



Farm performance and productivity

Analysis of Farm Business Survey



Department
for Environment
Food & Rural Affairs

 Government
Statistical Service

Farm Business Survey

The Farm Business Survey (FBS) provides information on the financial, physical and environmental performance of farm businesses in England to inform and evaluate policy decisions. The FBS is intended to serve the needs of farmers, farming and land management interest groups, government, government partners and researchers. Survey results typically give comparisons between groups of businesses, for example between regions or between types of farm.

Note: Some of the information in this document has not been updated. A note has been added to slides that don't contain the latest data.

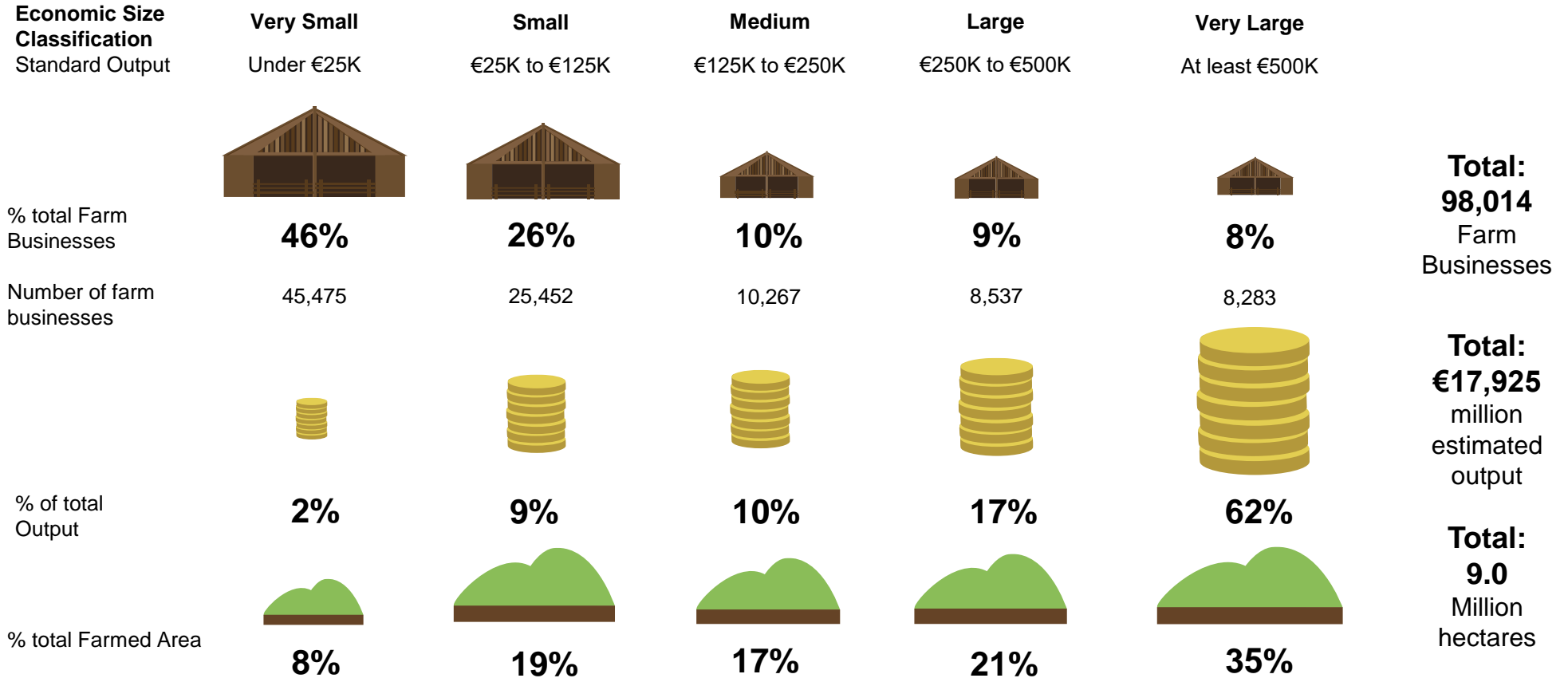


Farm Performance



In England how is the economic output distributed across the number of farms?

In England in 2021, a small number of economically ‘very large 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.

Note - the chart excludes businesses classified as ‘specialist horse’

Why does agricultural performance vary so widely and how can lower performing farms improve performance?

Differences achieved in input and output values is one reason for differences in farm performance. As a result of differences in input and output values achieved, for every £100 spent by Lowland Grazing Livestock farms, those in the top 20% made on average £153 compared to £91 for farms in the bottom 20% in 2019/20 – 2021/22.

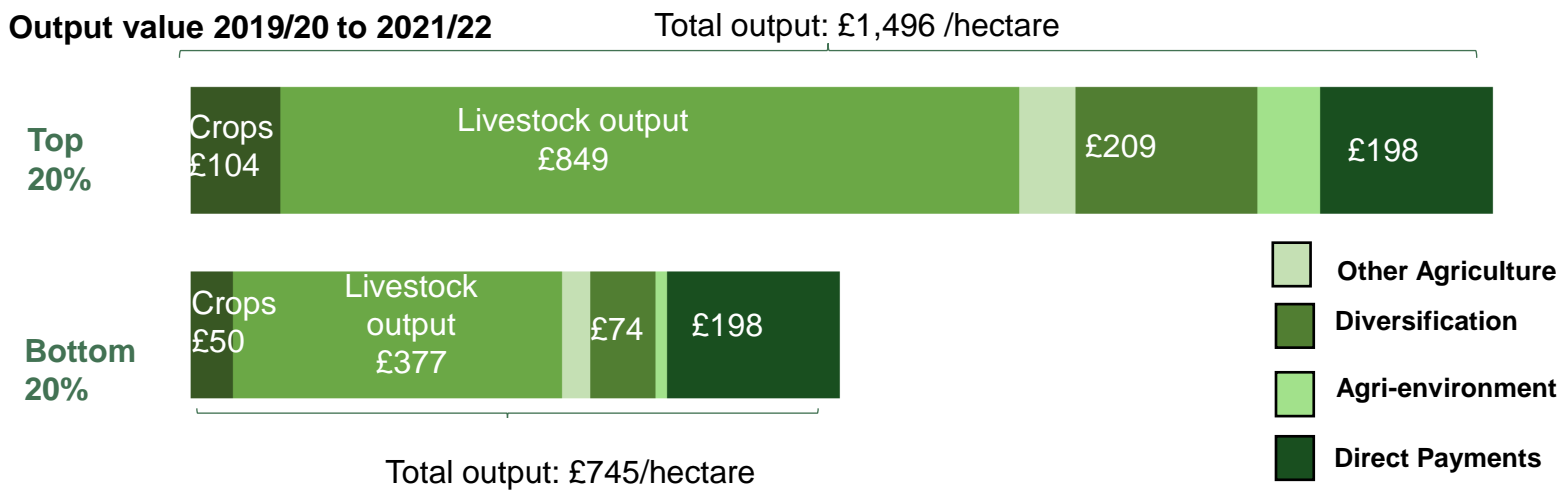
Differences in input costs can be due to inefficient use of inputs, differences in farming systems and management, and the resource efficiency of crops and livestock on the farm. Our research shows that where beef animals of the same breed were reared in different sized groups the feed intake required to obtain the same growth rate varied considerably, by up to 23%.

Differences in outputs achieved may be due to system design, impacts of pests and diseases, and the yield potential of crops and livestock grown on the farm. For example, diseases such as Bovine Viral Diarrhoea can reduce milk outputs by 10% to 20%.



Fixed and variable costs are lower in the bottom than the top 20%.

The top 20% achieved a greater revenue per hectare for their crops and livestock, and made more from diversification and agri-environment schemes.

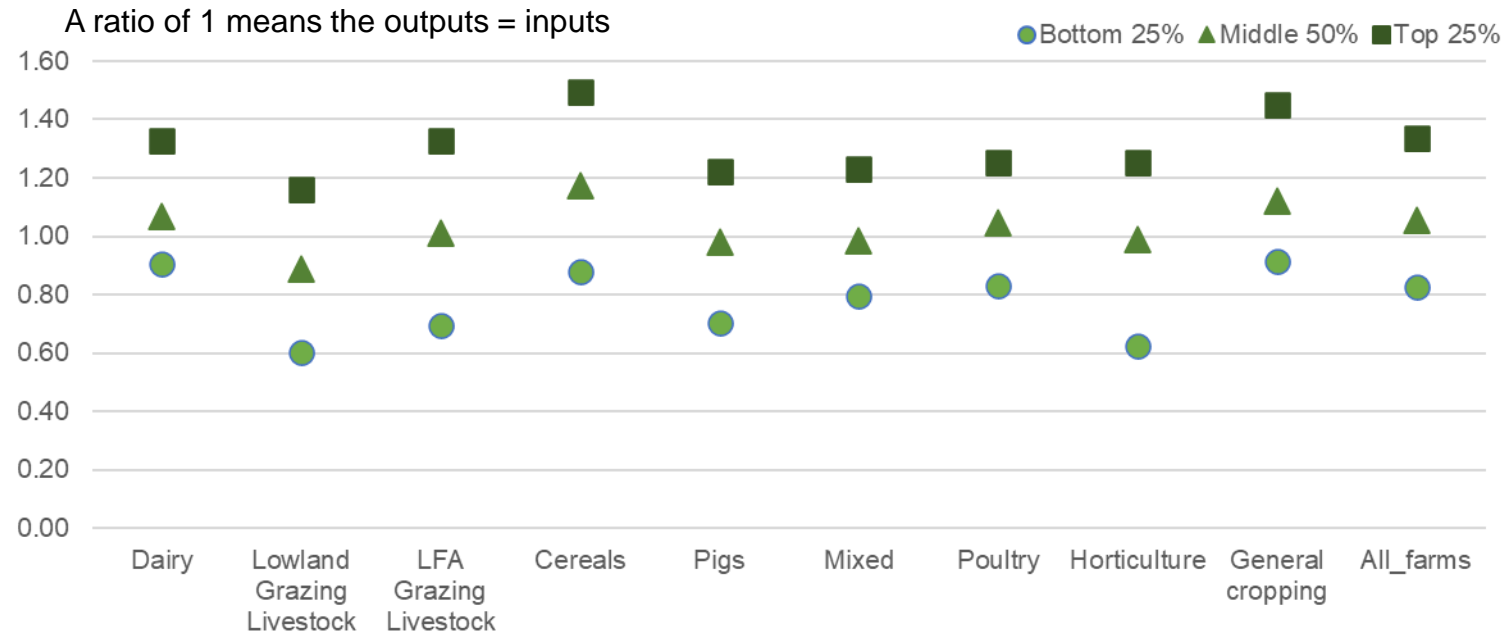


- Other Agriculture
- Diversification
- Agri-environment
- Direct Payments

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

Between the years 2019/20 and 2021/22, across all farm types in England, the average performance of the top 25% of farms was 1.6 times better than the bottom 25%. The largest gap was among Horticulture farms, and the smallest within Dairy 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, 2019/20 to 2021/22



For the top 25% of farms across each sector, Cereal farms had the best average performance with outputs 50% higher than their inputs.

Comparing average economic performance of the top 25% of farms to the bottom 25% of farms shows the largest performance gap was among Horticulture, Lowland Grazing Livestock and LFA Grazing Livestock farms.

Ratio of economic performance, top 25% vs bottom 25%:

1.5 1.9 1.9 1.7 1.7 1.5 1.5 2.0 1.6 1.6

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.

How does the economic size of a farm affect its performance in England?

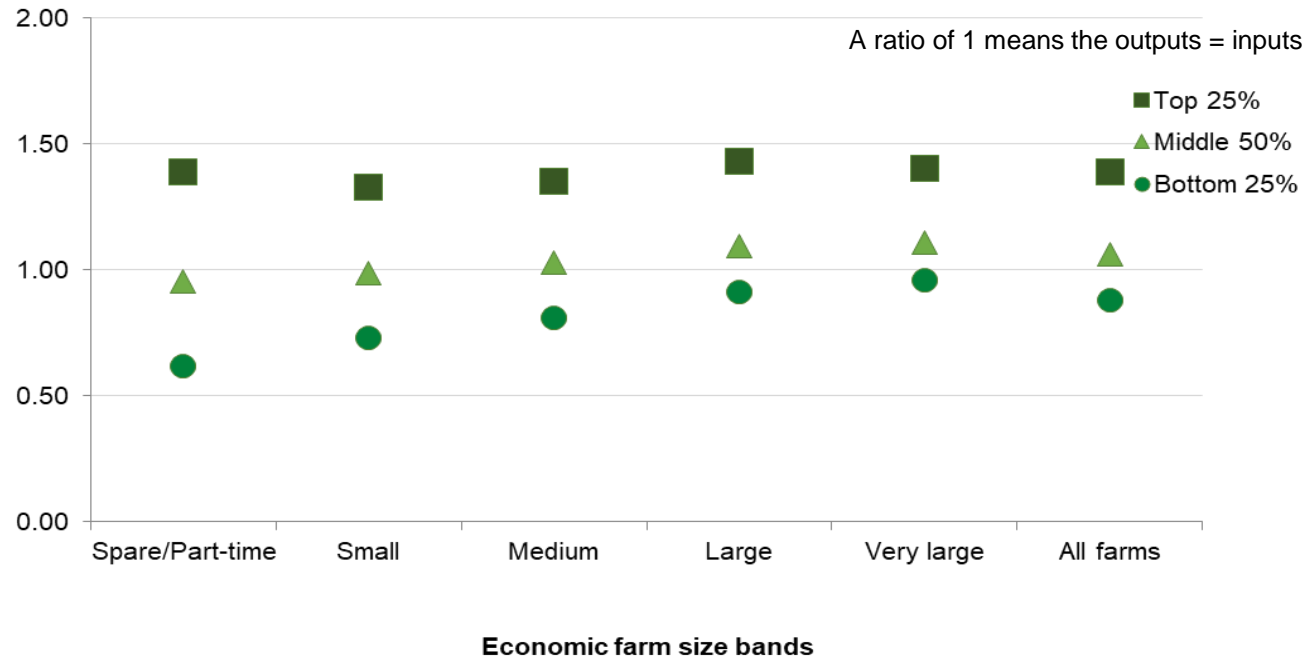
Between the years 2019/20 and 2021/22 in England, the highest performing 25% farms have a similar level of performance regardless of farm size. However, the gap between the top and bottom 25% is greater for smaller farms.

Spare/Part-time farm businesses show the largest difference in performance between top 25% and bottom 25%, but the average performance of the top 25% is similar to larger farms.

Farm sizes are based on the estimated Standard Labour Requirements (SLR) for the business, not its land area.

SLR is defined as the theoretical number of workers required each year to run a business, based on its cropping and livestock activities. For more information on how SLR is defined, [go to slide 2.3.](#)

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 by economic size, 2019/20 to 2021/22



A ratio of 1 means the outputs = inputs

■ Top 25%
▲ Middle 50%
● Bottom 25%

Economic farm size bands

Ratio of economic performance, top 25% vs bottom 25%:

2.2 1.8 1.7 1.6 1.5 1.6

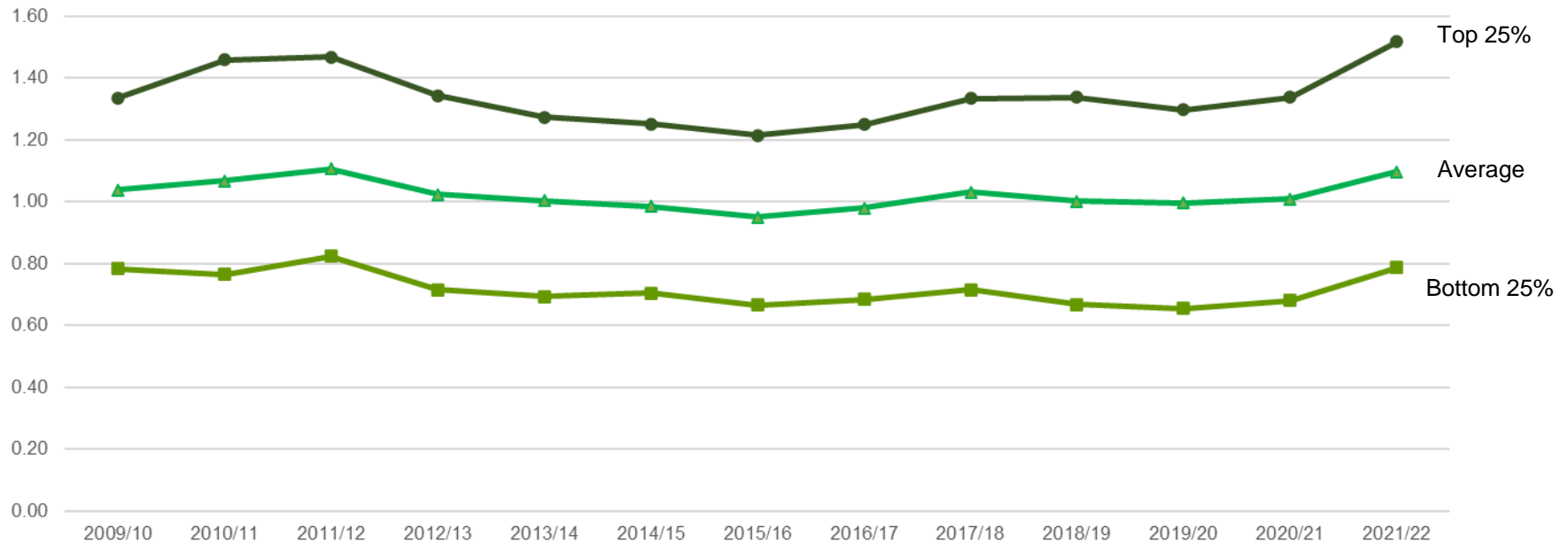
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How has economic performance of all farm businesses changed between 2009/10 and 2021/22?

In the 2021/22 period, the top 25% of farms performed on average 1.93 times better than the bottom 25% of farms. Since the 2018/19 peak, this performance ratio change displays a slight downward trend, though still not back to pre-peak levels. Throughout all years, the performance of farms by performance band seems to change consistently with one another.

Farm business performance

If performance ratio = 1, then value of outputs = value of inputs. Over 1 indicates a profit and under 1 indicates a loss



Ratio of economic performance, top 25% vs bottom 25%
2009/10 to 2021/22:

Year	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Ratio	1.71	1.91	1.78	1.87	1.84	1.78	1.82	1.82	1.86	2.00	1.98	1.96	1.93

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.

Farm Accounts



How is farm business profit calculated and what was the average for all farms in England in 2019/20 and 2021/22?

Farm Business Income (FBI) is a measure of net profit, calculated as Farm Business Outputs (revenue) minus Farm Business Inputs (costs). Between 2019/20 and 2021/22 the average profit for all farms was £63,600, with Direct Payments equivalent to the largest share of this (46%).

Average inputs and outputs for all farms from 2019/20 – 2021/22

Agriculture (£277,500)

Main measure of the value of crop and livestock outputs.

On average, across all farm types the agricultural part of the business made a profit of £13,100 between 2019/20 and 2021/22.

Diversification (£28,000) Non-agricultural work of an entrepreneurial nature, on or off farm, but utilising farm resources, such as running a farmhouse bed and breakfast.

Agri-environment (£8,400) Payments to deliver environmental outcomes, compensating for income foregone in providing them.

Output value

Agriculture £277,500

Input costs

Variable costs £142,400

Fixed costs £140,600

Direct Payments (£31,900)

Direct Payments are farm subsidy payments from the EU under the Common Agricultural policy. They are paid to farm businesses based on the amount of agricultural land they maintain.

Costs (£283,000)

Around half of costs to farmers are variable, changing depending on the level of production. The other half are fixed costs, of which machinery is their largest.

Farm Business Income (£63,600)

The amount that a farm business has left after costs to invest, pay taxes and pay salaries.

Output values include the total value of crops produced, livestock enterprise output, by-products, forage and cultivations, and miscellaneous output.

Inputs are resources used in the production process, such as feed, materials, labour and machinery, measured in physical or financial terms.

Direct Payments contribute, on average, £31,900 to the revenue of the farm, but also have costs (£2,900) associated with them, such as the application process and cross compliance. This means that the average net income from Direct Payments was around £29,000.

How does agriculture contribute to the incomes (or profit) of farmers in England?

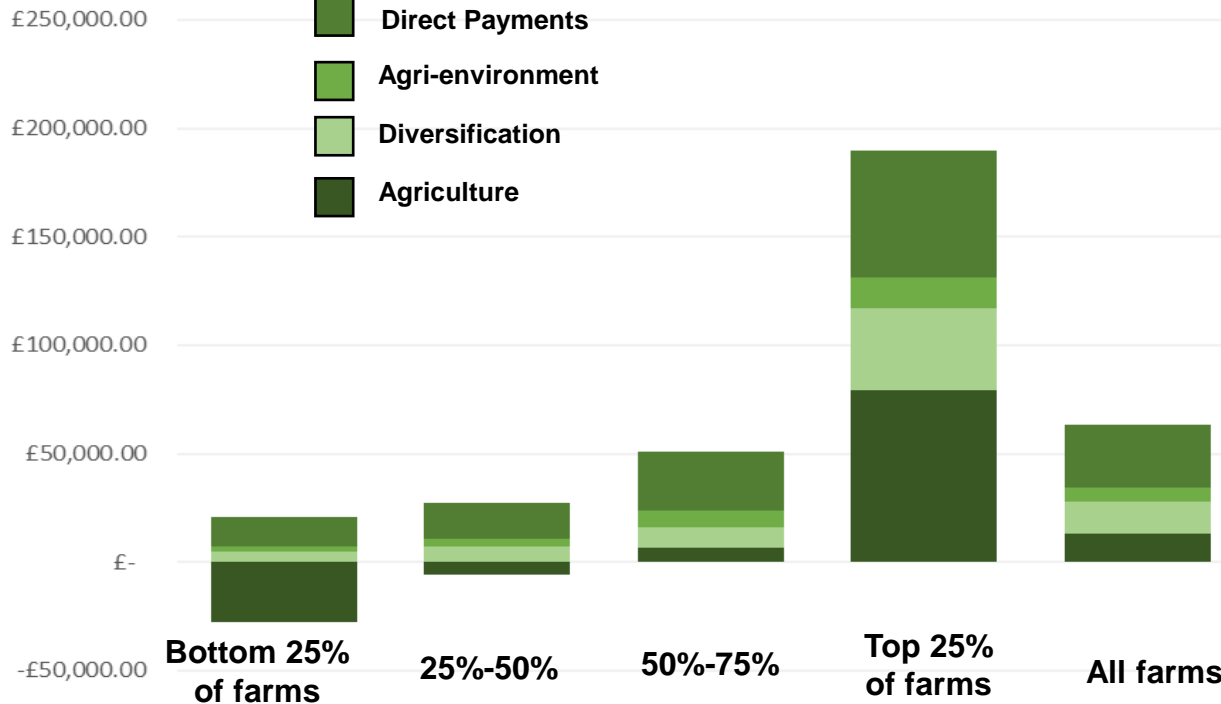
In 2019/20 to 2021/22, only the top 50% of farms made a profit from agriculture. The bottom 25% of farms made a loss of £27,800 from agriculture, and overall made a loss of £7,200.

Contributions to Farm Business Income (or profit), 2019/20 to 2021/22

£ per farm

Key

- Direct Payments
- Agri-environment
- Diversification
- Agriculture



	Bottom 25% of farms	25%-50%	50%-75%	Top 25% of farms	All farms
Income from agriculture	-£27,800	-£5,800	£6,900	£79,500	£13,100
Farm Business Income	-£7,200	£21,300	£51,100	£189,700	£63,600

Ranking farms from lowest to highest by their Farm Business Income and splitting into 4 equal groups:

Agriculture

Only the top 25% on average made a substantial profit from the agricultural part of the business (£79,500). The bottom 25% made an average loss of £27,800 from agriculture.

Agri-environment

These schemes contributed an average £6,700 to farm incomes. The monetary value increases with their FBI.

Diversification

On average, diversification provided profit to farms in each group, but contributed most (£37,800) to the top 25% of farms. The bottom 25% made only £4,600 from diversification.

Direct Payments

On average, Direct Payments contributed £29,000 to farm business income. For the top 25% of farms, the average income from Direct Payments was £58,700. These farms receive more because this is an area based payment, and they tend to be larger.

Farms are ranked from the lowest to highest Farm Business Income

How does profit vary according to different farm size in England?

Farm Business Income varies by farm size, and over the period 2019/20 to 2021/22, 'Small' farms were more reliant on Direct Payments and 'Very large' farms the least.

The standard labour requirement (SLR) of a farm represents the normal labour requirement, in Full Time Equivalents, for all enterprises on a farm under typical conditions. The SLR for a farm is calculated from standard coefficients applied to each enterprise of the farm. The standard coefficients represent the input of labour required per head of livestock or per hectare of crops for enterprises of average size and performance.

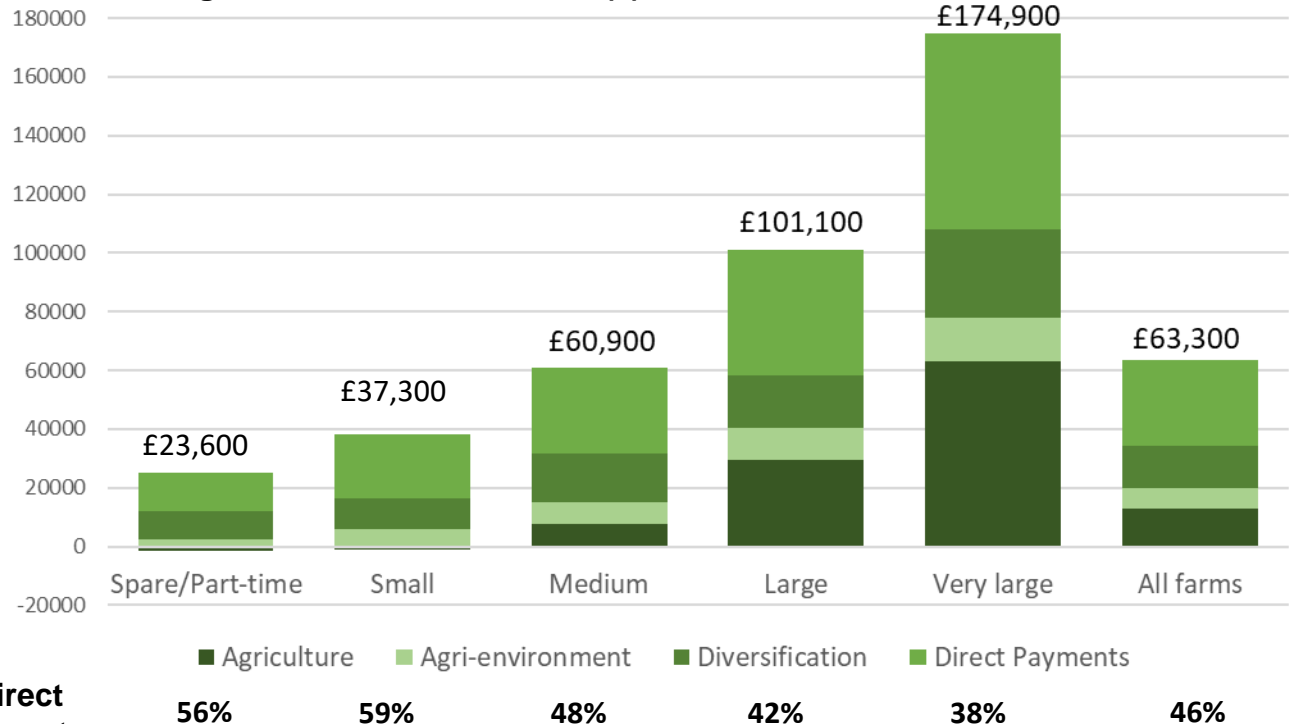
Farm size	Definition
Spare & Part time	Less than 1 SLR
Small	1 to less than 2 SLR
Medium	2 to less than 3 SLR
Large	3 to less than 5 SLR
Very Large	5 or more SLR

For Very large farms, 38% of their income came from Direct Payments.

For Medium and Large farms, the amount of their income (48% and 42%) that came from Direct Payments was nearer to the average for all farms (46%).

For Spare/Part-time farms and Small farms, 56% and 59% of their Farm Business Income came from Direct Payments.

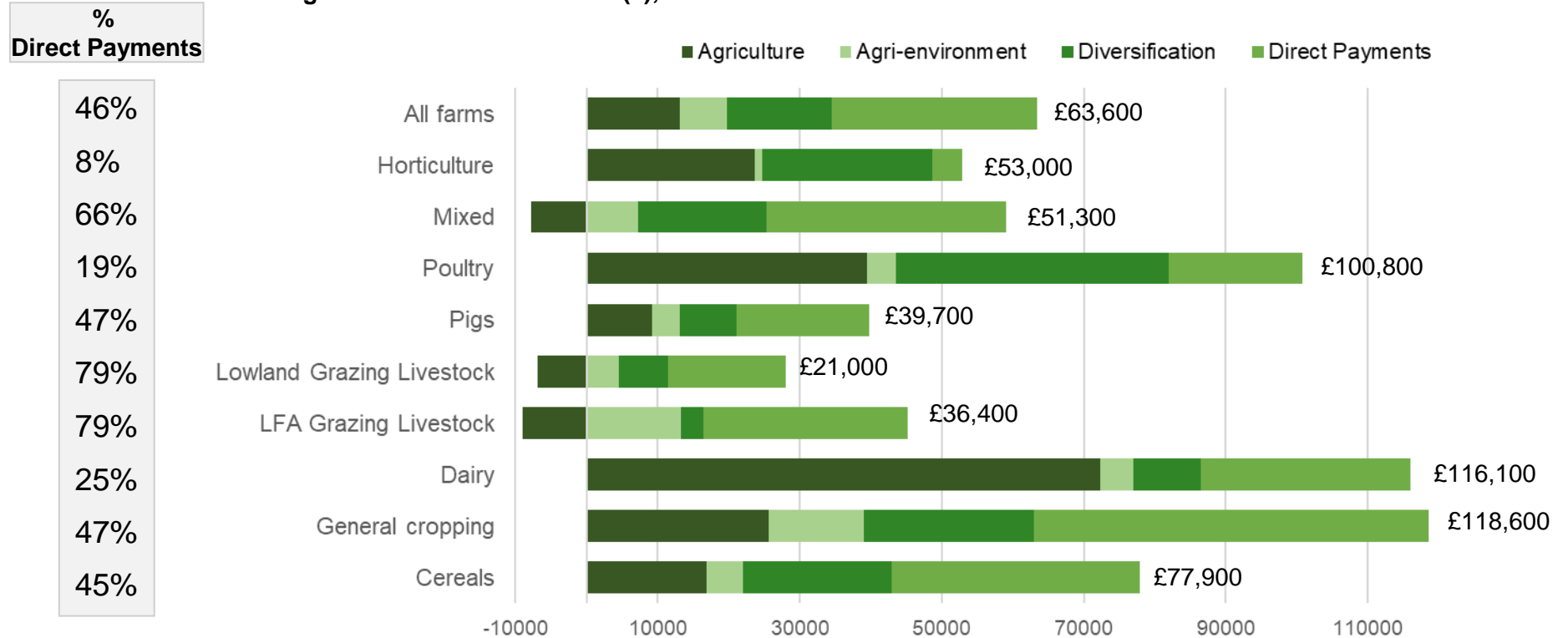
Average Farm Business Income (£)



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

Profit (Farm Business Income) varies across the different farm types, and over the period 2019/20 and 2021/22, General cropping was the most profitable, and Lowland Grazing Livestock farms the least profitable.

Average Farm Business Income (£), 2019/20 to 2021/22



Mixed, LFA Grazing Livestock and Lowland Grazing Livestock 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, over 60% of their Farm Business Income came from the agricultural side of the business.

For Grazing Livestock farms, nearly 80% of their Farm Business Income came from direct payments.

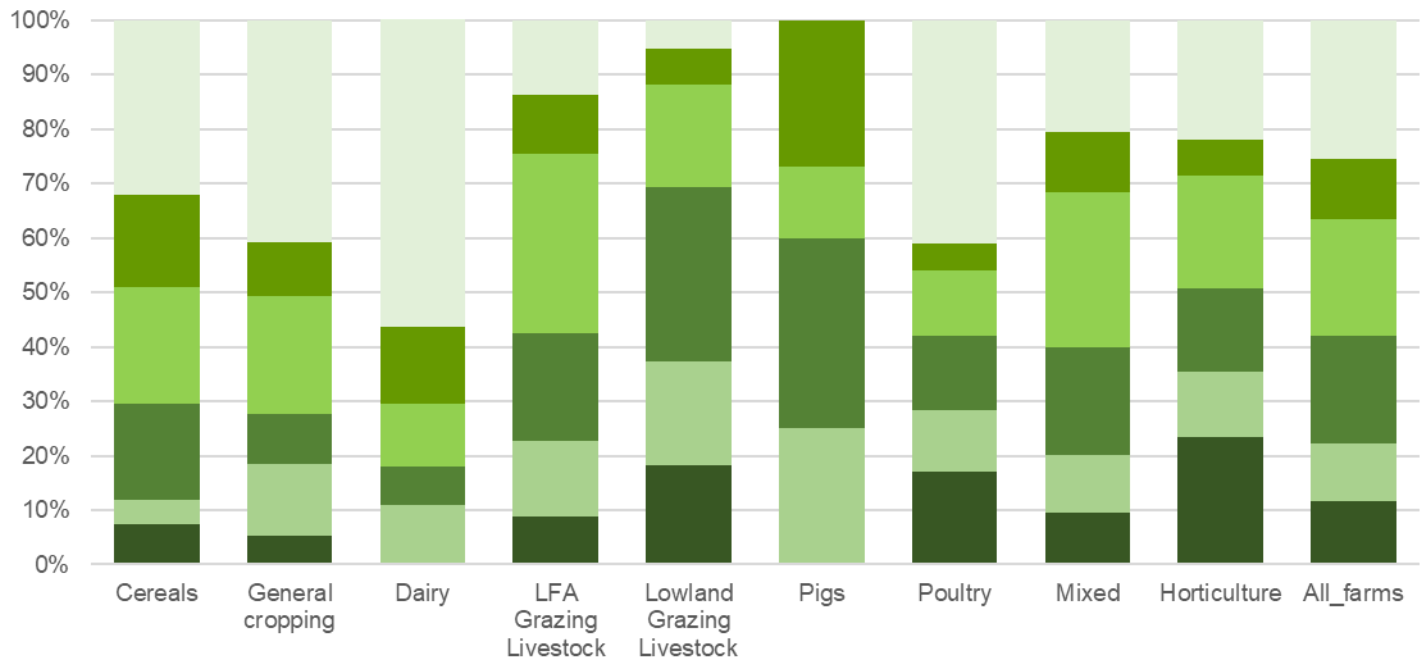
What are the most profitable farm business types?

Between 2018/19 and 2020/21, 21% of all farms made a profit of more than £75k with dairy, poultry and cereal farms having the greatest proportion in this group. Grazing livestock, horticulture and pig farms were most likely to make a loss.

% of farms within different Farm Business Income bands, 2018/19 and 2020/21*

Key (Average in brackets)

- More than £75k
- £50k to less than £75k
- £25k to less than £50k
- £10k to less than £25k
- £0k to less than £10k
- Less than £0 (make a loss)



While Farm Business Income averages are useful to get a sense of how profitable the sector or a particular farm type is overall, averages can mask the variation in profitability.

Thus, while there are some farms in every farm type who are not making a profit currently, there are also a large proportion of farms who are, demonstrating the potential for farms to be more profitable overall.

*Due to small sample sizes, some categories have been grouped. <£0 and £0<£10k have been grouped for dairy and pigs. £50k-£75k and Over £75k have been grouped for pigs.

56% of Dairy farms made more than £75k, but despite this, 9% of these farms still made a loss.

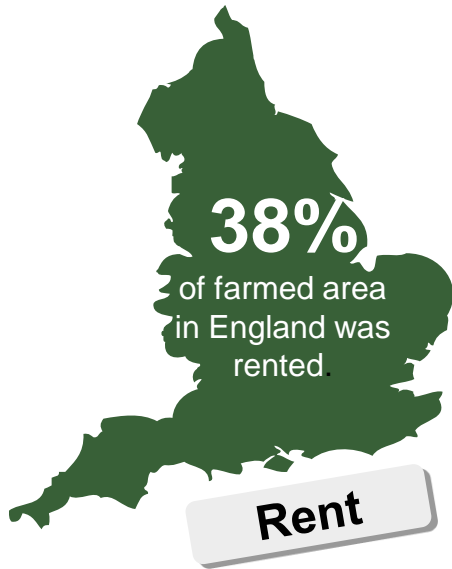
42% of LFA Grazing Livestock farms and 69% of 'Lowland Grazing Livestock farms had a profit of less than £25k per year.

41% of Poultry farms made more than £75k, but despite this, 28% of these farms made less than £10k.

How does Farm Business Income vary by tenure type?

Over the period 2019/20 to 2021/22, 'Mixed - mainly tenanted' farms had the highest farm business income (£84,200), and 'Tenanted' farms the lowest (£41,900).

In England in 2022...



14%
of farm holdings were wholly tenanted (15,000 farms), accounting for 15% of farmed area (1.3 million ha).

31%
of farms were mixed tenure (33,000 farms). These accounted for 48% of farmed area (4.3 million ha).

Of the land that was rented, the majority (84%) was rented for at least a year, while the remaining 16% was rented seasonally.

Over the period 2019/20 to 2021/22, 'Mixed - mainly tenanted' farms had the highest farm business income (£84,200), and 'Tenanted' farms the lowest (£41,900).

Average Farm Business Income (FBI) by tenancy type, based on 3 year matched dataset 2019/20 to 2021/22

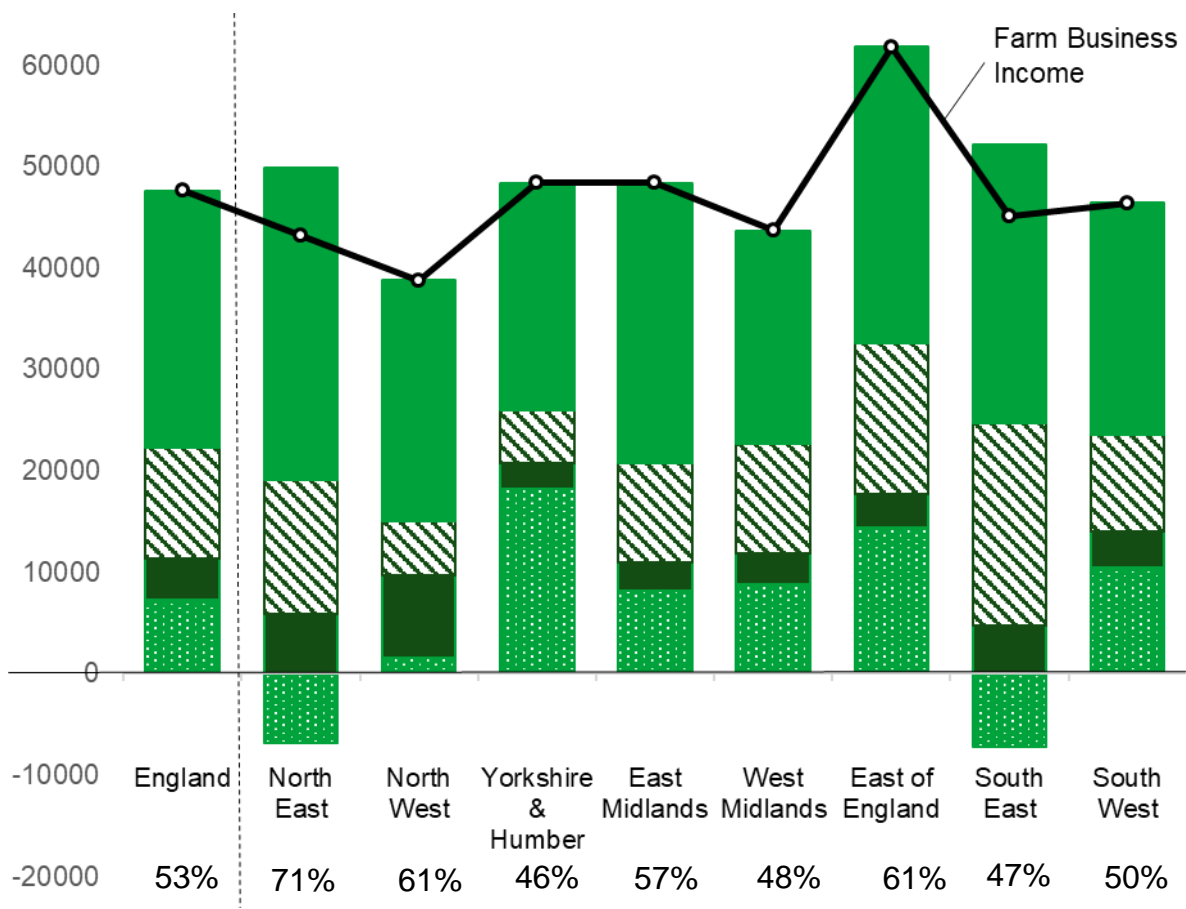


How does Farm Business Income vary by region?

Farm Business Income (FBI) varies across the different regions of England, and on average over the three year period 2016/17 to 2018/19 the East of England had the highest FBI (£61,800) and the North West the lowest (£38,800).

Farm Business Income (FBI) and the proportion that comes from:

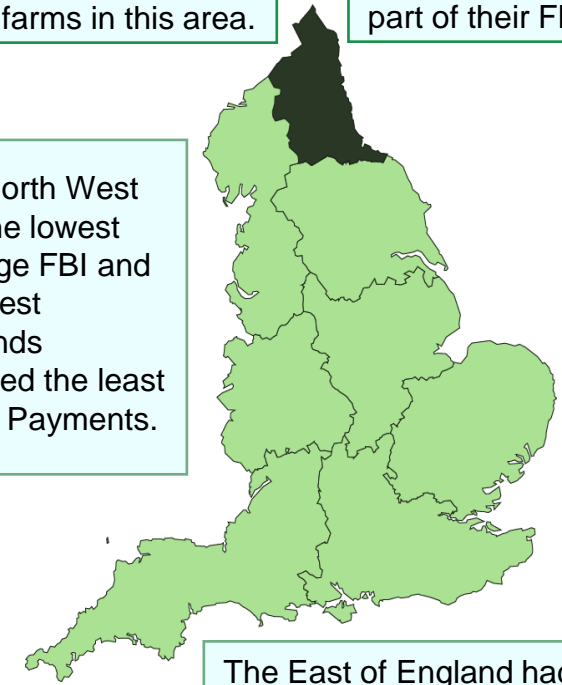
■ Agriculture
 ■ Agri-environment
 ▨ Diversification
 ■ Direct Payments



The North East had the highest proportion of income from Direct Payments due to a prevalence of Grazing livestock farms in this area.

Farm businesses in the South East and North East made losses on the agriculture part of their FBI.

The North West had the lowest average FBI and the West Midlands received the least Direct Payments.



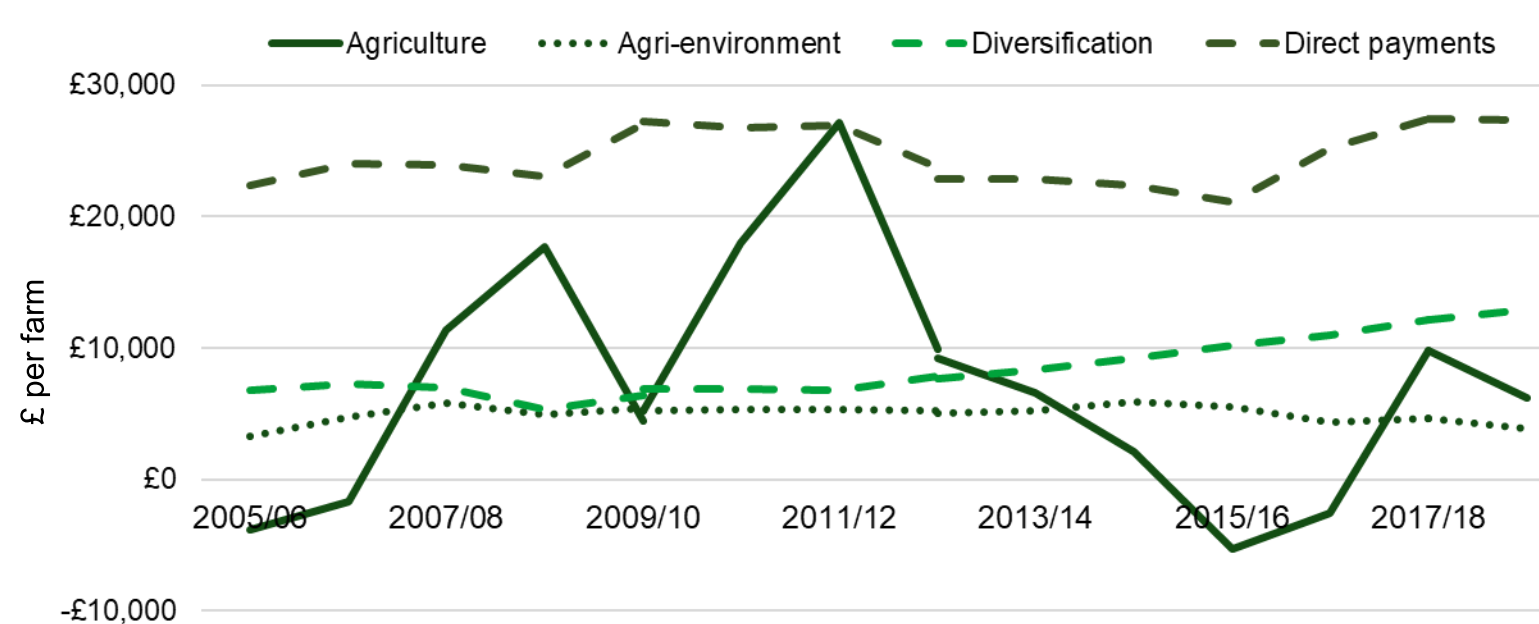
The East of England had the highest average FBI of £61,800.

% Direct Payments

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 2017/18



Note there are slight discontinuities in the data in 2009/10, 2012/13 and 2017/18

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.

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.

Fluctuations in **Direct Payments** are due to changes in the exchange rate. The sterling rates are set based on the exchange rate in September each year.

These factors mean that in some years farmers make profits and in others losses.

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

Many farmers put the farming lifestyle as being more important to them than maximising profits. Many farms are also asset rich, with owner occupied farms averaging a net worth of £1.84m.

Many farmers are asset rich

52% of farm holdings in England are owner occupied and the average net worth of this group was around £1.84 million pounds in 2018/19. The average for this group has also increased by 22%, or £329,000, since 2013/14.

A further 21% of farm holdings are mixed tenure but mainly owner occupied and the net worth of these farms was almost £2.6 million in 2018/19, up 24% since 2013/14.

However, tenanted farms (14% of farm holdings) have fewer assets (e.g. machinery and livestock). Their average net worth was £313,000 in 2018/19, up 10% since 2013/14.

Tenancy Type	Average net worth (£million)	Average total area (hectares)	Average owner occupied area (hectares)	% owned
Owner occupied	1.84	60	60	100%
Mixed - mainly owner occupied	2.60	135	105	78%
Mixed - mainly tenanted	1.42	145	35	24%
Tenanted	0.31	97	0	0%

Please note: the data on net worth is taken from the Farm Business Survey which only samples farms in England with a standard output of over 25,000 Euros, and so excludes smaller farms.

For many farmers profits are not their main motivation and many farm households are supported by off-farm income

Approaches to farming vary – some focus on the business, others on the lifestyle (individual and family heritage). In a survey conducted for Defra (in 2008) to understand different attitudes to farming, 93% agreed that the farming lifestyle is what they really enjoy and 91% agreed that maintaining environmental assets is a priority. This compares to 79% saying farming is about maximising profit.

Many farms are supported by income generated off farm, either from other family members or a second job, and for 40% of principal farmer households, the income received from non-farming sources exceeded the income received from the farm business.

How much income do farmers generate from providing non-agricultural products using their farm resources?

Over the three year time period 2016/17 to 2018/19, 2/3rds of farms used farm resources to deliver non-agricultural activities, generating around £623 million additional profit (£15,600 average per farm).

Diversified enterprises = non-agricultural work of an entrepreneurial nature on or off farm, but which utilises farm resources.

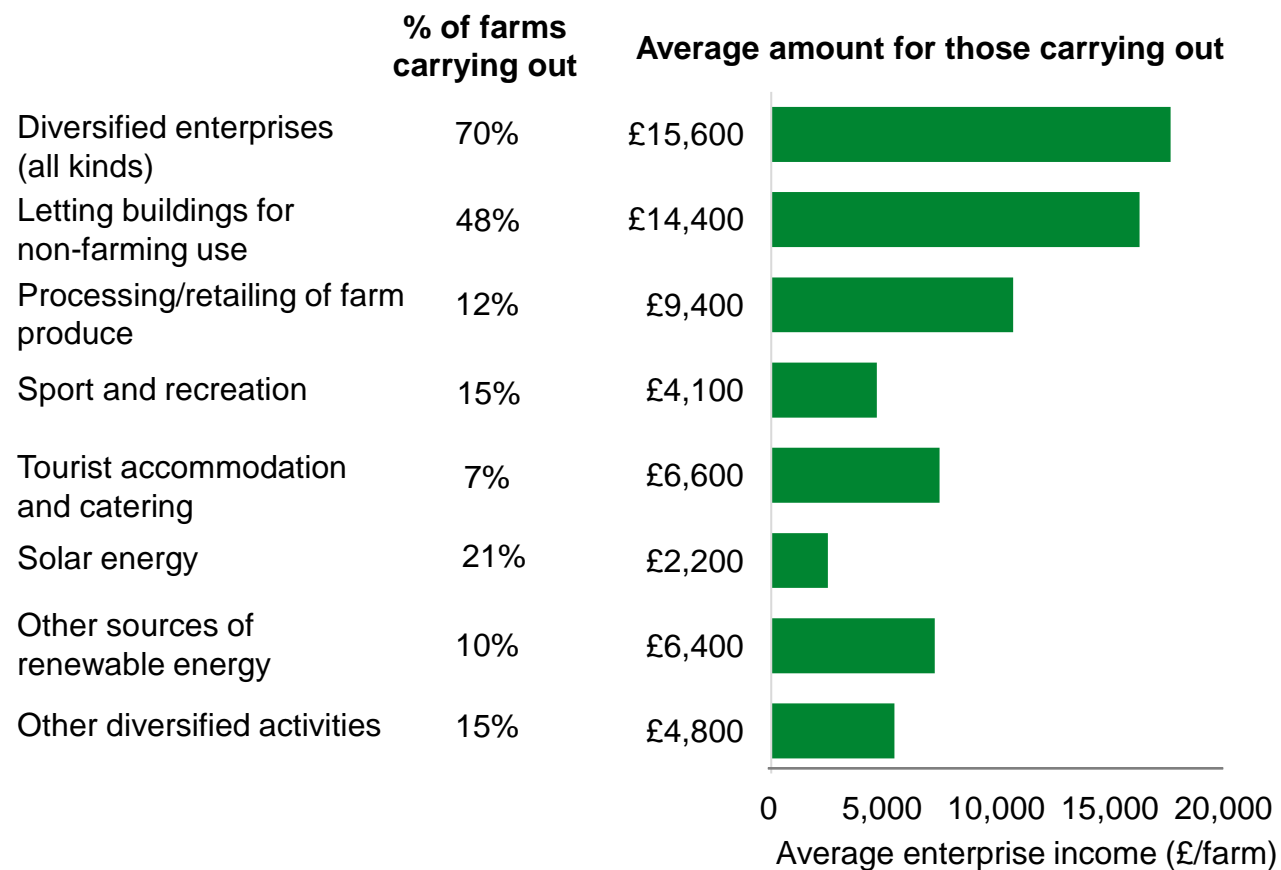
Over the three year time period 2016/17 to 2018/19, 70% of farms participated in some form of diversified activity, up from 51% in 2009/10.

For those farms with a diversified activity, their income from that activity accounted for 28% of their profit in 2016/17 to 2018/19.

Just under a quarter (23%) of these businesses had a greater income from diversification than from the rest of the farm business.

Letting out buildings for non-agricultural use was the most common diversified activity, on average generating around £14,400 for those carrying out this activity in 2016/17 to 2018/19.

Processing and retailing of farm produce had the second highest average income stream among the diversified activities but only 12% of farms carried this out in 2016/17 to 2018/19.



Productivity



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 67% since 1973, due to a 38% increase in outputs and a 18% 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:

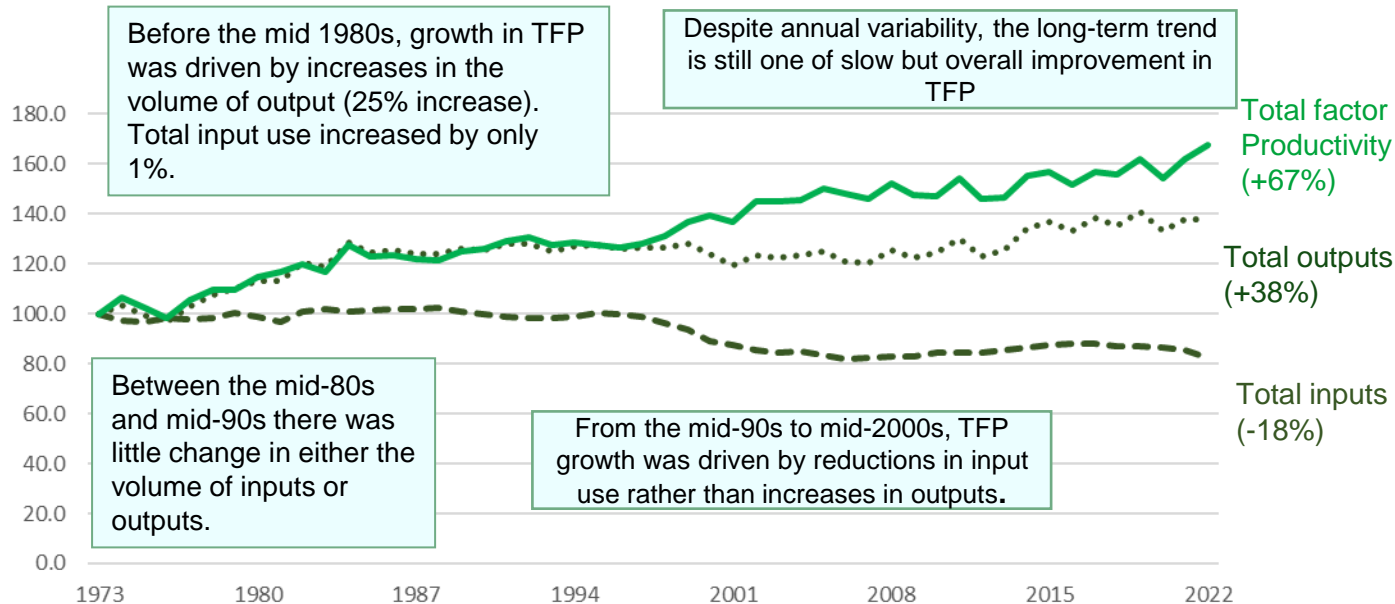
Total Factor Productivity (TFP) is a measure of how well agriculture turns inputs into outputs and is calculated as:

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

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

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

Index (1973=100) of agricultural inputs, outputs and total factor productivity since 1973



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.

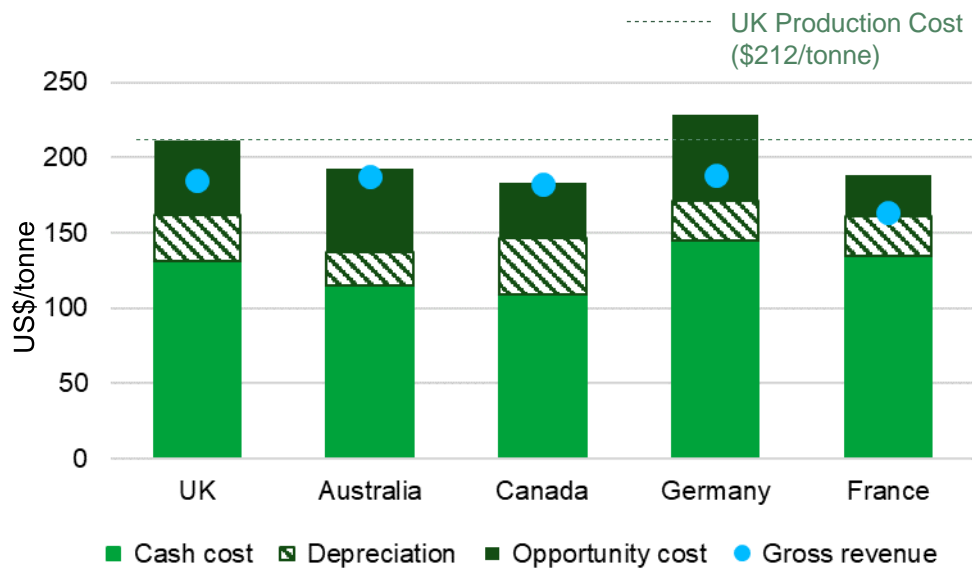
Productivity and the environment - Reducing input use by using more efficient production systems improves productivity, in addition to providing beneficial environmental outcomes from reduced use of natural resources and other inputs.

How does UK agricultural competitiveness on cost compare internationally by sector?

Although aggregate comparisons suggest lagging UK agricultural productivity growth, other data shows that certain UK sectors have costs of production that are competitive on a global scale, such as for wheat and milk production.

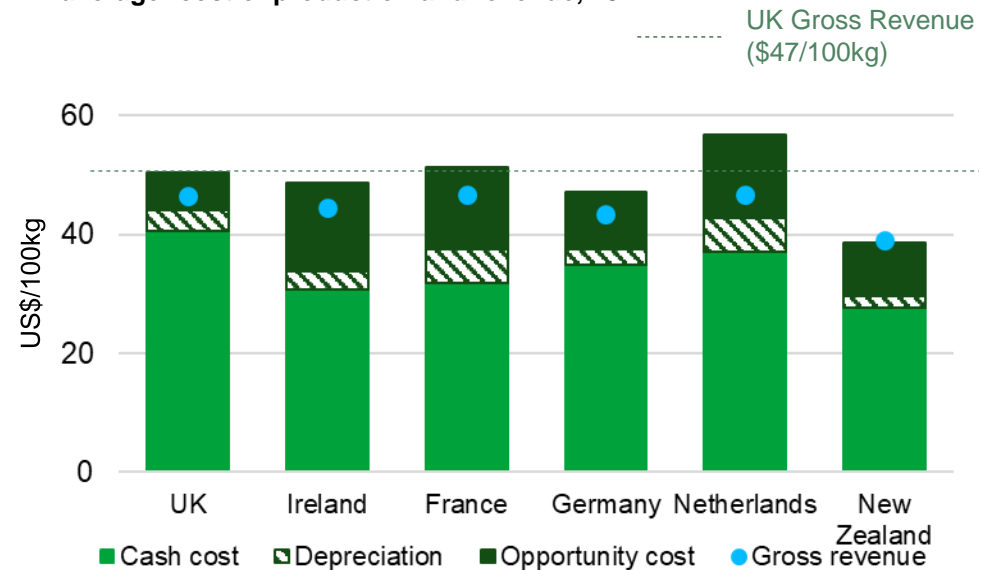
Costs of production are influenced by productivity, as well as other factors such as production standards and exchange rates. Comparisons are shown for selected, comparable countries.

Wheat average* cost of production and revenue, 2017



For wheat, the average revenue for representative farms in the UK was similar to other EU and non-EU countries. Average production costs are competitive with some countries, with costs of \$212/tonne lower than Germany (\$229), although higher than others such as Canada (\$183).

Milk average* cost of production and revenue, 2017



For milk, average revenues are competitive with other countries at around \$47/100kg. Costs are largely competitive with most countries, with the exception of New Zealand.

*These charts show data from a small number of representative or typical farms in a given country rather than the national average. Opportunity cost is calculated as a combination of unpaid family labour and imputed rent; these are based on local/regional values.

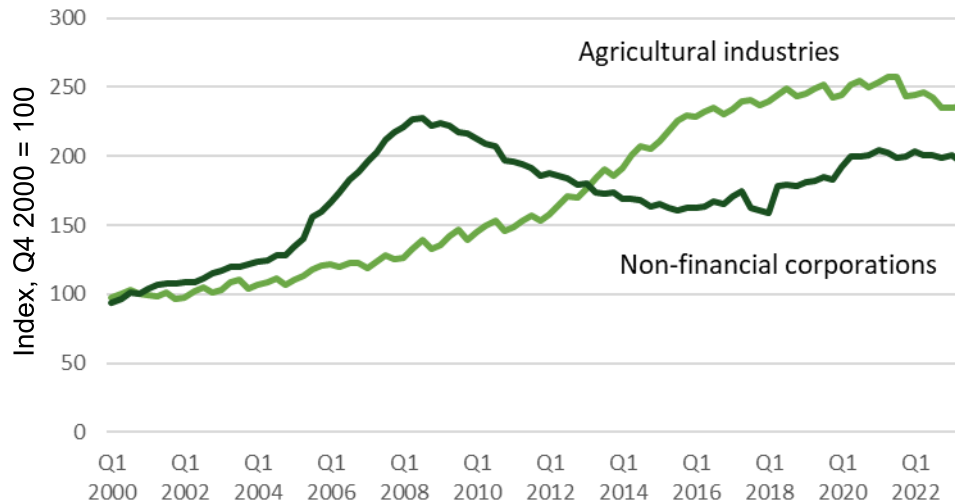
How does investment drive productivity and what barriers can stop farmers from investing?

Capital investment drives productivity improvements by enabling workers to be better able to do their jobs and produce output more efficiently. Uncertainty about the future is a key barrier to investment decisions.

Lending to the agricultural sector is strong....

Agriculture has seen a consistent upward trend in lending since 2000, compared to non-financial corporations. Although not all lending will be for investment purposes, access to finance for farm businesses appears to be strong.

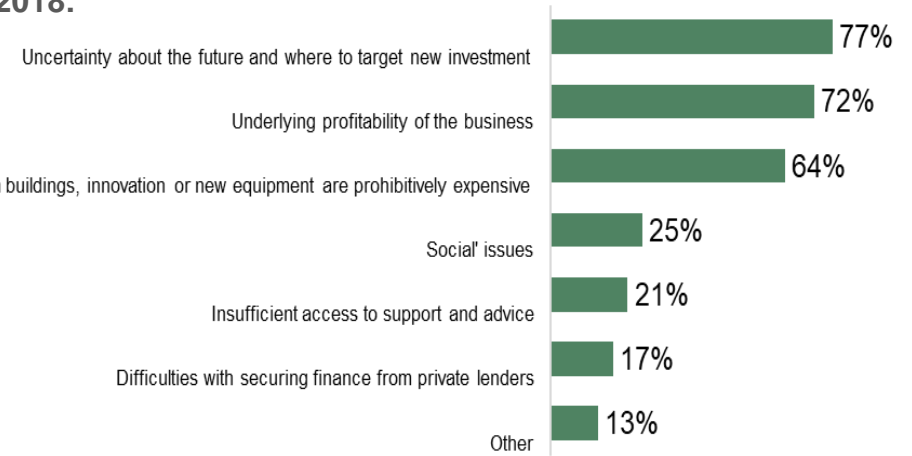
Outstanding lending from monetary financial institutions (£m)



...however, there are some barriers to investment.

Proportion of online respondents that selected each option as a barrier to new capital investment that could boost profitability and improve animal and plant health on-farm.

In 2018:



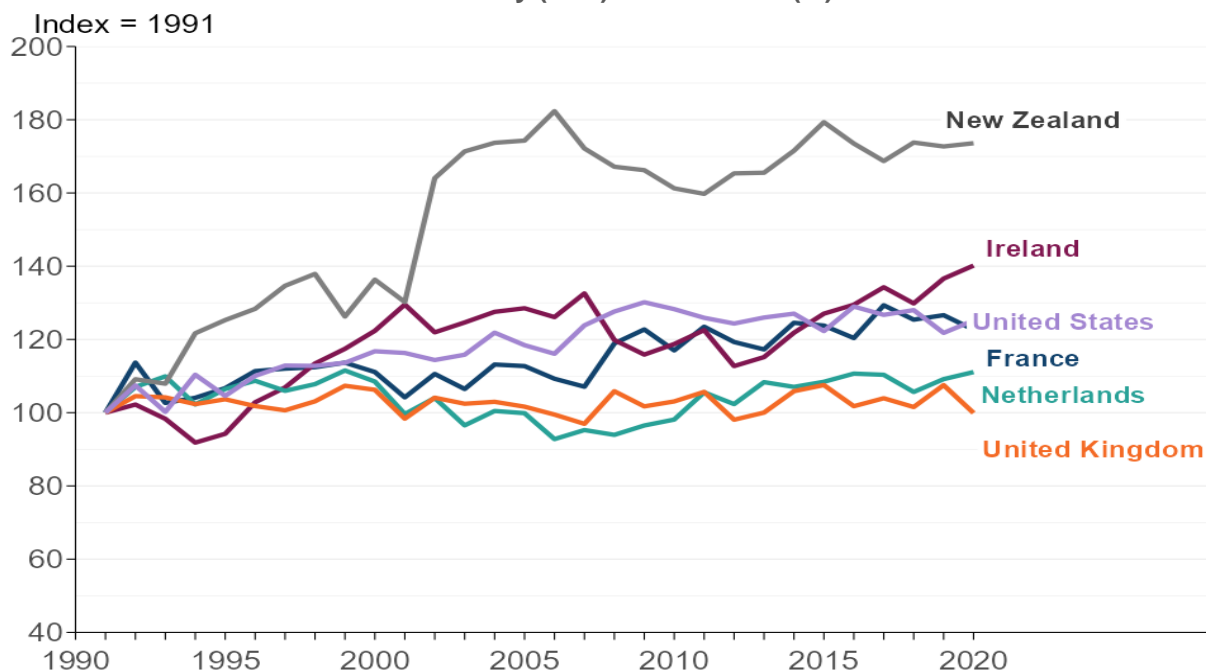
Whilst only 17% of online respondents to Defra’s Health and Harmony consultation cited difficulties with securing finance as a barrier to capital investment, for 77% the barrier was considered to be uncertainty about the future and where to target new investment.

Listening to farmers as part of our discussion groups, we heard that profitability is a key factor in driving investment decisions. Some farmers highlighted future uncertainty over markets and standards (including trade and tariffs) as a barrier to investment, as well as labour and financial support becoming increasingly important, including for securing loans based on less certain business plans.

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 2020 (%)*



UK TFP has fluctuated over time but has returned to levels seen in 1991. All other countries have seen an increase, most notable New Zealand, increasing by 74%.

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 take into account 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.