17,361	18,286	18,091	16,858	18,854
Total income from farming	3,963	6,147	5,241	5,542	5,257	5,998

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- In real terms, UK TIFF rose strongly between 2000 and 2008. Since then, TIFF has remained close to or within the £4 billion to £6 billion range, but with some big year-on-year fluctuations.
- TIFF fell sharply in 2015 driven by lower commodity prices and a stronger pound. In 2016 the exchange rate improved but a poor harvest and continued low commodity prices kept income low. In 2017, TIFF reached the highest point for 20 years as a result of a favourable combination of a weaker pound, strong commodity prices and high levels of production. In 2018, extreme weather conditions led to poor yields and pushed up the price of key inputs. These factors were not fully offset by strong commodity prices resulting in a 15% fall in TIFF that year.
- More recently, favourable weather in 2019 produced modest increases to both crop output and TIFF. In 2020, poor weather during winter sowing resulted in the lowest wheat value, in real terms, since 2006. This was offset by a strong year for livestock and relatively low year for costs, resulting in a modest 5.1% fall in TIFF from 2019.
- In 2021, TIFF was £5,998 million, an increase of £741 million (14%) in real terms from 2020. Despite high prices raising input costs, these were offset by high output prices resulting in the third highest TIFF value, in real terms, since 2000.

Balance Sheet for the United Kingdom Agricultural Industry

Table 4.4: Balance sheet (£ million)

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Item	2018	2019	2020	2021
Total fixed assets	262,777	275,284	286,416	290,187
Total current assets	15,435	15,334	16,306	16,676
Total assets	278,212	290,619	302,722	306,863
Total long and medium term liabilities	14,640	15,286	15,523	15,696
Total short term liabilities	6,235	6,003	5,466	5,543
Total liabilities	20,875	21,290	20,989	21,239
Net worth	257,337	269,329	281,733	285,624

Notes:

1. Balance sheet as at December each year.

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Table 4.4 presents the agricultural balance sheet which values the assets and liabilities for agriculture at the end of each calendar year and estimates the net worth of the industry. Overall net worth is estimated to have been £285,624 million in 2021, an increase of £3,890 million (1.4%) on 2020. This was the result of an increase in total assets of 1.4% and an increase in total liabilities of 1.2%. Land is the largest fixed asset

Agriculture in the United Kingdom 2021

in the agricultural industry with a value of £243,756 million in 2021, an increase of 1.2% on 2020.

Table 4.5: Balance sheet in real terms (£ million)

Enquiries: Josh Moatt on +44 (0) 20 771 41913

Email: farmaccounts@defra.gov.uk

Item	2018	2019	2020	2021
Total assets	299,787	306,893	303,584	306,863
Total liabilities	22,494	22,482	21,048	21,239
Net worth	277,294	284,411	282,536	285,624

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In real terms at 2021 prices, net worth increased by 1.1% from 2020. Total assets increased by 1.1% and total liabilities increased by 0.9%.

Revisions

Figures for 2021 are provisional and subject to revision.

As a result of more data becoming available over time there have been minor revisions to earlier years in this release. These revisions are intended to enhance the precision of these estimates. Sometimes additional revisions are necessary to refine the methodology or correct historical errors.

TIFF is the relatively small difference between two large numbers and is therefore sensitive to small percentage changes in the values of outputs and intermediate consumption. A combination of a revision downwards in outputs and revision upwards in intermediate consumption leads to more sizeable revisions in percentage terms to Gross Value Added and TIFF.

Below is a list of key revisions that have been carried out since the last publication:

- Since the 2020 issue of AUK there has been a significant upward revision to the value of TIFF for 2020. For a full explanation of this revision, see section 4.1.1 of the [Total Income from Farming in the United Kingdom 2020 final estimate statistics notice \(published 16 December 2021\)](#).
- There have been minor revisions to the value of most outputs and inputs for 2020, owing to additional data becoming available since the 2020 second estimate was published in December 2021. Primarily this is data from Scotland, Wales and Northern Ireland.
- There have been minor revisions to liabilities presented in the balance sheet for 2019 and 2020, owing to fixing a historical error in their calculation.
- The value of eggs has been revised from 2018 onwards, owing to an error where unpacked eggs were not included in the total value.

Agriculture in the United Kingdom 2021

- More accurate data was acquired for the calculation of total maintenance and capital consumption/formation, leading to some minor revisions to the back series.
- The methodology for calculating the value of potatoes has changed for 2021 in comparison to previous years. AHDB stopped producing potato yield data and prices in the last half of 2021. We have therefore looked at previous trends for the missing data and also sought views from stakeholders to estimate the value of the sector.
- The data used to provisionally estimate the 2021 value for inseparable non-agricultural activities was not available for England, Wales or Scotland for this release. We have therefore carried forward the 2020 value, but will revise this for the final estimate when more data will be available.
- To bring the terms used in the accounts chapter in line with wider Defra publications, cattle, sheep, and pigs primarily for meat have been renamed beef, mutton and lamb, and pigmeat respectively. This is to increase consistency and aid usability of our published statistics. The methodology by which these items are calculated remains unchanged.

Glossary of Key Terms

Gross Value Added (GVA) is computed as Gross output minus intermediate consumption and represents that contribution of a business, sector or industry to Gross Domestic Product (GDP).

Basic price is the market price plus directly paid subsidies that are linked to the production of specific products.

Current price is the value based on prices observed during the reference year (i.e. values not adjusted for inflation). The alternative to current price is 'real terms'.

Real terms is where values from previous years have been adjusted for inflation. The alternative to real terms is 'current price'.

Intermediate consumption is the goods and services used as inputs in the productive process, e.g. feed, energy and fertilisers.

Chapter 5: Productivity

Summary

Key results for 2021 compared to 2020:

- **Total Factor Productivity** is estimated to have increased by 2.9% between 2020 and 2021. This was driven by a decrease in the volume of all inputs and an increase in the volume of all outputs.
- The volume of all **outputs** increased by 2.6%. 2021 saw increases in volume for all crop and livestock output categories, with the exception of fruit (-10%) and potatoes (-4.3%). These small decreases were outweighed by larger increases across other outputs, particularly in the output of 'other crop products' (24%) and the output of cereals (23%).
- The volume of all **inputs** decreased by 0.3%. This small decrease in the volume of inputs is the result of a mixed pattern of increases and decreases in 2021. The inputs that saw the largest percentage increases were plant protection products (6.3%), fertilisers (4.5%) and animal feed (3.3%). Whereas those with the largest percentage decreases were seeds (-12%), other goods and services (-5.6%) and total maintenance (-4.5%).

Introduction

Total Factor Productivity (TFP) is a measure of how well inputs are converted into outputs, giving an indication of the efficiency and competitiveness of the agricultural industry. Although external factors such as weather conditions or disease outbreaks may have a short-term impact on productivity, it is developments that improve productivity over a longer period that constitute one of the main drivers of agricultural income.

TFP estimates are derived from the aggregate farm accounts data used to calculate UK Total Income from Farming (TIFF) presented in Chapter 4.

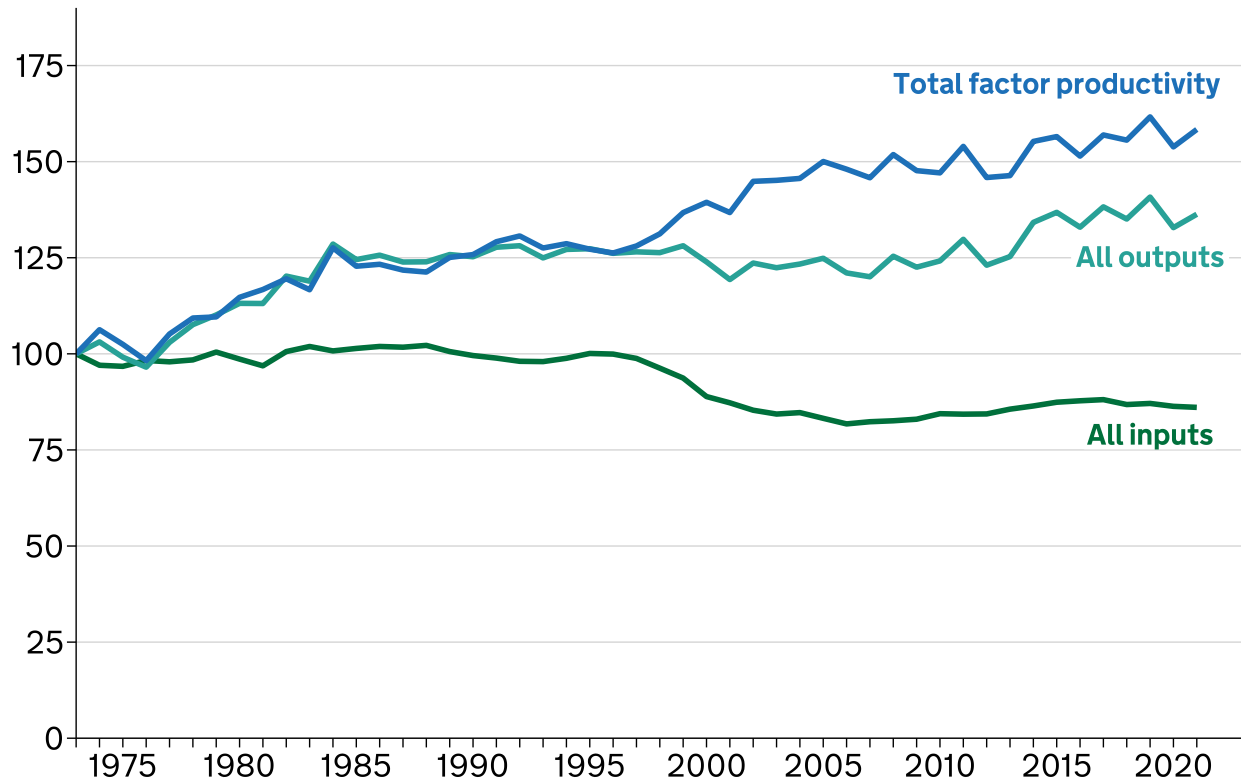
Please note, we have re-based the data contained within this chapter to 1973. This is to improve the consistency between the figures and tables presented within. See Revisions section for more details

Long term trends

Figure 5.1: Long term trend in TFP of the UK agricultural industry (1973 = 100)

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TFP of the agricultural industry in the United Kingdom increased by 2.9% between 2020 and 2021. This was driven by an increase in the volume of all outputs and a decrease in the volume of all inputs. As shown in Figure 5.1, this continues the pattern of annual fluctuations seen from around the year 2000 onwards. Despite this annual variability, the long-term trend is still one of slow but overall improvement in TFP.

Since the series began in 1973, TFP has increased by 58%, driven by an increase in the volume of all outputs of 36% and a decrease in the volume of all inputs of 14%.

Annual changes, 2020 to 2021

Headline Figures

Figure 5.2: Summary of key indices 2020 to 2021 (1973 = 100)

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Item	2020	2021
All outputs	132.8	136.3
All inputs	86.3	86.1
Total factor productivity	153.8	158.4

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TFP is estimated to have increased by 2.9% between 2020 and 2021. This was driven by a 0.3% decrease in the volume of all inputs and a 2.6% increase in the volume of all outputs.

All outputs

‘All outputs’ represents the change in volume (expressed as an index based to 1973) of all outputs sold off the farm, excluding transactions within the agricultural industry.

Table 5.1: Volume indices for outputs (1973 = 100)

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Item	2020	2021	Annual Change
Output of cereals	143.0	175.6	23%
Output of industrial crops	194.8	210.8	8.2%
Output of forage plants	99.3	99.3	0.0%
Output of vegetables and horticultural products	81.2	82.9	2.1%
Output of potatoes	98.7	94.5	-4.3%
Output of fruit	131.8	118.4	-10%
Output of other crop products	99.2	122.8	24%
Total crop output	132.9	142.2	7.0%
Output of livestock (meat)	130.8	131.2	0.4%
Output of livestock products	108.5	109.6	1.0%
Total livestock output	121.7	122.4	0.6%
Inseparable non-agricultural activities	548.9	534.7	-2.6%
All outputs	132.8	136.3	2.6%

Notes:

Agriculture in the United Kingdom 2021

1. AHDB stopped producing potato yield data and prices in the last half of 2021. Therefore, we have looked at previous trends for the missing data and also sought views from stakeholders to estimate the value and volume of production for the sector.

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- The volume of all outputs increased by 2.6% between 2020 and 2021. This was the result of an increase of 7.0% in the volume of total crop output and an increase of 0.6% in the volume of total livestock output.
- The largest percentage increase within total crop output was in the output of other crop products, which increased by 24%. This rise in other crop products is due entirely to increases in the volume of straw produced. 2021 saw reasonable crop yields resulting in a 41% increase in the volume straw produced from 2020.
- The largest percentage decrease within total crop output was in the output of fruit, which decreased by 10%. In 2021, production of fruit was severely impacted by cold weather. Planting, bud break and early development were all delayed by wet and cold weather during February and March, and overnight frosts in April damaged many flowering fruit crops. This led to a reduction in fruit production overall.
- The biggest change in total livestock output was in the output of livestock products, which increased by 1.0%. This rise in the volume of livestock products was driven by increases in the volume of production of both eggs (6.0%) and other animal products (12%).

All inputs

'All inputs' represents the change in volume (expressed as an index based to 1973) of all goods and services purchased and consumed, excluding transactions within the agricultural industry.

Table 5.2: Volume indices for inputs (1973 = 100)

Enquiries: Josh Moatt on +44 (0) 20 771 41913

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Item	2020	2021	Annual Change
Seeds	128.4	113.2	-12%
Energy	48.5	47.5	-2.0%
Fertilisers	66.2	69.2	4.5%
Plant protection products	307.1	326.4	6.3%
Veterinary expenses	116.7	116.5	-0.2%
Animal feed	134.9	139.4	3.3%
Total maintenance	59.9	57.2	-4.5%
FISIM	100.0	100.0	0.0%
Other goods and services	139.7	131.8	-5.6%
Intermediate consumption	104.7	104.1	-0.6%
Consumption of fixed capital	122.0	122.3	0.3%
All labour	51.1	51.0	-0.1%
Land	97.5	97.3	-0.2%
All inputs and entrepreneurial labour	86.3	86.1	-0.3%

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- The volume of all inputs decreased by 0.3% between 2020 and 2021. As seen in Table 5.2, this small decrease in the volume of inputs is the result of a mixed pattern of changes in 2021, with the volume of some inputs increasing and others decreasing.
- The largest percentage increase in inputs was plant protection products, which increased by 6.3%. This increase was largely driven by the use of fungicides and other plant protection products (such as plant growth regulators and molluscicides), which increased in 2021 due to a larger winter cropping area as well as relatively high disease pressure. These factors resulted in the use of more robust treatment measures over a larger area. Additional plant protection products, such as insecticides, saw decreased use in 2021 due to a reduction in area of spring crops. The increase in winter cropping and reduction in spring cropping areas, reflects a return to more traditional cropping practices in 2021, following an unusual 2020 where winter sowing was badly affected by wet weather.
- The largest percentage decrease in inputs was seeds, which decreased by 12%. The decrease in seeds seen in 2021 was the result of a return to more normal sowing practices, following an unusual 2020. In 2020, poor weather conditions during drilling of winter wheat led to many farmers switching to spring sowing, increasing seed usage. 2021 saw favourable conditions for both winter and spring sowing of crops, leading to a return to winter sowing and a reduction in the volume of seeds used overall.

Partial productivity

Partial productivity shows the impact key inputs have on productivity. It measures total outputs against a part of the inputs.

Table 5.3: Partial factor productivity (1973 = 100)

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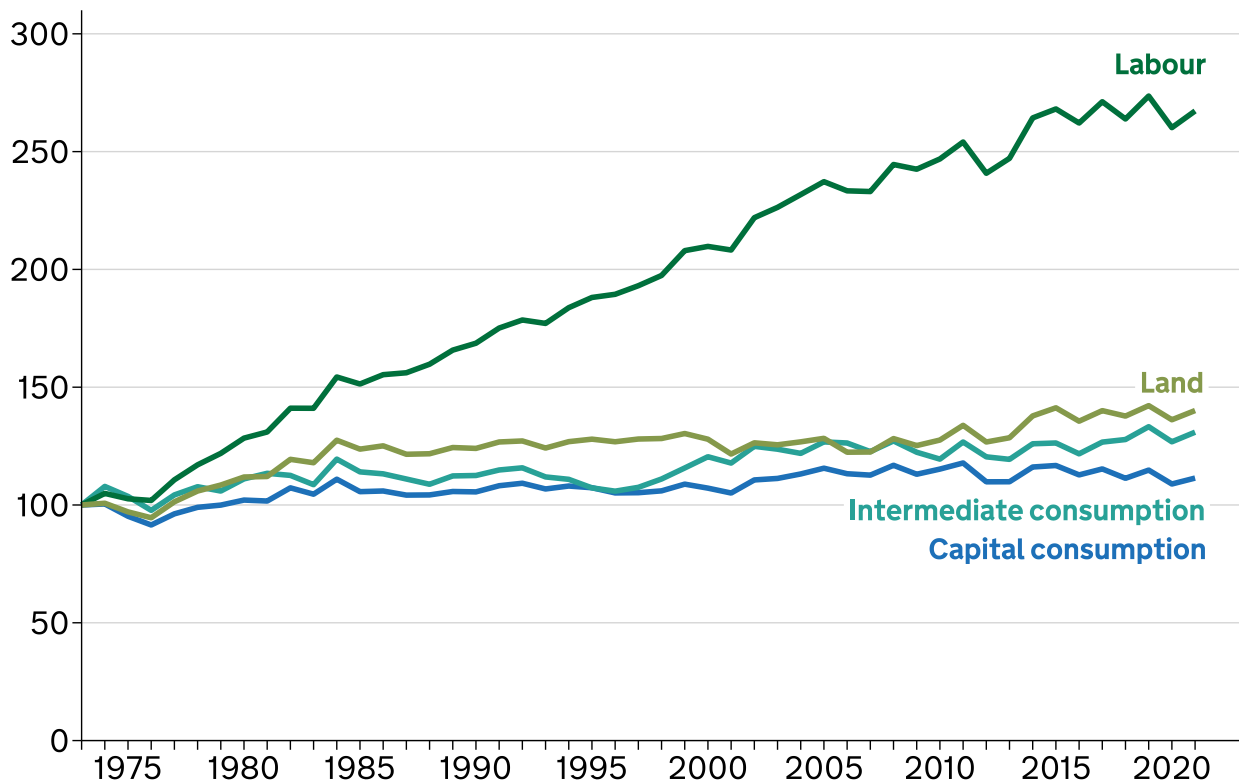
Email: farmaccounts@defra.gov.uk

Item	2020	2021	Annual Change
Productivity by intermediate consumption	126.8	130.9	3.2%
Productivity by capital consumption	108.9	111.4	2.3%
Productivity by labour	260.2	267.3	2.7%
Productivity by land	136.2	140.1	2.9%

Figure 5.3: Long term trend in partial productivity indicators (1973 = 100)

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Table 5.3 and Figure 5.3 show that labour is the key input driving productivity gains. Productivity by labour shows a steady increase over the whole period since 1973. Labour volumes are now approximately half of what they were in 1973. However, more recent growth in labour productivity is due to increased output rather than a reduction in labour volume.

Revisions

Figures for 2021 are provisional and subject to revision.

As a result of more data becoming available over time there have been minor revisions to earlier years in this release. These revisions are intended to enhance the precision of these estimates. Sometimes additional revisions are necessary to refine the methodology or correct historical errors.

Below is a list of key revisions that have been carried out since the last publication:

- The TFP data series has been re-based to the year 1973 (1973 = 100). In previous releases the data in the figures and tables were presented at different base years. By presenting the data series, tables and figures to the same base year, we aim to increase the consistency of the data within this release. Re-basing has no material impact on the interpretation of these data, as the year-on-year percentage changes will remain the same.
- The 2020 volumes for most outputs have been revised, owing to additional data becoming available since the 2020 second estimate published in December 2021.
- More accurate data was acquired for the calculation of total maintenance and capital consumption/formation, leading to some minor revisions to the back series.
- The indices for eggs have been revised from 2018 onwards, owing to an error where unpacked eggs were not included in the total value used in the calculation of the volume indices.
- The methodology for calculating the value and volume of production of potatoes has changed for 2021 compared to previous years. AHDB stopped producing potato yield data and prices in the last half of 2021. Therefore, we have looked at previous trends for the missing data and also sought views from stakeholders to estimate the value and volume of production for the sector.

Chapter 6: Prices

Summary

- The annual average price index for all agricultural **outputs** increased by 10% from 2020 to 2021.
- The largest upward contribution to the annual inflation rate for agricultural **outputs** was from wheat (2.3 percentage points), followed by cattle and calves (1.8 percentage points) and milk (1.7 percentage points). The main downward contribution came from pigs (-0.5 percentage points).
- The annual average price index for all agricultural **inputs** increased by 11% from 2020 to 2021.
- The largest upward contribution to the annual inflation rate for agricultural **inputs** was from fertilisers and soil improvers (3.6 percentage points), followed by compound feedingstuffs (2.5 percentage points) and straight feedingstuffs (1.5 percentage points).

Data sources

The Agricultural Price Index (API) measures the monthly price changes in agricultural outputs and inputs for the UK.

The output series reflects the prices farmers receive for their products, also referred to as farm-gate prices. Information is collected for all major crops (for example cereals, fruit and vegetables), and for livestock and animal products (for example sheep, milk, and eggs). It should also be noted that the price index for poultry is based on deadweight price reporting by processors. These prices are not directly comparable with poultry prices referenced in Chapter 8 which estimate the cost to producers.

The input series reflects the prices farmers pay for goods and services and is split into two groups: goods and services currently consumed, and goods and services contributing to investment. Goods and services currently consumed refer to items that are used up in the production process (for example fertiliser or seed). Goods and services contributing to investment relate to items that are required but not consumed in the production process, such as tractors or farm buildings.

Monthly price data for potatoes were not available for the latter half of 2021. Therefore, the potato price index for June 2021 was applied to the rest of the year (July to December 2021, inclusive). As a result, the potato price index for 2021 may be inflated since typically the potato price index follows a seasonal decline in the latter half of the calendar year.

Further information can be found in the monthly [Agricultural Price Index](#) publication.

Summary chart for price indices

Figure 6.1: Annual average price indices for agricultural outputs and inputs from 2015 to 2021 (2015 = 100)

Enquiries: Matthew Lunn on +44 (0)20 3025 7160

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Year	All agricultural outputs	All agricultural inputs
2015	100.0	100.0
2016	99.6	97.4
2017	110.7	102.5
2018	115.4	110.9
2019	114.2	112.6
2020	119.2	112.6
2021	131.2	125.3

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Figure 6.1 shows the annual average price indices for agricultural outputs and inputs since 2015. Compared with 2020, the annual average price index for 2021 is 10% higher for agricultural outputs and 11% higher for agricultural inputs.

The year in which the agricultural outputs price index exceeds the agricultural inputs price index by the largest amount remains 2017, with 2020 showing the second largest difference. Both price indices are currently at their highest value in the time series.

Contributions to change in the annual agricultural outputs and inputs inflation rate

Figure 6.2: Contributions to change in the agricultural outputs annual inflation rate between 2020 and 2021 (2015 = 100)

Enquiries: Matthew Lunn on +44 (0)20 3025 7160

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Category	Contribution (percentage points)
Wheat	2.32
Cattle and calves	1.76
Milk	1.68
Oilseed rape	1.37
Sheep and lambs	1.30
Barley	0.94
Plants and flowers	0.32
Fresh vegetables	0.26
Eggs	0.23
Potatoes	0.18
Forage plants	0.17
Poultry	0.08
Oats	0.04
Sugar beet	0.03
Fresh fruit	-0.36
Pigs	-0.50

Notes:

1. Not all agricultural output categories are shown in Figure 6.2. Therefore, the sum of the contributions in Figure 6.2 may be slightly less than the annual inflation rate.

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Figure 6.2 shows the contributions to the 10% change in the agricultural outputs inflation rate between 2020 and 2021. Fourteen out of the sixteen output categories shown reported higher prices. The largest upward contribution came from wheat - much of this can be explained by tight global supply and unfavourable harvests: just 30% of US winter 2021 wheat was classed as good or excellent. Meanwhile, rises in input costs such as feed and fertiliser coupled with labour shortages have also placed cattle and calves, sheep and lambs, and milk as large upward contributors, with many farms being forced to downsize livestock counts or sell up fully. Downward contributions were seen for pigs and fresh fruit owing to an oversupply of pig meat across Europe and increased imports of fresh fruit from the Southern Hemisphere.

Figure 6.3: Contributions to change in the agricultural inputs annual inflation rate between 2020 and 2021 (2015 = 100)

Enquiries: Matthew Lunn on +44 (0)20 3025 7160

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Category	Contribution (percentage points)
Fertilisers and soil improvers	3.63
Compound feedingstuffs	2.51
Straight feedingstuffs	1.51
Energy and fuel	1.30
Buildings	0.70
Maintenance of buildings	0.59
Other goods and services	0.40
Materials	0.29
Maintenance of materials	0.23
Seeds	0.09
Plant protection products	0.07
Veterinary services	0.02

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Figure 6.3 shows the contributions to the 11% change in the agricultural inputs inflation rate between 2020 and 2021. All twelve output categories shown reported higher prices. The largest upward contributions came from fertilisers and soil improvers, followed by compound and straight feedingstuffs. As energy-intensive commodities, fertiliser prices have been strongly impacted by the rise in energy costs associated with the tight global supply-demand balance of energy. The supply-demand balance for feedingstuffs, particularly feed wheat, was particularly tight towards the end of 2021. Russian export curbs and poor anticipated planting conditions further accelerated price rises.

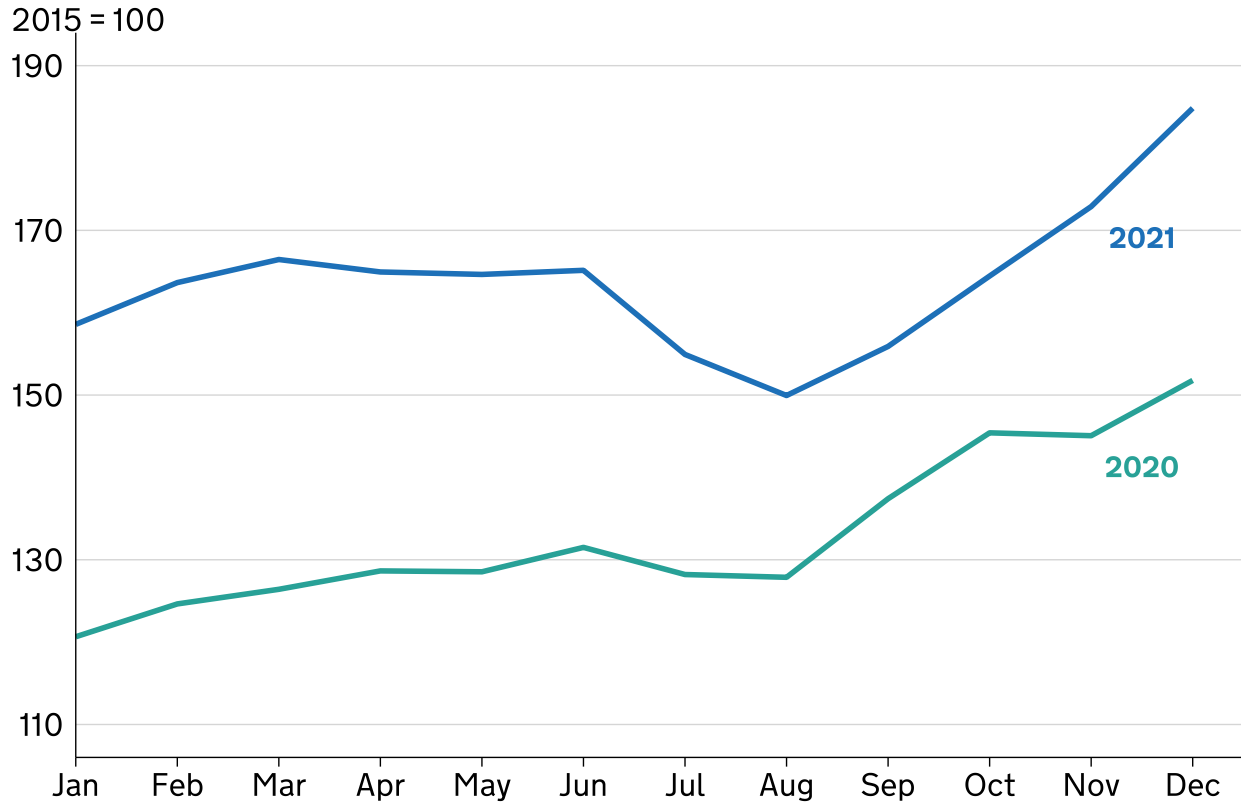
Trends in price indices through the year

Agricultural outputs

Figure 6.4: Monthly cereal price index 2020 and 2021

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Email: prices@defra.gov.uk



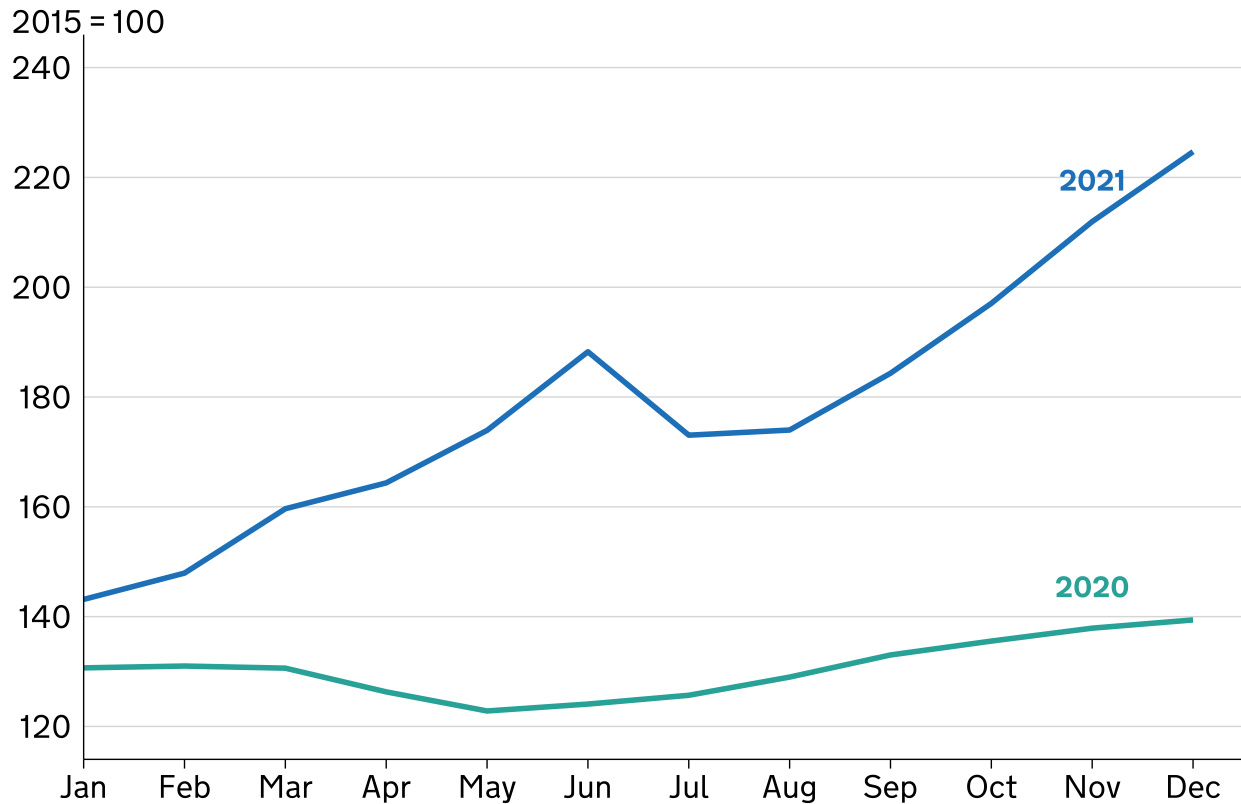
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The annual price index for cereals increased by 23% in 2021 compared with 2020. This increase was driven by a tight global supply-demand balance for much of the year, together with export curbs on cereals from various markets, including Argentina early in the year and Russia in the autumn. Following mid-year price declines due to favourable growing conditions across the Black Sea and EU growing regions, cereal prices increased throughout the later months of 2021. This was driven by a tight global supply-demand balance and strong demand for European wheat. The announcement of a 14-year low in US wheat stocks within the USDA September quarterly grain stocks report also contributed to price increases towards the end of the year.

Figure 6.5: Monthly oilseed rape price index 2020 and 2021

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Email: prices@defra.gov.uk



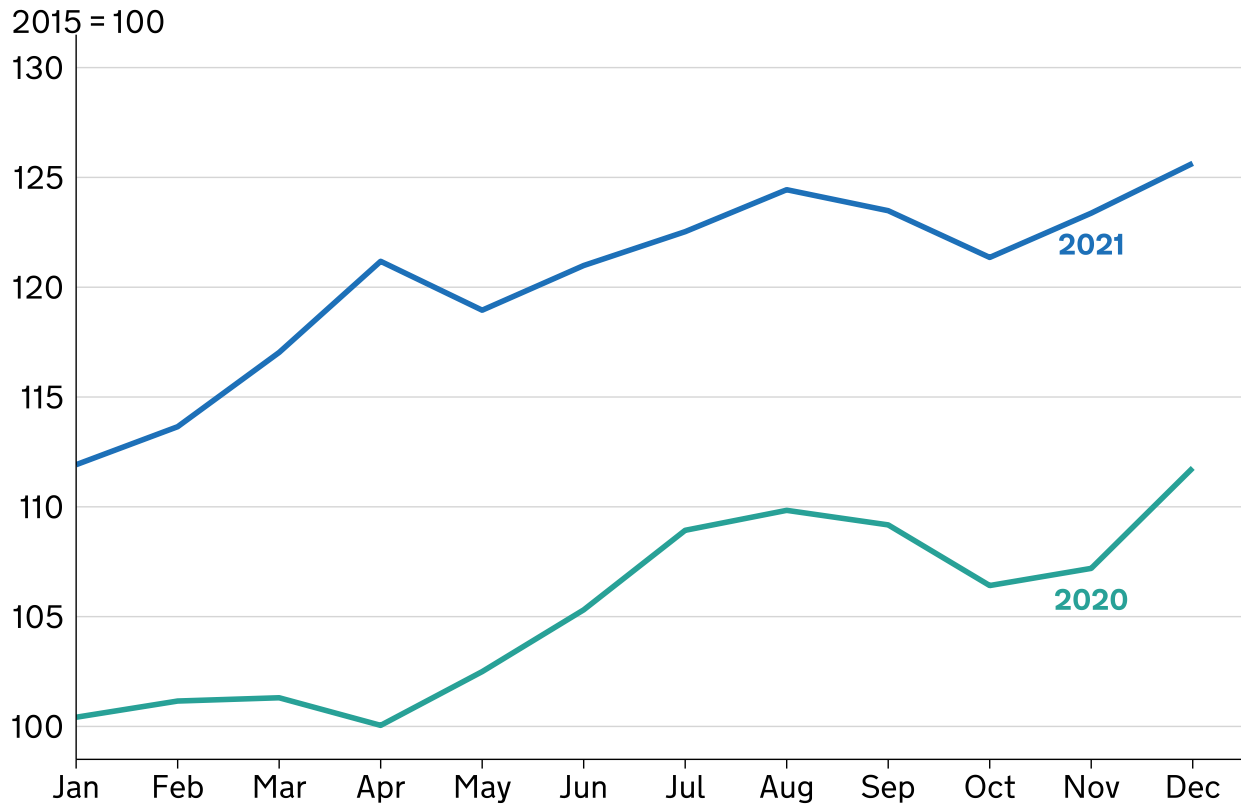
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The annual price index for oilseed rape increased by 38% in 2021 compared with 2020. Tight global vegetable oil supply was a key upward driver of oilseed rape prices in the first half of 2021 following initial reductions in US and Brazilian stocks. A strong US planting season then led to a mid-year price drop, but strong price rises followed from August onwards. Additionally, the three-month UK national lockdown between January and March led to a very poor UK harvest. Global oilseed rape supply remained tight in the second half of 2021, furthered by a relatively small Canadian crop.

Figure 6.6: Monthly cattle and calves price index 2020 and 2021

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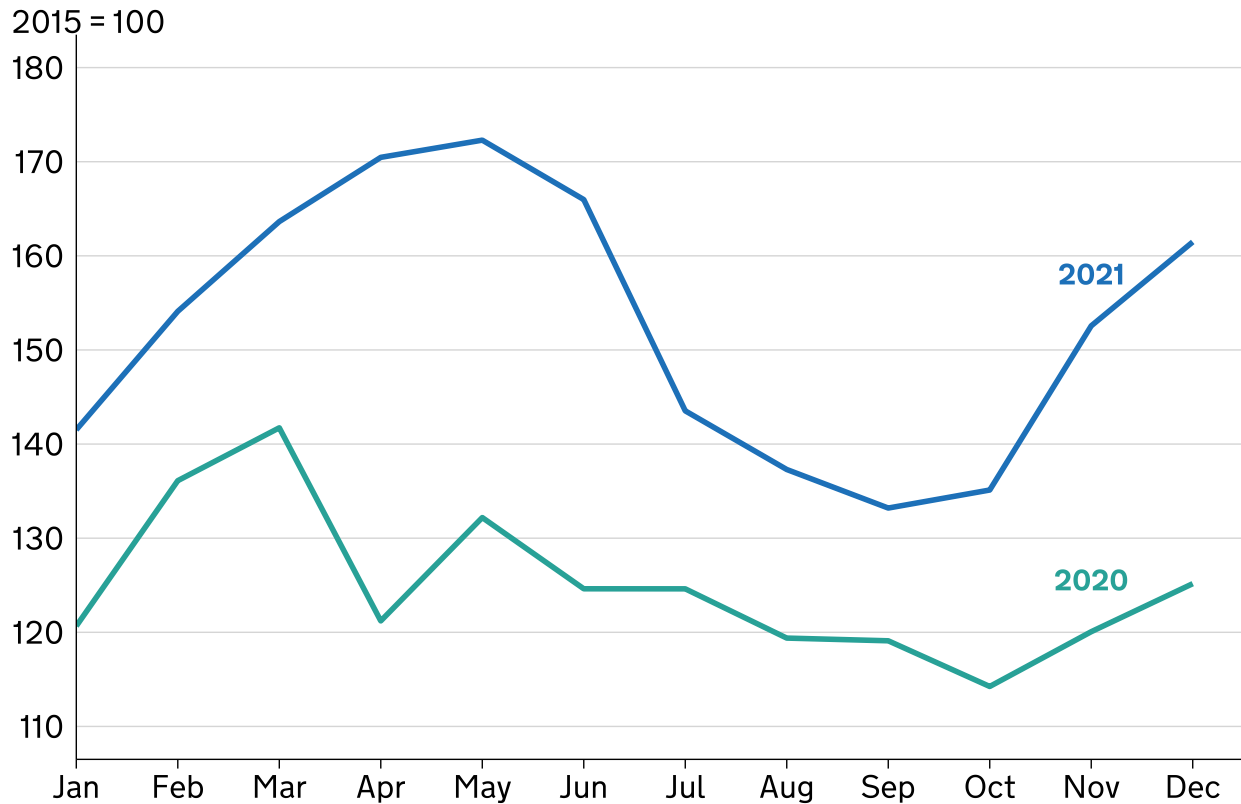
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The annual price index for cattle and calves increased by 14% in 2021 compared with 2020. Particularly strong growth was observed in the first four months of 2021 as UK supplies remained tight due to low throughput. Prices continued to rise in the rest of the year amid reductions in prime cattle available for slaughter. Cattle and calf prices stabilised from October as an increase in young stock count offset declines in breeding cow and older cattle counts in UK cattle populations.

Figure 6.7: Monthly sheep and lambs price index 2020 and 2021

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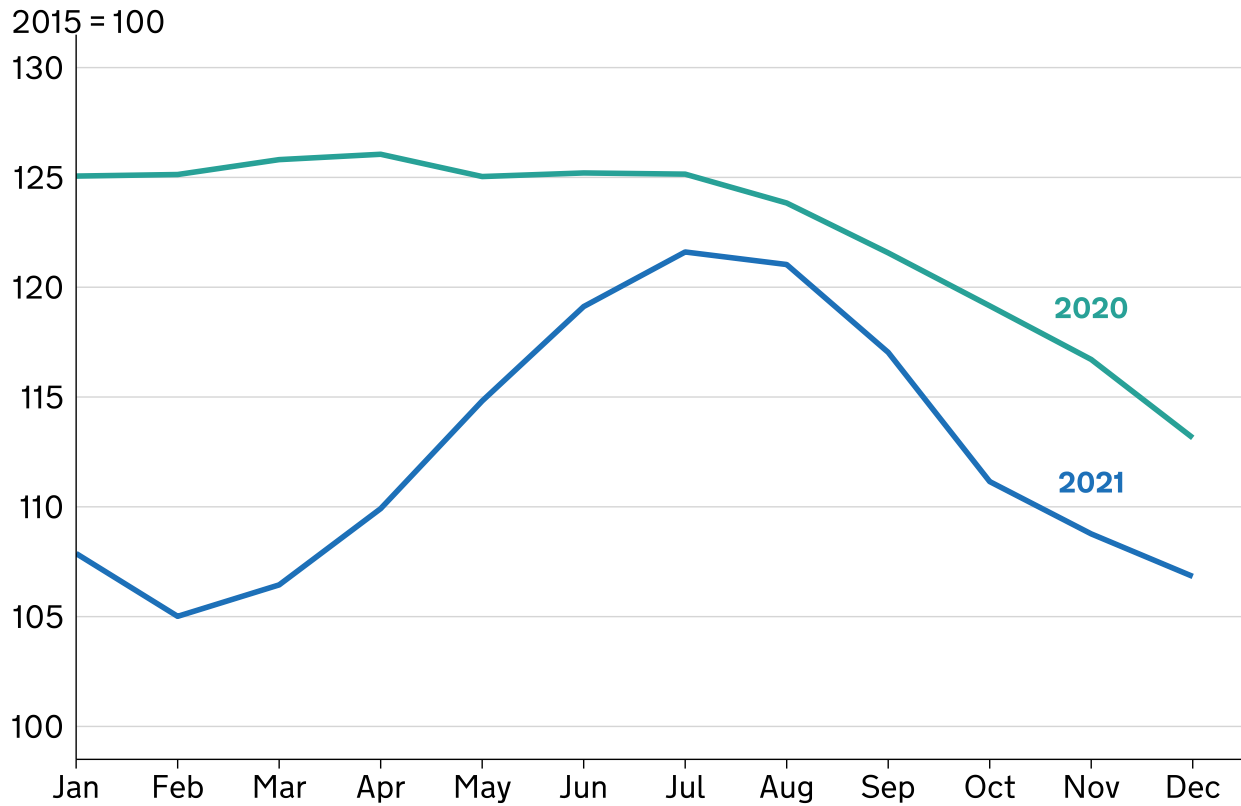
Email: prices@defra.gov.uk



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The annual price index for sheep and lambs increased by 22% in 2021 compared with 2020, though considerable price fluctuations were seen through the year. Prices increased strongly in the first half of 2021 amid tight supply throughout Europe, while traditionally major exporters to Europe such as New Zealand diverted their focus towards Asian and Middle Eastern exports. A fall in prices then followed due to falling demand for small lambs, particularly demand from France, and rises in sheep meat production. Further increases followed in the final three months of the year amid usual seasonal demand, as well as a shortage of New Zealand lamb on the British market due to shipping problems associated with the Covid-19 pandemic.

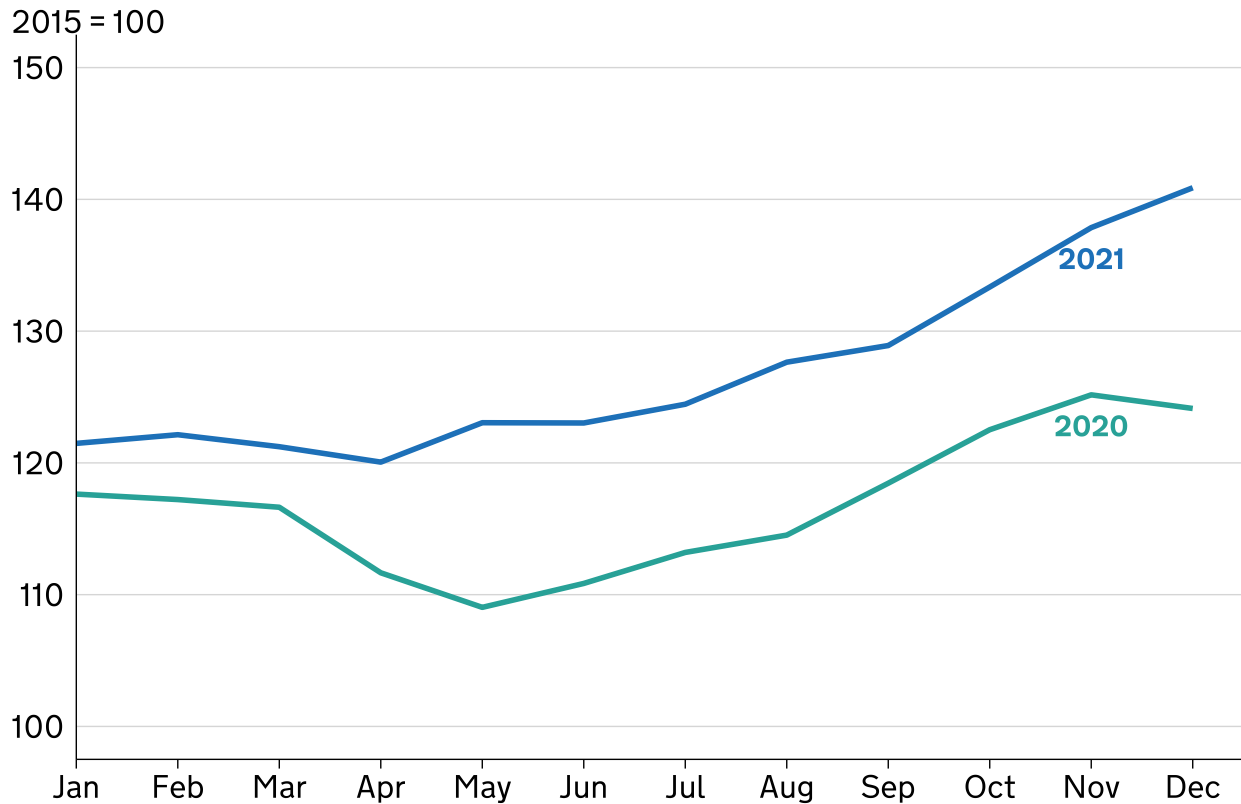
Figure 6.8: Monthly pigs price index 2020 and 2021
Enquiries: Matthew Lunn on +44 (0)20 3025 7160
Email: prices@defra.gov.uk



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The annual price index for pigs decreased by 8.3% in 2021 compared with 2020. Strong domestic demand in 2021 drove pig prices to a mid-year peak; this came despite a weakening in the EU pig market and declining Asian demand for UK pigs. However, this trend was reversed in the second half of 2021. High supplies of pig meat across Europe led to a reduction in UK prices in order to remain competitive.

Figure 6.9: Monthly milk price index 2020 and 2021
Enquiries: Matthew Lunn on +44 (0)20 3025 7160
Email: prices@defra.gov.uk



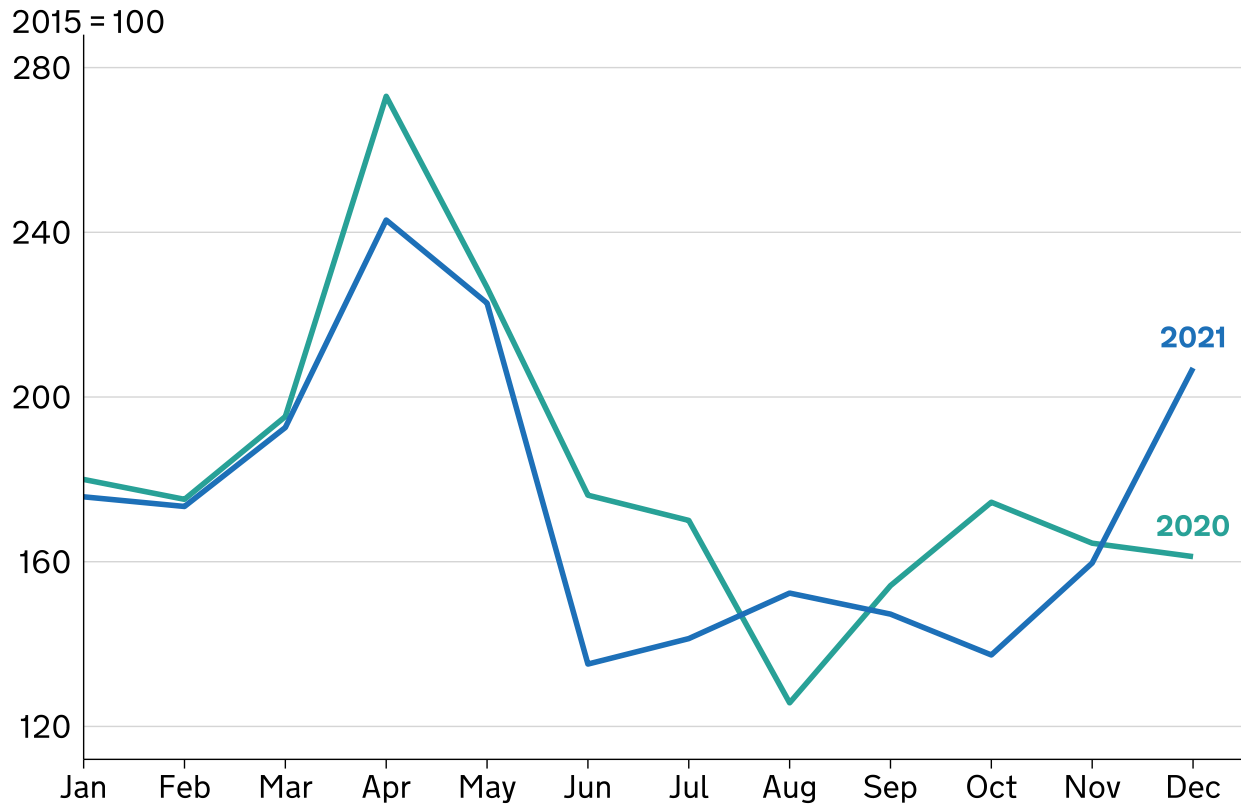
[Download the full prices dataset.](#)

The annual price index for milk increased by 8.8% in 2021 compared with 2020, driven by reduced production as a result of increasing input costs in the latter half of 2021. Surges in fertiliser and feed prices resulted in many farms downsizing cow numbers, and in some cases selling up their farms completely. Additionally, high beef prices towards the end of the year incentivised the culling of less productive dairy cows, further reducing production.

Figure 6.10: Monthly fresh fruit price index 2020 and 2021

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Email: prices@defra.gov.uk



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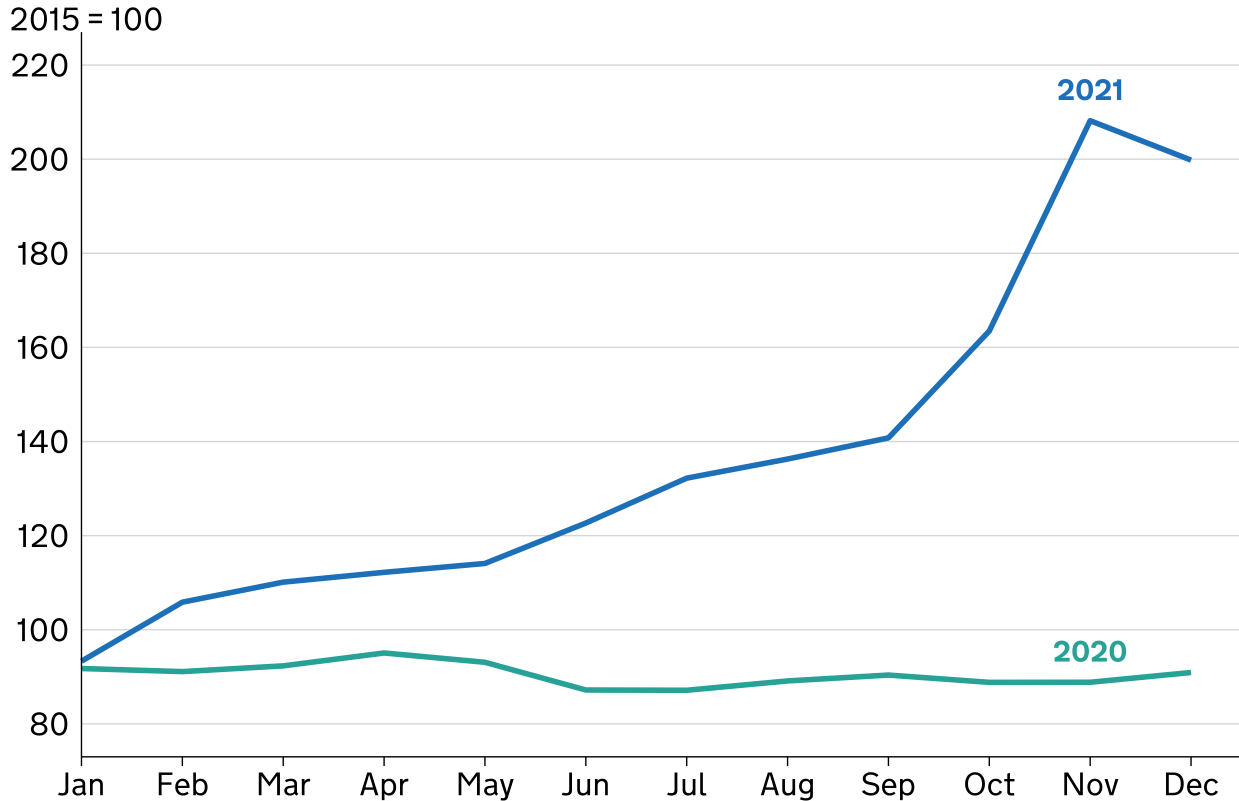
The annual price index for fresh fruit decreased by 7.4% in 2021 compared with 2020. The most significant price drop in 2021 occurred between May and June, which was a very busy period for imports from the Southern Hemisphere.

Agricultural inputs

Figure 6.11: Monthly fertilisers and soil improvers price index 2020 and 2021

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Email: prices@defra.gov.uk



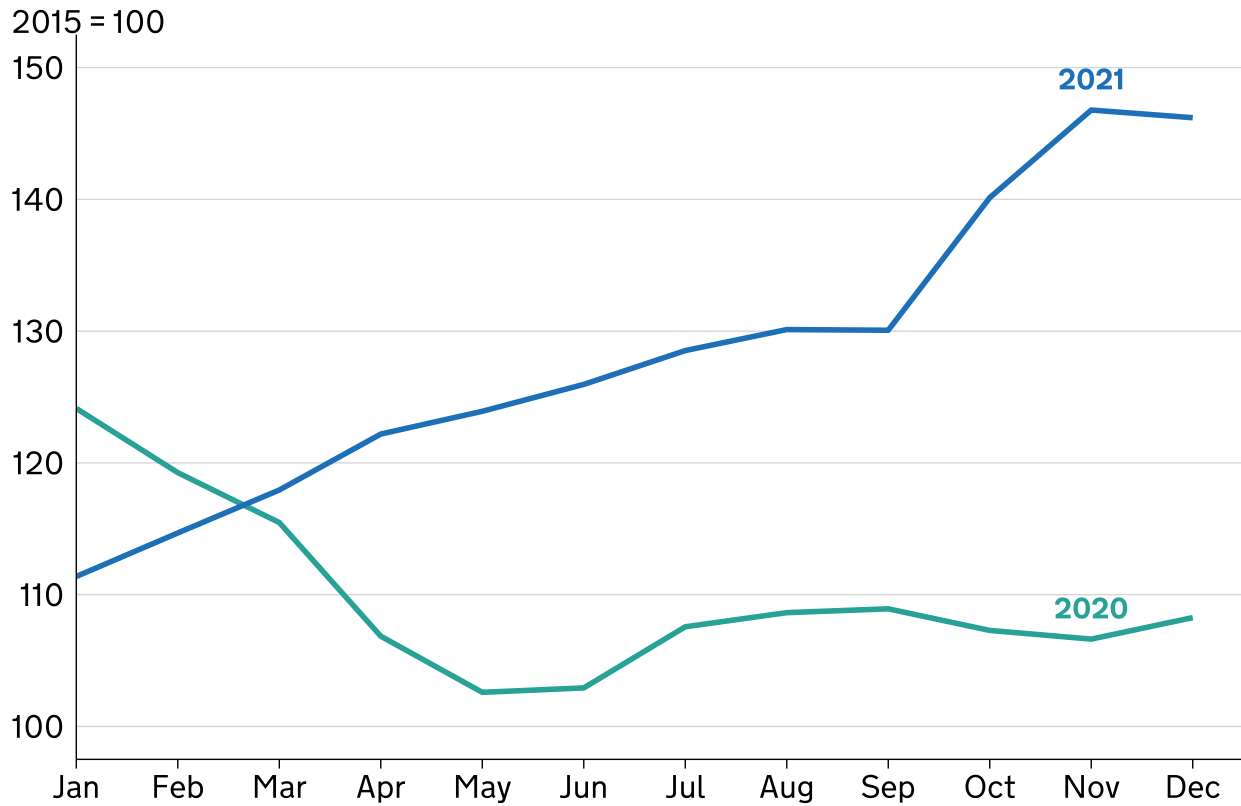
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The annual price index for fertilisers and soil improvers increased by 51% in 2021 compared with 2020. This increase was primarily driven by rising fertiliser prices. Fertiliser prices are linked to the global wholesale energy price because gas is a key component in ammonium nitrate production. Very strong price growth in fertiliser prices was seen in autumn 2021 as energy price growth peaked, and domestic production of fertilisers dropped following the closure of two UK fertiliser plants in September 2021. Moreover, increasing commodity prices in 2021 incentivised growing, further increasing demand for fertiliser and driving prices even higher. However, December 2021 saw a modest price reduction as wholesale energy prices declined amid a re-routing of additional supplies from Asia to Europe.

Figure 6.12: Monthly energy and fuel price index 2020 and 2021

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Email: prices@defra.gov.uk



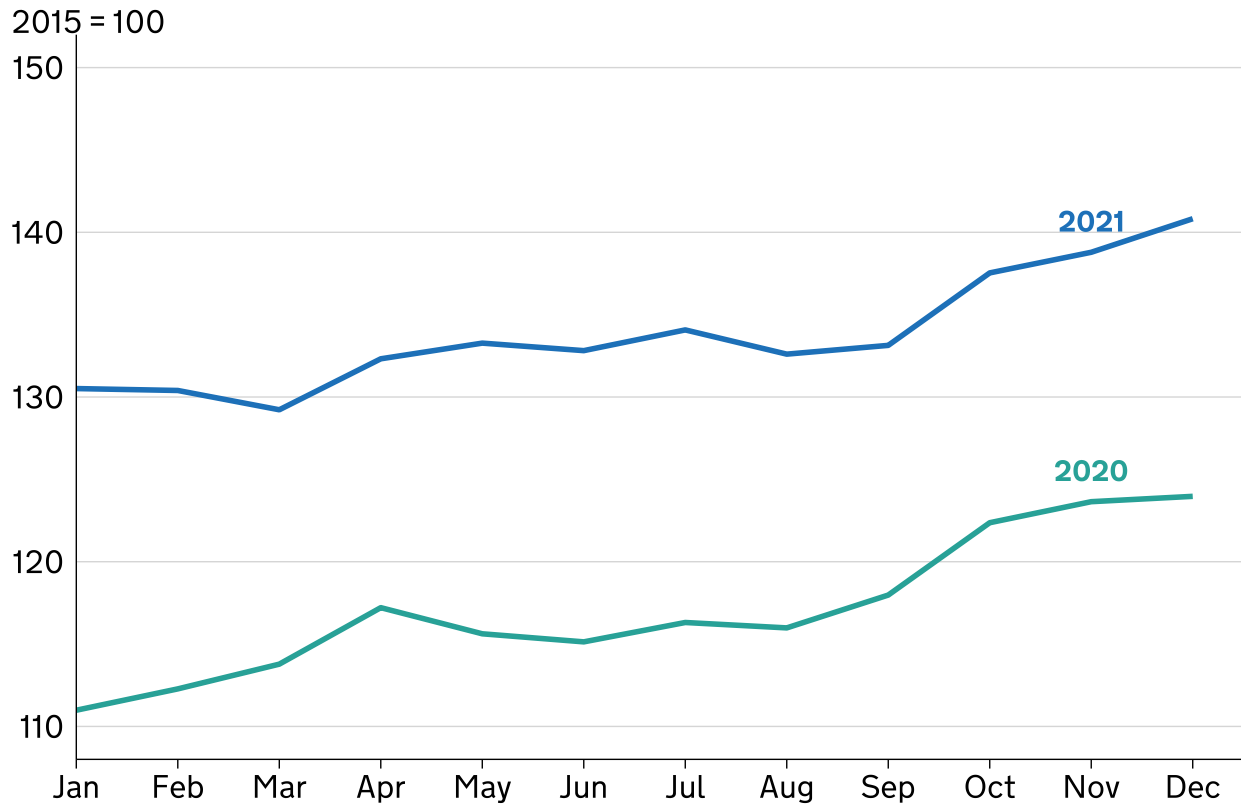
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The annual price index for energy and fuel increased by 17% in 2021 compared with 2020. The steepest rises occurred towards the end of 2021 amid a surge in demand as many countries relaxed existing Covid-19 lockdown measures. Moreover, global energy supplies were left in short supply following a cold 2020-21 winter and households spending more time in their homes as lockdown measures tightened.

Figure 6.13: Monthly animal feedingstuffs price index 2020 and 2021

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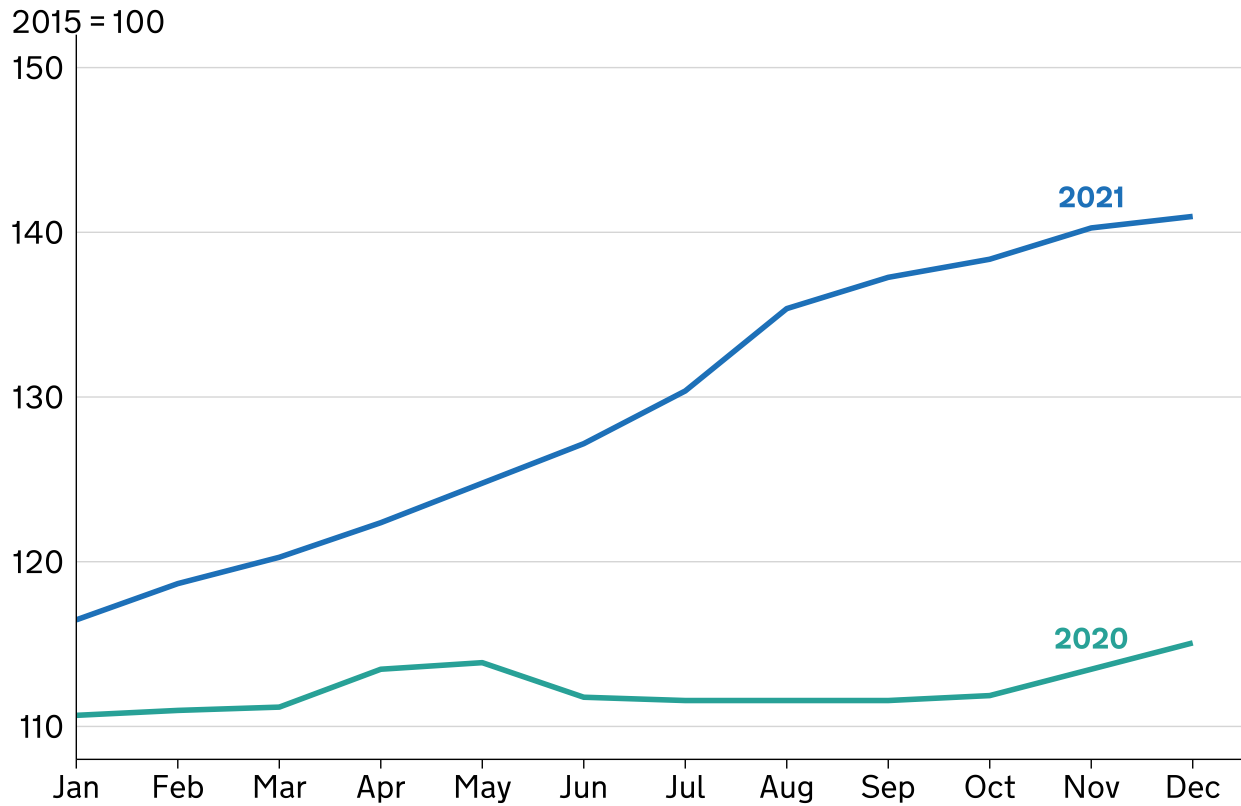
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The annual price index for animal feedingstuffs increased by 14% in 2021 compared with 2020. By-products of cereals (e.g. feed oats) recorded particularly strong rises as the global supply of wheat remained tight throughout 2021 and strong demand was observed for European wheat. Additionally, tight global supplies of rapeseed and vegetable oils boosted the prices of oilseed rape and rapeseed meal, particularly towards the end of the year.

Figure 6.14: Monthly maintenance of buildings price index 2020 and 2021

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Email: prices@defra.gov.uk



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The annual price index for maintenance of buildings increased by 15% in 2021 compared with 2020. This price index rose throughout 2021 amid shortages of cement and timber, and increased demand for repair work following the lifting of Covid-19 restrictions.

Summary table of price indices

Table 6.1: Annual average price indices for agricultural outputs 2020 to 2021

Enquiries: Matthew Lunn on +44 (0)20 3025 7160

Email: prices@defra.gov.uk

Category	2020	2021	Annual inflation rate (%)
Wheat	138.8	168.4	21.3
Barley	119.3	154.9	29.8
Oats	120.1	133.8	11.4
Oilseed rape	128.9	177.4	37.7
Sugar beet	101.6	104.8	3.1
Forage plants	176.8	240.6	36.1
Fresh vegetables	127.4	132.1	3.7
Plants and flowers	104.8	110.7	5.6
Potatoes	125.8	132.5	5.4
Fresh fruit	172.2	159.5	-7.4
Cattle and calves	105.3	120.3	14.3
Pigs	122.6	112.4	-8.3
Sheep and lambs	124.1	151.3	21.9
Poultry	113.5	114.3	0.7
Milk	116.8	127.0	8.8
Eggs	90.8	99.2	9.2
All agricultural outputs	119.2	131.2	10.0

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Table 6.2: Annual average price indices for agricultural inputs 2020 to 2021

Enquiries: Matthew Lunn on +44 (0)20 3025 7160

Email: prices@defra.gov.uk

Category	2020	2021	Annual inflation rate (%)
Seeds	113.2	115.3	1.9
Energy and fuel	109.9	128.2	16.6
Fertilisers and soil improvers	90.5	136.6	51.0
Plant protection products	146.0	147.2	0.8
Veterinary services	115.1	116.0	0.8
Straight feedingstuffs	128.2	148.2	15.6
Compound feedingstuffs	112.1	127.2	13.5
Maintenance of materials	112.7	117.0	3.8
Maintenance of buildings	112.3	129.4	15.2
Other goods and services	110.2	113.5	2.9
Materials	106.3	108.9	2.4
Buildings	110.8	124.8	12.7
All agricultural inputs	112.6	125.3	11.3

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Revisions

Revisions were made to the following five price indices for 2020; all these revisions arise due to the availability of more accurate price data:

1. Sugar beet
2. Fresh vegetables
3. Poultry
4. Seeds
5. Plant protection products

Chapter 7: Crops

Summary

Key results for 2021 compared to 2020:

- Harvested production of **wheat** increased by 45% to just under 14 million tonnes, following a particularly small 2020 production. The value of production was 75% higher at £2.7bn.
- Harvested production of **barley** decreased by 14% to around 6.9 million tonnes. The value of production was 9.4% higher at £1.2bn.
- **Oilseed rape** production decreased by 5.5% to around 981 thousand tonnes, mainly due to the lowest planted area since 1986. The value of production increased by 36% to £488m due to higher prices.
- **Sugar beet** production increased by 26% to 7.4 million tonnes. The value of production was 30% higher at £216m.
- The value of **vegetable** production decreased by 0.1% to £1.7bn.
- The value of **fruit** production decreased by 12% to around £917m.

Cereals

Table 7.1a to 7.1b Total cereals production (thousand tonnes unless specified otherwise)

Enquiries: Allan Howsam on +44(0)20 802 66123

Email: Crops-statistics@defra.gov.uk

Table 7.1a

Production	2019	2020	2021 (prov.)
Area (thousand hectares)	3,211	3,038	3,211
Volume of harvested production	25,517	18,962	22,369
Value of production (£ million)	3,645	2,762	4,025

Table 7.1b

Supply and use	2019	2020	2021 (prov.)
Production	25,517	18,962	22,369
EU Imports	1,757	2,802	2,787
Non-EU imports	2,404	2,128	2,040
EU exports	2,804	1,736	1,109
Non-EU exports	377	565	116
Total new supply	26,497	21,591	25,971
Change in farm and other stocks	2,328	-2,727	1,207
Total domestic uses	24,169	24,318	24,765
Production as % of total new supply for use in the UK	96%	88%	86%

Notes for table 7.1a and 7.1b:

1. All cereal production estimates have been standardised to 14.5% moisture content.
2. Value of production includes arable area payments but excludes set-aside payments and farm saved seed. Taxes, where applicable, are deducted.

[Download the full Crops dataset.](#)

In 2021, total cereal production of wheat, barley, oats and minor cereals (rye, triticale and mixed grain) in the UK was just under 22.4 million tonnes, an 18% increase compared to 2020. This increase was due to a combination of increased area and higher average yields. The value of production increased by 46% to just over £4 bn due to a combination of higher prices and increased production.

Average yields for wheat, barley and oats were higher in 2021 compared to 2020, and close to the 5-year average. Winter planting was challenging; early sown crops fared best but wet weather meant that later sown crops were sown into wet, cold seedbeds. Despite these challenges, these early sown crops established well, and with the aid of higher sowing rates, most crops were able to form good populations and survive the winter. Most planned winter sowing was complete by the end of November. Spring crop sowing generally fared well and progressed quicker on lighter soils which dried out better, aided by a dry March. Without the need to sow spring crops to compensate for poor or failed winter crops, growers reverted back to more typical winter plantings. This effect can be seen in the increased winter barley area, which was up 30% to 405 thousand hectares, whereas the area of spring barley fell by 31% to 745 thousand hectares.

Changeable weather conditions during the growing season meant crops were slower to develop and mature. The first cuts of winter barley were made in mid-July and made rapid progress with most of the crop harvested before the weather turned. Slow ripening together with wet/unsettled weather in early August caused a slow start to the wheat harvest, resulting in the slowest start to the harvest since 2017. The 2021 harvest was

helped by a period of settled dry, warm weather in September and by 28th September most crops had been harvested except for a few pockets of spring barley and spring oats. These favourable conditions also meant crops required less drying than earlier; the exception being the North England which suffered from showers and heavy dews.

Wheat prices for 2021 were above 2020 values with prices generally increasing as the year progressed, following the global markets. Feed barley prices also increased and malting barley prices rose as demand from the Brewing Malting and Distilling industry started to increase as Covid restrictions eased.

For data and information for cereals on a crop year basis (July to June) please see the official UK cereal balance sheets published by the [Agriculture and Horticulture Development Board](#).

Wheat

Table 7.2a to 7.2c Wheat; production, value, supply and use (thousand tonnes unless specified otherwise)

Enquiries: Allan Howsam on +44(0)20 802 66123

Email: Crops-statistics@defra.gov.uk

Table 7.2a

Production	2019	2020	2021 (prov.)
Area (thousand hectares)	1,816	1,387	1,790
Yield (tonnes per hectare)	8.9	7.0	7.8
Volume of harvested production	16,225	9,658	13,988
Value of production (£ million)	2,434	1,544	2,705
Sales	1,998	1,918	1,989
On farm use	227	209	231
Change in stocks	209	-583	485

Table 7.2b

Prices (£ per tonne)	2019	2020	2021 (prov.)
Milling wheat	162	172	211
Feed wheat	147	160	192

Table 7.2c

Supply and use	2019	2020	2021 (prov.)
Production	16,225	9,658	13,988
EU imports	670	1,547	1,436
Non-EU imports	552	586	614
EU exports	964	377	291
Non-EU exports	152	143	1
Total new supply	16,331	11,271	15,746
Change in farm and other stocks	1,814	-2,792	1,844
Total domestic uses	14,517	14,063	13,902
Flour milling	5,814	5,930	5,627
Animal feed	7,459	6,936	6,907
Seed	281	215	278
Other uses and waste	963	982	1,090
Production as % of total new supply for use in UK	99%	86%	89%
% of home grown wheat in milling grist	87%	81%	76%

Notes for tables 7.2a to 7.2c:

1. All cereal production estimates have been standardised to 14.5% moisture content.
2. Excludes farm saved seed.

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Harvested production of wheat was 45% higher in 2021 than 2020 at just under 14 million tonnes, which represents a more average UK production following the 2020 harvest which was the lowest production since 1981. This was primarily due to an increase in both the planted area and yield which rose by 29% and 12%, respectively. The value of production of wheat was 75% higher in 2021 at £2.7bn.

Domestic Human and Industrial wheat demand for flour milling (including starch and bio-ethanol) was 5.1% lower in 2021 compared to 2020 at 5.6 million tonnes, with imports increasing by 18% to 1.3 million tonnes. Demand from flour millers was reduced from 2020 but with the domestic crop showing the lowest premium milling wheat weights since 2012, imports were required. In 2021, the two UK biofuel plants were either closed (Vivergo) or not running at full capacity (Ensus) and using quantities of imported maize as an alternative to domestic wheat when market conditions were favourable. Within the starch sector structural changes saw one plant cease production at the end of November 2020. Usage of wheat for animal feed was similar to 2020 at just over 6.9 million tonnes. The percentage of wheat in the cereal ration increased once the 2021 harvest became available. Prior to that, the lack of wheat available had encouraged more use of barley and to a lesser extent maize in feed rations.

Total wheat imports in 2021 were 3.9% lower than 2020 at 2.05 million tonnes despite demand from the milling sector. Exports in 2021 were 292 thousand tonnes compared

to 520 million tonnes in 2020, with tight domestic supplies reducing the quantity of wheat available for export. Freight transport has also caused disruption to trade. The UK has been a net importer of wheat since 2016.

Barley

Table 7.3a to 7.3c Barley; production, value, supply and use (thousand tonnes unless specified otherwise)

Enquiries: Allan Howsam on +44(0)20 802 66123

Email: Crops-statistics@defra.gov.uk

Table 7.3a

Production	2019	2020	2021 (prov.)
Area (thousand hectares)	1,162	1,388	1,150
Yield (tonnes per hectare)	6.9	5.9	6.1
Volume of harvested production	8,048	8,117	6,961
Value of production (£ million)	1,072	1,062	1,162
Sales	707	761	893
On farm use	271	286	353
Change in stocks	94	15	-84

Table 7.3b

Prices (£ per tonne)	2019	2020	2021 (prov.)
Malting barley	146	140	188
Feed barley	125	130	159

Table 7.3c

Supply and use	2019	2020	2021 (prov.)
Production	8,048	8,117	6,961
EU imports	66	97	114
Non-EU imports	0	2	4
EU exports	1,580	1,157	663
Non-EU exports	211	418	107
Total new supply	6,323	6,641	6,309
Change in farm and other stocks	389	36	-754
Total domestic uses	5,935	6,605	7,063
Brewing/distilling	1,908	1,639	1,807
Animal feed	3,787	4,690	5,024
Seed	187	223	185
Other uses and waste	52	53	47
Production as % of total new supply for use in UK	127%	122%	110%

Notes for tables 7.3a to 7.3c:

1. All cereal production estimates have been standardised to 14.5% moisture content.
2. Value of production excludes farm-saved seed.

[Download the full Crops dataset.](#)

The value of barley increased by 9.4% between 2020 and 2021 to £1.2bn, despite the production of barley decreasing by 14% and the area by 17%. The area change was driven by a decrease for spring barley of 31% to 745 thousand hectares which offset a 30% increase in winter barley area to 405 thousand hectares. Growers switched back to winter barley due to more favourable winter planting / crop conditions negating the need for replacement spring crops.

The 2021 barley harvest decreased by 14% compared to 2020, to a total volume of just under 7 million tonnes.

Barley exports fell by more than 800 thousand tonnes to just over 770 thousand tonnes in 2021.

Demand for barley from the brewing, malting and distilling sector began to recover once Covid-19 related hospitality restrictions were lifted. Usage from the Brewing Malting and Distilling sector increased to 1.8 million tonnes in 2021, an increase of 10% on the 1.6 million tonnes in 2020. Demand for barley from the animal feed sector increased by 7.1% to 5.0 million tonnes in 2021 compared to 2020, with barley significantly increasing its share of the cereal feed ration until the 2021 wheat harvest became available. This increased usage was due to barley being available in greater volumes and competitively priced compared to feed wheat.

Oats

Table 7.4a to 7.4c Oats; production, value, supply and use (thousand tonnes unless specified otherwise)

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Table 7.4a

Production	2019	2020	2021 (prov.)
Area (thousand hectares)	182	210	200
Yield (tonnes per hectare)	5.9	4.9	5.6
Volume of harvested production	1,076	1,031	1,123
Value of production (£ million)	132	150	151
Sales	92	103	115
On farm use	32	32	39
Change in stocks	8	15	-3

Table 7.4b

Prices (£ per tonne)	2019	2020	2021 (prov.)
Milling oats	147	137	152
Feed oats	115	115	136

Table 7.4c

Supply and use	2019	2020	2021 (prov.)
Production	1,076	1,031	1,123
EU imports	25	25	28
Non-EU imports	0	0	0
EU exports	93	62	29
Non-EU exports	2	4	8
Total new supply	1,006	990	1,114
Change in farm and other stocks	138	29	130
Total domestic uses	868	961	984
Milling	522	561	505
Animal feed	316	366	444
Seed	25	29	28
Other uses and waste	5	5	6
Production as % of total new supply for use in UK	107%	104%	101%

Notes for tables 7.4a to 7.4c:

1. All cereal production estimates have been standardised to 14.5% moisture content.
2. Value of production excludes farm-saved seed.

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In 2021, the harvested production of oats increased by 4.2% to 1.1 million tonnes driven by an increase in yield (up 14%) offsetting a decrease in area (down 5%). Production was the highest since 1973. The value of production increased to £151m (up 1%).

UK oats usage is dominated by the oat milling sector which decreased by 10% to 505 thousand tonnes in 2021 compared to 2020, as demand for breakfast cereal foods eased. Use of oats in animal feed increased by 21% to 444 thousand tonnes due to availability and some switching from barley to oats in feed rations (cheaper alternative), Oats have a high fibre content which is useful for ruminant diets and horses but not suitable for poultry. Oat exports decreased from 66 thousand tonnes to 37 thousand tonnes - the majority of UK exports continue to be to EU countries. Imports were 3 thousand tonnes higher in 2021 than in 2020 at 28 thousand tonnes.

Straw

Cereal straw production in 2021 was estimated at 8.6 million tonnes, an increase of 41% on the 2020 crop (6.1 million tonnes) and 7.8% higher than the 5 year average (2016 - 2020) of 7.7 million tonnes. Low straw yields in 2020 and the increased usage due to the cold/wet winter in 2020 – 2021 meant that stocks were low at the start of the baling season. In 2021 there was a substantial increase in the areas planted; areas of winter wheat were 29% higher (1.8 million hectares) and winter barley areas 31% higher (397 thousand hectares) than 2020. Around 82% of the cereal area was baled in 2021, which is higher than the 2020 figure of 79%. There were increased proportions baled across all but the oat crop which led to a total area of 2.5 million hectares baled in 2021 compared to 2.3 million hectares baled in 2020. In 2021, wheat straw yields were on average 4.0 tonnes per hectare, winter barley 2.7 tonnes per hectare, spring barley 2.8 tonnes per hectare and oats yielding 1.6 tonnes per hectare.

Oilseed rape and linseed

Table 7.5a to 7.5b Oilseed rape; production, value, supply and use (thousand tonnes unless specified otherwise)

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Email: Crops-statistics@defra.gov.uk

Table 7.5a

Production	2019	2020	2021 (prov.)
Area (thousand hectares)	530	380	307
Yield (tonnes per hectare)	3.3	2.7	3.2
Volume of harvested production	1,752	1,038	981
Value of production (£ million)	586	360	488
sales	621	459	499
change in stocks	-35	-99	-11
Prices (£ per tonne)	334	347	497

Table 7.5b

Supply and use	2019	2020	2021 (prov.)
Production	1,752	1,038	981
EU imports	258	224	449
Non-EU imports	96	279	472
EU exports	74	114	25
Non-EU exports	0	0	0
Total new supply	2,032	1,426	1,876
Production as % of total new supply for use in UK	86%	73%	52%

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In 2021, oilseed rape production fell by 5.5% compared to 2020 to 981 thousand tonnes mainly due to a historically low planted area. The value of oilseed rape increased by 36% between 2020 and 2021 to £488 million, the main driver of this was the price increase of 43% to £497 per tonne. Oilseed rape yields in 2021 returned to a more standard rate at 3.2 tonnes per hectare after the historical low of the 2020 harvest. The area planted decreased 19% at 307 thousand hectares.

Oilseed Rape establishment in 2021 was much more successful than 2020. Cabbage stem flea beetle (CSFB) damage was generally reduced, thought to be because of early drilling dates, with favourable soil conditions.

Table 7.6 Linseed production; value, supply and use

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Email: Crops-statistics@defra.gov.uk

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Table 7.6 Linseed figures are no longer presented here as the area grown in the UK is so small. Historical data can be found in the datasets (Table 7.6). Area data can be found in chapter 2 (Structure of the industry) Table 2.2 Crop areas and livestock numbers.

Sugar beet

Table 7.7a to 7.7b Sugar beet production and value; Refined sugar production and supply (thousand tonnes unless specified otherwise)

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Table 7.7a

Sugar Beet	2019	2020	2021 (prov.)
Area (thousand hectares)	100	104	91
Yield (tonnes per hectare)	78	57	82
Volume of harvested production	7,763	5,894	7,420
Value of production (£ million)	210	167	216
Sugar content %	17%	16%	17%
Price (average market price (£ per adjusted tonne))	27	28	29

Table 7.7b

All sugar (refined basis)	2019	2020	2021 (prov.)
Production	1,189	906	1,189
EU imports	514	271	194
Non-EU imports	430	428	469
EU exports	180	91	15
Non-EU exports	68	70	25
Total new supply	1,886	1,443	1,811
Production as % of total new supply for UK use	63%	63%	66%

Notes for tables 7.7a and 7.7b:

1. Average price for all sugar, including transport allowance and bonus.
2. Sugar coming out of the factory in the early part of the year is regarded as being part of production in the previous calendar year.

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Sugar beet production increased by 26% between 2020 and 2021 to 7.4 million tonnes. The value of production rose by 30% between 2020 and 2021 to £216 million. Following a colder winter than seen in previous years aphid numbers decreased to low levels and in 2021 and there was no need to utilise the derogation in place for use of neonicotinoid in the crop. In 2021, a good mix of rainfall and better seed beds resulted in a better growth to the crop. Yields in 2021 returned to 5-year levels excluding 2020. Prices showed an increase of 3.1% between 2020 and 2021 to £29.1t/Ha. The 2021 planted area showed a decrease of 13% compared to 2020 to 91 thousand hectares and yields were 82 tonnes per hectare up 44%.

Protein crops (field Peas and field Beans)

Table 7.8a to 7.8b Protein crops (field peas and field beans - thousand tonnes unless specified otherwise)

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Table 7.8a

Peas for harvesting dry	2019	2020	2021 (prov.)
Area (thousand hectares)	41	52	61
Yield (tonnes per hectare)	3.9	3.1	3.2
For animal feed			
Volume of harvested production	147	94	176
Value of production (£ million)	26	19	39
For human consumption			
Volume of harvested production	13	66	20
Value of production (£ million)	2	12	4

Table 7.8b

Field beans	2019	2020	2021 (prov.)
Area (thousand hectares)	137	181	188
Yield (tonnes per hectare)	4.0	3.0	3.7
Volume of harvested production	548	544	694
Value of production (£ million)	104	111	160

Notes for tables 7.8a and 7.8b:

1. Peas exclude vining peas.
2. Animal feed figures cover only that part of the crop which is assumed to be used for stock-feed including for pets and specialist bird food. It also includes an estimate for those varieties originally grown for human consumption but did not meet the required grade. The percentage utilised for animal feed is variable with typical estimates ranging from 30-60%.

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The overall area of pulses in 2021 showed an increase from those seen in 2020 with an increase in both the bean and pea area. Pulses remained a popular crop option due to greening requirements of the Common Agricultural Policy although restrictions on the use of plant protection products on crops grown on Ecological Focus Areas (EFA) and UK exit from the EU may affect the area planted going forward. Pulses are a good source of energy and protein and can be used in the diets of poultry, cattle and pigs as well as aquaculture and pet food. Pulses are also able to fix nitrogen from the atmosphere into the soil.

The total area of field peas increased by 18% between 2020 and 2021 to around 61 thousand hectares. The proportion of this area utilised for animal feed increased to 90% from 59% in 2020. Total production for animal feed increased by 86% to an estimated 176 thousand tonnes. Consequently, production utilised for human consumption decreased to an estimated 20 thousand tonnes. Field peas yield averaged at 3.2 tonnes per hectare in 2021 compared to 3.1t/ha in 2020. However, yields varied depending on how well soils retained moisture during the dry spring. Harvest of both peas and beans usually starts in August which in 2021 coincided with a period of heavy rain, but fortunately conditions improved in September and most crops were harvested in good condition (albeit with drying required). The best yields of peas in 2021 were from the South East and South West; overall quality was generally good and there were few viruses and diseases prevalent this year.

The area of field beans in 2021 was 3.5% higher than 2020 at 188 thousand hectares. Increased area and higher average yields meant production increased by 28% to an estimated 694 thousand tonnes. Average yields increased to 3.7t/ha from 3.0t/ha in 2020. The best yields were crop beans grown in the North East and Yorkshire. Winter beans were planted in generally favourable conditions in autumn 2020 which led to good establishment. The dry spring caused some moisture deficit for crops grown on lighter soil but crops on heavier soils fared better, retaining sufficient moisture until rain arrived in May. Spring beans were sown in dry, cool conditions and establishment depended on soil type with some areas affected by moisture deficits. Bruchid beetle activity was reduced this year (particularly in northern areas) and crop quality was generally good.

Fresh vegetables

Table 7.9a to 7.9c Fresh vegetables; production, value, supply and use (thousand tonnes unless specified otherwise)

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Table 7.9a

Production	2019	2020	2021 (prov.)
Area (thousand hectares):	115	119	113
Grown in the open	115	118	112
Protected	0.8	0.9	0.8
Value of production (£ million):	1,516	1,670	1,668
Grown in the open	1,180	1,320	1,295
Protected	336	350	374
Selected crops:			
Cabbages	76	83	73
Carrots	175	185	185
Cauliflowers	57	78	63
Calabrese	71	85	83
Lettuces	196	209	207
Mushrooms	140	130	118
Onions	142	148	154
Tomatoes	84	89	123

Table 7.9b

Prices (farm gate price £ per tonne)	2019	2020	2021 (prov.)
Selected crops:			
Cauliflowers	635	771	682
Tomatoes	1,378	1,363	1,803

Table 7.9c

Supply and use	2019	2020	2021 (prov.)
Total production	2,524	2,599	2,548
EU imports	2,007	1,892	1,577
Non-EU imports	349	321	401
EU exports	122	102	67
Non-EU exports	21	6	2
Total new supply	4,737	4,704	4,457
Production as % of total new supply for use in UK	53%	55%	57%

Notes for tables 7.9a to 7.9c:

1. Data for vegetables and salad crops grown in the open is from the June Survey.
2. Protected area excludes area of mushrooms.

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The value of vegetable production decreased by 0.1% to £1.7bn between 2020 and 2021, with total production decreasing by 2.0% at 2.5 million tonnes.

Areas for vegetables reduced by 5.0% between 2020 and 2021 to 113 thousand hectares with demand remaining high post-Covid lockdown. Although total volume is 2.0% lower the value only decreased by 0.1%.

The year started with another very wet winter, but a period of dry weather allowed soil conditions to become favourable enough for early drillings of carrots, onions and vining peas in late February. Late frosts and freak hailstorms caused a small percentage of salad crops to be lost. Traditional summer conditions began in June; crops such as carrots, brassicas and salads made good growth during the warm weather and showers and caught up some of the delayed growth caused by the prolonged cold in the spring.

Domestic production as a percentage of total new supply to the UK for all fresh vegetables was 57% in 2021 compared to 55% in 2020.

Plants and flowers

Table 7.10a to 7.10b Plants and flowers area, value of production and trade (thousand tonnes unless specified otherwise)

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Table 7.10a

Production	2019	2020	2021 (prov.)
Area (thousand hectares):	12	12	12
Value of production (£ million)	1,381	1,367	1,580
Flowers and bulbs	125	127	128
Pot plants	317	283	316
Hardy ornamental nursery stock	939	957	1,137

Table 7.10b

Trade (£ million)	2019	2020	2021 (prov.)
Total imports (excl. Channel Islands)	1,228	1,228	1,259
Bulbs	75	83	71
Cut flowers	693	643	695
Foliage	52	50	68
Indoor plants	140	164	148
Outdoor plants	90	94	107
Trees	98	104	110
Other	81	90	61
Total exports	76	68	55
Bulbs	8	7	7
Cut flowers	33	26	22
Foliage	1	1	1
Indoor plants	11	10	7
Outdoor plants	4	4	3
Trees	4	3	6
Other	17	18	9

Notes for table 7.10a and 7.10b:

1. Areas relate to field areas multiplied by the number of crops in the year and hence differ from those shown in table 2.2.
2. Trade totals may differ to the sum of the components due to rounding.

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Agriculture in the United Kingdom 2021

The value of production in the ornamental sector increased by 16% to £1.6bn between 2020 and 2021.

2021 was a challenging year for the hardy nursery stock sector due to a combination of poor weather and higher than usual demand because of the pandemic. For field grown stock, bare root hedging sales performed well with shortages of UK grown stock across the industry. Direct online sales to the public also remained good for many businesses, but not all, since lockdown; these factors have resulted in minimal wastage of these lines. The value of production in the hardy nursery sector increased by 19% to £1.1bn between 2020 and 2021.

For the pot plant sector, overall production increased again in 2021, through increased estimates for unit value for hydrangea, foliage and 'other' plants. Interest in house plants increased, with a shift in production from flowering plants (e.g. orchids) to foliage plants.

In 2021, hardy nursery stock showed a 19% increase in value at an estimated £1.1 billion (£957m in 2020). Flowers and bulbs showed a 0.9% increase in value at an estimated £128m (£127m in 2020). The pot plant sector saw a 11% increase in value at £316m (£283m in 2020).

Potatoes

Table 7.11a to 7.11c Potatoes production, value, supply and use (thousand tonnes unless specified otherwise)

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Table 7.11a

Production	2019	2020	2021 (prov.)
Area sown (thousand hectares)	144	142	137
Area harvested (thousand hectares)	117	120	116
Yield (tonnes per hectare harvested)	45	46	46
Volume of harvested production	5,307	5,513	5,307
For human consumption	3,412	3,858	3,401
Seed	367	366	365
Stockfeed and waste	1,529	1,289	1,540
Sales	5,306	5,132	5,323
For human consumption	3,490	3,548	3,500
Seed	367	366	365
Sold for stockfeed	1,450	1,219	1,458
End year stocks	2,353	2,664	2,565
Change in stocks	-78	310	-98
Value of production (£ million)	761	821	703
Sold for human consumption	648	633	585
Sold for seed (including farm saved seed)	112	120	120
Sold for stockfeed	15	12	15
Change in stocks	-14	55	-16

Table 7.11b

Prices paid to registered producers (£ per tonne)	2019	2020	2021 (prov.)
Early/maincrop (for human consumption)	186	179	167
Seed	305	329	329
Stockfeed	10	10	10

Table 7.11c

Supply and use	2019	2020	2021 (prov.)
Total production	3,778	4,224	3,767
Imports	2,553	2,347	1,827
Exports	691	595	432
Net trade (negative means net export)	1,862	1,753	1,395
Early/maincrop	-43	49	-59
Seed	-100	-102	-75
Processed (raw equivalent)	2,005	1,806	1,529
Total new supply (raw equivalent)	5,641	5,976	5,162
Production as % of total new supply for use in UK	67%	71%	73%

Notes for tables 7.11a to 7.11c:

1. Prices are average price paid to registered producers.
2. Negative net trade values indicate net exports.

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The value of potatoes was £703m in 2021, a decrease of 14% from 2020 (£821m) with the area sown reducing by 3.8% to 137 thousand hectares. Prices and yield information were previously obtained from the AHDB who stopped producing data midway through the year following the results of their ballot. In absence of this data Defra looked at trends in historic data and sought input from stakeholders on the value of the sector.

Fresh fruit

Table 7.12a to 7.12c Fresh fruit production, value, supply and use (thousand tonnes unless specified otherwise)

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Table 7.12a

Production	2019	2020	2021 (prov.)
Outdoor fruit area (thousand hectares)	35	34	33
Orchard fruit	24	23	23
Soft fruit	11	11	10
End year stocks	65	61	106
Value of production (£ million)	903	1,045	917
Orchard fruit	276	340	287
Soft fruit	627	705	629
Sales	917	1,044	874
Change in stocks	-14	1	42
Selected crops:			
Dessert apples	142	158	154
Culinary apples	42	81	43
Pears	23	20	22
Raspberries	161	140	154
Strawberries	404	473	399

Table 7.12b

Prices (farm gate price £/tonne)	2019	2020	2021 prov.)
Selected crops:			
Dessert apples	685	788	817
Culinary apples	202	405	228
Pears	286	216	360
Raspberries	5,857	5,598	7,977
Strawberries	2,330	3,145	2,541

Table 7.12c

Supply and use	2019	2020	2021 (prov.)
Total production	688	657	576
EU imports	1,379	1,265	997
Non-EU imports	2,279	2,299	2,330
EU exports	159	174	35
Non-EU exports	3	3	2
Total new supply	4,184	4,043	3,866
Change in stocks	-14	1	42
Total domestic uses	4,198	4,043	3,824
Production as % of total new supply for use in UK	16%	16%	15%

Notes for table 7.12a to 7.12c:

1. Orchard fruit includes field area of commercial and non-commercial orchards only.
2. Stock data relates to apples and pears.
3. Value of production excludes change in stocks for apples and pears.
4. Value of production includes glasshouse fruit.
5. Excludes change in stocks for apples and pears.
6. EU trade data no longer includes dried fruit.

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The value of fruit production decreased by 12% between 2021 and 2020 to just under £917m, with orchard fruit decreasing by 15% to £287m and soft fruit decreasing by 11% to £629m. The value of raspberries increased by £14m to £154m in 2021, an 10% increase on 2020. Meanwhile the value of strawberries showed a 16% decrease to £399m. Heavy rain and snow in the first three weeks of February 2021 delayed field operations such as planting fruit trees and soft fruit crops. In contrast to recent years, very cold weather during February and the first three weeks of March delayed bud break and the early development of all fruit crops. Consequently, the season was a week to 10 days later than the long-term average and remained that way for the rest of the growing year, including harvest. Regular overnight frosts in April damaged flowering fruit crops and reduced yield potential, as did heavy rain in June.

Domestic production of fresh fruit as a percentage of total new supply reduced by 8.3% between 2021 and 2020 to 15%.

Data Sources and Revisions

Further detailed information on vegetables, plant and flowers and fruit statistics can be found in the annual publication [Horticultural Statistics](#). Some of the more detailed commentary in this chapter is based on data in that report that are not presented here.

Agriculture in the United Kingdom 2021

Figures for 2021 are provisional and may be subject to revision.

There have been revisions to the data for oats back to 2018, and 2019 for wheat and barley, and some fruit data to 2016.

Chapter 8: Livestock

Summary

Key results for 2021 compared to 2020

- The value of **beef and veal** increased by 10% to £3.3bn. Home-fed production decreased by 4.6% to 891 thousand tonnes.
- The value of **pig meat** decreased by 2.6% to £1.4bn. Home-fed production increased by 4.0% to 982 thousand tonnes.
- The value of **mutton and lamb** production increased by 12% to £1.5bn. Home-fed production decreased by 9.5% to 277 thousand tonnes.
- The value of **poultry meat** increased by 2.5% to £2.9bn. Home-fed production remained at 2.0 million tonnes.
- The value of **milk and milk products** increased by 7.8% to £4.8bn, mainly due to rising prices.
- The value of **eggs** for human consumption increased by 11% to £818m. Production increased by 4.1% to 1.0 billion dozens.

Meat production

Total meat production in 2021 decreased by 0.8% to 4.1 million tonnes. This was the first year on year decrease since 2012 and production remained 17% higher than a decade earlier. Cattle and sheep meat production decreased (by 4.6% and 9.5% respectively). This was balanced out by a 4.0% increase in pig meat production, whilst poultry meat production remained unchanged. Poultry continues to make up 48% of home-fed meat production.

The total value of meat increased by 5.9% to £9.1bn. The only area with a decrease in value is home-fed pig production. The value decreased by 2.6% and was caused by falling prices. In contrast, the value of cattle and sheep production has continued to increase significantly in 2021 (by 10% and 12% respectively). These increases follow on from around an 8% increase in value in 2020, despite decreasing production.

Table 8.1a to 8.1b - Meat production

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Table 8.1a

Home-fed production ('000 tonnes)	2019	2020	2021
Cattle	917	935	891
Pigs	919	944	982
Sheep	318	306	277
Poultry	1,931	1,993	1,995
Total production	4,085	4,178	4,146

Table 8.1b

Value of production (£ million)	2019	2020	2021
Cattle	2,729	2,955	3,265
Pigs	1,344	1,481	1,442
Sheep	1,253	1,363	1,529
Poultry	2,679	2,829	2,901
Total value	8,005	8,628	9,137

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Cattle and calves: beef and veal

The value of beef and veal production increased by 10% to £3.3bn in 2021, following on from an increase of 8.3% in 2020. In 2021 this increase in value was driven by increasing prices, including a 13% increase in the price of finished prime cattle. There were however increased input costs for farmers as the average price of cattle and calf feed in the final quarter of 2021 increased 15% compared to 2020 (see [Animal feed prices](#)).

Home-fed cattle production decreased by 4.6% to 891 thousand tonnes. Whilst 2020 had the highest production since 1995, production volume in 2021 was the lowest since 2015. There was reduced demand at the start of the year with trade uncertainty as the UK left the EU. Beef and veal exports to the EU decreased by 48% in the first quarter of the year before returning to more usual levels (see [cattle, sheep and slaughter statistics](#)).

Table 8.2a to 8.2c - Cattle and calves; beef and veal

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Table 8.2a

Population (thousand head at June)	2019	2020	2021
Total cattle and calves	9,739	9,615	9,603
Dairy cows	1,871	1,850	1,850
Beef cows	1,527	1,509	1,485

Table 8.2b

Production	2019	2020	2021
Total home-fed marketings (thousand head)	2,855	2,854	2,700
Steers, heifers and young bulls	2,007	2,047	1,951
Calves	156	106	86
Cows and adult bulls	691	700	663
Average dressed carcass weight (kg):			
Steers, heifers and young bulls	346	346	346
Calves	61	76	98
Cows and adult bulls	309	312	314
Production (dressed carcass weight):			
Home-fed production	917	935	891
Value of production (£ million)	2,729	2,955	3,265
Value of home-fed production	2,799	3,013	3,228
Change in work-in-progress	-64	-57	39
Less imported livestock	6	1	2
Plus breeding animals exported	-	-	-
Subsidies	40	40	40
Value of production at basic price (£ million)	2,769	2,995	3,305
Price (pence per kg deadweight)			
Finished cattle: All prime cattle	334	353	398

Table 8.2c

Supply and use ('000 tonnes dressed carcase weight equivalent)	2019	2020	2021
Home-fed production	917	935	891
Imports from EU	303	301	310
Imports from the rest of the world	14	6	11
Exports to EU	140	113	98
Exports to the rest of the world	27	35	34
Total new supply	1,067	1,094	1,081
Home-fed production as % of new supply for use in the UK	86%	85%	82%

Notes for tables 8.2a to 8.2c:

1. Measures of home-fed marketings, dressed carcase weights, production and value. include animals raised and slaughtered in the UK, excluding any animals removed from the food chain.
2. Change in work-in-progress is a valuation of the change in work-in-progress of animals to be slaughtered.
3. Subsidies refer to the Scottish Suckler Beef Support Scheme.
4. Value of production at basic price includes subsidies and taxes.
5. Dressed carcase weight does not include meat offals or trade in preserved or manufactured meat products. Boneless meat has been converted to bone-in weights to enable calculation of home fed production as % of total new supply. Volumes may be different to those in Chapter 13 -Trade.
6. EU trade includes meat from live finished animals both in the EU and the rest of the world.
7. - means 'nil' or 'negligible'.

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Pigs and pig meat

Home-fed pig meat production in 2021 reached the highest level since 1999 at 982 thousand tonnes, increasing by 4.0% from 2020. Despite this the value of home-fed pig meat production fell by 2.6% due to lower prices. The average clean pig deadweight price reduced by 7.8% (12.5 pence per kg) to £1.48 per kg, following an increase of 12.4 pence per kg in 2020. Despite this reduction in pig price the cost of compound pig feed increased by 12% over the year (see [Animal feed prices](#)).

The pig industry continued to be affected by the coronavirus (COVID-19) pandemic in 2021. Producers had anticipated a greater demand for pig meat, including exports to China, and increased their herds accordingly but instead there was an excess across Europe. Despite expectations there were reduced export opportunities to China as their domestic herd recovered following African Swine Fever outbreaks.

As coronavirus (COVID-19) restrictions lifted at the start of the year, some foreign butchers returned home. There were also concerns about accessing seasonal labour at the end of the year. In addition, CO2 shortages in September threatened pig slaughter capacity. Despite these challenges, slaughter throughput remained above the 5-year average for most of the year and increased overall by 1.9%. This was insufficient to process the increased quantity of pigs on farms and resulted in a backlog towards the end of the year. This was estimated at approximately 200,000 at the end of year. This was a difficult time for pig farmers, with some animals culled on farm and many more were slaughtered at a higher weight than usual. UK governments brought in a range of schemes to aid pig producers and processors including temporary visas for butchers, payments to cover overweight price penalties and private storage aid.

Table 8.3a to 8.3c - Pigs and pigmeat

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Table 8.3a

Population	2019	2020	2021
Total pigs (thousand head at June)	5,078	5,055	5,323
Sows in pig and other sows for breeding	356	345	345
Gilts in pig	57	57	54

Table 8.3b

Production	2019	2020	2021
Total home-fed marketings (thousand head)	10,645	10,693	10,918
Clean pigs	10,385	10,436	10,659
Sows and boars	260	257	258
Average dressed carcass weight (kg):			
Clean pigs	85	87	89
Sows and boars	146	144	146
Production (dressed carcass weight):			
Home-fed production	919	944	982
Value of production (£ million)	1,344	1,481	1,442
Value of home-fed production	1,340	1,474	1,420
Change in work in progress	4	4	21
Less imported livestock	..	..	..
Plus breeding animals exported	1	3	2
Price (pence per kg deadweight)			
Clean pigs	149	161	148

Table 8.3c

Supply and use ('000 tonnes dressed carcass weight equivalent)	2019	2020	2021
Home-fed production	919	944	982
Imports from EU	756	665	623
Imports from rest of the world	1	1	1
Exports to EU	158	138	85
Exports to rest of the world	118	147	126
Total new supply	1,401	1,325	1,395
Home-fed production as % of new supply for use in the UK	66%	71%	70%

Notes for tables 8.3a to 8.3c:

1. Measures of home-fed marketings, dressed carcass weights, production and value include animals raised and slaughtered in the UK, excluding any animals removed from the food chain.
2. A valuation has been made of the change in work-in-progress of animals to be slaughtered.
3. Dressed carcass weights do not include meat offals or trade in preserved or manufactured meat products. Boneless meat has been converted to bone-in weights to enable calculation of home fed production as % of total new supply. Volumes may be different to those in Chapter 13 - Trade.
4. EU trade includes meat from live finished animals both in the EU and the rest of the world.
5. . . indicates that no data is available.

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Sheep and lambs: mutton and lamb

The value of home-fed sheep meat production increased by 12% to £1.5bn despite a 9.5% decrease in production. Concerns about trade after the UK left the EU contributed to lower meat production in 2021 as a greater number of lambs had been slaughtered for export in December 2020.

Production value increased because of large price rises as the average finished sheep price in Great Britain increased by 21% to £5.76 per kg. Sheep are less reliant on feed than other areas of meat production, so the industry has been less affected by the 17% increase in compound sheep feed prices during 2021 (see [Animal feed prices](#)). On 1 December there were 669,000 (3.0%) more sheep on farms compared to 2020 suggesting an increased breeding flock as farmers look to capitalise on high prices (see [Livestock numbers in England and the UK](#)).

In 2021, there were significant reductions in both imports and exports (17% and 20% respectively) of lamb and mutton. Lamb imports have traditionally been dominated by

New Zealand but high shipping costs and increased demand in Asia reduced this in 2021. Most mutton and lamb exports are to the EU and this was heavily reduced at the start of the year as the UK left the EU. By September, EU exports had returned to a more normal level.

Table 8.4a to 8.4c Sheep and lambs; mutton and lamb

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Table 8.4a

Population	2019	2020	2021
Total sheep and lambs (thousand head at June)	33,580	32,697	32,957
Breeding flock 1 year and over	16,035	15,370	15,624
Lambs under one year old	16,672	16,486	16,403

Table 8.4b

Production	2019	2020	2021
Total home-fed marketings (thousand head)	15,343	14,985	13,409
Clean sheep and lambs	13,578	13,482	12,186
Ewes and rams	1,765	1,502	1,223
Average dressed carcase weight (kg):			
Clean sheep and lambs	20	20	20
Ewes and rams	27	27	27
Production (dressed carcase weight):			
Home-fed production	318	306	277
Value of production (£ million)	1,253	1,363	1,529
Value of home-fed production	1,247	1,373	1,517
Change in work in progress	6	-10	12
Less imported livestock	-	-	-
Plus breeding animals exported	-	-	-
Subsidies	7	7	7
Value of production at basic prices (£ million)	1,260	1,370	1,536
Price			
Finished sheep (Great Britain pence per kg dressed carcase weight)	416	475	576

Table 8.4c

Supply and use (dressed carcase weight equivalent)	2019	2020	2021
Home-fed production	318	306	277
Imports from the EU	21	14	7
Imports from the rest of the world	59	58	52
Exports to the EU	101	92	75
Exports to the rest of the world	6	9	6
Total new supply	290	276	255
Home-fed production as % of new supply for use in the UK	109%	111%	109%

Notes for tables 8.4a to 8.4c:

1. Measures of home-fed marketings, dressed carcase weights, production and value include animals raised and slaughtered in the UK, excluding any animals removed from the food chain.
2. A valuation of the change in work-in-progress of animals to be slaughtered.
3. Subsidies refer to Scottish Upland Sheep Support Scheme.
4. Including subsidies and taxes.
5. Price is unweighted average of weekly prices at representative markets.
6. Supply and use figures do not include meat offals or trade in preserved or manufactured meat products. Boneless meat has been converted to bone-in weights to enable calculation of home fed production as % of total new supply. Volumes may be different to those in Chapter 13 – Trade.
7. EU trade includes meat from live finished animals both in the EU and the rest of the world.
8. ' - ' means 'nil' or 'negligible'.

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Poultry and poultry meat

The overall value of home-fed poultry meat production increased by 2.5% in 2021 to £2.9bn. This was primarily driven by a 6.0% increase in the value of table chickens. Whilst the value of the industry did increase, compound poultry feed also increased in price by 14% during 2021 (see [Animal feed prices](#)).

Home-fed poultry meat production increased by less than 1% to 2.0bn tonnes whilst the proportion of poultry meat from table chickens increased from 86% to 89%. This was due to a 3.6% increase in table chicken meat production to 1.8bn tonnes. By contrast, there were reductions in the home-fed production of boiling fowls (16%), turkeys (26%) and ducks and geese (5.8%).

There was caution in the turkey industry going into 2021 after the coronavirus (COVID-19) restrictions at the end of 2020 led to a much lower demand for turkey meat than usual. The industry is also reliant on temporary workers in the lead up to Christmas and

Agriculture in the United Kingdom 2021

as the UK left the EU there were worries about accessing sufficient labour. This resulted in 15% fewer turkey poults being placed during the usual peak period of July to September, compared to the 5 year average. Overall, the number of turkeys slaughtered in 2021 reduced by 26% to 12 million (see [Poultry statistics](#)).

From 29 November 2021, a UK-wide housing order was introduced to protect poultry against avian influenza. Outbreaks of this disease led to some culls of birds towards the end of the year but there was no noticeable impact on the number of birds being slaughtered.

Table 8.5a to 8.5c - Poultry and poultrymeat

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Table 8.5a

Population	2019	2020	2021
Number (thousand head at June):	187,072	181,957	190,019
Table chickens	121,590	118,388	126,693
Laying and breeding fowl	54,732	53,544	52,839
Turkeys, ducks, geese and all other poultry	10,750	10,025	10,487

Table 8.5b

Production	2019	2020	2021
Slaughterings (millions):	1,138	1,182	1,183
Table chickens	1,050	1,097	1,116
Boiling fowls (culled hens)	59	58	45
Turkeys	16	16	12
Ducks & geese	14	11	10
Production (carcase weight):	1,931	1,993	1,995
Chickens and other table fowls	1,642	1,711	1,772
Boiling fowls (culled hens)	84	84	70
Turkeys	175	174	129
Ducks & geese	30	25	23
Value of production (£ million):	2,679	2,829	2,901
Table chickens	2,090	2,256	2,392
Boiling fowls (culled hens)	8	8	7
Turkeys, ducks, geese	425	379	296
Change in work in progress in fowls	-11	-11	19
Exports of live poultry	142	161	162
Hatching eggs for export	88	92	75
Less live poultry imported	41	18	26
Less hatching eggs imported	20	38	22

Table 8.5c

Supply and use ('000 tonnes dressed carcase weight equivalent)	2019	2020	2021
Production	1,931	1,993	1,995
Imports from the EU	469	420	380
Imports to the rest of the world	25	14	23
Exports to the EU	256	313	237
Exports to the rest of the world	109	97	97
Total new supply	2,060	2,017	2,064
Production as % of new supply for use in the UK	94%	99%	97%

Notes for tables 8.5a to 8.5c:

1. Laying and breeding fowl are hens and pullets kept mainly for producing eggs for eating.
2. Carcase weight figures do not include meat offals or trade in preserved or manufactured meat products. Boneless meat has been converted to bone-in weights to enable calculation of home fed production as % of total new supply. Volumes may be different to those in Chapter 13 – Trade.

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3. A valuation has been made of the change in work-in-progress of fowls to be slaughtered.
4. Prices are average producer prices.
5. . . means 'not available' or 'not applicable'.

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Milk

Milk production for human consumption decreased by less than 1% to 15.1 billion litres, the first year-on-year decrease since 2016. The dairy herd fell by less than 1% to 1,853 thousand head and the average yield per cow increased by 5 litres to 8,213 per annum.

The average milk price across the 2021 calendar year (excluding bonus payments) increased by 2.5 pence per litre (ppl) to 31.1ppl, an increase of 8.7%. Most of this change came towards the end of the year and December 2021 had an average price of 35.5ppl, up 14% (4.1ppl) on December 2020. Price increases reflected the rising input costs for farmers including for fertiliser, feed and energy. The price rises meant that the total value of production increased by 7.8% to the highest value on record of £4.8bn (see [milk prices](#)).

Table 8.6a to 8.6c - Milk

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Table 8.6a

Population and yield	2019	2020	2021
Dairy herd (annual average, thousand head)	1,871	1,856	1,853
Average yield per dairy cow (litres per annum)	8,132	8,208	8,213

Table 8.6b

Production (million litres)	2019	2020	2021
Milk from the dairy herd	15,215	15,229	15,221
Milk from the beef herd	-	-	-
Raw milk leaving farm	14,985	15,002	14,990
Milk processed on farm	90	87	90
On farm use	140	140	140
Volume for human consumption	15,075	15,089	15,081
Value of production (£ million)	4,452	4,426	4,770
Raw milk leaving farm	4,362	4,337	4,676
Processed milk products from farm	50	49	51
On farm use	41	40	44
Subsidies	..	..	..
Less levies	..	..	..
Value of production at market prices (£ million)	4,452	4,426	4,770
Prices (average milk producer prices, net of delivery charges (pence per litre))			
Farmgate price excluding bonus payments	29	29	31
Farmgate price including bonus payments	29	29	31

Table 8.6c

Supply and use (million litres)	2019	2020	2021
Production (excludes on farm use from 2015)	15,075	15,089	15,081
Imports	118	116	116
Exports	906	872	872
Total new supply	14,287	14,333	14,325
For liquid consumption	6,280	6,228	6,141
for manufacture	7,754	7,813	7,911
Butter	397	408	433
Cheese	4,457	4,641	4,764
Cream	315	327	322
Yoghurt	470	528	463
Condensed milk	354	351	343
Milk powders	1,015	875	881
Other products	745	682	705
Dairy wastage and stock change	254	292	272
Other uses	130	130	130
Production as a % of new supply	106%	105%	105%

Notes for tables 8.6a to 8.6c:

1. Dairy herd figures are the average size of the dairy herd across the whole year.
2. Dairy herd is defined as dairy cows over two years of age with offspring.
3. Milk from dairy herd excludes suckled milk. Milk from beef cows is no longer recorded as no longer considered significant. This item has been removed from this table but can still be found in the accompanying dataset to 2016.
4. On-farm use is farmhouse consumption and milk fed to livestock.
5. Raw milk leaving farm in the value of raw milk sold to other businesses (dairies) for processing.
6. Processed milk products from farm are sold direct to the consumer.
7. Prices are average milk producer prices, net of delivery charges.
8. Condensed milk includes that used in the production of chocolate crumb and in the production of machine skimmed milk.
9. "Other uses" include farmhouse consumption, milk fed to stock and on farm waste. Excludes suckled milk.

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Hen eggs

The value of egg production for human consumption increased by 11% to £818 million; the fifth consecutive year on year increase and the highest value on record. Overall production of eggs increased by 4.1% on 2020, with increases in both eggs for human consumption and eggs for hatching. The average price of eggs also increased by 6.2% (4.8 pence per dozen) to 81.7 pence per dozen. This average price rise was partly due to the increase of the free range market share (59% in 2021 compared to 54% the year before), together with generally increasing prices (see [egg statistics](#)).

From 29 November 2021, a UK-wide housing order was introduced to protect poultry against avian influenza. Outbreaks of this disease led to some culls of birds towards the end of the year. However, although all free range birds had to be housed indoors, their eggs were still able to be sold as free range beyond the end of 2021.

There was a large decrease by 20% of imports of eggs in 2021, the lowest imports since 2002. At the same time, exports increased by 32%. The UK egg price was above the EU price for most of 2021 having been lower for over 3 years prior.

Agriculture in the United Kingdom 2021

Table 8.7a to 8.7c - Hen eggs

Enquiries: Abigail Hayes on +44 (0) 2077 141 375

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Table 8.7a

Population (thousands at June)	2019	2020	2021
Number of laying fowl	41,346	39,758	40,568

Table 8.7b

Production	2019	2020	2021
Volume of production of eggs	1,128	1,105	1,150
Eggs for human consumption	979	962	1,001
Eggs for hatching	119	128	131
Other (a)	30	16	18
Value of production of eggs for human consumption (£ million)	659	740	818
(b)			
Prices (pence per dozen)			
Weighted average of eggs graded in the UK	67.4	76.9	81.7

Table 8.7c

Supply and use	2019	2020	2021
UK production of eggs for human consumption	979	962	1,001
Eggs sold in shell	852	852	882
Eggs processed	127	109	119
Imports from the EU	151	148	118
Imports from the rest of the world	1	1	1
Exports to the EU	79	26	34
Exports to the rest of the world	-	-	1
Total new supply	1,052	1,084	1,085
Production as % of new supply for use in the UK	93%	89%	92%

Notes for tables 8.7a to 8.7c:

1. "Other" eggs include hatching eggs for export and waste.
2. Eggs for hatching and hatching egg exports are not valued as they are included in the final value for poultry in table 8.5.
3. Prices are those paid by packers to producers in the United Kingdom and take account of all egg systems - intensive, free range, barn and organic. Bonus payments are included.
4. EU trade figures include shell egg equivalent of whole (dried, frozen and liquid) egg, egg yolk and albumen.
5. indicates a 'nil' or 'negligible' value.

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Revisions

Figures in these tables for 2021 are provisional and may be subject to revision.

Revisions have been made to previous data due to on-going revisions caused by estimated survey data being replaced with actual data when it is received; survey respondents supplying amended figures for previous survey periods; changes to data supplied by Scotland and Northern Ireland and amended administrative data; updates to trade data supplied by HMRC; and methodological changes.

Chapter 9: Intermediate Consumption

Summary

In 2021:

- The total cost of **intermediate consumption** was £18,854 million, an increase of £2,044 million (12%) from 2020.
- The value of **animal feed** increased by £978 million (17%) from 2020 to £6,710 million.
- The value of **energy** increased by £170 million (14%) from 2020 to £1,404 million.
- The total value of **fertilisers** was £1,617 million, an increase of £559 million (53%) from 2020.

Introduction

Chapter 4 provides more detailed information on input costs and gives a full breakdown of intermediate consumption.

Figures 9.3 and 9.4 present the value of energy and fertilisers respectively. These are presented in real terms, adjusted for inflation, which provides more meaningful comparisons over longer time periods. Comparisons over more recent years are presented at current prices, not adjusted for inflation, which is considered the most intuitive for comparisons over shorter time periods.

Inputs

Figure 9.1 Intermediate consumption (at current prices)

Enquiries: Josh Moatt on +44 (0) 20 771 41913

Email: farmaccounts@defra.gov.uk

Year	Intermediate Consumption (£ Billion)
2016	15.0
2017	15.8
2018	17.0
2019	17.1
2020	16.8
2021	18.9

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Figure 9.1 shows the value of intermediate consumption from 2016 to 2021. Since 2016, the average value of intermediate consumption has been £16.8 billion, with the lowest value of £15.0 billion occurring in 2016 and the highest value of £18.9 billion occurring in 2021, an increase of £2.0 billion (12%) from 2020.

Animal Feed

Table 9.1 Animal feed (thousand tonnes unless stated otherwise)

Enquiries: Allan Howsam on +44 (0) 20 802 66123

Email: allan.howsam@defra.gov.uk

	2019	2020	2021
Compounds:			
Cattle	4,983	5,033	5,371
Calves	249	278	291
Pigs	2,123	2,247	2,508
Poultry	5,264	5,173	5,558
Sheep	783	846	933
Total compounds plus imports less exports	13,343	13,535	14,540
Straight concentrates	6,914	7,038	6,525
Non-concentrates	525	525	525
Inter/intra farm transfer	9,939	9,479	8,922
Total all purchased animal feed	30,721	30,578	30,511
Value of purchased animal feed (£ million)	£5,553	£5,732	£6,710

Notes:

1. Compounds poultry: includes poultry feed produced by 'retail' compounders but excludes production from integrated poultry units which are included within the straight concentrates data.
2. 'Maize for stockfeed' is included within the 'inter/intra farm transfer' category.
3. see Chapter 4: Accounts for a breakdown of the value of animal feed.

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The cost of animal feed is the largest item of expenditure recorded in the production and income account. Usage remained broadly level from 1993 to 2009 (around 25 million tonnes), rising steadily since then to reach a peak of nearly 30.8 million tonnes in 2018 before falling to 30.5 million tonnes in 2021. Despite the broadly increased usage, the value of animal feed used within the agricultural industry has closely followed trends in commodity prices, shaped by exchange rates and world prices.

The total value of all animal feed increased by 17% between 2020 and 2021 to £6.7 billion, while the total volume of all 'purchased' animal feed decreased by 0.2% to 30.5

million tonnes. Total compound feed production increased by 7.4%, with increases in pigs (12%), sheep (10%), poultry (7.4%), cattle (6.7%) and calves (4.9%). 2021 saw variable quality of forage due to moisture deficit in spring producing poor first cuts, which improved in second and third cuts as warmer and wetter weather arrived in June and into July. Extended outside grazing of livestock reduced the need to utilise stored forage supplies. The pig sector saw increased usage due to the backlog of pigs for slaughtering. The poultry sector began to recover as demand from the hospitality sector increased, and high lamb prices encouraged producers to use more growing / finishing compound feed during the autumn.

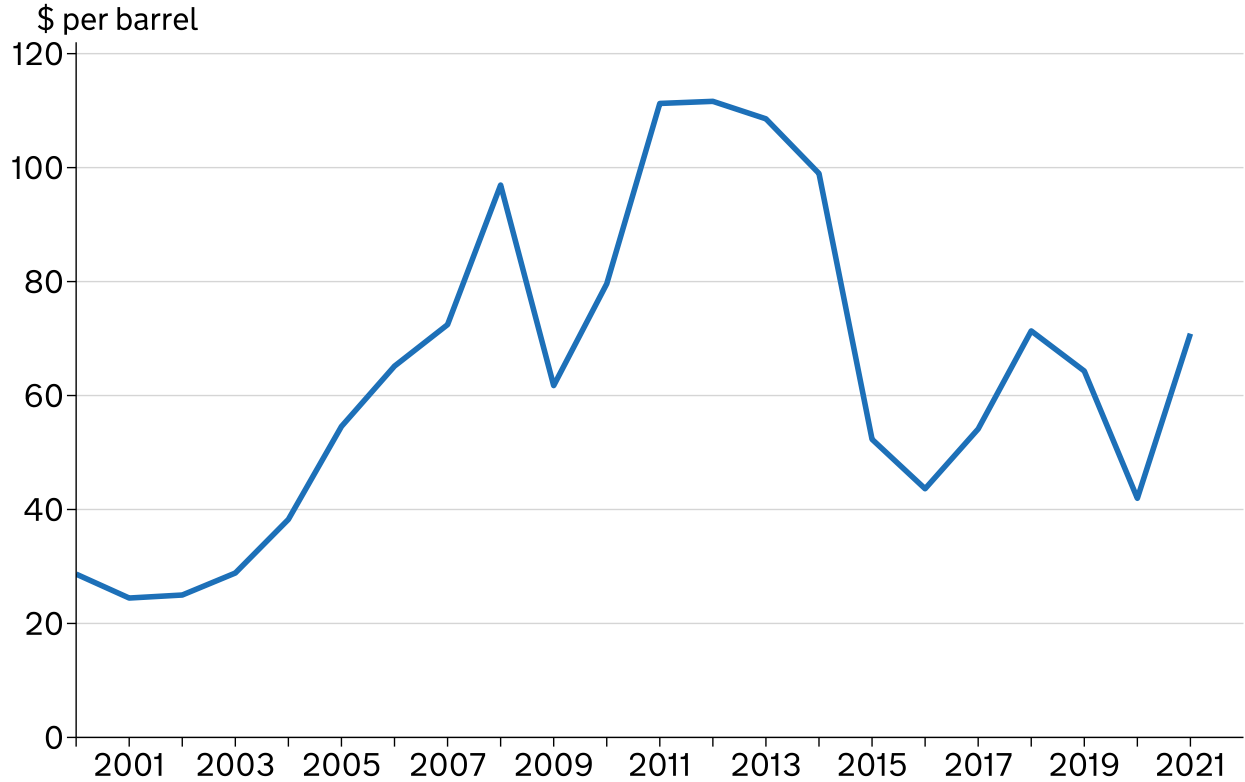
Defra June 2021 Survey results show a 4.4% increase in poultry to 190 million birds, with an increase in broilers (table chickens) offsetting a decrease in the breeding flock. The pig population increased by 5.3% due to a 5.9% increase in fattening pigs. Sheep and lambs showed a small increase of 0.8% to almost 33 million, whereas the population of cattle / calves decreased by 0.1% to 9.6 million. Besides compound feed usage, there was a decrease of 7.3% in purchased straight concentrates and a 5.9% decrease in inter/intra farm sales, caused by a lack wheat availability in the first half of the year from the 2020 harvest and the lower 2021 barley harvest.

Oil Prices

Figure 9.2 Annual Europe Brent Spot Price

Enquiries: Josh Moatt on +44 (0) 20 771 41913

Email: farmaccounts@defra.gov.uk



Source: US Energy Information Administration

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Some inputs, such as fuel, electricity and fertilisers, are closely linked to oil price. Consequently, oil price plays a role in the increase or decrease of the costs for running machinery and for heating, lighting, drying crops and the cost of fertiliser purchases.

Figure 9.2 shows the trend in annual Europe Brent crude oil prices since 2000. Oil prices rose strongly between 2002 and 2008 but fell sharply in 2009 as a global crisis hit. Between 2011 and 2014, oil prices were high but relatively stable due to a weak global economy and tension in the Middle East.

Into 2015, strong global production exceeded demand, causing prices to fall rapidly, dropping below \$45 per barrel by 2016. Prices rose steadily through 2017 and 2018, reaching just over \$70 a barrel, amid fears of US sanctions and global shortages. However, the price was still much lower compared to the high prices seen at the start of the decade.

In 2020, coronavirus related restrictions resulted in a rapid contraction in global demand for oil, particularly for travel. This caused the price to fall below \$42 per barrel for the

Agriculture in the United Kingdom 2021

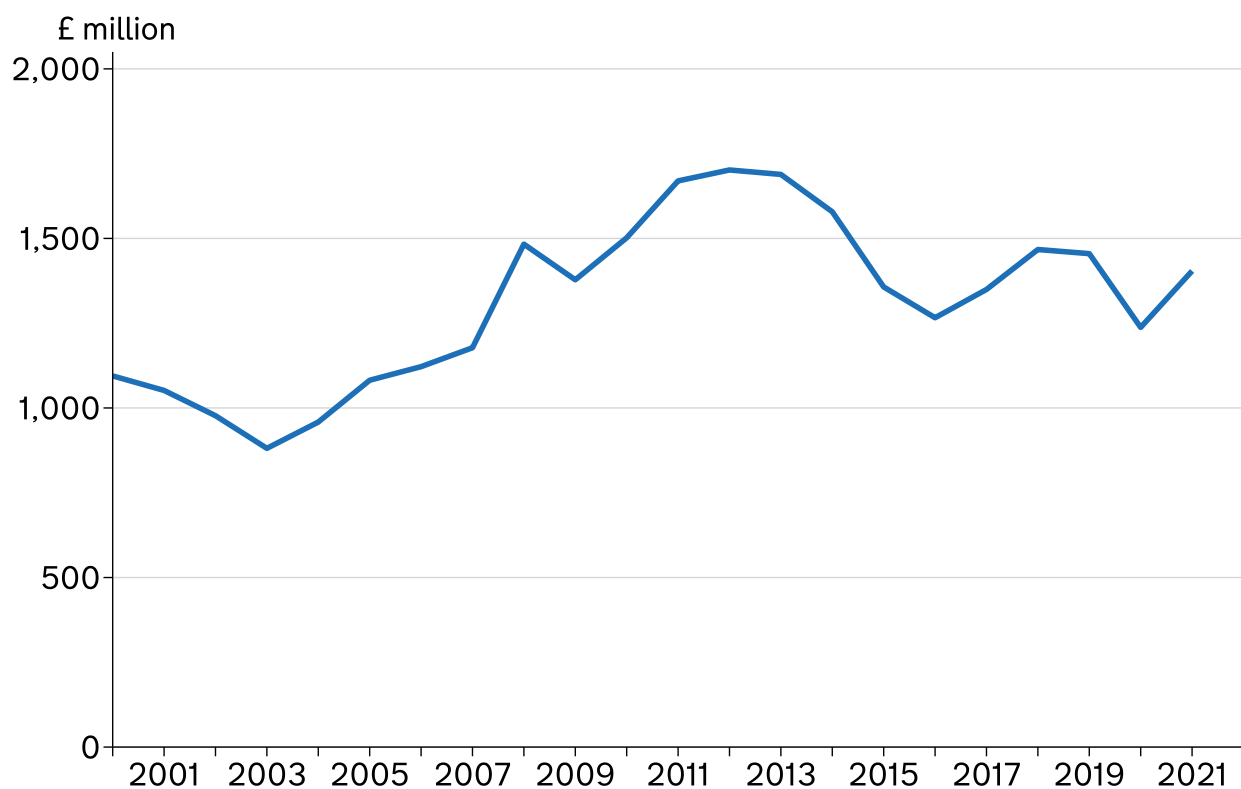
first time since 2004. The price rebounded strongly in 2021, as the easing of Covid-19 restrictions globally saw the demand for oil outpace supply. The average price in 2021 was \$71 per barrel, slightly lower than the peak in 2018 and still considerably lower than the highest price of \$112 per barrel in 2012.

Energy

Figure 9.3 Energy (in real terms)

Enquiries: Josh Moatt on +44 (0) 20 771 41913

Email: farmaccounts@defra.gov.uk



Source: US Energy Information Administration

[Download the full Intermediate consumption dataset.](#)

Figure 9.3 shows the value of energy usage for agriculture in real terms. Over the long term the value of energy costs has followed a similar pattern to that of the crude oil price (see Figure 9.2). Energy costs steadily increased during the 2000s reaching a peak in 2012. From this peak energy costs fell and since 2015 have averaged £1,362 million (in real terms), but with some relatively large year on year fluctuations.

In 2021 the cost of energy was £1,404 million, an increase of £170 million (14%) from 2020 at current prices. This was mainly driven by an increase in motor and machinery fuels of £142 million (18%) to £924 million. This increase was the result of a 20% increase in the average price of motor and machinery fuels, largely following global fuel

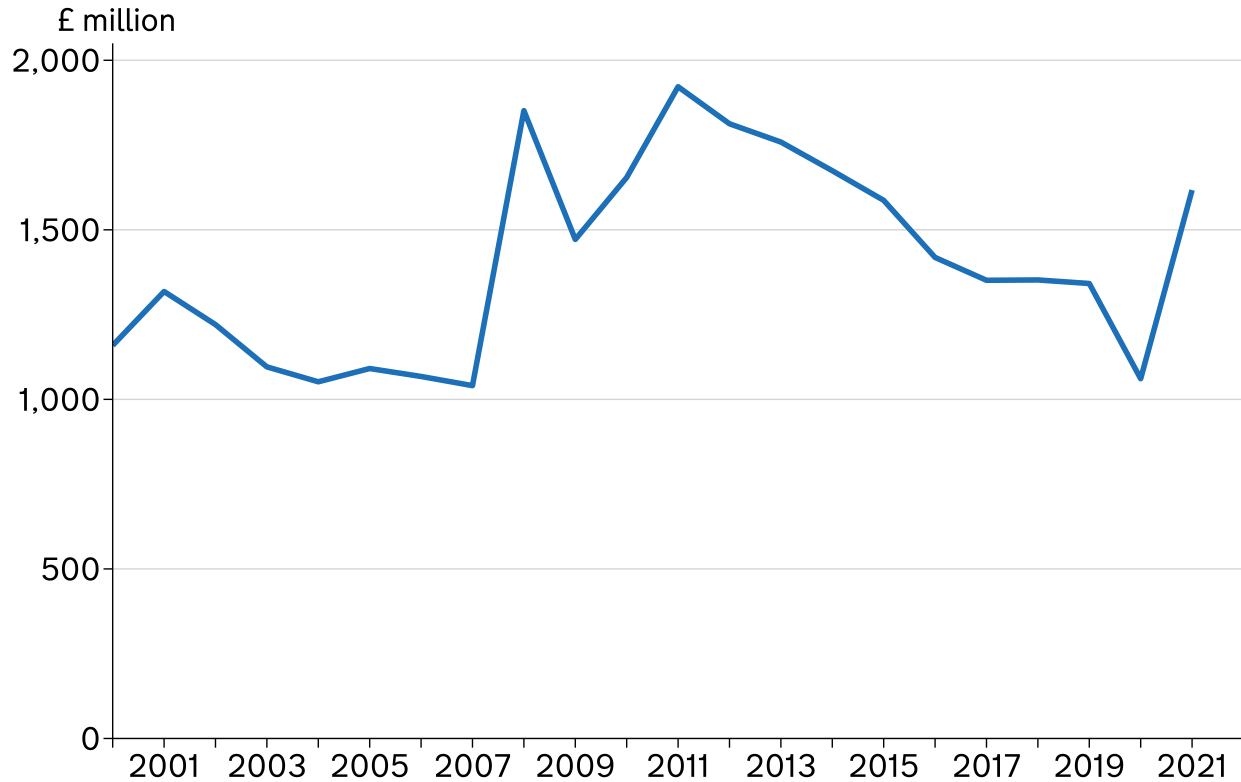
price trends. Similarly, electricity and fuels for heating increased in 2021, rising by £28 million (6.3%) to £480 million.

Fertilisers

Figure 9.4 Fertilisers (in real terms)

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Email: farmaccounts@defra.gov.uk



Source: US Energy Information Administration

[Download the full Intermediate consumption dataset.](#)

As the price of oil directly influences the price of energy it also affects the cost of fertiliser. Natural gas is used in the process of manufacturing nitrogen fertilisers and its price is closely linked to the price of oil. Consequently, if the price of oil rises so does the cost of producing fertiliser.

Figure 9.4 shows the cost of fertilisers since 2000 in real terms. Between 2000 and 2007 the cost of fertilisers was largely stable. However, from 2007 to 2008 the cost of fertilisers increased by 78% (in real terms) and remained high until peaking in 2011. Between 2012 and 2019 the cost of fertilisers steadily declined. In 2020, there was a sharp drop in the cost of fertilisers resulting from reductions in prices as well as the volume of fertilisers used.

Agriculture in the United Kingdom 2021

2021 saw a dramatic increase in the cost of fertilisers, with an increase of £559 million (53%) from 2020, to £1,617 million (at current prices). The main driver of this increase was higher prices, with an average increase in price of 46% across all fertilisers. This price increase was largely the result of higher energy prices raising the cost of manufacturing, coupled with higher demand. There was also a 4.5% increase in the volume of fertilisers used in 2021, due to a return to more fertiliser intensive winter sowing.

Other Input Costs

The cost of seeds in 2021 was £776 million, a decrease of £87 million (-10%) from 2020. This change was the result of a return to more normal sowing practices, following an unusual 2020. 2021 saw favourable conditions for both winter and spring sowing of crops, leading to a return to winter sowing and an 11.4% reduction in the volume of seeds used.

The cost of plant protection products in 2021 was £959 million, an increase of £64 million (7.1%) from 2020. This increase was largely driven by the use of fungicides, which increased in 2021 due to a larger winter cropping and reduction in spring cropping areas. This reflects a return to more traditional cropping practices in 2021, following an unusual 2020 where winter sowing was badly affected by wet weather. 2021 also saw relatively high disease pressure overall. These factors resulted in the use of more robust treatment measures over larger areas, therefore raising the volume of plant protection products used.

Chapter 10: Public Payments

Summary

Key results for 2021

- Total **direct payments** to farmers are expected to decrease by £48 million (-1.4%) to £3,296 million.
- **Basic Payment Scheme (BPS)** payments are expected to increase by £47 million (1.7%) to £2,825 million.
- Payments linked to **agri-environment schemes** are expected to decrease by £77 million (-18%) to £355 million.

Introduction

This chapter shows the value of agricultural support payments in the United Kingdom. Agricultural support will vary as older schemes close and new schemes are introduced, therefore care should be taken when comparing between UK countries and years.

In 2021, agricultural support payments began to change following the UK's departure from the EU Common Agricultural Policy (CAP).

Payments made to UK farmers under the Basic Payment Scheme (BPS) before 2021 were set in Euros and converted to Sterling using the exchange rate set by the European Central Bank for the month of September as a whole. From 2021 onward all BPS payments are funded by the UK exchequer and greening requirements have been removed. BPS shown includes young farmer and redistributive payments and is reported by EU Financial Year which runs October to October. Direct comparisons cannot therefore be made with figures in Chapter 3.

Existing schemes under rural development programmes will continue to be co-funded from the European Agricultural Fund for Rural Development (EAFRD) until 2024 or until remaining funds are depleted, whichever is sooner.

Over the next few years, payments previously made under the CAP will gradually be replaced by payments from the devolved governments. Agricultural domestic support will be administered through new schemes introduced in each country, and will generally be targeted at improving agri-environmental performance.

Direct Payments

The tables below show the direct payments made to agricultural producers that feed into the agricultural accounts (see Chapter 4). Amounts are shown by year and by country for the year 2021.

Agriculture in the United Kingdom 2021

Values shown for a particular year refer to schemes operating in that year and are shown in current price, i.e. not adjusted for inflation, and are expressed as amounts expected to be paid.

Table 10.1: Direct payments to farmers 2019 to 2021 (£ million)

Enquiries: Charlotte Rowley on +44 (0)2077 141697

Email: farmaccounts@defra.gov.uk

	2019	2020	2021
Decoupled and other payments			
Basic payment scheme	2,808	2,778	2,825
Agri-environment schemes	360	433	355
Less favoured areas support schemes	51	30	31
Animal disease compensation	26	25	27
Other	13	31	12
Total decoupled and other payments	3,257	3,297	3,249
Coupled payments (linked to production)			
Total coupled payments less levies	47	47	47
Total direct payments less levies	3,304	3,344	3,296

Notes:

1. Decoupled payments are not linked to production and include the Basic Payment Scheme and agri-environment schemes. Coupled payments are linked to production.
2. Other payments in 2021 include the New Entrants scheme operated in Scotland, and Covid 19 support schemes in Northern Ireland.
3. Coupled payment schemes in 2021 include the Scottish Suckler Beef Support Scheme, the Scottish Upland Sheep Scheme and the Northern Ireland Protein Crops Scheme. Total payments under the Protein Crops Scheme were £0.21 million and so are not shown in Table 10.2 below.

[Download the full Public payments dataset.](#)

Table 10.2: Direct payments to farmers by country (£ million).

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Email: farmaccounts@defra.gov.uk

	England	Wales	Scotland	Northern Ireland
Decoupled and other payments				
Basic payment scheme	1,852	238	426	309
Agri environment schemes	281	33	37	5
Less favoured areas support schemes	..	..	31	..
Animal disease compensation	13	5	..	8
Other	..	..	3	9
Coupled payments	..	..	47	..
Total direct payments less levies	2,147	276	544	331

Notes:

1. ‘..’ means not applicable.

[Download the full Public payments dataset.](#)

Common Agricultural Policy (CAP) payments

Figure 10.1 shows all Pillar 2 Common Agricultural Policy payments for 2016 to 2021. Pillar 2 funds rural development programmes and schemes are co-funded by the European Agricultural Fund for Rural Development until 2024, or until funds are depleted. Data is presented by European Union agricultural financial years and shown in Euros.

In 2021, CAP-funded Pillar 1 payments ended and legacy schemes switched to UK funding. CAP Pillar 1 payments prior to 2021 can be viewed in the full dataset.

Figure 10.1: Pillar 2 Common Agricultural Policy payments for 2016 to 2021 (EUR million)

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Email: michael.redfern@ukcoordinatingbody.gov.uk

Year	EAFRD	Co-financing	Total
2016	641	165	806
2017	542	261	803
2018	581	179	760
2019	776	225	1,001
2020	766	227	992
2021	638	189	827

[Download the full Public payments dataset.](#)

General Services Support

Table 10.3 shows the annual cost of general services funded by UK Government and Devolved Administrations to support the agricultural industry. These are services that benefit the sector as a whole, and do not include payments to individual producers.

Table 10.3: General services support for 2021

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	2021
Agricultural research	262
Pest and disease control	3
Training services	3
Extension and advisory services	75
Inspection services	199
Marketing and promotions services	42
Infrastructural services	43

[Download the full Public payments dataset.](#)

Revisions

Figures for 2021 are provisional and subject to revision.

As a result of more data becoming available over time there have been minor revisions to earlier years in this release. These revisions are intended to enhance the precision of

these estimates. Sometimes additional revisions are necessary to refine the methodology or correct historical errors, such revisions will always be noted.

Below is a list of key revisions that have been carried out since the last publication:

- Figures for total payments under agri-environment schemes from 2010 onwards have been revised to include the most recent data.
- Figures for the number of agreements and the area under the Environmental Stewardship Scheme are in the process of being updated. Figures prior to 2018 do not currently include freestanding HLS agreements, and will be updated when data becomes available.
- The latest UK-level figures for the area of land and number of agreements under agri-environment schemes have been removed from this publication while the methodology for England is being reviewed. Figures for Wales, Scotland and Northern Ireland are available in the full dataset. The 2020 and 2021 figures for England will be updated when the data become available.

Chapter 11: Environment

Summary

- In 2021 utilised agricultural land use stood at 71% of the total area of the United Kingdom.
- Since the late 1990's nitrogen and phosphate application rates have fallen.
- A comparison of soil nutrient balances (in kg per hectare) from the year 2000 to 2020 shows a 17% decrease for nitrogen and a 27% decrease for phosphate.
- Estimated greenhouse gas and air pollution emissions from agriculture have fallen between the year 2000 and 2020 (the most recent data available):
- Nitrous oxide emissions have decreased by 16%.
- Methane emissions have decreased by 12%.
- Ammonia emissions have decreased by 10%.
- The farmland bird index has decreased significantly since 1970 with the index for all farmland species in 2019 less than half of 1970 levels.

Introduction

This chapter provides an overview of the change in inputs (fertiliser, pesticide and water usage) and environmental management over time as well as the monitoring of environmental impacts to which agriculture contributes.

Figure 11.1 Agriculture's environmental footprint (%)

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per cent	Agriculture	Other sectors	Total
Methane emissions	48	52	100%
Nitrous oxide emissions	69	31	100%
Carbon dioxide emissions	2	98	100%
Total GHG emissions	11	89	100%
Ammonia emissions	87	13	100%
Phosphorus in rivers	28	72	100%
Nitrogen in rivers	61	39	100%
Water abstraction	1	99	100%
Area of land	71	29	100%

Source: Collated by Defra

Notes:

Agriculture in the United Kingdom 2021

1. All data are UK and for 2020 except for the following:
2. Water abstraction is England and 2016
3. Nitrogen in rivers is England & Wales, 2004
4. Phosphorus in river is Great Britain, 2006 estimate
5. Area of land 2021

[Download the full Environment dataset.](#)

Whilst agriculture contributes less than 1% to the United Kingdom's economy (see Chapter 4: Accounts), it provides around three-quarters of the indigenous food we eat (see Table 14.1) and is responsible for around 70% of land use (see Figure 11.1). As well as being vital for food production, agriculture helps to shape the landscape, providing important recreational, spiritual and other cultural benefits. This can be viewed in terms of delivering vital ecosystems services, with food production being a provisioning service whilst other environmental and societal benefits are delivered by, for example, cultural and regulating services.

Agricultural production and the associated land use and management are key drivers of the environmental impacts from the sector. A key challenge is to decouple production from its environmental impact so that production can be increased whilst reducing the overall environmental footprint.

Farm practices and the use of inputs (particularly fertilisers and pesticides) directly influence the environmental pressures from farming including the quality, composition and availability of habitats and impact on air, water and soils.

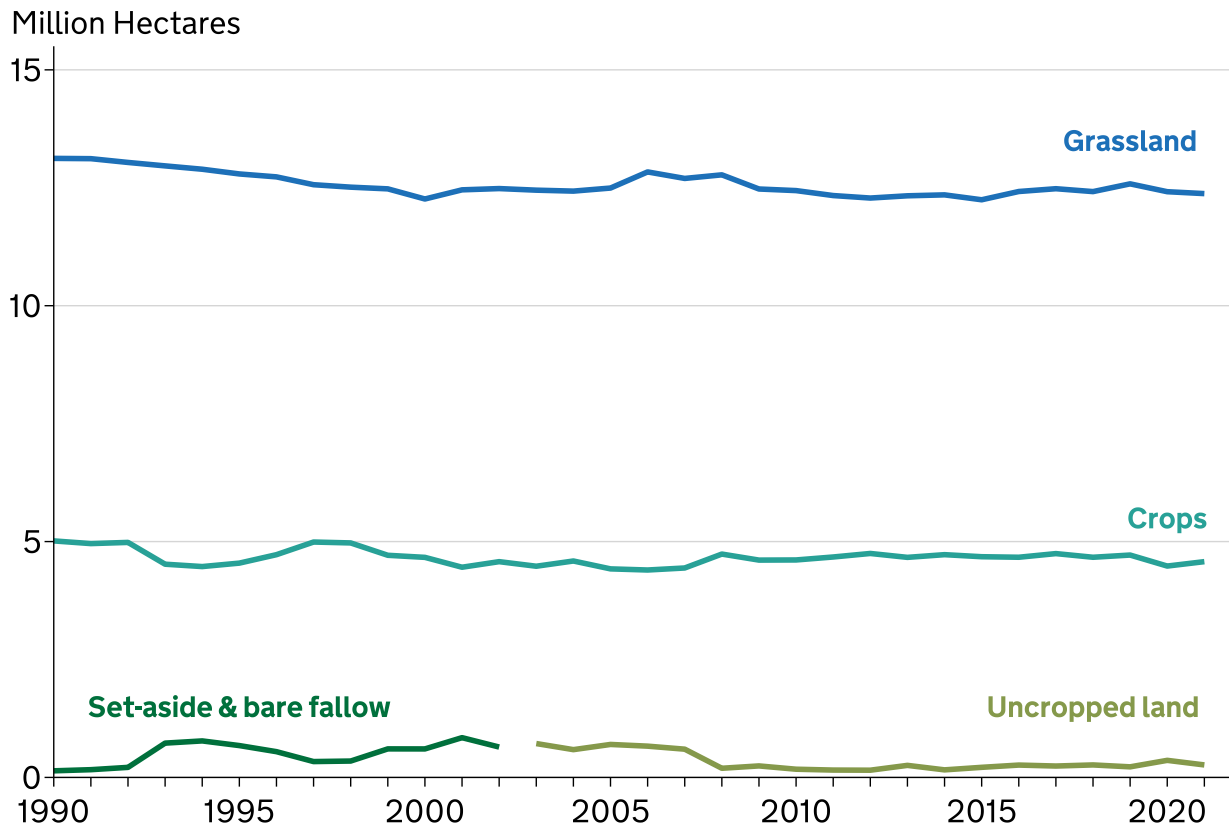
In recent years, the key drivers of change in terms of environmental pressures from agriculture are declines in the number of livestock, specifically ruminants, and reductions in fertiliser applications, particularly on grassland. Reforms to the Common Agricultural Policy, and in particular the decoupling of subsidy payments from production, have been instrumental to these drivers of change. As a result of these reforms, agriculture has become more responsive to market conditions which may influence both positive and negative environmental impacts.

Land use

Figure 11.2 Agricultural land use

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Source: June survey of Agriculture, Defra

Notes:

1. Grassland includes temporary and permanent grasslands, sole rights rough grazing and common rough grazing areas.
2. Set-aside was a scheme within CAP that required farmers to put land out of production.

[Download the full Environment dataset.](#)

In 2021 the proportion of utilised agricultural land used for grassland was 72% with 27% used for crops. Grassland and crop land use have both remained relatively stable from 1990 to 2021 at around 12 to 13 million hectares and 4 to 5 million hectares respectively. The ending of the set-aside scheme in 2008 meant that the area of uncropped land fell sharply that year. From 2008 onwards the area of uncropped land has fluctuated around that level, mainly influenced by commodity prices and weather conditions.

Pesticide usage

Plant protection products (pesticides) are used to regulate growth and to manage pests and diseases in crops. They play a major role in maintaining high crop yields and therefore greater production from agricultural land. However, they can have detrimental impacts on the environment, particularly on terrestrial and aquatic biodiversity.

The need for pesticide usage varies from year to year depending on growing conditions, particularly the weather which influences disease, weed and pest pressures. In addition, longer term variations are due to changes in the range and activity of active substances, the economics of pest control, and resistance issues. In the United Kingdom the treated area of arable crops (number of hectares multiplied by number of applications) has remained relatively stable since 2008, whilst the total amount of pesticide applied (kg/ha) has shown an overall decline.

Figure 11.3 Pesticide use on cereals, Great Britain (kg/ha)

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kg/ha	Fungicides	Growth regulators	Herbicides	Insecticides	Molluscicides	Total
2010	0.12	0.52	0.25	0.06	0.19	1.16
2012	0.12	0.43	0.26	0.05	0.15	1.01
2014	0.13	0.42	0.26	0.03	0.13	0.97
2016	0.15	0.42	0.30	0.02	0.12	1.00
2018	0.15	0.40	0.32	0.02	0.12	1.00
2020	0.14	0.39	0.28	0.01	0.10	0.91

Source: Pesticide Usage Survey

Notes:

1. All pesticides include seed treatments.

[Download the full Environment dataset.](#)

In recent years cereals accounted for the majority of both treated area and the weight of pesticides applied to arable crops in the United Kingdom. The majority of UK cereals (more than 80%) are grown in England. Figure 11.3 shows the application rates for different types of pesticides used on cereal crops in Great Britain and how these have fluctuated over time.

Further information can be found on the [pesticide usage webpage](#).

Water use

Figure 11.4 Water abstraction, England (million cubic metres)

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Year	Spray irrigation	Other Agriculture	Total
2010	102	24	126
2011	117	25	142
2012	50	25	75
2013	97	25	122
2014	88	26	114
2015	94	25	119
2016	84	26	110
2017	87	22	109

Source: Environment Agency

Notes:

1. Based on most recent data available.
2. Spray irrigation includes small amounts of non-agricultural irrigation.
3. 2015 figure has a break in the series where information concerning abstractions in the country of England and the Dee/Wye regional charge areas (formally the Wales regional charge area) has been amalgamated into the North West and Midlands regional charge areas respectively.

[Download the full Environment dataset.](#)

Water abstraction from groundwater and surface water sources may be needed for irrigation purposes to maintain high yields and good crop quality, particularly in areas with low rainfall and for certain crop types. Over abstraction can be detrimental to aquatic ecosystems and limit resource for other industries. In 2017 around 1% of the total water abstracted in England was attributed to agriculture, most of which took place in the south and east of the country.

Volumes of water abstracted for agricultural purposes is highly variable from year to year and greatly influenced by rainfall amounts, especially during the growing season. As demonstrated in Figure 11.4, in 2017, the recorded abstraction rate in England was 109 million cubic litres which was a slight decrease from 110 million cubic litres in 2016.

[Further information on the water abstraction webpage.](#)

Fertiliser uses

Nitrogen and phosphorous are key nutrients needed for crop growth. A deficit in either or both of these nutrients can have a negative impact on crop yields and levels of production. The main source of these nutrients are mineral fertilisers and organic fertilisers such as manures and slurries from livestock. Various factors can have an adverse impact on the environment such as application method, over-application and natural losses from soils and manures. These impacts include water quality (nitrogen and phosphorous levels in waterbodies), air quality (ammonia emissions) and climate change (nitrous oxide emissions).

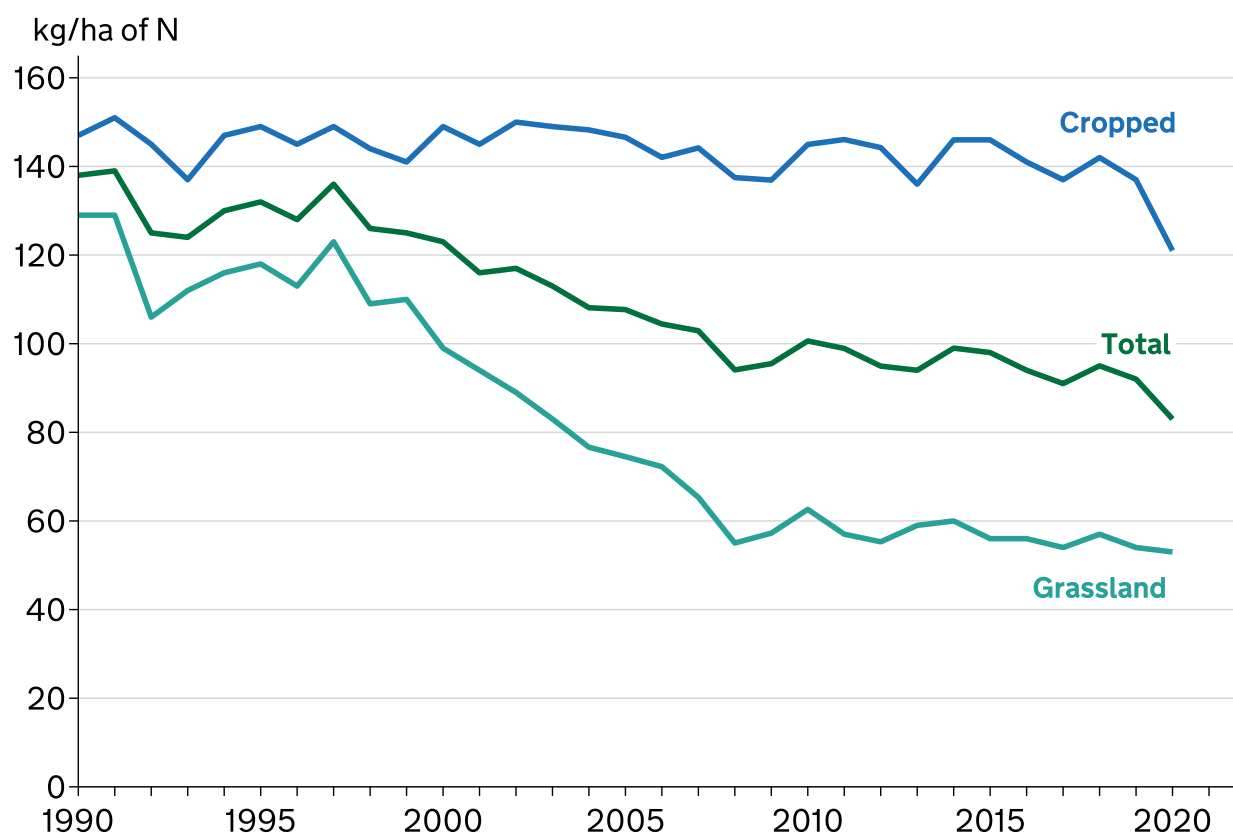
Most agricultural soils do not contain enough naturally occurring plant-available nitrogen to meet the needs of a crop throughout the growing season so supplementary nitrogen applications are needed each year. Nitrogen usually has a large immediate effect on crop growth, yield and quality. Correct rate and timing of applications is important to ensure crop growth requirements are met.

Annual levels of use of nitrogen and phosphate application are influenced by fertiliser prices, crop prices, crop type and weather-related issues during the growing season, for example the fall in phosphorus application rates in 2009 was related to high fertiliser prices and the changes in nitrogen use seen in 2019/20 reflect exceptional changes in the balance of the winter and spring cropping seasons (see Figures 11.5 and 11.6).

Figure 11.5 Nitrogen (N) use (kg/ha) on all crops and grass, Great Britain

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Email: Agri.EnvironmentStatistics@defra.gov.uk



Source: British Survey of Fertiliser Practice

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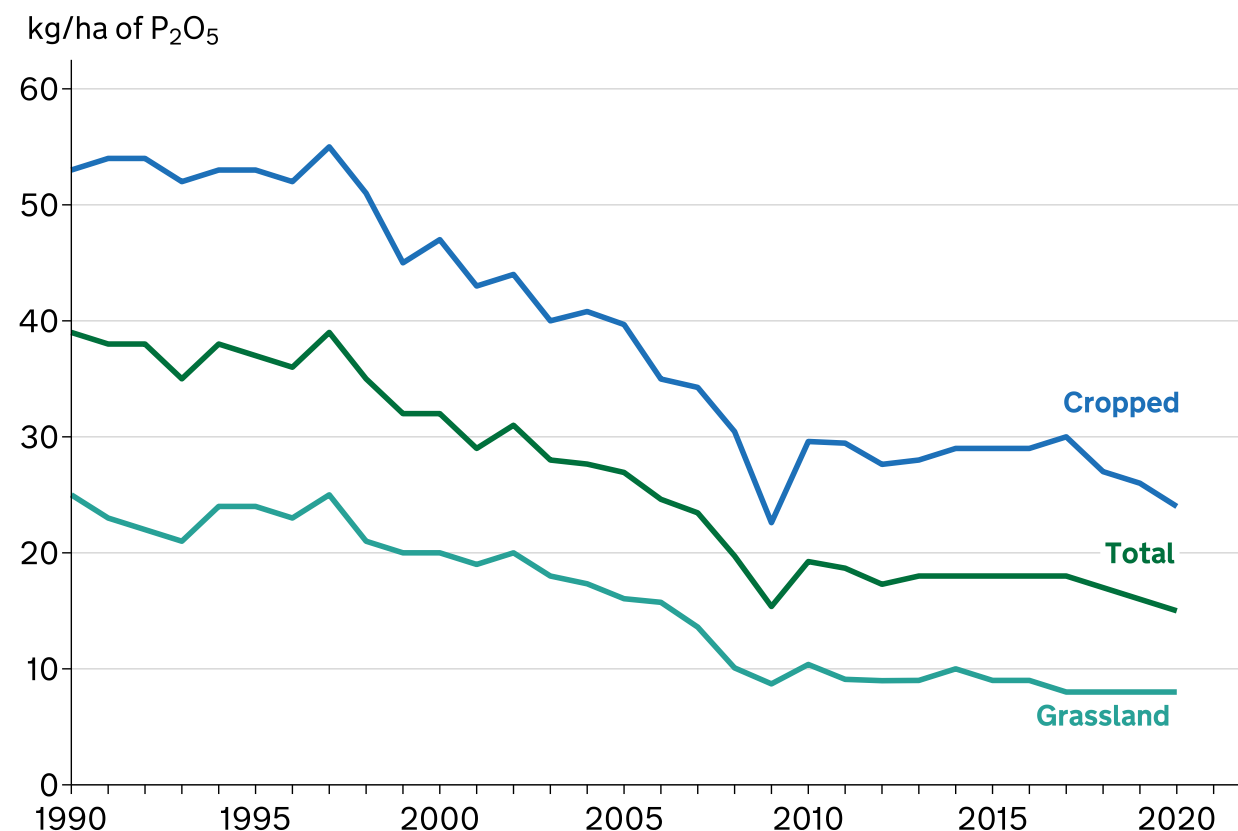
In Great Britain between 1990 and 2019 the overall mineral nitrogen application rate on tillage crops was largely in the range of 140 -150 kg/ha, but the rate in 2020 fell below this level. The rate of nitrogen application fell by 16 kg/ha to 121 kg/ha in 2020 compared to 2019. For grassland, nutrient application rates have always been lower than for cropped land. Between 1990 and 2020 there has been a downward trend in the overall mineral nitrogen application rate on grassland and in 2020 the rate was 53 kg/ha (see Figure 11.5). A reduction in total cattle numbers is thought to have contributed to this, possibly in conjunction with some improvements in manure use efficiency.

Phosphate is applied in fertilisers and manures, particularly to replace the quantities removed in harvested crops. Most British soils can hold large quantities of phosphate in forms that are available for crop uptake over several years. Therefore, managing the supply of phosphate is based on maintaining appropriate levels in the soil with the timing of applications less critical.

Figure 11.6 Phosphate P₂O₅ use (kg/ha) on all crops and grass, Great Britain

Enquiries: Robin Karfoot on +44 (0) 20 802 66449

Email: Agri.EnvironmentStatistics@defra.gov.uk



Source: British Survey of Fertiliser Practice

[Download the full Environment dataset.](#)

From 1990 to 2020 total mineral phosphate application rates have more than halved to a rate of 15 kg/ha in 2020 (see Figure 11.6). More recently the decline has levelled off with a similar rate seen since 2012. For grassland, rates applied have always been less than on cropped land. Both rates on grassland and cropped land have shown an overall downward trend between 1990 and 2020, with rates applied on grassland remaining at 8kg/ha for the last few years.

[Further information found in the British Survey of Fertiliser Practice annual report.](#)

Soil nutrient balances

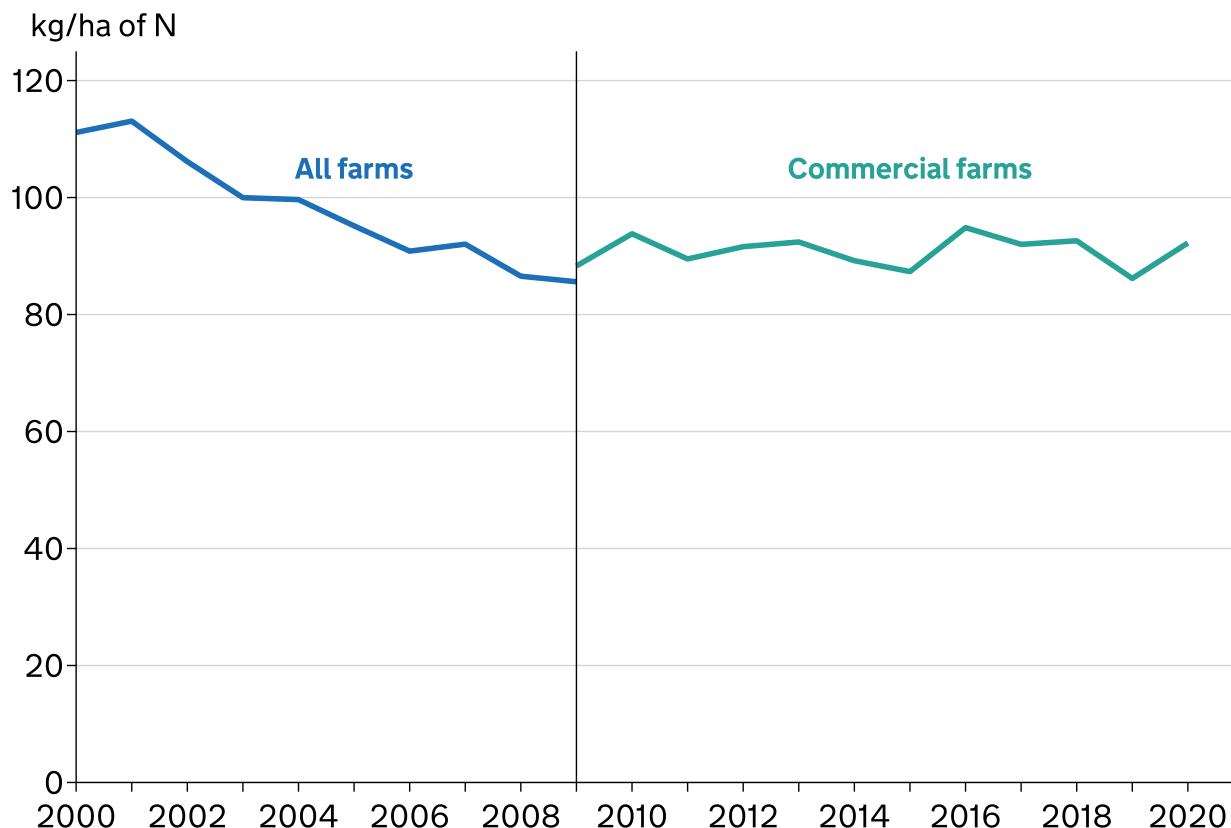
Soil nutrient balances provide an indication of the overall environmental pressure from nitrogen and phosphorus in agricultural soils. They measure the difference between nutrients applied to soils (largely as fertilisers and manures) and those removed from soils by the growth of crops, including grass for fodder and grazing. An increase in the

balance per hectare indicates a greater environmental risk from nutrient losses and their associated emissions whereas a decrease in the balance per hectare broadly indicates a reduced environmental risk. However, there is a risk that nutrient deficits lead to poor soil fertility and subsequent loss of yields.

Figure 11.7 Nitrogen (N) soil nutrient balance (kg/ha)

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Email: Agri.EnvironmentStatistics@defra.gov.uk



Source: Defra, Soil Nutrient Balances

Notes:

7. The series break in 2009 is due to changes in [farm survey data collection](#).
[Download the full Environment dataset](#).

Provisional estimates for 2020 show that the nitrogen balance for the UK was a surplus of 92 kg/ha on managed agricultural land (see Figure 11.7).

This is an increase of 6.1 kg/ha (7%) to the nitrogen balance surplus compared to 2019. The increase was driven by a decrease in offtake of 13.5kg/ha (12%) while inputs decreased by 7.4kg/ha (3.8%) over the same period. The decrease in offtake was attributed to significantly higher cereal crop yields and production in 2019.

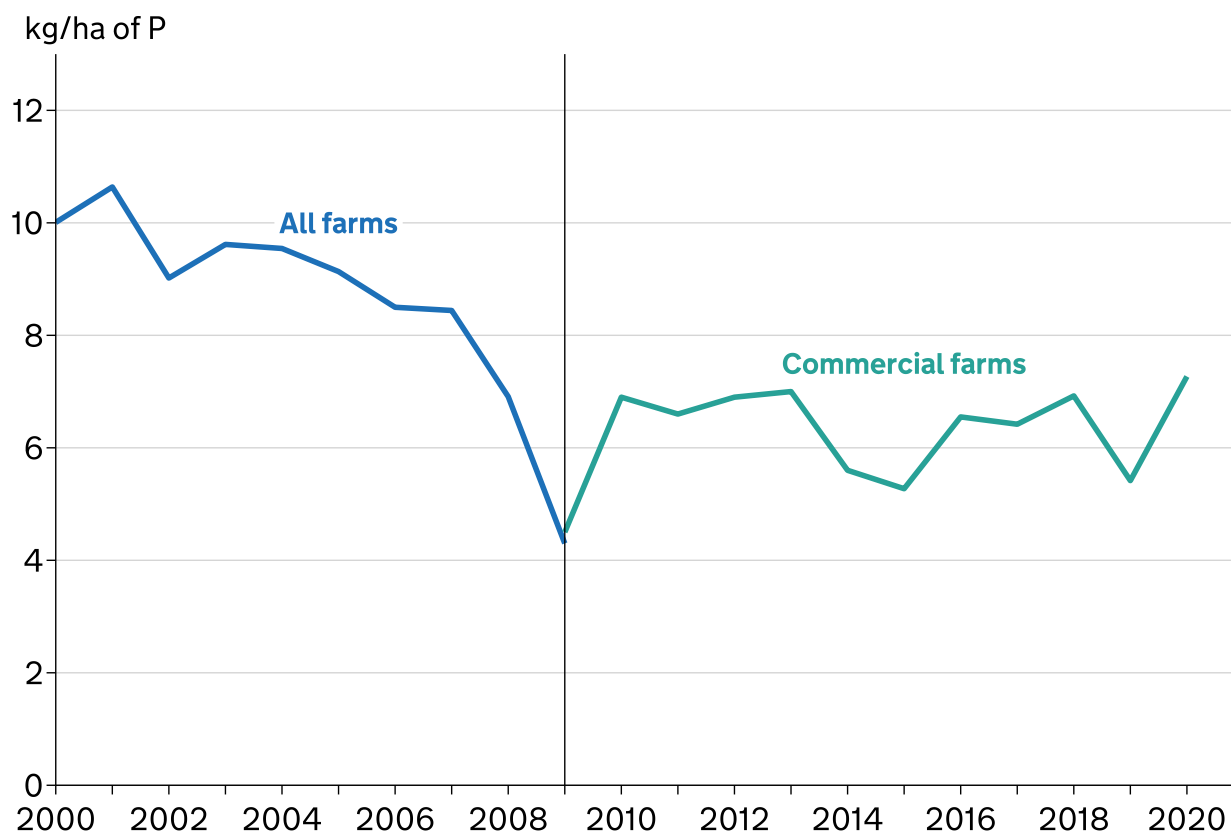
Agriculture in the United Kingdom 2021

The longer-term trend (compared to 2000) shows an overall reduction to the nitrogen balance surplus of 19 kg/ha (17%). The main drivers for this fall have been reductions in the application of inorganic (manufactured) fertilisers and manure production due to lower livestock numbers, although this has been partially offset by a reduction in the nitrogen offtake (particularly forage) over the same period.

Figure 11.8 Phosphorus (P) soil nutrient balance (kg/ha)

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Email: Agri.EnvironmentStatistics@defra.gov.uk



Source: Defra, Soil Nutrient Balances

Notes:

8. The series break in 2009 is due to changes in [farm survey data collection](#). [Download the full Environment dataset](#).

Provisional estimates for 2020 show that the phosphorus balance for the UK was a surplus of 7.3kg/ha on managed agricultural land (see Figure 11.8).

This is an increase of 1.9 kg/ha (34%) to the phosphorus balance surplus compared to 2019. This is the largest surplus for over 10 years and has been driven by a 2.2kg/ha (12%) decrease in offtake while inputs decreased by 1.9kg/ha (1.5%) when compared

to 2019. As with nitrogen, the decreased production in harvested cereal crops significantly impacted the phosphorus balance.

The longer-term trend (compared to 2000) shows an overall reduction of 2.7 kg/ha (27%) with the main drivers being similar to those for nitrogen.

[Further information found on the soil nutrient balances publication can be found here](#)

Water quality

Agriculture contributes to the pollution of water bodies through the leaching of fertilisers, pesticides, and manure (nutrients and faecal bacteria) as well as an increase in sediments. Rainfall may wash a proportion of fertiliser off fields into local water bodies or cause soluble nutrients to filter into groundwater. Pesticides can be washed into water bodies by rainwater or may enter them directly if they are sprayed close to water. Pesticides can also enter groundwater via soil infiltration. In addition, erosion can wash topsoil into water bodies and these soils can carry large amounts of phosphates and agri-chemicals bonded to clay particles.

High nutrient concentrations, particularly phosphorus, can cause nutrient enrichment (eutrophication) resulting in excessive growth of macrophytes and algae which can deplete dissolved oxygen levels. Excessive levels of nutrients must be removed from water bodies used for drinking water to meet legal limits, with water companies incurring significant costs. It has been estimated that agriculture accounts for around 61% of the total nitrogen in river water in England and Wales ² and around 28% of the total phosphorus load in river water in Great Britain ³, although this estimate may also include phosphorus from septic tanks ⁴.

Due to the implementation of the Water Framework Directive (WFD) a revised approach to monitoring water quality across the UK was introduced in 2009. The WFD assesses water quality using three categories (ecological quality, chemical quality and hydrological quality). For each site each category is assigned a grade which are then combined to provide an overall classification. The combined score is based on 'one out, all out', e.g., if one category is ranked as 'poor' the water body will be classified as 'poor'.

As in 2019, 36% of surface water bodies assessed under WFD in the UK were in 'high' or 'good' status in 2020. Diffuse water pollution from agriculture and rural land use has been directly attributed to 28% of failures to meet the WFD standards in England ⁵.

[Further information on the status of water bodies in the United Kingdom](#)

² Hunt, D.T.E., et al, 2004, Updating an estimate of the sources of nitrogen to waters in England and Wales. Defra project WT03016.

³ White, P.J. and Hammond, J.P., 2006, Updating the estimate of the sources of phosphorus in UK waters. Defra project WT0701CSF.

⁴ May, L., et al, 2011, The impact of phosphorus inputs from small discharges on designated freshwater sites. Report to Natural England and Broads Authority, SWR/CONTRACTS/08-09/112.

⁵ POSTnote 478 October 2014 Diffuse Pollution of Water by Agriculture,

Greenhouse gas emissions

Agriculture accounts for approximately 10% of total greenhouse gas emissions in the UK. Three greenhouse gasses emitted by agriculture are nitrous oxide, methane and carbon dioxide.

Agriculture is the major source of both nitrous oxide and methane emissions in the UK, accounting for 69% of total nitrous oxide emissions and 48% of all methane emissions in 2020. In contrast, agriculture only accounted for about 1.7% of total carbon dioxide emissions in the UK.

Figure 11.9 Nitrous oxide emissions (million tonnes carbon dioxide equivalent)

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Year	Non-agriculture	Agriculture	UK total
2010	7.9	15.1	22.9
2011	7.0	15.1	22.0
2012	6.9	14.9	21.8
2013	6.8	15.0	21.8
2014	6.8	15.6	22.3
2015	6.8	15.2	22.0
2016	6.6	15.0	21.7
2017	6.7	15.5	22.2
2018	6.7	15.3	22.0
2019	6.7	15.3	22.0
2020	6.4	14.5	20.9

Source: Department for Business, Energy and Industrial Strategy (BEIS, formerly DECC)

[Download the full Environment dataset.](#)

The majority of agricultural nitrous oxide emissions come from soils, particularly as a result of nitrogen fertiliser application, manure (both applied and excreted on pasture) and leaching/run-off. In 2020 nitrous oxide emissions from agriculture are estimated to have fallen by just under 20% since 1990 and just under 16% since 2000. This is consistent with trends in fertiliser usage over the same period.

Figure 11.10 Methane emissions (million tonnes carbon dioxide equivalent)

Enquiries: Robin Karfoot on +44 (0) 20 802 66449

Email: Agri.EnvironmentStatistics@defra.gov.uk

Year	Non-agriculture	Agriculture	UK total
2010	41.7	25.1	66.8
2011	39.2	25.0	64.2
2012	37.7	24.9	62.6
2013	33.6	24.8	58.4
2014	31.0	25.4	56.4
2015	29.9	25.5	55.4
2016	28.2	25.4	53.7
2017	28.5	25.5	54.1
2018	28.6	25.1	53.6
2019	28.2	25.1	53.4
2020	26.5	24.8	51.3

Source: Department for Business, Energy and Industrial Strategy (BEIS, formerly DECC)

[Download the full Environment dataset.](#)

The majority of methane emissions from agriculture arise from enteric fermentation (digestive processes) in ruminating animals, with manure management practices accounting for the remainder. In 2020, methane emissions from agriculture are estimated to have fallen by 15% since 1990 and 12% since 2000, mainly as a result of decreasing livestock numbers, particularly in cattle. However, since 2009 the long-term fall has stalled and in recent years methane emissions have remained largely similar to 2009 values.

[Further information on greenhouse gas emissions from agriculture](#)

Air quality

Ammonia emissions impact on air quality and subsequently human and animal health. In addition, deposition of ammonia can damage sensitive habitats due to eutrophication and the acidification of soils. In 2020 agriculture accounted for 87 % of the UK's ammonia emissions.

Figure 11.11 Ammonia Emissions (thousand tonnes)

Enquiries: Robin Karfoot on +44 (0) 20 802 66449

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Year	Non-agriculture	Agriculture	UK total
2010	37.1	222.6	259.7
2011	37.0	221.2	258.1
2012	36.0	219.3	255.2
2013	34.6	218.2	252.8
2014	33.3	228.3	261.6
2015	31.9	231.2	263.1
2016	32.2	235.1	267.3
2017	33.0	238.1	271.1
2018	32.0	237.8	269.8
2019	32.0	234.6	266.6
2020	33.3	225.9	259.2

Source: National Atmospheric Emissions Inventory

[Download the full Environment dataset.](#)

The main sources of ammonia emissions in the UK are agricultural soils and livestock, in particular cattle. In 2020 ammonia emissions from agriculture are estimated to have fallen by 22% since 1990 and 10% since 2000 due to long-term reductions in cattle numbers and more efficient fertiliser use. However, this represents a slight increase since emissions from agriculture reached their lowest point in 2013. This recent increase is largely due to an increase in ammonia emission from agricultural soils.

[Further information and a detailed breakdown found on the Defra emissions of air pollutants webpage.](#)

Soils

The success of UK agriculture depends upon healthy soils; they are arguably a farmer's most valuable asset. Soil degradation costs England and Wales an estimated £0.9bn - £1.4bn per year ⁶. In the face of a changing climate and increase in food demand, it is

⁶ SP1606 Total costs of soil degradation project 2011 Defra.

important to mitigate the risks to long-term productive capacity and encourage farmers to manage their soils in a sustainable way. While rates of soil erosion in England are not excessively high, it is estimated to affect around 17% of land in England and Wales with impacts in the form of loss of productive capacity and nutrients, but also off-site costs to the environment ⁷. Around 3.9 million hectares of our soils are at risk of soil compaction which could lead to a total yield penalty of around £163 million per year ⁸.

Actions to improve soil organic matter can be mutually beneficial for soil and production. For example, early establishment of crops in the autumn reduces soil erosion risk during the late autumn and winter months ⁹ and can also increase winter cereal yields ¹⁰.

Biodiversity

Bird populations are considered to be a good indicator of the general state of wildlife as they have a wide habitat distribution, are near the top of the food chain and long-term datasets are available on them for the UK. Agriculture provides valuable resources in terms of winter food, spring forage and nesting habitats for farmland bird populations. The largest declines in farmland bird populations occurred between the late 1970s and early 1990s due to the impact of rapid changes in farmland management. Whilst agri-environment schemes offer specific measures designed to help stabilise and recover farmland bird populations, the situation is complex with other pressures such as weather effects and disease pressures adversely impacting some species.

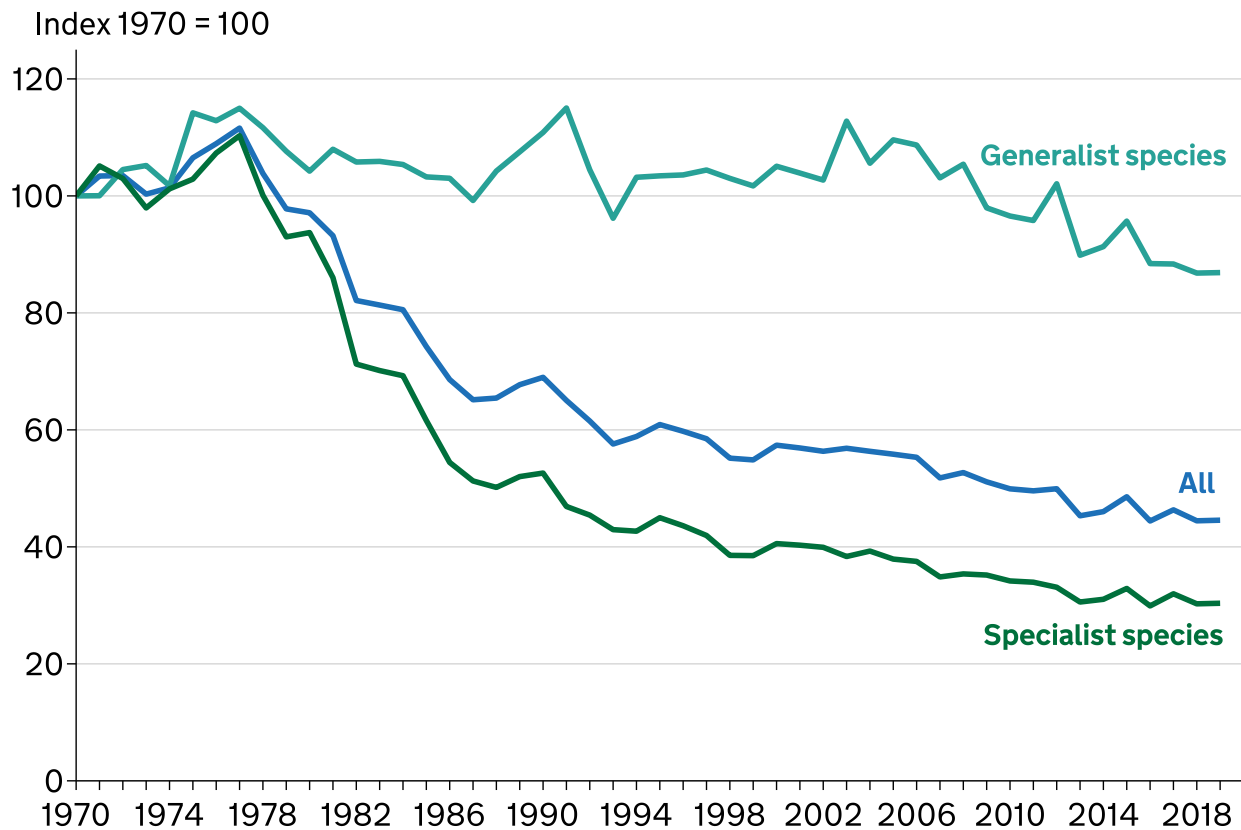
⁷ SP1606 Total costs of soil degradation project 2011 Defra.

⁸ SP1606 Total costs of soil degradation project 2011 Defra.

⁹ (Chambers et al. 2000; Evans 1990)

¹⁰ Green et al. (1985) found a 0.35% reduction in wheat yield and a 0.43% reduction in barley yield for every day of sowing later than mid-September.

Figure 11.12 Farmland Bird Index (1970 = 100)
Enquiries: Robin Karfoot on +44 (0) 20 802 66449
Email: Agri.EnvironmentStatistics@defra.gov.uk



Source: BTO/RSPB

[Download the full Environment dataset.](#)

The farmland bird index comprises 19 species of bird. The long-term decline of farmland birds in the UK has been mainly driven by the decline of the 12 species known as the 'specialists' that are restricted to, or highly dependent on, farmland habitats (see Figure 11.12). Between 1970 and 2019, populations of farmland specialists declined by about 70% whereas farmland generalists have declined by about 13%. The 2019 index for all farmland bird species was at 44.6, less than half of its level in 1970.

[Further information on the farmland bird index.](#)

Chapter 12: Organic Farming

Summary

Key results for 2021 compared to 2020

- The **area of land farmed organically** increased by 3.6% to 507 thousand hectares.
- The **area in-conversion** increased by 34% to 42 thousand hectares.
- **England has 61%** of the organically managed land, **Scotland has 21%, Wales 16%** and **Northern Ireland 2%**.
- Within England nearly **half of all organic land** falls within the South West region.
- There were 5.7 thousand **organic operators** in the United Kingdom.

Introduction

Organic farming is a method of farming that requires farmers to operate to a system based on ecological principles which impose strict limitations on the inputs that can be used to minimise damage to the environment and wildlife. Emphasis is placed on natural methods of production and pest control.

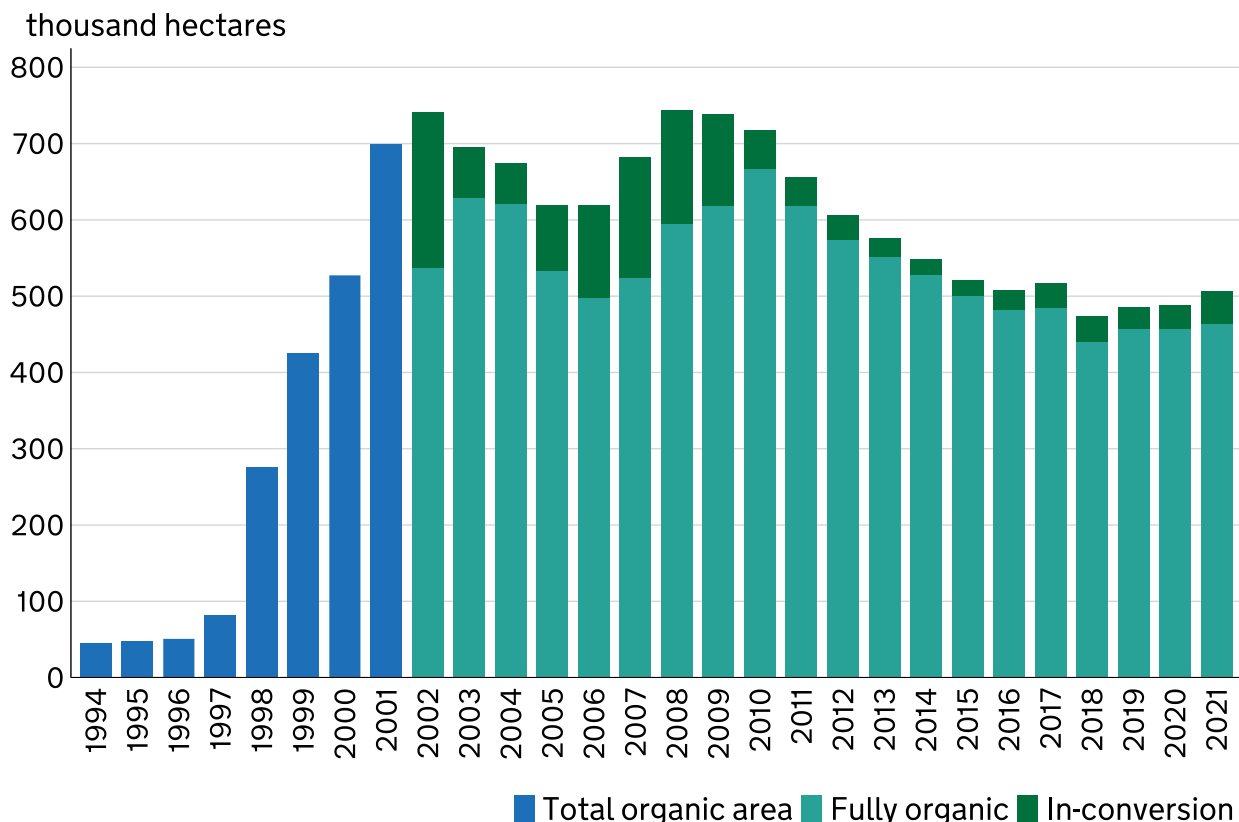
All foods sold as organic must originate from growers, processors and importers who are registered with an approved certification body and subject to regular inspection. During these inspections, the crop areas and numbers of livestock present on the organic holding are recorded. Due to the nature of the inspections, the data are collected at varying times through the year. The data presented in this chapter therefore do not give an exact snapshot of organic farming at any specific time of year and this should be considered when interpreting the results.

Area of land farmed organically

Figure 12.1 Area of land in-conversion and fully organic

Enquiries: Sarah Thompson on +44 (0)20 802 66462

Email: organic-stats@defra.gov.uk



Source: Organic certification bodies collated by Defra statistics

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In 2021 the United Kingdom had a total area of 507 thousand hectares farmed organically up from 489 thousand hectares in 2020. Organically farmed area includes both the fully converted area (where organic production comes from) and area under conversion.

The organically farmed area represents 2.9% of the total farmed area on agricultural holdings in the United Kingdom (17.2 million hectares in 2021). Before an area can be considered as fully organic, it must undergo a conversion process. The area in-conversion showed a 34% increase in 2021.

England has 61% of the organically managed land, Scotland has 21%, Wales 16% and Northern Ireland 2%.

Agriculture in the United Kingdom 2021

Regional breakdowns for England (tables 12.2 and 12.3) are provided to be consistent with other data in this chapter. Within England nearly half of all organic land falls within the South West region.

Table 12.1 Organic and in-conversion land area by country (thousand hectares)

Enquiries: Sarah Thompson on +44 (0)20 802 66462

Email: organic-stats@defra.gov.uk

	2018	2019	2020	2021
Land area, in conversion				
England	20.3	19.0	20.4	25.8
Wales	3.6	1.8	1.8	1.7
Scotland	8.5	6.8	8.7	14.2
Northern Ireland	0.5	0.5	0.3	0.2
United Kingdom	32.9	28.1	31.3	42.0
Land area, fully organic				
England	269.0	281.6	281.3	285.4
Wales	81.4	82.6	81.3	81.4
Scotland	83.1	85.3	87.0	89.6
Northern Ireland	7.6	7.6	8.0	8.2
United Kingdom	441.1	457.1	457.6	464.7
Total UK organic land area	474.0	485.2	489.0	506.6

Source: Organic certification bodies collated by Defra statistics

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Table 12.2 Area of organic land in-conversion, by region in England (thousand hectares)

Enquiries: Sarah Thompson on +44 (0)20 802 66462

Email: organic-stats@defra.gov.uk

	2018	2019	2020	2021
North East	1.6	1.7	0.4	2.3
North West	0.6	0.5	1.5	1.4
Yorkshire & Humberside	0.6	0.7	0.5	0.4
East Midlands	1.1	1.6	1.3	2.2
West Midlands	4.4	2.0	2.6	2.9
Eastern	1.2	2.1	2.6	3.1
South East (inc. London)	2.0	2.3	2.8	3.7
South West	8.7	8.0	8.7	9.9
England	20.3	19.0	20.4	25.8

Source: Organic certification bodies collated by Defra statistics

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Table 12.3 Area of fully organic land, by region in England (thousand hectares)

Enquiries: Sarah Thompson on +44 (0)20 802 66462

Email: organic-stats@defra.gov.uk

	2018	2019	2020	2021
North East	21.6	22.3	22.2	22.4
North West	11.6	11.5	11.0	11.8
Yorkshire & Humberside	9.7	10.3	10.0	10.3
East Midlands	12.6	13.7	11.2	11.8
West Midlands	28.7	30.3	32.0	32.4
Eastern	12.1	16.4	15.6	15.6
South East (inc. London)	39.4	42.8	41.2	41.8
South West	133.3	134.3	138.0	139.4
England	269.0	281.6	281.3	285.4

Source: Organic certification bodies collated by Defra statistics

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Land use and livestock numbers

Permanent pasture accounted for the biggest share of the organic area (61%), followed by temporary pasture (20%) and cereals (9.2%). The three main crop types grown organically are cereals, vegetables including potatoes and other arable crops.

Agriculture in the United Kingdom 2021

The number of poultry farmed organically in the United Kingdom increased by 6.2% between 2020 and 2021, rising to just over 4.0 million birds. However, this equates to only 2.1% of the total UK poultry population. Sheep reared organically decreased by 1.0% to 724 thousand animals and accounted for 2.2% of the total UK flock. Pigs reared organically increased by 18% to 32 thousand animals and accounted for 0.6% of the total UK pig herd. Organically reared cattle numbers decreased by 2.7% to 296 thousand animals and accounted for 3.1% of the total UK herd.

Table 12.4 Organic in-conversion land area by use; United Kingdom (thousand hectares)

Enquiries: Sarah Thompson on +44 (0)20 802 66462

Email: organic-stats@defra.gov.uk

	2018	2019	2020	2021
Cereals	2.2	3	3.7	3.4
Other crops	0.9	0.9	1.5	1.8
Fruit & nuts	0.1	0.1	0.1	0.4
Vegetables (including potatoes)	0.8	1.1	0.8	1.0
Herbs & ornamentals	0.1	-	0.1	0.2
Temporary pasture	7.3	6.1	6.5	8.7
Permanent pasture	20.3	15.4	17.4	24.5
Woodland	0.5	0.8	0.9	1.3
Unutilised land	0.4	0.4	0.2	0.3
Unknown	0.3	0.2	0.2	0.4
Total area, in- conversion	32.9	28.1	31.3	42.0

Source: Organic certification bodies collated by Defra statistics

Notes:

1. Permanent pasture includes rough grazing.
2. Land areas provided without a crop category or land use description are classified as "unknown".
3. In 2019 data issues were identified with the detailed split of crops provided for 2018. The overall totals for 2018 were not affected but the breakdowns are subject to a degree of error and therefore should be treated with caution.
4. ' - ' means 'nil' or 'negligible'

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Table 12.5 Fully organic land area by use; United Kingdom (thousand hectares)

Enquiries: Sarah Thompson on +44 (0)20 802 66462

Email: organic-stats@defra.gov.uk

	2018	2019	2020	2021
Cereals	34.8	36.8	39.0	43.2
Other crops	6.5	8.0	7.7	9.0
Fruit & nuts	1.6	1.9	1.9	2.0
Vegetables (including potatoes)	8.5	8.3	8.7	8.9
Herbs & ornamentals	6.6	0.4	0.3	0.5
Temporary pasture	54.5	89.0	90.5	91.1
Permanent pasture	309.9	290.0	287.1	286.3
Woodland	7.1	14.4	15.1	16.1
Unutilised land	3.5	4.2	2.6	3.0
Unknown	8.1	4.2	4.7	4.7
Total area, fully organic	441.1	457.1	457.6	464.7

Source: Organic certification bodies collated by Defra statistics

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Table 12.6 Estimates of organic livestock numbers; United Kingdom (thousand head)

Enquiries: Sarah Thompson on +44 (0)20 802 66462

Email: organic-stats@defra.gov.uk

	2018	2019	2020	2021
Cattle	324	301	304	296
Sheep	827	782	731	724
Pigs	37	34	27	32
Poultry	3,381	3,464	3,786	4,021
Other livestock	6	6	7	6

Source: Organic certification bodies collated by Defra statistics

Notes:

1. Certification bodies record production data at various times of the year, so figures should be treated with care as they will not represent an exact snapshot of organic livestock farming.
2. Data relate to fully organic only.
3. "Other Livestock" includes goats, farmed deer, horses, camelids and any livestock not recorded elsewhere.
4. 2020 poultry data have been amended following receipt of revised data.

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Organic operators

There were 5,732 certified organic operators in the United Kingdom in 2021, a decrease from 5,754 in 2020.

The figures shown in table 12.7 are not directly comparable between years due to recalibration of how producers are classified by some control bodies in 2018 and 2020, see notes (2).

Table 12.7 Number of organic operators (a) – by region

Enquiries: Sarah Thompson on +44 (0)20 802 66462

Email: organic-stats@defra.gov.uk

	2018	2019	2020	2021
North East	113	116	117	118
North West	263	274	241	244
Yorkshire & Humberside	240	246	227	216
East Midlands	350	353	328	308
West Midlands	475	460	468	454
Eastern	477	457	419	412
South East (inc. London)	1,196	1,217	1,092	1,143
South West	1,522	1,504	1,415	1,401
England	4,636	4,627	4,307	4,296
Wales	759	737	701	693
Scotland	577	559	541	529
Northern Ireland	216	206	205	214
United Kingdom	6,188	6,129	5,754	5,732

Source: Organic certification bodies collated by Defra statistics

Notes:

1. Organic operators include producers, processors and producer/processors. Processors can include abattoirs, bakers, stores and wholesalers. The recorded location depends on the address registered with the certifier bodies and so larger businesses may be recorded at their headquarters.
2. In 2018 and 2020, work was carried out to clarify how operators were recorded. As a result, in 2018 a number of operators, that were previously recorded as processors, were moved to the correct categories of wholesalers/traders/retailers etc and in 2020, existing operators were grouped together to become 1 operator. Care should be taken when making comparisons.

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Table 12.8 Numbers of organic crop and livestock producers and processors 2021 – by region

Enquiries: Sarah Thompson on +44 (0)20 802 66462

Email: organic-stats@defra.gov.uk

Number of operators	No crop producers	No crop producers and processors	No livestock producers	No livestock producers and processors
North East	68	7	49	6
North West	104	11	75	8
Yorkshire & Humberside	88	7	64	4
East Midlands	147	8	107	4
West Midlands	298	13	174	10
Eastern	150	11	85	4
South East (inc. London)	319	39	161	20
South West	976	73	683	45
England	2,150	169	1,398	101
Wales	573	12	483	10
Scotland	359	10	276	7
Northern Ireland	142	7	115	4
United Kingdom	3,224	198	2,272	122

Source: Organic certification bodies collated by Defra statistics

Notes:

1. Mixed organic holdings will be recorded under both the crop and livestock headings above, so the above numbers cannot be added together to get total producers/processors by region as this will lead to double counting. For totals, please see table 12.7.

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Chapter 13: Overseas Trade

Summary

Key results for 2021 in real terms (adjusted for inflation) and compared to 2020

- The value of **food, feed and drink exports** decreased by £1.2bn (5.6%) to £20.2bn.
- The value of **food, feed and drink imports** decreased by £2.7bn (5.5%) to £45.9bn.
- The trade gap in **food, feed and drink** decreased by £1.5bn (5.4%) to £25.6bn.
- Principal destinations for **exports** were the Irish Republic (£3.1bn), France (£2.3bn), USA (£2.0bn) and the Netherlands (£1.6bn).
- The main countries of despatch for **imports** into the UK were the Netherlands (£4.6bn), France (£4.1bn), Irish Republic (£3.9bn) and Spain (£3.3bn).
- Whisky continued to have the **highest export value**, totalling £4.6bn.
- Fresh fruit and vegetables together remained the **highest value category for imports**, totalling £6.1bn which was a 6.4% decrease.
- **Exports of fresh vegetables** fell by 35% to £73m, and **exports of fresh fruit** also fell by 66% to £63m.

Introduction

The Overseas Trade Statistics presented in this chapter are based on data collected by HM Revenue and Customs and are compiled from returns made by importers and exporters. Before the completion of the Single Market in the European Union at the end of 1992, all overseas trade data for the United Kingdom was compiled from Customs declarations made by traders. Since the beginning of 1993, the collection of trade statistics has been divided into two categories: that transacted between the United Kingdom and countries outside the European Union (extra-EU trade) and that between the United Kingdom and its European Union partners (intra-EU trade). Extra-EU trade statistics are compiled, as before, from Customs declarations by importers, exporters and their agents, while intra-EU trade statistics are compiled using a system linked to traders' VAT returns, known as Intrastat. From 2022 onwards, all trade data will be compiled from Customs declarations following the UK's withdrawal from the European Union.

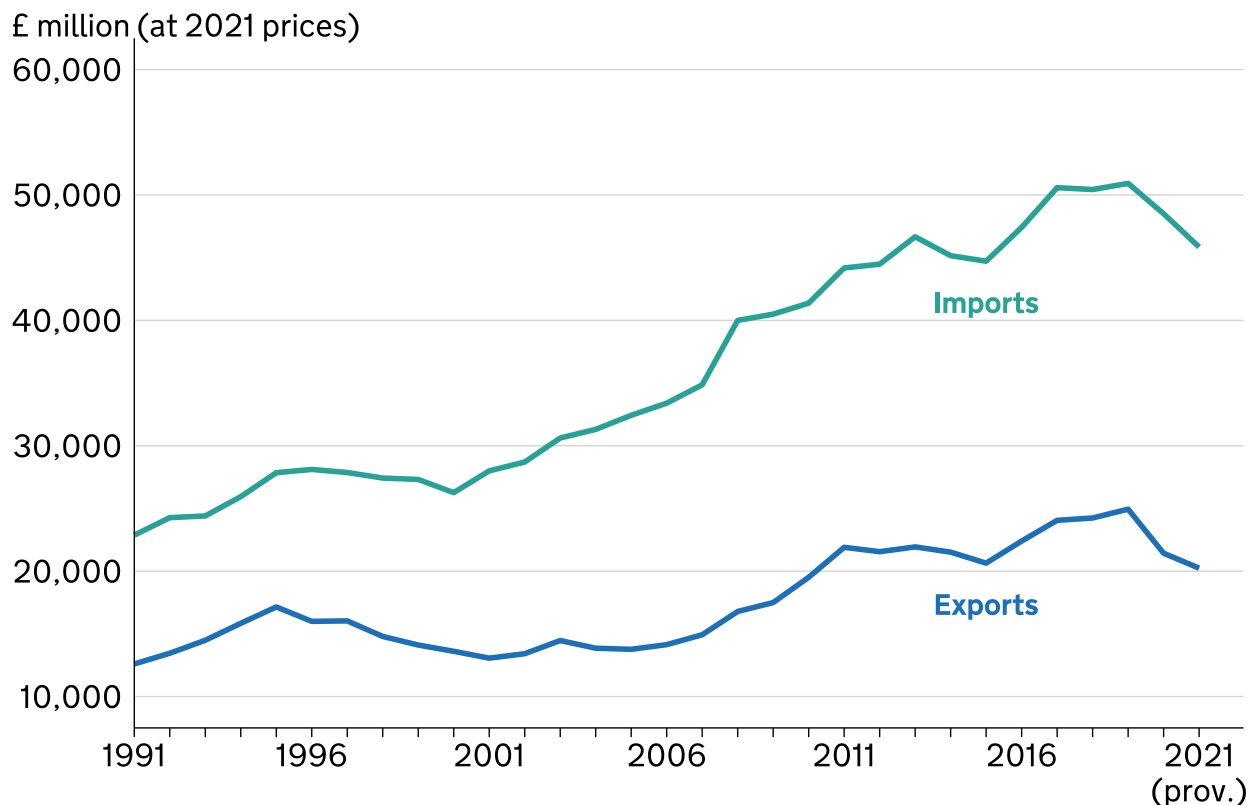
The trade statistics shown here may not match those shown in the commodities tables in Chapter 8 where, for example, trade in meat includes the carcase weight equivalent of trade in live animals and trade in milk is of raw milk before processing, and not of processed and packaged milk and cream as shown here.

Value of trade in food, feed and drink

Figure 13.1 Value of trade in food, feed and drink at 2021 prices; United Kingdom

Enquiries: Leigh Riley on +44 (0)208 026 6332

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The value of exports of food, feed and drink was £20.2bn in 2021. To compare 2021 exports with previous years, it is necessary to adjust for the effects of economic inflation. The real terms value of exports was £1.2bn or 5.6% lower in 2021 than 2020. The longer trend is of rising real terms export values. Since 2005 the real terms value of exports has risen by £6.5bn or 47%. This long-term trend is a consequence of the combination of the relative strength of sterling, proactive responses to disease related issues, and an upward trend in world commodity prices.

The value of imports of food, feed and drink was £45.9bn in 2021. To compare 2021 imports with previous years it is necessary to adjust for the effects of economic inflation. The real terms value of imports was £2.7bn or 5.5% lower in 2021 than 2020. The longer trend is of rising real terms import values. Since 2005 the real terms value of imports has risen by £13bn or 41%. The trade gap narrowed by 5.4% between 2020 and 2021. Over the longer term it has widened by 37% from £18.7bn (in 2005) to £25.6bn (in 2021) in real terms.

Agriculture in the United Kingdom 2021

Looking at exports of specific food types, the largest percentage decrease in real terms occurred in the fruit & vegetables category which showed a fall of 32% to £0.9bn, followed by exports of sugar which decreased by 30% to £0.3bn. Exports of beverages increased by 9.8% to £7.0bn.

In real terms, imports of dairy and eggs decreased by 10% to £2.9bn between 2020 and 2021. Imports of meat also fell by 8.6% to £5.8bn, and imports of fruit & vegetables decreased by 9.4% to £10.5bn. Imports of oils & fats increased by 14% to £2.5bn in 2021.

Value of trade in food, feed and drink by types of commodity

Table 13.1a Value of trade in food, feed and drink at 2021 prices (£ million); United Kingdom

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Email: leigh.riley@defra.gov.uk

Table 13.1a Exports

ITC Division Code	Type	2019	2020	2021
Exports				
01	Meat & Meat Preps	2,186	2,053	1,773
02	Dairy & Eggs	2,105	1,819	1,583
03	Fish & Fish Preps	2,124	1,638	1,626
04	Cereals & Cereal Preps	2,589	2,269	1,967
05	Fruit and Veg & Preps	1,351	1,248	852
06	Sugar & Sugar Preps	462	428	301
07	Coffee, tea, etc.	1,638	1,577	1,453
08	Animal feed	1,191	1,159	1,024
09	Misc. edible preps	2,335	2,211	1,959
11	Beverages	8,346	6,409	7,035
22 + S4	Oils/fats & Oilseeds	618	618	666
	Total	24,946	21,429	20,240

Table 13.1a Imports

ITC Division Code	Type	2019	2020	2021
Imports				
01	Meat & Meat Preps	7,058	6,321	5,779
02	Dairy & Eggs	3,535	3,270	2,932
03	Fish & Fish Preps	3,662	3,250	3,131
04	Cereals & Cereal Preps	4,508	4,509	4,246
05	Fruit and Veg & Preps	12,216	11,550	10,460
06	Sugar & Sugar Preps	1,273	1,133	1,179
07	Coffee, tea, etc.	4,033	3,963	3,536
08	Animal feed	2,579	2,566	2,643
09	Misc. edible preps	3,672	3,704	3,181
11	Beverages	6,360	6,006	6,217
22+S4	Oils/fats & Oilseeds	2,031	2,235	2,548
	Total	50,926	48,507	45,852

Source: HMRC

Notes:

1. 2021 figures are provisional and subject to revision

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Agriculture in the United Kingdom 2021

Table 13.1b Value of trade in food, feed and drink with EU countries at 2021 prices (£ million); United Kingdom

Enquiries: Leigh Riley on +44 (0)208 026 6332

Email: leigh.riley@defra.gov.uk

Table 13.1b Exports

SITC Division Code	Type	2019	2020	2021
Exports				
01	Meat	1,626	1,434	1,183
02	Dairy	1,591	1,369	1,144
03	Fish	1,428	1,225	1,163
04	Cereals	1,845	1,539	1,289
05	Fruit and Veg	1,045	960	586
06	Sugar	325	262	188
07	Coffee, tea, etc.	1,177	1,128	959
08	Animal feed	783	723	582
09	Misc.	1,474	1,374	1,136
11	Drink	3,152	2,576	2,559
22 + S4	Oils	536	536	492
	Total	14,984	13,127	11,280

Table 13.1b Imports

SITC Division Code	Type	2019	2020	2021
Imports				
01	Meat	5,854	5,264	4,783
02	Dairy	3,491	3,222	2,877
03	Fish	1,293	1,133	758
04	Cereals	3,518	3,540	3,222
05	Fruit and Veg	7,851	7,354	6,095
06	Sugar	861	714	701
07	Coffee, tea, etc.	2,818	2,789	2,276
08	Animal feed	1,463	1,564	1,440
09	Misc.	2,963	2,991	2,468
11	Drink	4,669	4,345	4,666
22+S4	Oils	1,132	1,126	1,196
	Total	35,913	34,041	30,483

Source: HMRC

Notes:

1. Figures for 2021 are provisional and subject to revision.

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Table 13.1c Value of trade in food, feed and drink with non-EU countries at 2021 prices (£ million); United Kingdom

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Email: leigh.riley@defra.gov.uk

Table 13.1c Exports

SITC Division Code	Type	2019	2020	2021
Exports				
01	Meat	560	619	590
02	Dairy	515	450	439
03	Fish	696	413	463
04	Cereals	744	730	678
05	Fruit and Veg	306	288	267
06	Sugar	137	166	112
07	Coffee, tea, etc.	460	449	494
08	Animal feed	408	435	443
09	Misc.	861	837	823
11	Drink	5,194	3,832	4,476
22 + S4	Oils	82	83	174
	Total	9,962	8,303	8,960

Table 13.1c Imports

SITC Division Code	Type	2019	2020	2021
Imports				
01	Meat	1,204	1,057	995
02	Dairy	44	49	55
03	Fish	2,369	2,117	2,372
04	Cereals	990	969	1,024
05	Fruit and Veg	4,365	4,196	4,366
06	Sugar	412	419	478
07	Coffee, tea, etc.	1,215	1,174	1,260
08	Animal feed	1,116	1,002	1,203
09	Misc.	709	713	713
11	Drink	1,691	1,661	1,552
22+S4	Oils	899	1,109	1,351
	Total	15,013	14,466	15,369

Source: HMRC

Notes: (tables 13.1a, 13.1b and 13.1c)

Defra's aggregate 'Food, Feed and Drink' is composed of the following divisions from the Standard International Trade Classification:

1. Figures for 2021 are provisional and subject to revision.
2. Meat [01]: meat from cattle, sheep, pigs, goats, poultry, horses etc.; preparations including blood, juices, sausages, livers, offal.
3. Dairy [02]: includes milk (skimmed or otherwise), butter, buttermilk, cream, yoghurt, ice cream, whey, cheese and curd, all types of eggs both in and out of shell.
4. Fish [03]: All types of edible marine life excluding mammals, fresh, frozen, processed, prepared or preserved.
5. Cereals [04]: includes rice, wheat, barley, oats, maize, grain sorghum and preparations including sweet biscuits, waffles, gingerbread, and uncooked/unstuffed pasta.
6. Fruit and vegetables [05]: includes fresh, frozen or prepared fruit (except crystallised) and vegetables, nuts (except groundnuts), vegetable and fruit juices of all kinds except wine (see division 11), jams, marmalades, fruit or nut puree/paste etc.
7. Sugar [06]: includes both natural sugar and sugar confectionery (but not chocolate or cocoa), both natural and artificial honey, and liquorice.
8. Coffee, tea, etc. [07]: includes all types of tea, coffee (e.g. green, decaffeinated), extracts and substitutes thereof; cocoa and chocolate (of all kinds): all kinds of spices.
9. Animal feed [08]: includes hay, fodder, bran, sharps and other residues derived from cereals or leguminous plants, oil-cake and other solid residues, other residues, brewing dregs, all types of pet or animal food.
10. Miscellaneous [09]: includes margarine, shortening, homogenised products or preparations not elsewhere specified, sauces, vinegar, soups, yeasts, cooked/stuffed pasta, food preparations for infant use.
11. Beverages [11]: includes alcoholic drinks of all kinds; also natural or artificial mineral and aerated waters sweetened or otherwise.
12. Oils [22+S4]: includes groundnuts (peanuts), soya beans, sunflower seeds, rape seeds, palm nuts, linseed, poppy seeds etc., lard, pig fat, olive oil, rape oil, corn oil, linseed oil, beeswax etc.
13. Division 00, which covers all live animals, is excluded from the aggregate 'Food, Feed and Drink' because it includes non-food animals, particularly race horses. S4 stands for Section 4 in the SITC and covers animal and vegetable oils, fats and waxes.

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Total value of trade in food, feed and drink by trading partner

Figure 13.2 Exports of food, feed and drink by country of destination 2021; United Kingdom

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Email: leigh.riley@defra.gov.uk

Country	£ million
Irish Republic	3,073
France	2,293
U.S.A.	1,965
Netherlands	1,581
Germany	867
China	803
Belgium	596
Spain	560
Poland	409
Australia	406

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Figure 13.3 Imports of food, feed and drink by country of dispatch 2021; United Kingdom

Enquiries: Leigh Riley on +44 (0)208 026 6332

Email: leigh.riley@defra.gov.uk

Country	£ million
Netherlands	4,609
France	4,133
Irish Republic	3,898
Spain	3,265
Germany	3,121
Italy	3,051
Belgium	2,804
Poland	2,117
U.S.A.	1,207
Denmark	1,122

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Value of exports and imports by degree of processing

Trade in food, feed and drink covers a wide range of products from raw agricultural commodities through lightly processed foods such as meat, cheese and butter, powdered milk, flour and sugar to highly processed products such as confectionery,

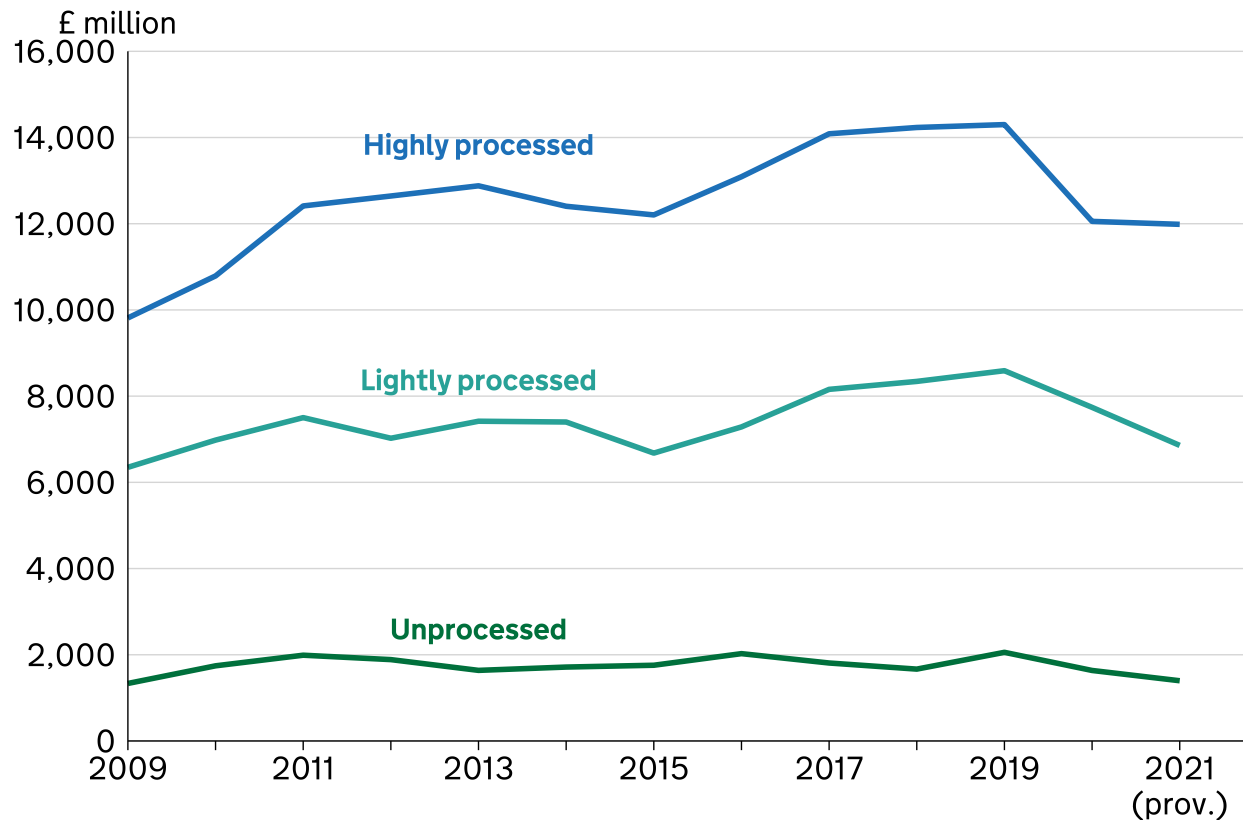
Agriculture in the United Kingdom 2021

canned meats, jams, alcoholic drinks and ice cream. By grouping foods into unprocessed, lightly processed and highly processed, additional insights in trading patterns can be found.

Figure 13.4 Exports in food, feed and drink by degree of processing at 2021 prices; United Kingdom

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Email: leigh.riley@defra.gov.uk



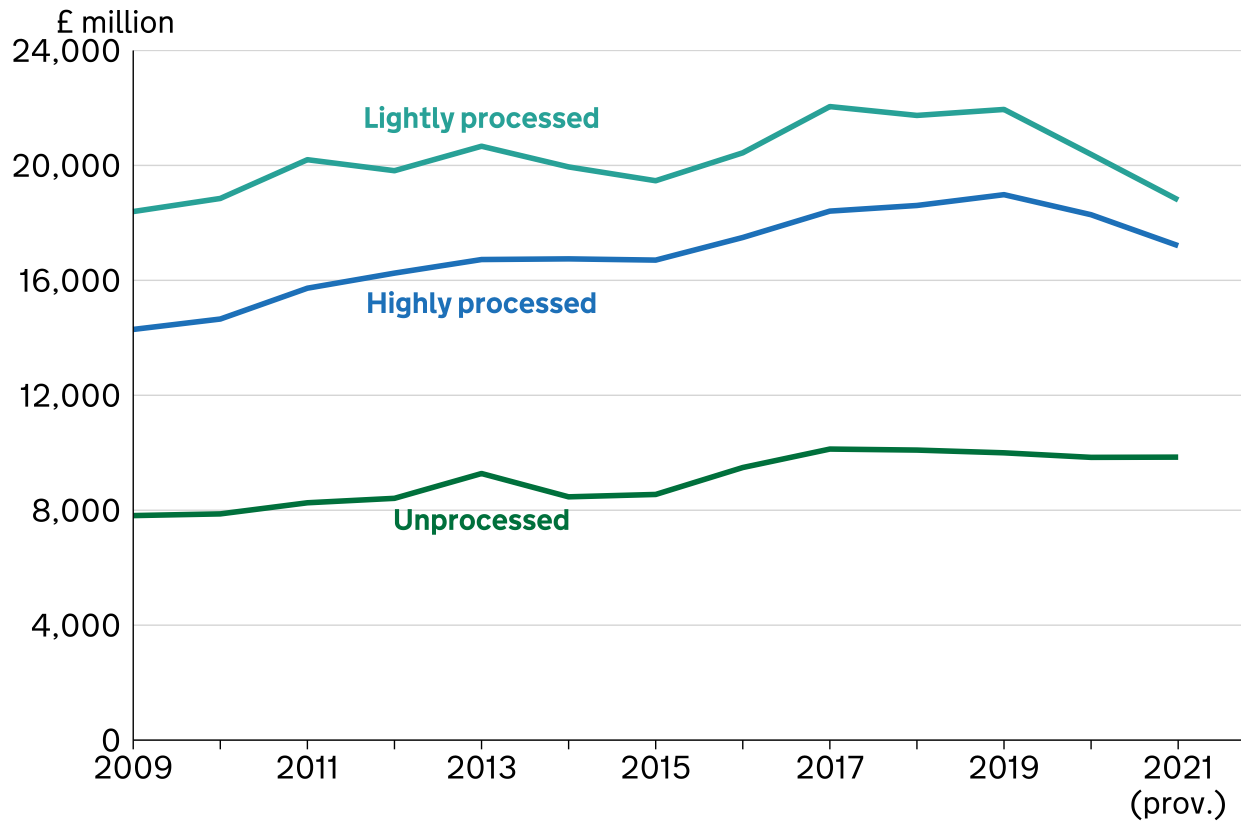
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Exports of highly processed foods such as confectionery, canned meats, jams, alcoholic drinks and ice cream, fell by 5.2% in real term value between 2012 and 2021. Exports of lightly processed food and drink, i.e. goods that retain their raw recognisable form, such as meat, cheese, butter and oils & fats fell by 2.4% in real term value between 2012 and 2021. Exports of unprocessed commodities, such as fresh fruit & vegetables, nuts, unmilled cereal and eggs fell by 26% in real term value between 2012 and 2021.

Figure 13.5 Imports in food, feed and drink by degree of processing at 2021 prices; United Kingdom

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Imports of highly processed foods increased by 5.9% in real term value between 2012 and 2021. Imports of lightly processed food and drink decreased by 5.1% in real term value between 2012 and 2021. Imports of unprocessed commodities increased by 17% in real term value between 2012 and 2021.

Value and volume of trade in key commodities

The value of exports across a range of different commodities has broadly increased year on year in recent times. However, in 2014 and 2015, commodity prices for many sectors fell, due to a slowdown of global economic markets and the effect of exchange rates. Subsequent years have seen a return to export growth in most of the main product groups. However the effect of the coronavirus pandemic in 2020 affected both trade and the economy.

The value of exports of whisky, which represents the highest valued individual food, feed and drink item, increased by 18% in real terms to £4.6bn in 2021. It is 11% lower

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than in 2012 in real terms. Exports of salmon increased by 20% to £729m, and were 39% higher than 2012 in real terms. The value of exports of unmilled wheat decreased by 31% in real terms to £64 million in 2021. Exports of cheese also decreased by 14% in real terms to £565 million.

Imports of fresh fruit and fresh vegetables decreased by 6.4% in real terms to £6.1bn. Despite the slight decrease, the range, quality and consumer awareness of healthy eating options remains high. Imports of unmilled wheat increased by 13% in real terms to £471m in reaction to reduced domestic supplies.

The value of wine imports in 2021, a high value commodity, increased by 1.3% in real terms on 2020, to £3.5bn, whereas the value of wine exported from the UK decreased by 11% in real terms to £468m.

The overall volume of exports of food, feed and drink in 2021 decreased by 19% to 10.9 billion tonnes. The long term trend for the volume of exports has been slightly upwards year-on-year, however, the recent economic slowdown followed by the effects of the Coronavirus pandemic has resulted in a slowdown of exports. Import volumes have been increasing more rapidly over recent years, and the volume of imports of 39.9 billion tonnes in 2021 was 12% higher than 2012.

The food, feed and drink Index provides a comparison of trade which accounts for the value density of different food groups. For example, high value per tonne exports (e.g. whisky) are given more weight in this indicator than low value per tonne exports (e.g. wheat and barley). According to the index, food, feed and drink exports in 2021 decreased by 9.2% on the previous year, while imports decreased by 6.9%.

Table 13.2a and 13.2b Trade in key commodities in real terms at 2021 prices (£ million); United Kingdom

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Table 13.2a Exports

Commodity	2019	2020	2021
Whisky	5,307	3,925	4,638
Wine	693	526	468
Cheese	748	657	565
Poultry meat	319	297	228
Poultry meat products	129	111	72
Beef and veal	489	385	365
Wheat, unmilled	193	93	64
Lamb and mutton	421	440	438
Pork	413	423	339
Breakfast cereals	510	520	482
Milk and cream	351	286	286
Bacon and ham	71	50	32
Butter	271	188	184
Eggs and egg products	118	116	100
Fresh vegetables	136	112	73
Fresh fruit	165	186	63
Salmon (inc. smoked)	869	607	729

Table 13.2b Imports

Commodity	2019	2020	2021
Whisky	202	197	179
Wine	3,708	3,484	3,531
Cheese	1,827	1,718	1,464
Poultry meat	1,299	991	970
Poultry meat products	1,223	1,134	942
Beef and veal	1,057	992	1,115
Wheat, unmilled	263	416	471
Lamb and mutton	331	316	265
Pork	1,014	893	695
Breakfast cereals	338	323	227
Milk and cream	148	122	178
Bacon and ham	600	526	490
Butter	307	243	211
Eggs and egg products	166	175	131
Fresh vegetables	2,715	2,560	2,370
Fresh fruit	4,110	3,961	3,733
Salmon (inc. smoked)	638	500	639

Source: HMRC

Notes: See notes for table 13.3

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Table 13.3a and 13.3b Trade in key commodities by volume (thousand tonnes unless otherwise specified); United Kingdom

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Table 13.3a Exports

Commodity	2019	2020	2021
Whisky (million litres pure alcohol)	382	330	396
Wine (million litres)	102	93	36
Cheese	209	193	154
Poultry meat	393	452	352
Poultry meat products	37	30	21
Beef and veal	136	117	103
Wheat, unmilled	1,116	520	294
Lamb and mutton	95	88	70
Pork	245	260	193
Breakfast cereals	191	218	172
Milk an cream	863	792	757
Bacon and ham	19	14	10
Butter	69	61	52
Eggs and egg products	93	32	34
Fresh vegetables	143	108	69
Fresh fruit	162	178	37
Salmon (inc. smoked)	124	97	116
Food, feed and drink index, 2009=100	131	119	108

Table 13.3b Imports

Commodity	2019	2020	2021
Whisky (million litres pure alcohol)	19	20	21
Wine (million litres)	1,430	1,485	1,375
Cheese	538	499	409
Poultry meat	478	416	408
Poultry meat products	383	362	324
Beef and veal	254	249	253
Wheat, unmilled	1,222	2,133	2,060
Lamb and mutton	63	59	47
Pork	453	388	336
Breakfast cereals	151	150	103
Milk and cream	229	220	343
Bacon and ham	195	171	174
Butter	79	79	57
Eggs and egg products	87	80	68
Fresh vegetables	2,356	2,213	1,978
Fresh fruit	3,657	3,564	3,327
Salmon (inc. smoked)	93	82	110
Food, feed and drink index, 2009=100)	122	121	113

Source: HMRCNotes: (Tables 13.2 and 13.3)

1. Figures for 2021 are provisional and subject to revision
2. Whisky includes bourbon, scotch (malted and blended) and other whiskies.
3. Wine includes grape must, vermouth and wine of fresh grapes (sparkling and still).
4. Cheese includes grated or powdered, processed, blue-veined and fresh (e.g. curd).
5. Poultrymeat (inc. poultry offal) includes carcase meat, cuts and offal (inc. liver).
6. Poultry meat products includes prepared, preserved, salted or cooked poultrymeat and offal (inc. liver).
7. Beef and veal includes carcase meat and cuts, both bone-in and boneless.
8. Wheat, unmilled includes durum, other wheat (inc. spelt) and meslin.
9. Lamb and mutton includes carcase meat and cuts, both bone-in and boneless.
10. Pork includes carcase meat and cuts, both bone-in and boneless.
11. Breakfast cereals includes cereal grains worked or prepared for breakfast cereals
12. Milk and cream includes milk (inc. skimmed milk) and cream, not concentrated or sweetened.
13. Fresh vegetables excludes potatoes, dried legumes and processed vegetables.
14. Fresh fruit excludes jams, juices, dried and processed fruit.
15. Salmon (inc. smoked) includes fresh, chilled, frozen or smoked, but not canned.
16. Note: Definitions of 'fresh vegetables' and 'fresh fruit' used have been revised in 2009 to be consistent with those used for AUK Chapter 5.

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Chapter 14: The Food Chain

Summary

- In 2020 the agri-food sector in the United Kingdom accounted for a total estimated **Gross Value Added (GVA)** of £115bn or 6.0% of national GVA, a decrease from 6.1% in 2019. The retailing sector increased 14% between 2019 and 2020, while the non-residential catering sector decreased by 31%.
- **Employment** in the agri-food sector grew by 0.6% over the 12-month period to the fourth quarter of 2021 to just over 4 million. The largest percent change was seen in wholesaling which fell by 2.6% (6,000 employees).
- **Total factor productivity** of the food chain increased by 0.4% in 2019 while there was an increase of 0.6% in productivity in the wider economy. In the 10 years prior to 2019, the average annual growth rate of the food chain was 0.6% while the wider economy's average annual growth rate was 0.3%.
- Excluding the effect of price rises (constant prices), **consumers' expenditure** on food and alcoholic drinks increased by 10% in 2021 and was 10% higher than in 2011. Expenditure on food eaten out increased by 35% in 2021, whilst expenditure on household food decreased by 0.8%.

Contribution of the agri-food sector to the national economy

Figure 14.1 Gross Value Added of the agri-food sector, 2020 (£ billion)

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Sector	Gross value added	% of total
Agriculture	£10.3	9%
Food Manufacturing	£28.8	25%
Food Wholesaling	£13.2	11%
Food Retailing	£36.2	31%
Food Non-Residential Catering	£26.5	23%

Source: Annual Business Survey (ONS) and Aggregate Agricultural Accounts (Defra).

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In 2020 the agri-food sector contributed £115bn to the economy, 6.0% of the national GVA. Within this, retailing accounted for the largest proportion at 31% followed by manufacturing at 25%. Wholesaling accounted for 11% of the sector. Agriculture made

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the smallest contribution at 9.0%. The retailing sector increased 14% between 2019 and 2020, while the non-residential catering sector decreased by 31%.

In 2019 manufacturing and catering had a higher productivity than in 2018. Manufacturing increased by 1.8% while catering increased by 4.5%. Retail and wholesale both saw a decrease of 1.7%.

In the 10 years prior to 2019, the average annual growth rate of the food chain was 0.6% while the wider economy's average annual growth rate was 0.3%. For more information please see the [Total Factor Productivity of the United Kingdom Food Chain](#) publication.

Table 14.1a to 14.1e - Agri-food sector contribution to the national economy (£ million unless otherwise specified)

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Table 14.1a

	2019	2020	2021
Agri-food sector's contribution to total economy gross value added	123,662	114,996	..
Agriculture (not including fishing)	10,331	10,308	..
Food Manufacturing	30,272	28,769	..
Food Wholesaling	12,921	13,224	..
Food Retailing	31,884	36,206	..
Food Non-Residential Catering	38,254	26,490	..
% of national gross value added (current prices)	6.1%	6.0%	..

Table 14.1b

	2019	2020	2021
Workforce in the food sector thousand persons	4,006	3,983	4,005
Agriculture (including fishing)	436	434	429
Food Manufacturing	420	420	427
Food Wholesaling	237	236	230
Food Retailing	1,106	1,151	1,164
Food Non-Residential Catering	1,808	1,742	1,756
% of total workforce in employment	13%	13%	13%

Table 14.1c

Trade in food feed and drink in real terms at 2019 prices	2019	2020	2021
Imports of food, feed and drink	50,926	48,507	45,852
% of total UK imports	8.9%	9.8%	9.2%
Exports of food, feed and drink	24,946	21,429	20,240
% of total UK exports	6.6%	6.9%	6.0%
UK Food Production to Supply Ratio ('Self-Sufficiency')			
% of all food	62%	60%	61%
% of indigenous type food	76%	74%	74%

Table 14.1d

Household final consumption expenditure on food and alcoholic drinks	2019	2020	2021
at current prices	241,097	213,796	240,062
Household food and non-alcoholic beverages	109,843	118,948	117,973
Food and non-alcoholic beverages eaten out	67,343	41,036	57,342
Alcoholic drinks	63,911	53,812	64,747
at constant 2010 prices (£ million)	241,097	210,833	232,187
Household food and non-alcoholic beverages	109,843	118,093	116,758
Food and non-alcoholic beverages eaten out	67,343	40,251	54,162
Alcoholic drinks	63,911	52,489	61,267
% of total household final consumption expenditure (current prices)	17%	17%	18%
Household food and non-alcoholic beverages	7.9%	9.5%	8.6%
Food and non-alcoholic beverages eaten out	4.8%	3.3%	4.2%
Alcoholic drinks	4.6%	4.3%	4.7%

Table 14.1e

	2019	2020	2021
Producer prices for agricultural products (2015 = 100)	114.2	119.2	131.1
Consumer price index (2015 = 100):			
food and non-alcoholic beverages	103.2	103.9	104.2
alcoholic beverages	101.0	102.0	103.3
all items	107.8	108.7	111.6

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Sources: Annual Business Survey (ONS), Aggregate Agricultural Accounts (Defra), Labour Force Survey GB (ONS), Overseas Trade Statistics (HMRC), Consumer Price Indices (ONS).

Notes for tables 14.1a to 14.1e:

1. 2020 figures are provisional and subject to revision
2. .. means 'not available'

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Agri-food sector employees and self-employed farmers

Figure 14.2 Agri-food sector employees and self-employed farmers, 2021 (millions)

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Sector	Number of employees	% of total
Agriculture	0.4	11%
Food Manufacturing	0.4	11%
Food Wholesaling	0.2	6%
Food Retailing	1.2	29%
Food Non-Residential Catering	1.8	44%

Source: Labour Market Trends (ONS), June Survey of Agriculture and Horticulture (Defra)

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In 2021, the agri-food sector employed 4 million people, or 13% of all employees in Great Britain. This proportion has been broadly the same since 2001. Agriculture accounts for less than half a million employees or 11% of the agri-food sector (figure 14.2).

In the twelve months to December 2021, employment in the agri-food sector increased by 0.6%. Employment fell in 2021 in wholesaling (2.6%) and agriculture (1.2%), but increased in manufacturing (1.7%), retailing (1.1%) and non-residential catering (0.8%). Employment across the whole economy rose by 0.6% over the same period.

Employment in the agri-food sector has risen 11% since 2000. Changes in each of the sectors since 2000 show that employment in agriculture and manufacturing fell by 23% and 11% respectively, while wholesaling, retailing and non-residential catering increased by 4.1%, 6.8% and 40% respectively.

Total Factor Productivity

In 2019 the productivity of the food chain increased by 0.4% while there was an increase of 0.6% in productivity in the wider economy. In the 10 years prior to 2019, the average annual growth rate of the food chain was 0.6% while the wider economy's average annual growth rate was 0.3%.

In 2019, total factor productivity in **food and drink manufacturing** increased by 1.8% and showed an increase of only 0.3% over the last 10 years.

For more information on productivity please see the [Total Factor Productivity of the United Kingdom Food Chain](#) publication.

Total factor productivity of **food wholesaling** decreased by 1.7% in 2019, while in the last 10 years showed an average annual increase of 0.7%.

Productivity of the **food retail** sector decreased by 1.7% in 2019. In the last 10 years, productivity showed an average annual increase of 0.4%.

In 2019 **non-residential catering** (NRC) showed an increase in productivity of 4.5%.

Trade in food, feed and drink

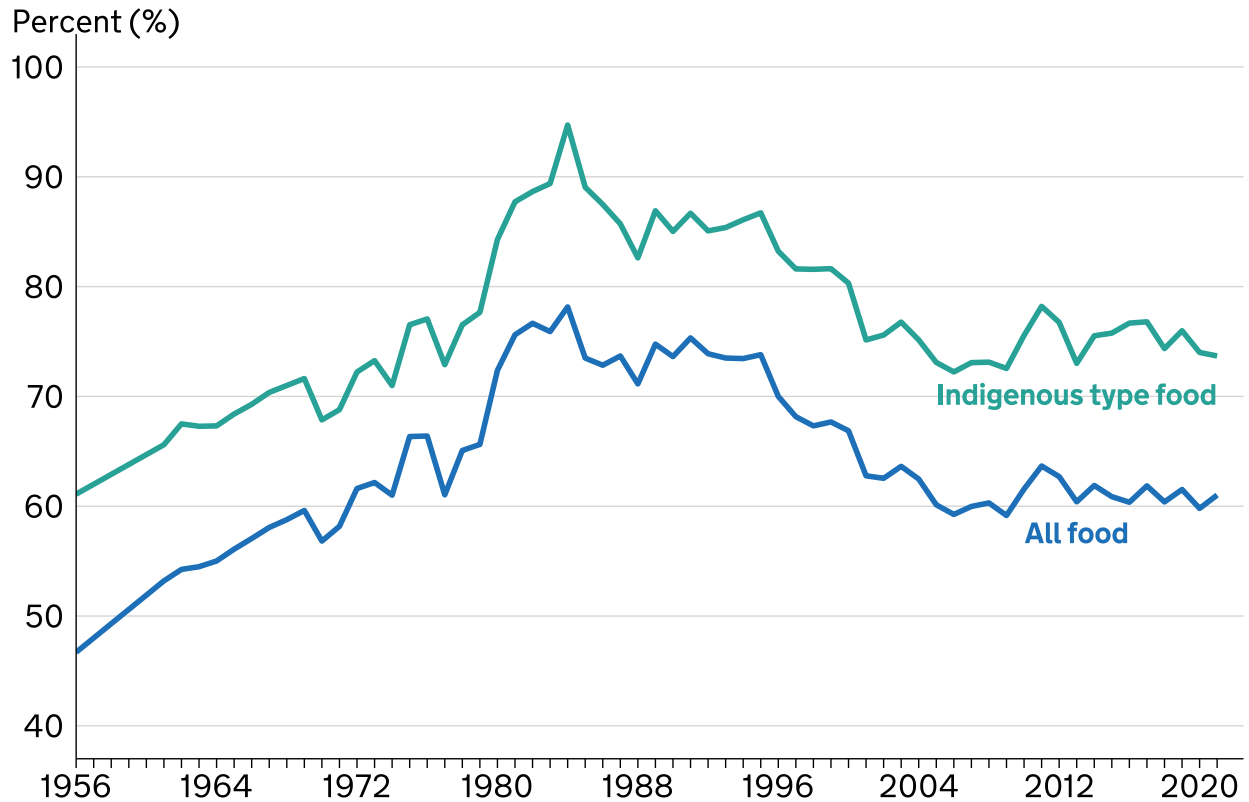
In 2021, the value of food, feed and drink exports was £20.2bn, a decrease of 5.6% on 2020. In 2021 the value of food, feed and drink imports decreased by 5.5% to £45.9bn in real terms, resulting in the trade gap in food, feed and drink of £25.6bn in real terms, a decrease of 5.4% since 2020. See Chapter 13 for more detail on overseas trade.

Food production to supply ratio

Figure 14.3 Food production to supply ratio, 2021

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Source: Defra 2021

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Food Production to Supply Ratio (commonly referred to as the “Self Sufficiency Ratio”), is calculated as the farmgate value of raw food production divided by the value of raw food for human consumption, and is estimated to be 61% for all food in 2021 and 74% of indigenous type food. In 2020, this was 60% and 74% respectively. The overall farmgate value of United Kingdom food production was 5% higher when compared to 2020. For individual products, production to supply ratio uses volume. Table 14.2 contains production to supply ratios for selected crops.

Table 14.2 Food Production to Supply Ratio

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	2019	2020	2021
Cereals	96%	88%	86%
Wheat	87%	81%	76%
Barley	127%	122%	110%
Oats	107%	104%	101%
Other crops			
Oilseed rape	86%	73%	52%
Linseed	116%	121%	81%
Sugar beet	63%	63%	66%
Fresh vegetables	53%	55%	57%
Potatoes	67%	71%	73%
Cabbages	87%	89%	90%
Cauliflowers and broccoli	55%	61%	64%
Carrots, turnips and swede	99%	96%	95%
Mushrooms	44%	47%	47%
Lettuce	35%	33%	34%
Tomatoes	13%	15%	17%
Fresh fruit	16%	16%	15%
Apples	39%	39%	37%
Pears	19%	19%	16%
Plums	17%	19%	9%
Strawberries	71%	69%	64%
Raspberries	38%	37%	30%
Meat and dairy			
Beef and veal	86%	85%	82%
Pigmeat	66%	71%	70%
Mutton and lamb	109%	111%	109%
Poultrymeat	94%	99%	97%
Milk	106%	105%	105%
Eggs	93%	89%	92%

Notes:

1. 2021 figures are provisional.

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2. Average ratios for categories cereals, other crops, fresh vegetables and fresh fruit may include more items than the selected items listed in the table.
3. Source: Defra's Agriculture in the UK for category averages (e.g. fresh vegetables) and potatoes and all meat and dairy products. Defra's Horticulture Statistics for all other individual products.

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Distinction between competitiveness and food security

The food production to supply ratio provides a very broad indicator of the ability of United Kingdom agriculture to meet consumer demand - also described as competitiveness. The ratio is not an appropriate measure of "food security" since it fails to account for many dimensions of this complex issue.

A high food production to supply ratio fails to insulate a country against many possible disruptions to its supply chain.

Diversity enhances security. The United Kingdom sources foods from diverse stable countries, mainly European countries, and imports can make up for domestic supply shortages (see Figure 14.4).

A detailed analysis is given in the Defra publication '[UK Food Security Report 2021](#)'.

The UKFSR is the first comprehensive review of the UK's food security to be published since the UK Food Security Assessment (UKFSA), which was first published in 2009 and updated in 2010.

In the decade since the UKFSA, the food security landscape has changed significantly. The UK's departure from the European Union has brought along changes in areas as diverse as trade, farming, and access to fisheries, representing both challenges and opportunities in food security. Climate change and its impacts on farming and the food supply chain are now also better understood.

The COVID-19 pandemic and other concurrent events happening towards the end of 2020, such as the UK leaving the EU and increased food demand due to Christmas, have stress-tested the supply chain, highlighting both the vulnerabilities in this complex system and the resilience and flexibility of the UK's food supply.

In addition, the pandemic has increased public awareness in a range of food security areas. This includes the complexities and dependencies of the UK's food supply chain, notably the advantages and risks of just-in-time food supplies, as well as the issues surrounding household food insecurity as households struggled to afford food.

Origins of food consumed in the United Kingdom

Figure 14.4 includes the proportion of United Kingdom food consumption that is produced in the United Kingdom. This should not be confused with the Food Production to Supply Ratio given in Figure 14.3. Figure 14.4 looks purely at the breakdown of food that the United Kingdom actually consumes.

Agriculture in the United Kingdom 2021

The Food Production to Supply Ratio (see figure 14.3) considers all United Kingdom food production, including food that the United Kingdom exports instead of consuming. A further, much smaller difference is that the United Kingdom food production used in the food production to supply ratio calculations has been adjusted to take account of the balance of trade in important inputs into agriculture.

Figure 14.4 Origins of food consumed in the United Kingdom, 2021.

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Origin of destination	2021
UK exports	-10%
UK	58%
EU	23%
Rest of Europe	3%
Africa	5%
Asia	4%
Australasia	1%
North America	3%
South America	4%

Source: HMRC and Defra 2020

Notes:

1. Based on the farm-gate value of raw food.
2. Consumption of UK origin consists of UK domestic production minus UK exports.
3. UK exports are given as a percentage of total UK consumption.
4. Membership of the EU increased between 2002 and 2013, from 15 to 28 countries.

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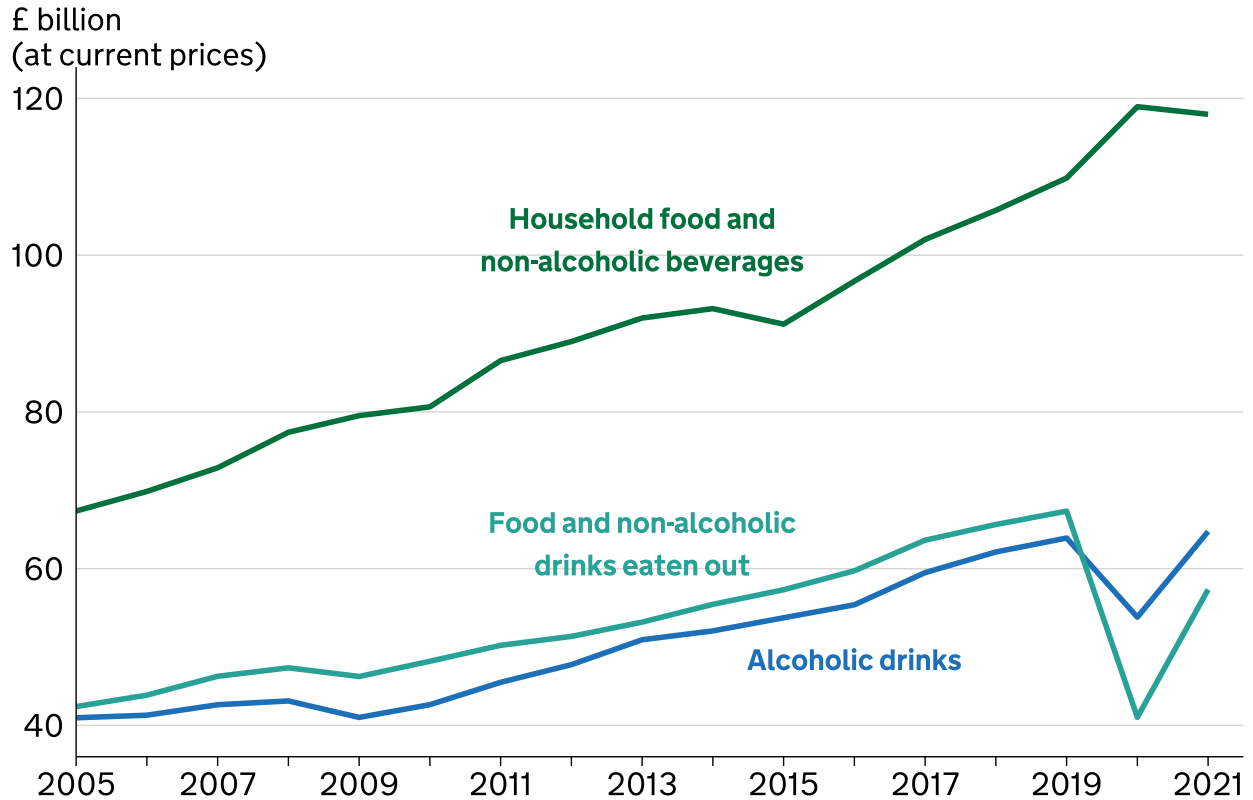
Supply includes domestic production plus imports and excludes exports of home production. In 2020, 54% of domestic consumption came from UK production (based on unprocessed value at farmgate), 28% from the EU and the remaining 18% from the rest of the world. 42 countries accounted for 90% of imported supply, and 27 for 80%. Some countries or regions are uniquely important to supply of particular products such as bananas from the Caribbean and Central America, reducing the security of this supply.

Consumers' expenditure

Figure 14.5 Consumers' expenditure on food, drink and eating out 2021

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Source: Consumer trends, ONS.

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Excluding the effect of price rises (constant prices), consumers' expenditure on food and alcoholic drinks increased by 10% in 2021 to £232bn and was 10% higher than in 2011. Expenditure on food eaten out increased by 35% between 2020 and 2021 to £54bn, whilst expenditure on household food decreased by 1% to £232bn. Expenditure on alcoholic drinks increased by 17% to £61bn.

Consumer expenditure on food and alcoholic drinks (at current prices) increased by 12% to £240bn in 2021. Household food expenditure decreased by 0.8% to £118bn between 2020 and 2021, food eaten out increased by 40% to £57bn and expenditure on alcoholic drinks increased by 20% to £65bn.

Changes in consumers' price indices

Figure 14.6 Changes in the food price index (in constant prices, food and non-alcoholic beverages) 2021

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Source: Consumer Price Index (ONS)

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Food and non-alcoholic beverage prices in real terms were fairly stable between 2000 and 2007, as measured by the Consumer Price Index (CPI), before rising by 12% between July 2007 and February 2009. Prices then returned to real terms stability until February 2014.

From a peak in February 2014, food prices fell steadily to October 2016 and, after improving in 2017, fell again to November 2018. Food and non-alcoholic beverage prices fluctuated in 2019 before falling sharply in the second half of 2020. Prices remained low in 2021.