



Department
for Environment
Food & Rural Affairs

Government
Statistical Service

Farming Evidence Pack

A high-level overview of the UK agricultural industry

July 2024



How is the UK agricultural industry structured and how is agricultural land used?

The UK agriculture industry is made up of 209,000 farm holdings, using 17 million hectares of land (70% of the UK land total in 2023).

The Utilised Agricultural Area (UAA) includes arable and horticultural crops, uncropped arable land, land for outdoor pigs, temporary grassland, permanent grassland and common rough grazing.

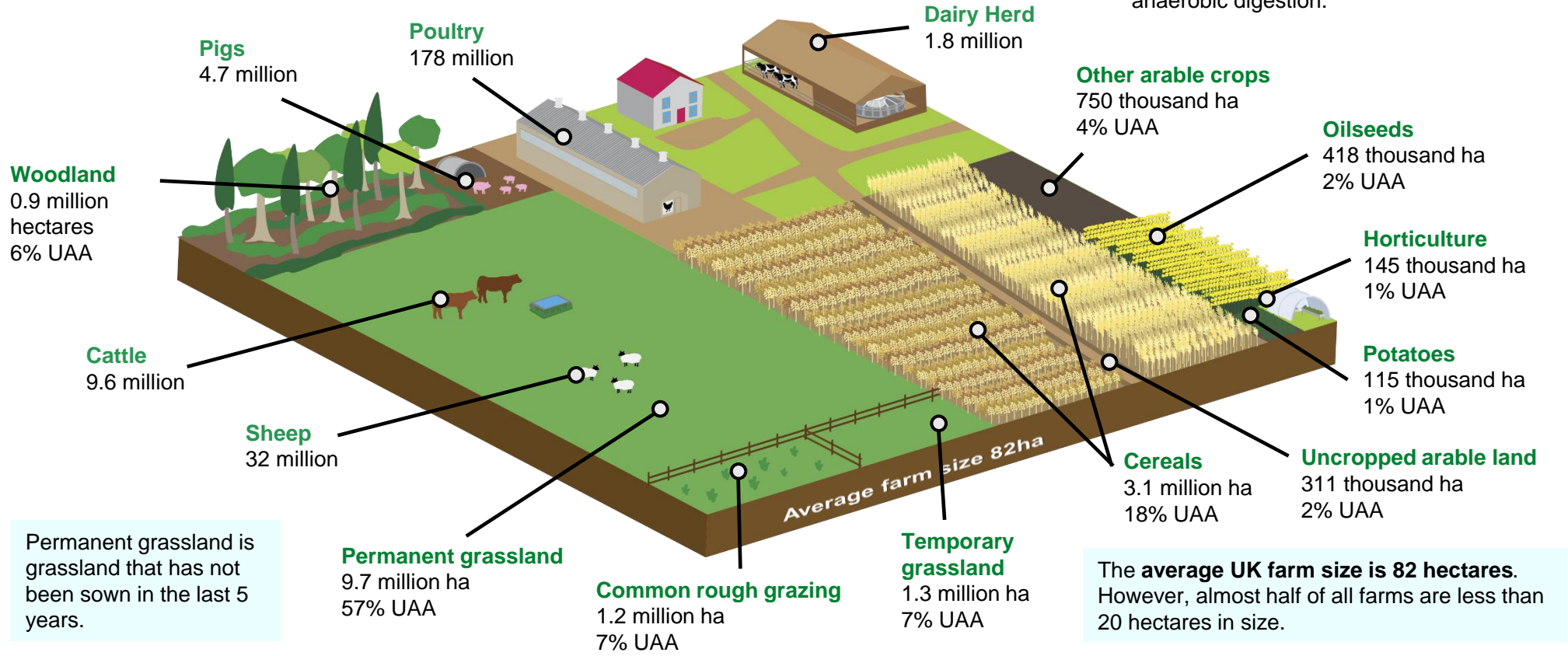
Total UAA has remained between 17 and 18 million hectares since 2000.

Total croppable area consists of cereals, oilseed, potatoes, other arable crops, horticultural crops, uncropped arable land and temporary grassland.

In 2023, the total croppable area was 6.1 million ha, around 1/3 of the UAA.

In 2023, 133,000 hectares of UK agricultural land was used to produce bioenergy crops, an increase of around 43% since 2015. This accounted for 2.2% of arable area.

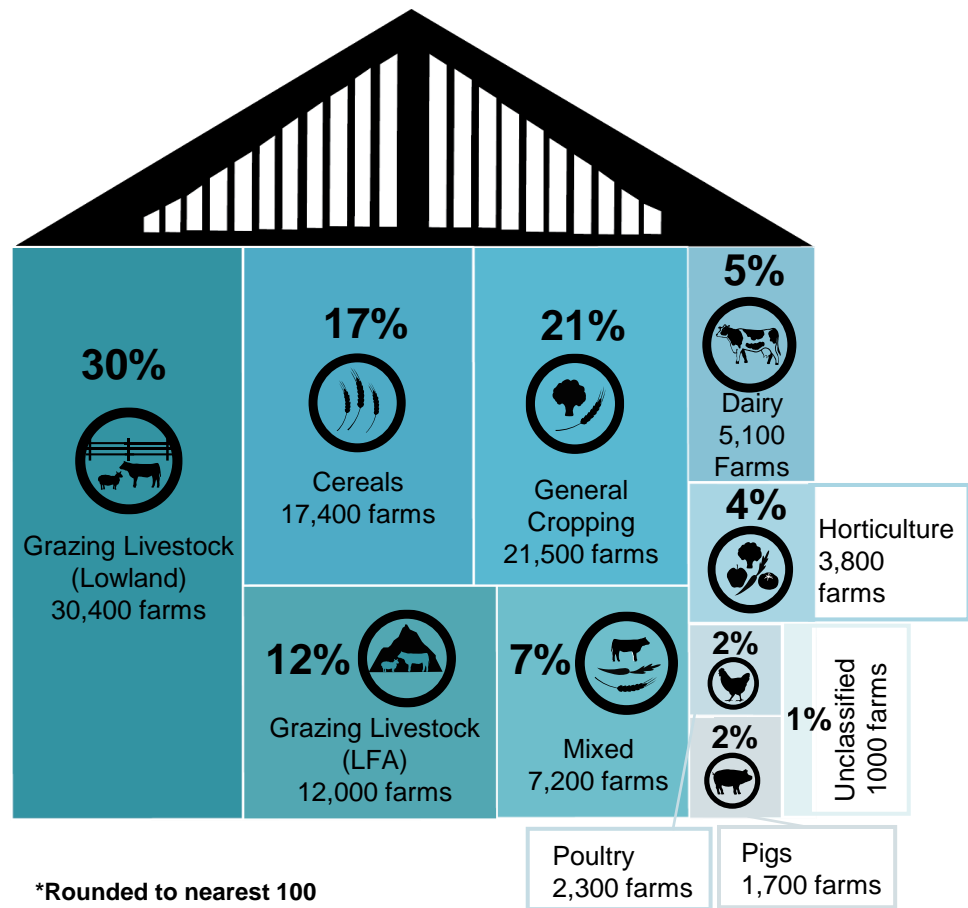
45,000 hectares of wheat and 2,600 hectares of sugar beet were used for biofuels, and 73,000 hectares of maize were used for anaerobic digestion.



How many of each farm type are there in England and how much land do they use?

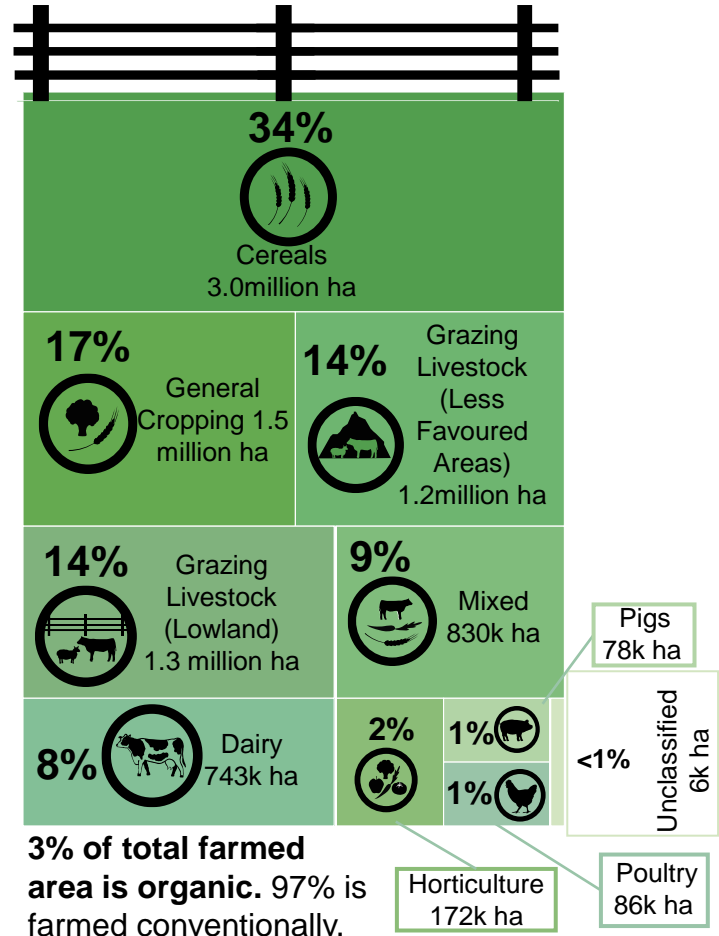
In England in 2023, grazing livestock in lowland areas had the greatest number of farms (30% of total), and cereal farms used the largest amount of farmed area (34% of total).

Number of farms by sector type*
Total Farm Holdings: 102,400



*Rounded to nearest 100

Area of land used by sector type
Total Agricultural Area on holdings: 9.0 million hectares (ha)



3% of total farmed area is organic. 97% is farmed conventionally.

Percentages may not add to 100 due to rounding

In England, how many farms are owner occupied and how many are tenanted?

In England in 2023, the majority of farms (54%) are owner occupied, followed by 31% mixed tenure and 14% wholly tenanted. For the remaining 1%, tenancy was undeclared.

Of all the farms in England...

54%

owner occupied

14%

wholly tenanted

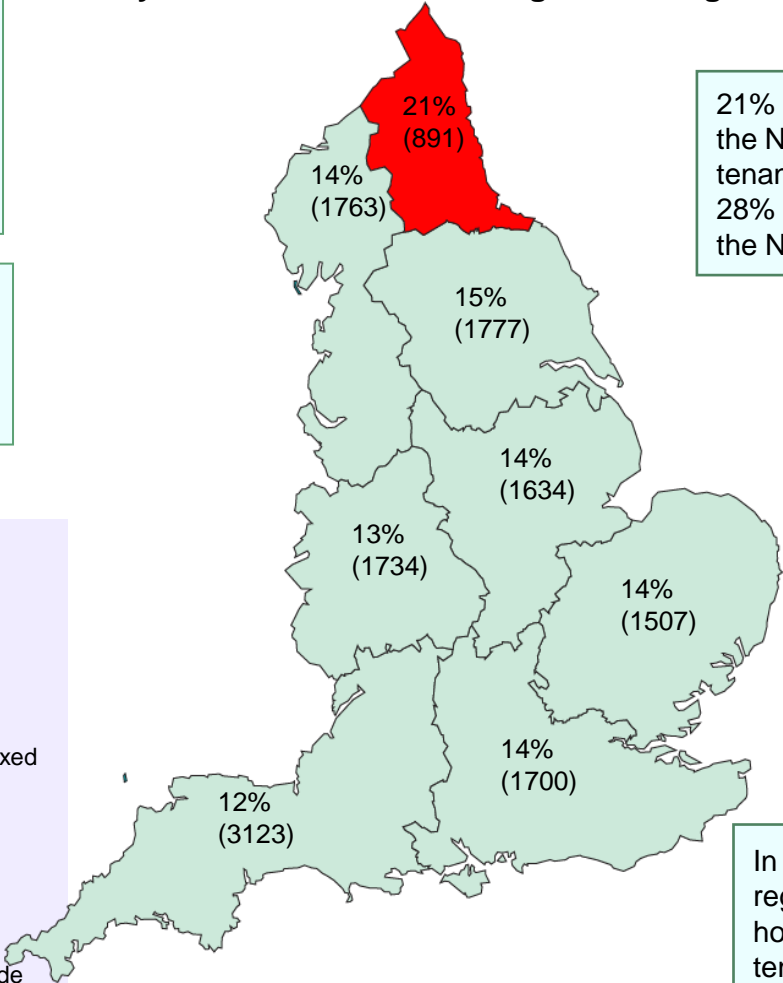
31%

mixed tenure
(owning and renting
the land that they farm)

Wholly tenanted farms have a younger age profile: 18% had a farmer aged under 45 in 2016, compared to 6% of farms that were solely owned.

Farms of mixed tenure tend to be larger than farms that are wholly owned or wholly tenanted.

Wholly tenanted farms in the regions of England 2023



21% of holdings (891) in the North East were wholly tenanted, accounting for 28% of the farmed area in the North East.

In each of the other regions, 15% or less of holdings were wholly tenanted, accounting for less than 20% of land.

Types of Tenancies in England

Full Agricultural Tenancies (FAT): tenancies agreed before Sept 1995, generally have lifetime security of tenure, and some have succession rights for close relatives. Can only be terminated in very specific circumstances which are set out in legislation.

Farm Business Tenancies (FBT): tenancies agreed after Sept 1995, more flexible than FATs as they can be of any length of term, from rolling annual tenancies or a fixed term. Rolling annual FBTs can be terminated by either party issuing a (no-fault) 12 month notice to quit.

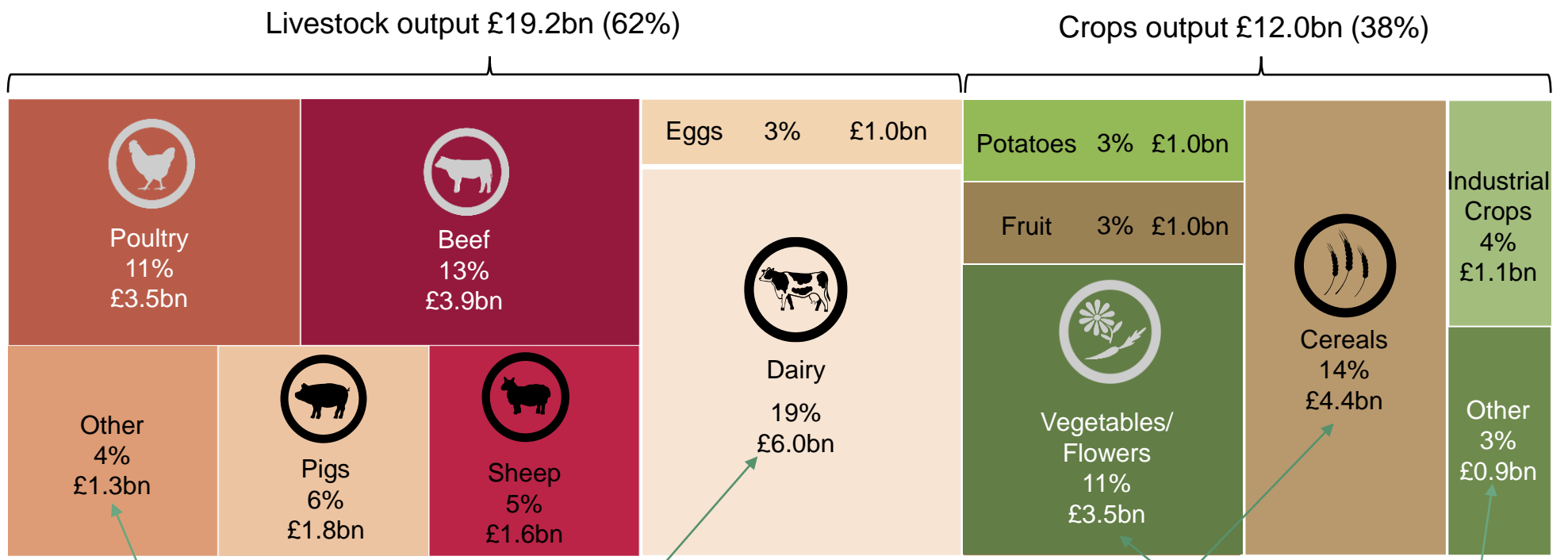
FATs and FBTs: can be with and without BPS entitlements and can be bare land agreements or partial or fully equipped holdings (include buildings/a farmhouse and other assets)

Seasonal agreements: include licences for grazing and/or mowing - can also include BPS entitlements. There are also informal oral/handshake agreements.

Which products contribute most to the value of UK agricultural output?

62% of the value of the UK's agricultural production comes from livestock (£19.2 billion in 2023), of which Dairy and Beef are the largest sectors.

Value of UK crop and livestock products*



For livestock 'Other' includes the value of animals going into the breeding herd/flock.

Dairy had the highest value of output of all agricultural sectors in the UK in 2023, at £6.0bn.

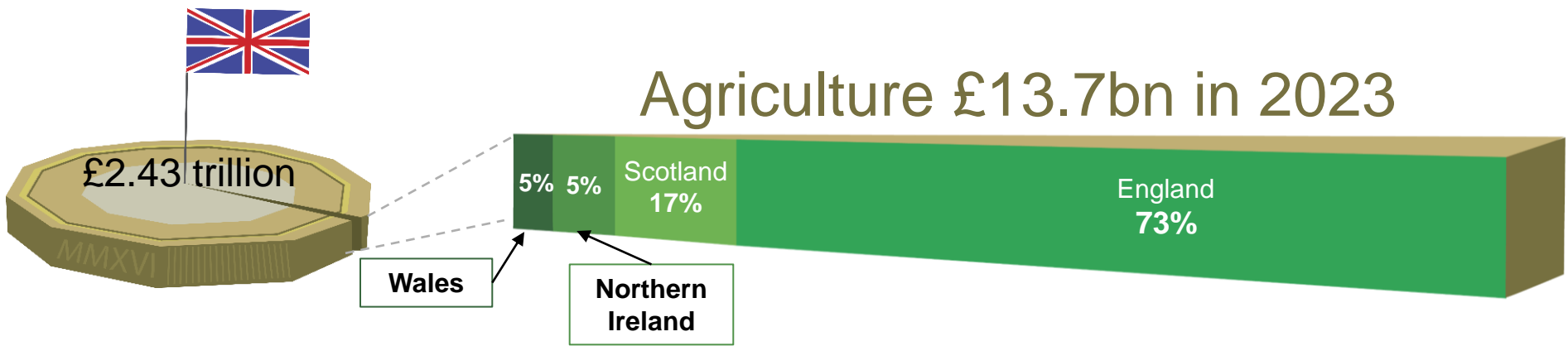
Vegetables/Flowers and Cereals are the two largest crop outputs. Together, these account for over half of the total value of crops.

For crops 'Other' includes forage plants and other crop products, including seeds.

*This table shows only the main contributors to crops and livestock product value.

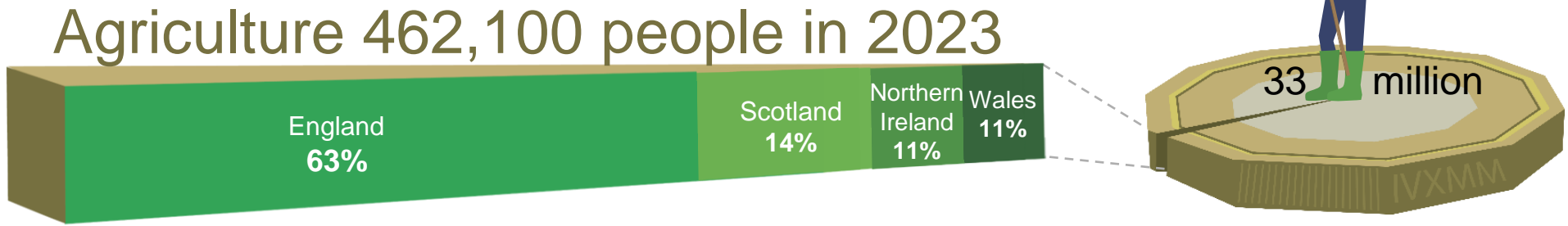
How much does agriculture contribute to the UK economy?

In 2023, agriculture contributed £13.7bn (0.56%) to the UK economy. Agriculture employed 462,100 people in 2023, making up 1.4% of the UK workforce.



The total UK GVA figure was £2.43 trillion in 2023, of which agriculture contributed 0.56% (£13.7bn). The amount that agriculture contributes to the UK economy has varied little over time.

A total of 33.1 million people were employed in the UK in 2023, of which agriculture employed 1.4% (462,100). Around two thirds of agricultural workers work in England.



Percentages may not add to 100 due to rounding

How many people are employed within agriculture in the UK?

In the UK in 2023, agriculture employed almost half a million people. 65% of the agricultural workforce were mainly involved in business ownership or management.

462,100 people were employed in the agricultural sector in the UK in 2023.

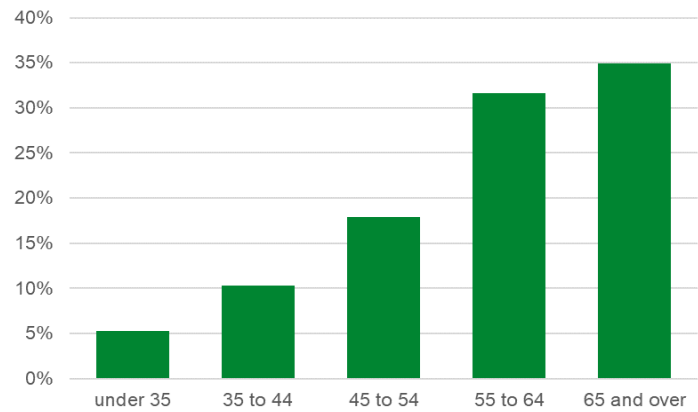


The size of the UK agricultural labour force has remained largely stable over the past decade ranging between 462 and 477 thousand people.

In 2023, 65% of those employed in the agricultural sector in the UK were either farmers, business partners, directors or the spouse.



Agriculture typically has an ageing workforce. In 2023, over a third of all farm holders in England were over the age of 65 years. Just 5% of holders were aged less than 35 years.

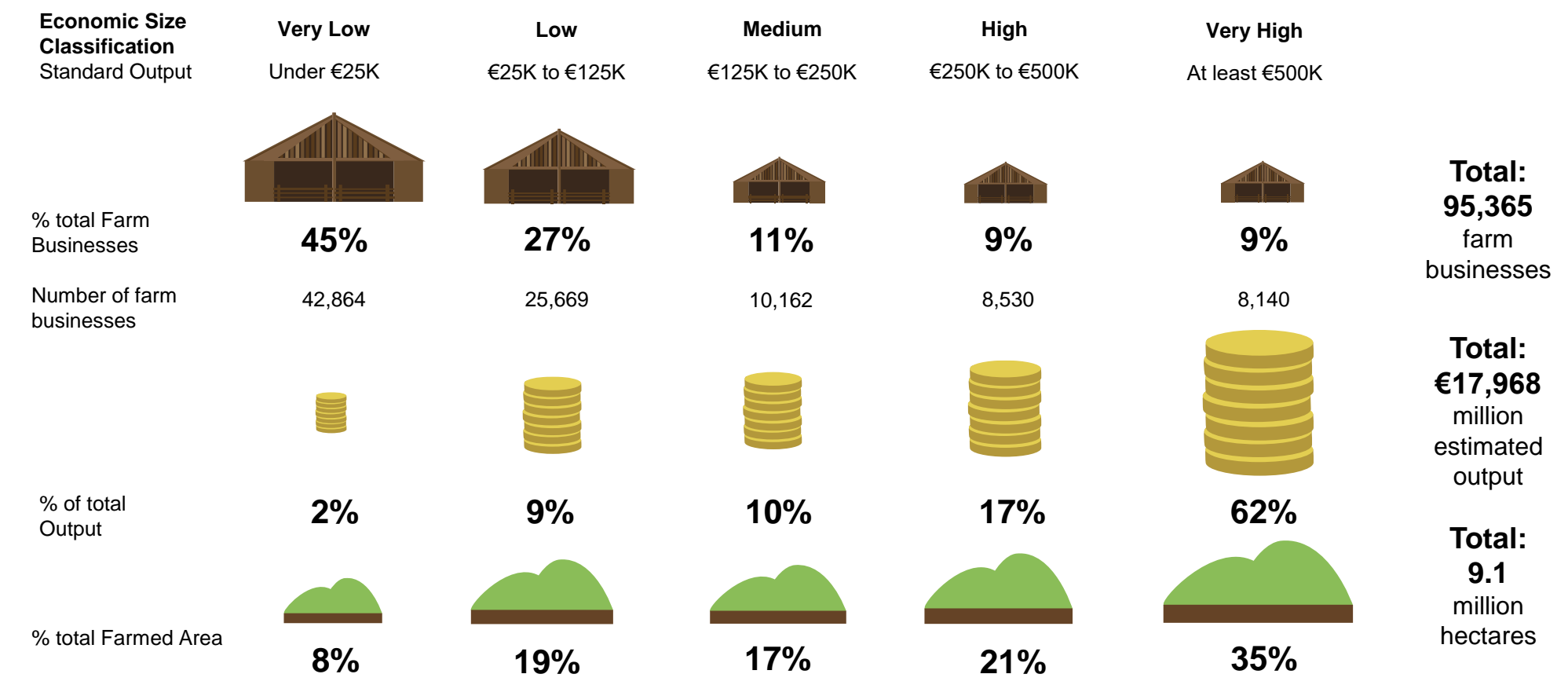


88% of farm holders in **England** in 2023 were male

12% of farm holders in **England** in 2023 were female

How is the economic output distributed across the number of farms in England?

In England in 2022, a small number of economically 'very high output farms' produced over half (62%) the agricultural output using just 35% of the total farmed land area.

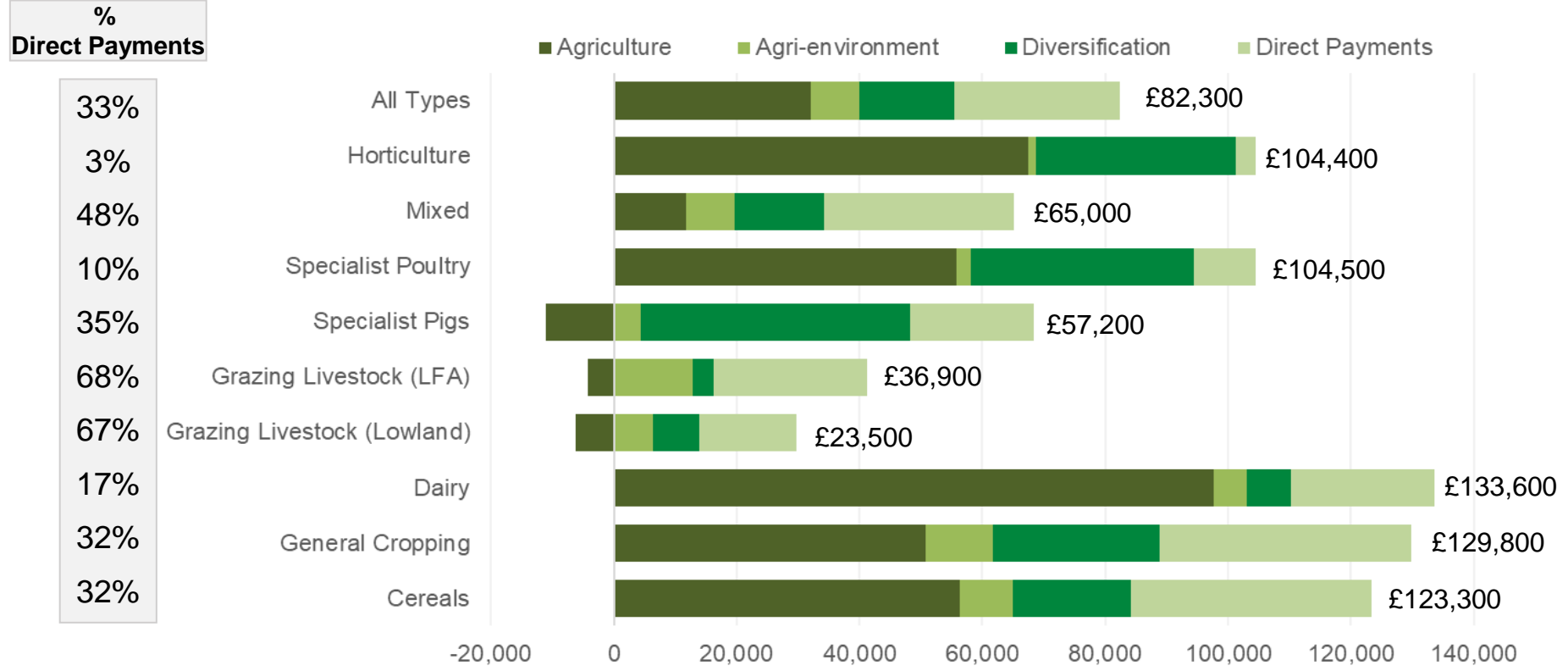


Standard Output measures the total value of output of any one enterprise - per head for livestock and per hectare for crops. For crops this will be the main product (e.g. wheat, barley, peas) plus any by-product that is sold, for example straw. For livestock it will be the value of the main product (milk, eggs, lamb, pork) plus the value of any secondary product (calf, wool) minus the cost of replacement. Standard Outputs are measured in Euros. For consistency, this approach has been continued even though the UK has left the EU.

How does profit (Farm Business Income) vary across the different farm types in England?

Profit (Farm Business Income) varies across the different farm types. Over the period 2020/21 to 2022/23, Dairy farms were the most profitable, and Lowland Grazing Livestock farms the least profitable.

Average Farm Business Income (£), 2020/21 to 2022/23



Lowland Grazing Livestock, Less Favoured Area (LFA) Grazing Livestock and Pig farms made a loss from the agriculture side of the business, as their costs of production outweighed the value of their output.

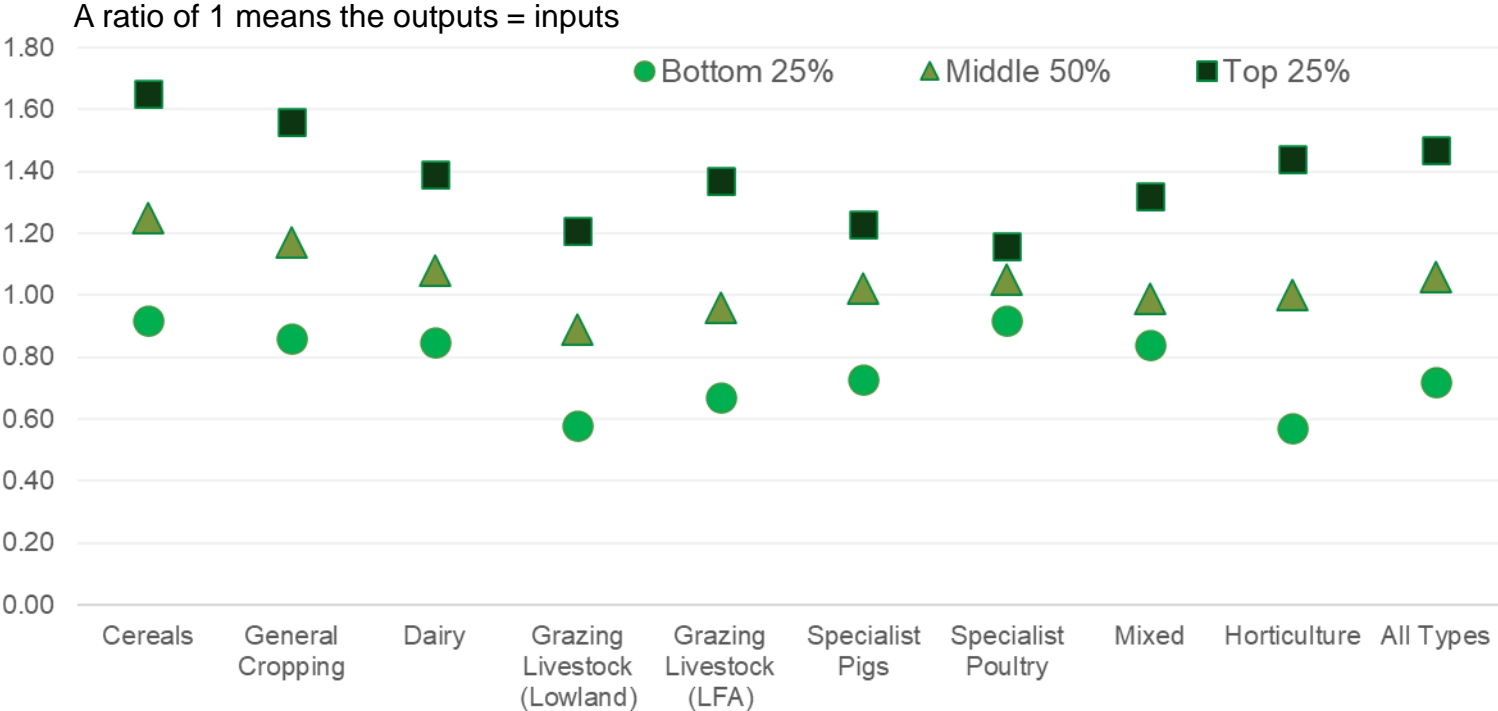
For Dairy farms, around three quarters (73%) of their Farm Business Income came from the agricultural side of the business.

For LFA Grazing Livestock farms, around two thirds (68%) of their Farm Business Income came from direct payments.

How does economic performance vary between the highest and lowest performing farms in England?

Between the years 2020/21 to 2022/23, across all farm types in England, the average performance of the top 25% of farms was 2 times better than the bottom 25%. The largest range was on Horticulture farms, and the smallest was on Poultry farms.

Ratio of the average output costs and average input costs for whole farm business for the top 25% of farms, middle 50% (25%-75%) and bottom 25% of farms, 2020/21 to 2022/23



For the top 25% of farms across each sector, Cereal farms had the best average performance, with outputs 65% higher than their inputs.

For the bottom 25% of farms across each sector, Horticulture farms had the lowest average performance, with outputs 43% lower than their inputs.

Ratio of economic performance, Top 25% vs Bottom 25%:

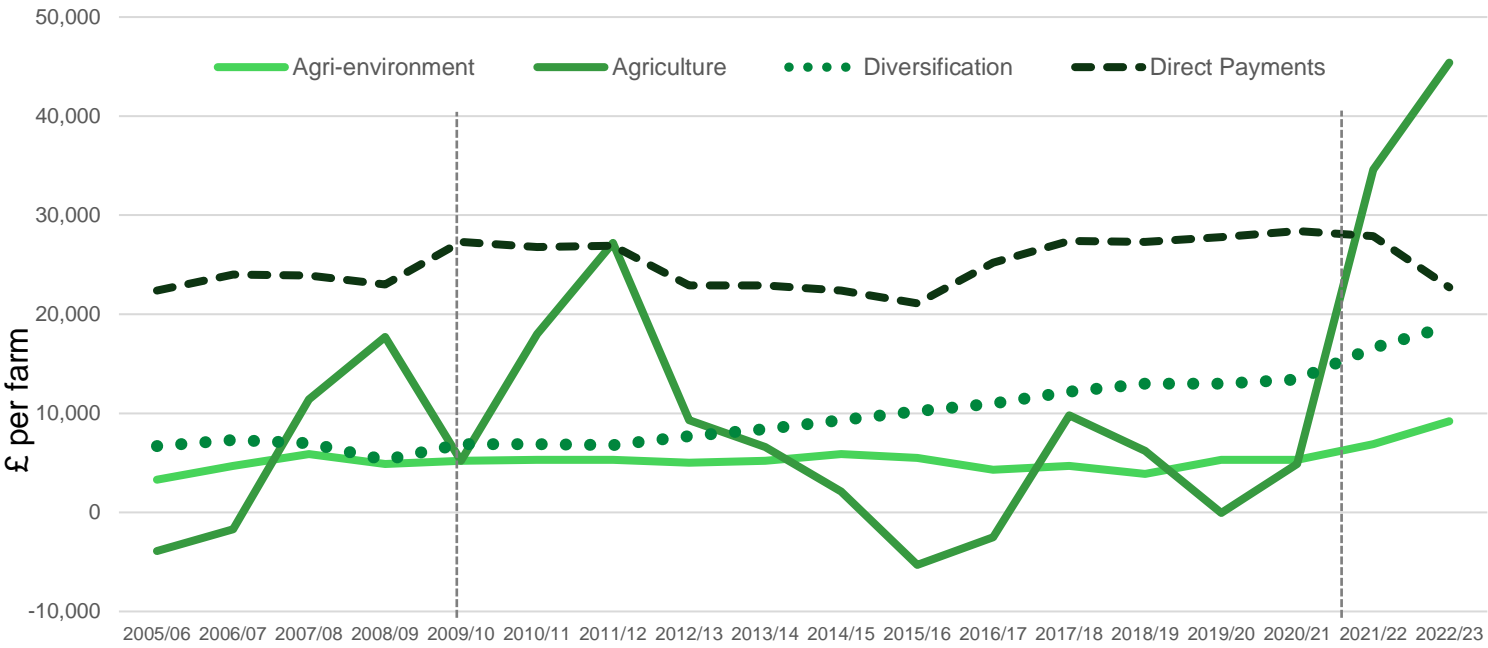
Cereals	1.8	1.8	1.6	2.1	2.0	1.7	1.3	1.6	2.5	2.0
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Farm Business Income (FBI) is calculated as the **difference** between Farm Business Outputs and Farm Business Inputs. It does not deduct the cost of unpaid labour. When calculating **farm economic performance**, unpaid labour is included as a cost. This allows a fairer comparison between farms with employees and those that use unpaid (often family) labour.

What factors are contributing to some farmers in England continuing to farm while making a loss?

Income from agriculture can be volatile, as farm businesses are price-takers and the determinants of the prices they receive can be out of their control. Income from Direct Payments, agri-environment schemes and diversification tends to be more stable.

Average income (£) from agriculture, diversification, Agri-environment and Direct Payments for all farms from 2005/06 to 2022/23 (current prices)



Farmers are price-takers
 Many of the determinants of the prices farmers receive are out of their control. Farmers plant crops and raise animals, but by the time their produce is available for market the actual price they receive may have fallen. Many agricultural products are perishable and cannot be stored on farm, so must be moved into the supply chain quickly, meaning farmers cannot wait for better prices. Weather patterns can also impact both domestic and global supply.
 These factors mean that in some years farmers make profits and in others, losses.

Prior to 2009/10, the sample was based on Standard Gross Margins. Standard outputs were introduced in the 2009/10 survey year. From 2009/10, the data are based on the latest standard outputs available for each year.

Direct payments began to be phased out in 2021.

Compared to income from Direct Payments, agri-environment schemes and diversification, **income from agriculture** is volatile from year to year. This volatility in agricultural income is found across all farm types.

Historically, fluctuations in **Direct Payments** were due to changes in the exchange rate. The sterling rates were set based on the exchange rate in September each year. Since the start of the transition, they have been set relative to the £ value in the pre-transition reference period.

What is productivity and how has UK agricultural productivity changed over time?

Productivity is a measure of the efficiency with which businesses turn inputs into outputs, indicating the economic competitiveness of a sector. Total factor productivity (TFP) in agriculture has increased by 60% since 1973, due to a 32% increase in outputs and a 17% decrease in inputs.

Productivity improves if the same use of inputs produces a larger volume of output, or if the same volume of output is achieved from a smaller volume of inputs. The two main ways of measuring this are:

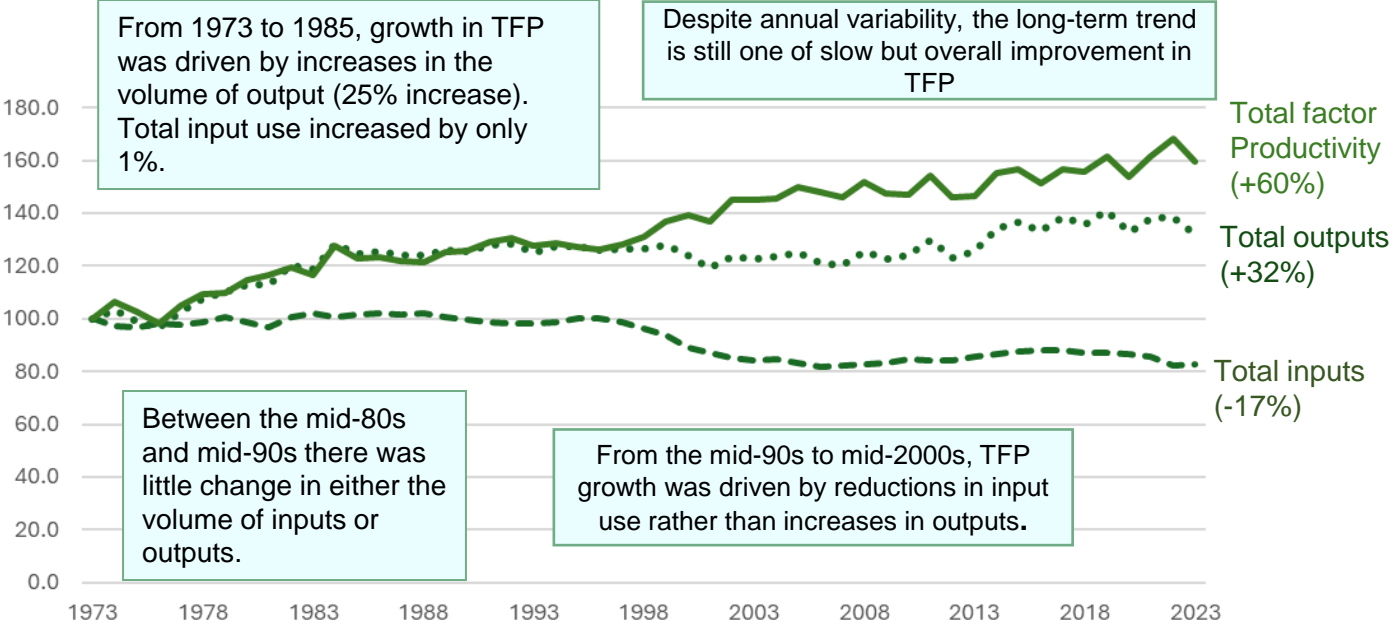
Total Factor Productivity (TFP) is a measure of how well agriculture turns inputs into outputs and is calculated as:

$$\frac{\text{total volume of outputs}}{\text{total volume of inputs}}$$

Labour Productivity (LP) is a measure of average output per unit of labour and is calculated as:

$$\frac{\text{total output (by volume or value)}}{\text{total volume of labour inputs}}$$

Agricultural total factor productivity since 1973 (1973=100)



How do farmers view productivity?

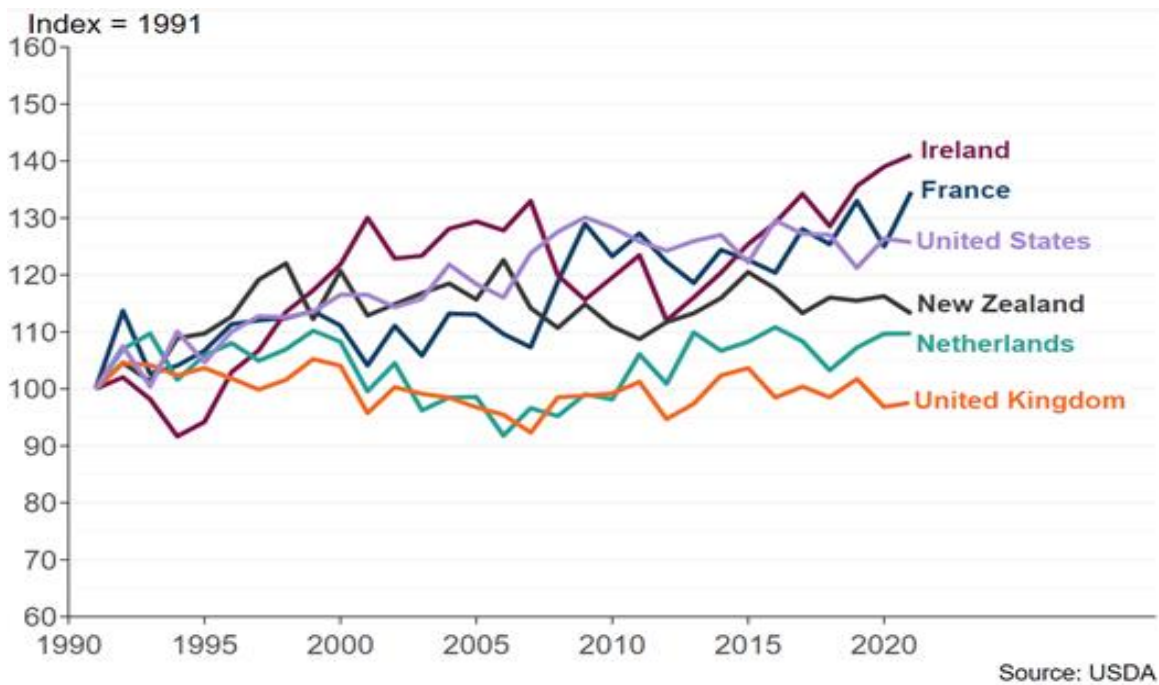
From an economic perspective, improving productivity in the agricultural sector increases the productive capacity of the economy, leading to economic growth and improved international competitiveness.

Farmers taking part in discussion groups understood 'productivity' to relate to profitability rather than its economic definition, and view productivity as part of their objectives for business growth and sustainability. The importance assigned to productivity depends on whether farmers' motivations are closer to profit and business growth, or lifestyle and environmental stewardship.

How does UK agricultural productivity compare with international competitors?

International comparisons of Total Factor Productivity (TFP) show that the UK has seen smaller improvements than some competitors over the past 30 years, however due to limitations with aggregate calculations it is important to also consider comparisons on a sector level.

Growth in Total Factor Productivity (TFP) 1991 to 2021 (%)*



While Direct Payments are likely to have held back productivity-enhancing incentives in the UK, other EU countries have seen greater agricultural productivity growth whilst also receiving this subsidy.

There is potential for improvement in each of the 'pillars' of productivity: Ideas and Innovation, People and Information, Investment and Competition.

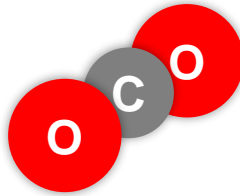
*A simplified methodology is used here to calculate globally comparable estimates of TFP growth. This means that the UK TFP growth shown in this chart differs to Defra's published TFP statistics.

However, direct comparisons with other countries are not straightforward.

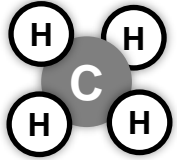
While the UK agriculture sector appears to perform poorly when compared to other countries, care must be taken when interpreting these comparisons. TFP growth rates do not account for the differences in absolute productivity; although the UK seems to have lower growth, it may be that productivity in the UK was already high and competitors are catching up. Variance in the standards of production in each country are also not accounted for in these comparisons. Aggregate data does not allow for the different types of farms found in each country. For instance, the UK has a greater proportion of grazing livestock farms than the Netherlands, which tend to have lower average farm productivity. Therefore, a greater number of this farm type in any one country will result in overall productivity seeming lower.

What is the environmental challenge of agriculture in relation to greenhouse gas emissions?

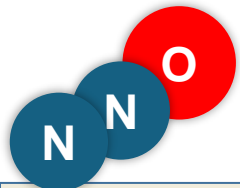
Agriculture is responsible for 12% of the UK's greenhouse gas (GHG) emissions (48 Mt CO₂e). Whilst agriculture has reduced GHG emissions by 12% since 1990, it now accounts for a larger proportion of the UK total as other sectors have decarbonised faster.



Carbon dioxide (CO₂) is a major greenhouse gas, but agriculture is only responsible for around 2% of UK CO₂ emissions. These are mainly through use of energy and fuel, which can be reduced by improving efficiency, and by generating energy from renewable sources on-farm.



Methane (CH₄) is a more potent greenhouse gas than CO₂, particularly over short timescales. Agriculture is responsible for half of the UK's total emissions.



Nitrous oxide (N₂O) is the most potent greenhouse gas that agriculture emits, having a warming effect that is around 300 times stronger than CO₂. Agriculture emits 70% of the UK total.

Carbon sequestration:

Land managers can and do help mitigate climate change by increasing carbon storage through the creation of more forests and woodland, and to a lesser extent, through good management to restore the organic carbon content of soils to its natural maximum. These practices can also improve the nutrient and water holding capacity of soils, which provides agronomic benefits. There is also potential to reduce the contribution of degraded peatlands to GHG emissions through restoration activities

£12.3bn

cost of UK greenhouse gas emissions in 2021 from agriculture

23%

estimated fall in nitrous oxide emissions from agriculture since 1990

15%

estimated fall in methane emissions from agriculture since 1990



Fertilisers

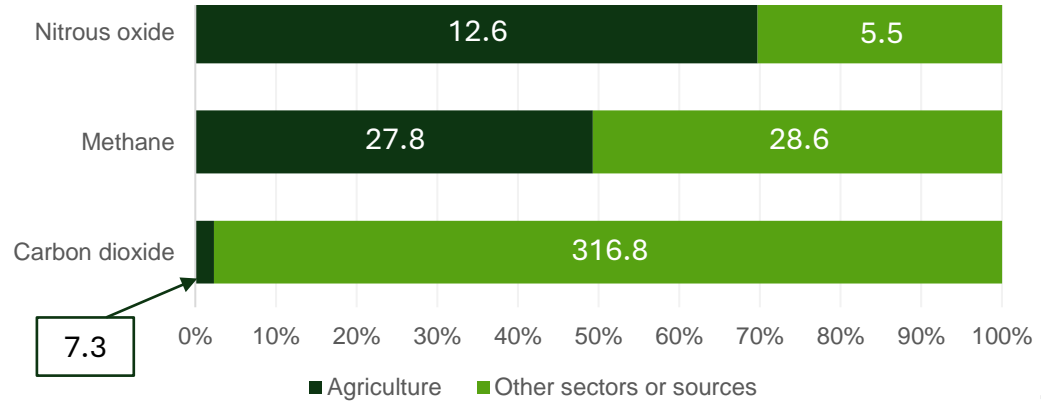
46% of agricultural N₂O emissions are a result of nitrogen fertiliser application



Livestock Enteric Fermentation

are responsible for 85% of methane emissions, or 100% if you include manure management

Proportion of UK Greenhouse Gas emissions (2022) with million tonne CO₂ equivalent



What is the environmental challenge of agriculture in relation to ammonia emissions?

Agriculture was responsible for 87% of UK emissions of ammonia in 2022, mainly from livestock farming and fertiliser use.

19%
estimated fall in agricultural emissions of ammonia since 1990, due partly to declining cattle numbers, better manure and slurry management, and reduced mineral fertiliser use, although over the last 10 years, emissions have been stable or have risen negligibly.

Ammonia emissions affect human health, reduce air quality, can cause soil acidification, harm vegetation and contribute to air pollution.

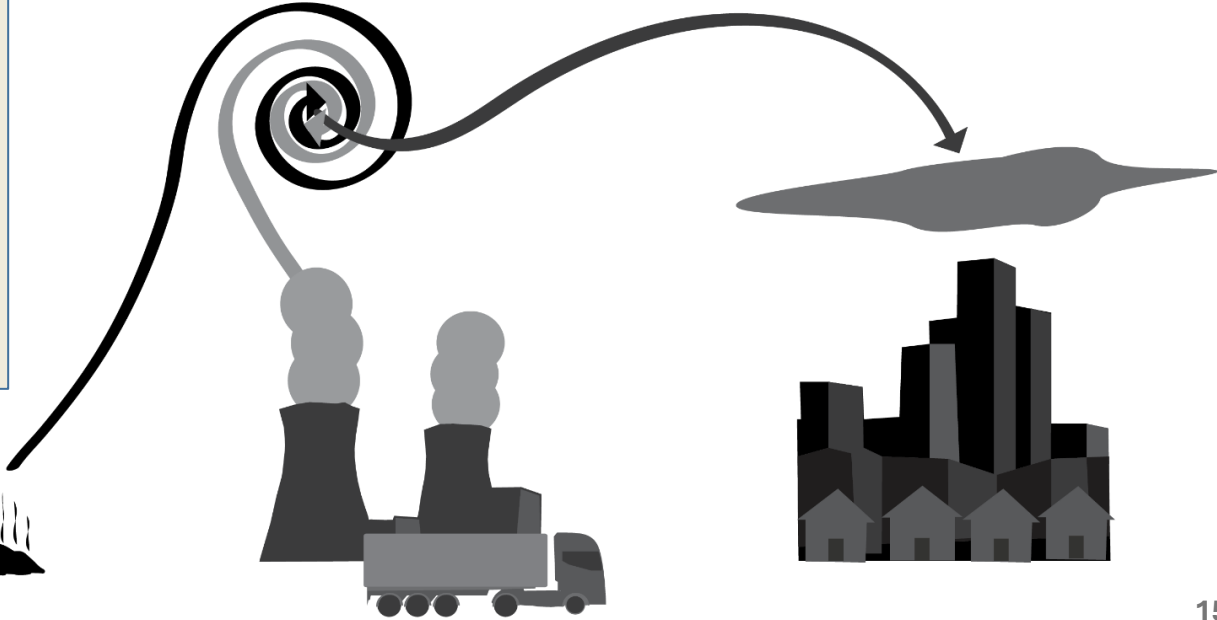
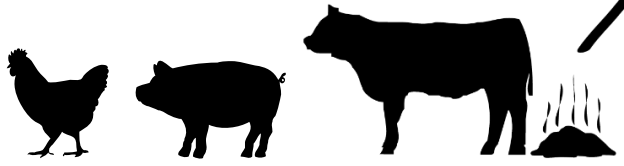
87% of UK ammonia emissions came from agriculture in 2022, mainly from livestock farming and mineral fertiliser use.

£2.19 bn
costs to human health and the environment from UK agriculturally-produced ammonia in 2022.

Cattle are the largest source of ammonia (51% of agricultural emissions), but it is also associated with chicken and pig farms, and with slurry and fertiliser use. Poor storage of slurry and manure can lead to high levels of pollution, and many farmers have taken steps to improve this.

Farmers can also limit the use of nitrogen-rich fertilisers to economically efficient levels, storing and applying them safely and efficiently, as excess nitrogen can be converted to ammonia by microbial processes.

Ammonia emissions can combine with industrial and transport emissions, forming harmful fine particulates which cause smog in urban areas and impact public health.



What is the environmental challenge of agriculture in relation to water quality?

Water quality can be adversely affected by farming through run-off of fertilisers, pesticides and slurry and through erosion of soil, which is washed off farmland.

Soil and Sediment

Soil and sediment enter water when rain and wind erode soil, leading to nutrient enrichment and siltation, which impact fish and invertebrates and cause ecological damage.

Nutrients from Fertilisers

Nitrogen and phosphorus enter the water cycle via groundwater and run-off, causing harmful blooms of plant life that deoxygenate rivers and lakes.

Pesticides & Ammonia

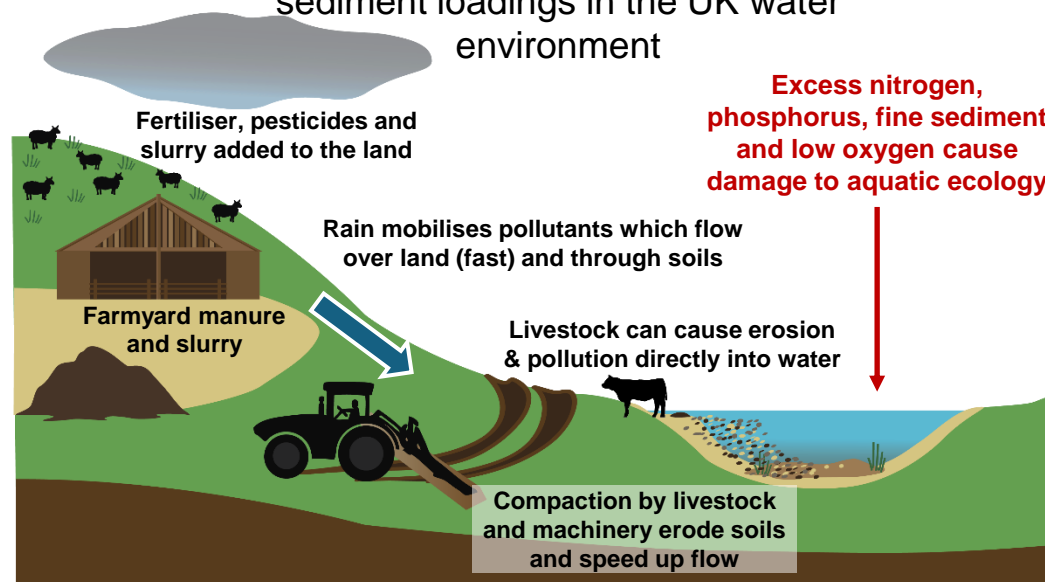
Pesticides and ammonia can be toxic to many aquatic plants & animals, killing fish and invertebrates.

64% of all surface water bodies in the UK failed to achieve good or high ecological status in 2022.

40% of waterbodies in England are impacted by pollution from agriculture and rural areas.

Increased nutrients and sediment in water increase the cost of water treatment, and negatively impact bathing water quality.

Farming accounts for 25% phosphate, 50% nitrate and 75% sediment loadings in the UK water environment



Pollutants can enter groundwater, affecting drinking water supplies and taking decades to degrade. Some of the pollution affecting UK waters is a **legacy of previous agricultural practices**, which heavily focussed on increasing production.

Excess nitrogen and phosphorus from manure, slurry and fertiliser application can enter surface waters and aquifers. Improvements in nutrient management practices and slurry and manure storage can help to reduce water pollution.

↓ **45% Nitrogen** reduction in manufactured nitrogen fertiliser used in UK between 1990 and 2023.

↓ **75% Phosphate** reduction in manufactured phosphate fertiliser used between 1990 and 2023 in UK.