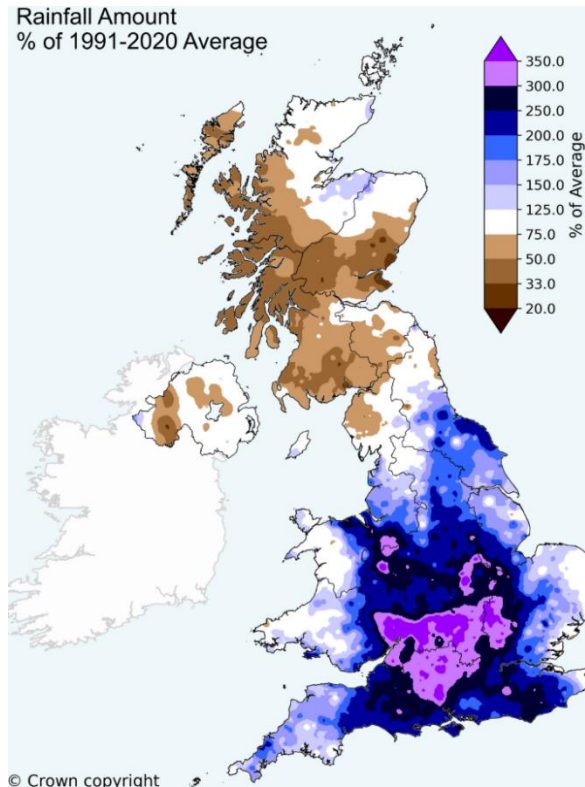


## Rainfall and Crops

It was a wet September and Autumn for England, so spare a thought for the people who produce our food. Gloucestershire for example, has had its wettest Autumn since the series of records of rainfall began in 1836. The Autumn started off wet, with a succession of low-pressure systems bringing exceptionally heavy rainfall to southern and central England in the latter part of September, and ten English counties experienced their wettest September on record.



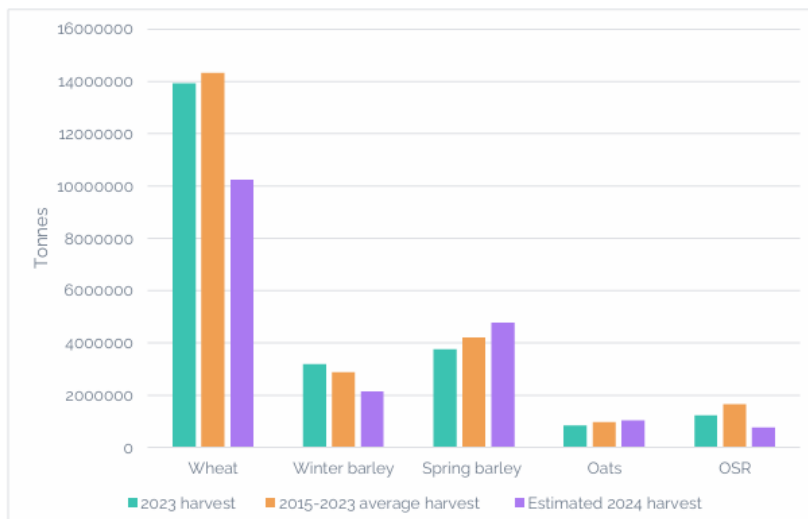
The rainfall map (left) just illustrates the September accumulated averages.

A new study of climate change and something called the North Atlantic Oscillation (NAO) has shown that the jet stream was stronger than normal, which likely contributed to how strong the series of storms became.

The impacts of individual storms were worsened as the soils are already very wet due to preceding sustained rainfall leading to saturation, increased run-off and risk of flooding.

In today's climate with 1.2C of global warming, stormy days with winds as intense as in the 2023/24 season occur about every 4 years. The associated precipitation is now expected to occur about once every 5 years. The last October-March period was more extreme and expected to occur about once every 20 years.

The UK's observations clearly show winters are getting warmer, and they are also getting wetter since as the atmosphere heats up, it has an increased capacity to hold moisture, The average precipitation on stormy days are observed to have become approximately 30% more intense, compared to a 1.2C cooler pre-industrial climate.



Over the last 18 months, farms across the UK have been devastated by heavy rain over the last winter and current wet autumn. A survey by the Agriculture and Horticulture Development Board, a group that represents farmers and growers, expects drastic reductions in performance of cropped areas.

The provisional figures released in November 2024, showed the widely expected falls in UK wheat and oilseed rape (OSR) production. While the wheat crop was still larger than 2020's historically low figure, OSR output is provisionally the lowest since 1983. Despite increases in barley and oat production from 2023, both remain below their respective five-year averages. As a result, the UK will be much more reliant on imports than usual this season.

The UK Climate Resilience Programme has been attempting to help farmers adapt to the effects of climate change. Their study conducted between 2019 and 2023 showed that many farmers are concerned about the impact of heat and drought on crop and grass growth, with knock-on impacts for yield and winter animal feed, and the implications of heavy rainfall/flooding for soil run-off and erosion and for field operations such as drilling and harvesting.



Inevitably to stay in business there is a focus on short-term profitability and business survival in a challenging economic environment. The exact scale, speed and nature of change locally makes it difficult for farmers to plan ahead. Despite this, there is a growing acceptance that the climate is changing and that there are benefits to taking action.

Many farmers are building resilience within their businesses, through actions to improve soil health,

which as well as raising productivity and storing carbon, also increases the ability for grass and crops to cope with weather extremes. There is also reason for farmers to be optimistic about some of the opportunities posed by climate change, such as warmer temperatures enabling new crops and increased yields in some instances, – as long as they are able to “weather” the challenges posed by negative effects.

It not just a problem for the UK, as increases rainfalls are being measured in agricultural areas around the globe and extreme shortages leading to prolonged droughts in other areas that used to be reliable producers of foods. To meet the increasing demands of a growing populations, agriculture continues to intensify. Since the 1960s, world food production has increased drastically and agricultural production per capita has risen, while the use of machinery and fertilizer has also increased. Elevated inputs of nitrogen and phosphorus to agricultural soils have resulted in negative impacts on biodiversity, drinking and surface water quality, and human health. The focus is moving to improving soil health. Positive action is needed by researchers to future-proof farming by continuous evaluation of crop/grass varieties and growing techniques, installing additional livestock housing with good ventilation, increasing rainwater storage capacity, and risk-spreading through expanding the diversity of their crops and enterprises.

[Wet-weather-production-analysis-170424.pdf](#)  
[Energy & Climate Intelligence Unit | Analysis of UK farm cropping...](#)  
[Extreme weather affecting UK agriculture -](#)  
[An Open Soil Health Assessment Framework Facilitating Sustainable Soil Management |](#)  
[Environmental Science & Technology](#)