



# H A R V E S T 2 4

REVIEW

NOVEMBER 2024



**Welcome to our Harvest 2024 Review.**

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SO WHAT?

WHAT DO WE ACTUALLY DO WITH THIS INFORMATION?





# Introduction

In my role analysing crop production data and the impact of weather, it's clear that the 2024 harvest has been exceptionally challenging, starting with the poor drilling conditions in 2023.

Despite this, the resilience of farmers has shone through, adapting to unpredictable conditions and maintaining UK food production with an average winter wheat yield of 8.41t/ha (vs 9.02t/ha in 2023).

At YAGRO, our role is to empower farmers by interpreting complex farm data and transforming it into solutions that support decision-making.

In this light, I'm pleased to present our Harvest 24 Review - essential reading for farmers:

- Looking to understand how costs of production are changing.
- Considering how re-drilling a field impacts your gross margin.
- Searching for solutions to help you 'know your numbers' and navigate troubled waters.

By analysing trends and discussing actionable insights, this Review aims to help you form your own conclusions to drive efficiency and profitability.

## Crop Production

This season saw significant quality issues, particularly with milling wheats. Low protein levels, due to heavy rainfall, nitrogen leaching, and limited fertiliser applications, impacted quality nationwide.

Oilseed rape faced mixed fortunes, with regional disparities driven by soil type and weather. Yields were better on lighter soils, reaching 3.5t/ha, while heavier soils suffered from waterlogging, reducing yields and quality.

## Countrywide Challenges

Flooding caused extensive crop loss for many farms. Our analysis in Chapter 6 provides clarity on these challenges, detailing gross margins and the financial impact of re-drilling.

## The Budget

At the World Agri-Tech Innovation Summit in September, the current government promised to support agriculture through innovation, emphasising "food security is national security".

However, these sentiments contrast with the real-world impact of Labour's Budget on family farms, leading to a sense of 'giving with one hand whilst taking with the other'.

## Optimising Opportunities

Putting politics aside, the Harvest 24 Review is not just a reflection on the past year, but an exploration of how to drive meaningful change on individual farms.

By familiarising yourself with your farm data, you can unlock valuable insights that help optimise operations, improve efficiency, and capitalise on opportunities.

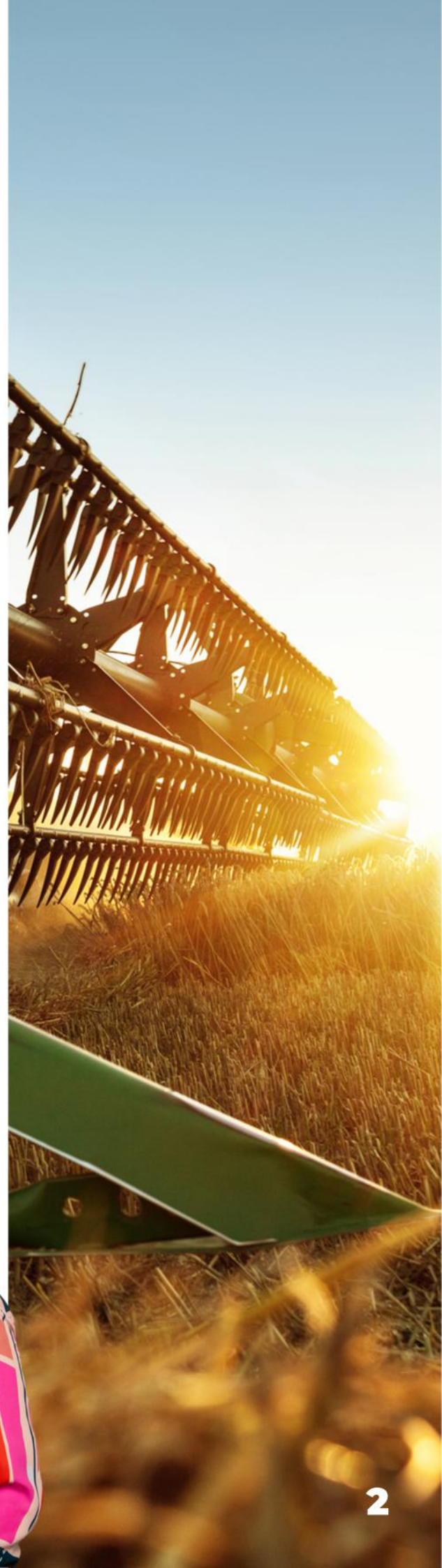
Through informed decision-making, you can still unleash the full potential of your farm.

I hope you find this Review helpful,



R. Doherty

Dr Becca Doherty  
YAGRO Data Analyst





# W H E A T



# Winter Wheat

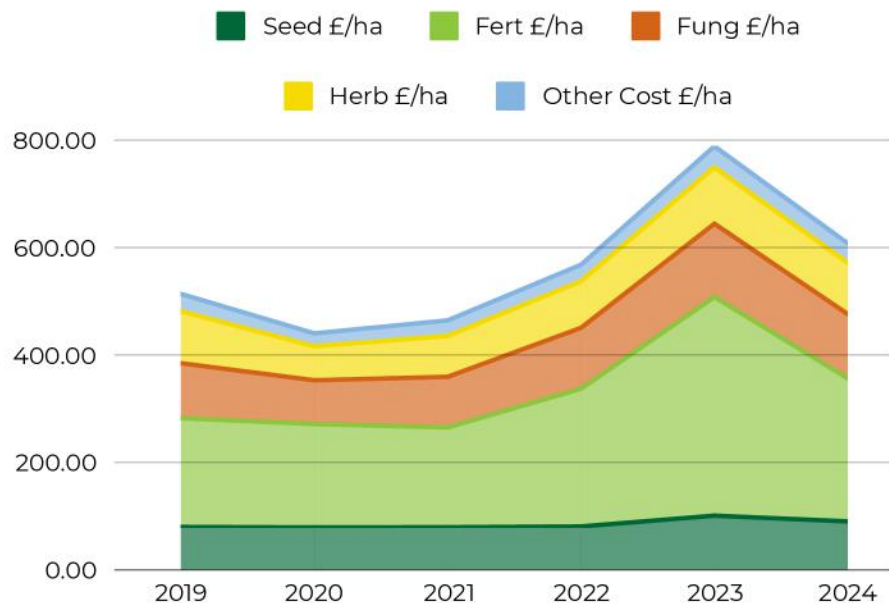
## Costs of Production

Still dominating the cereal production landscape, winter wheat is relied upon to deliver the bulk of gross margin for the majority of arable farmers.

However, in September 2024, due partly to both poor weather and broad adoption of SFI's, DEFRA reported an 11% reduction in growing area resulting in the smallest since 2020 (although this decrease was only 3.3% across the YAGRO Platform).

**Chart 1.**  
£/ha for Winter Wheat Over Time

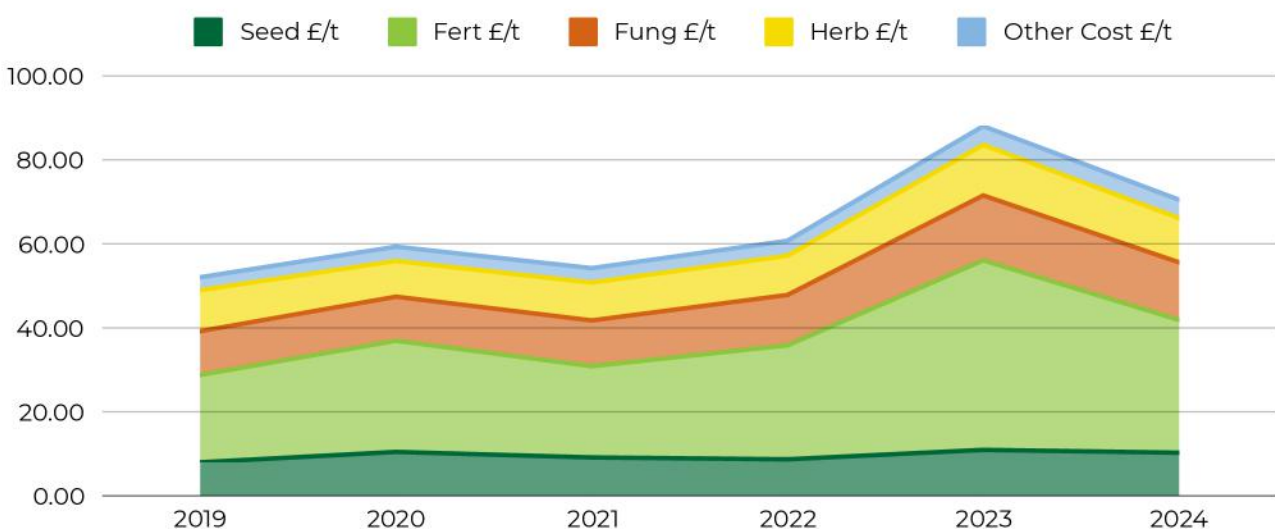
**2024 showed a 34.6% decrease in fertiliser cost per hectare vs 2023**



In our Harvest 23 Review, we displayed how fertiliser was the main driver behind the sharp increase in costs of production in recent years. And in Harvest 2024, it was the main driver behind a decrease – with overall winter wheat costs of production down 19.5%/ha and 16.9%/t compared to 2023, driven by a 34.6% decrease in fertiliser cost per hectare.

Although costs are still higher than 2019 by 23.4%/ha and 39.9%/t overall.

**Chart 2. £/t for Winter Wheat Over Time**



What Chart 1 and Chart 2 show is that fertiliser is essentially the variable cost, the rest are becoming more 'fixed' costs. The overall cost of herbicide, for example, has only increased by 1.1% /ha since 2019.

These charts don't include fuel prices, which have decreased over the last 12 months (Chart 3). Other fixed costs, which are being sustained due to high interest rates, are also not included.

Chart 3. Red Diesel 3 Year Price Per Litre



A drop in fertiliser £/ha could be attributed to lesser applications - however, through Charts 4 and 5, we can accurately deduce that the decrease is owed to nitrogen prices falling (from £1.14/kg in 2023 to £0.77/kg in 2024) rather than changes in application rates.

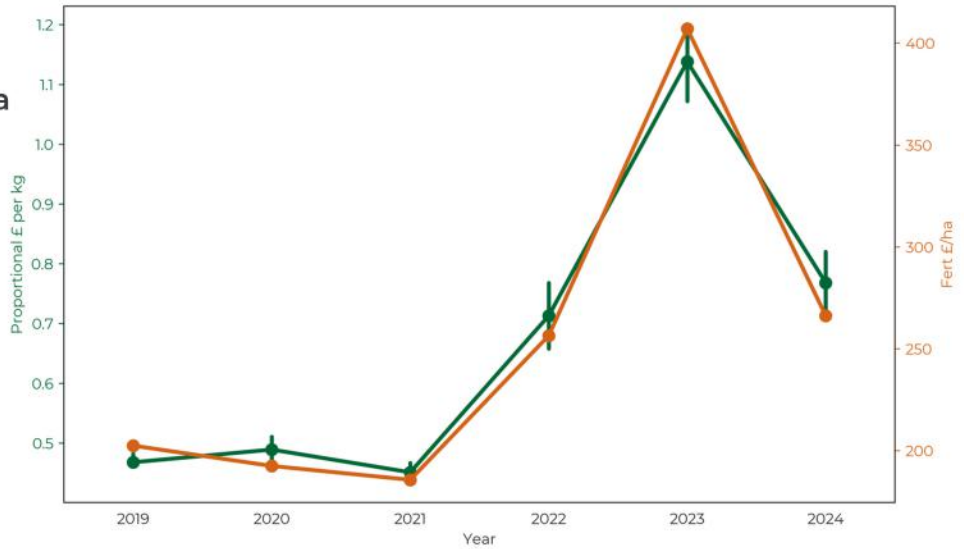
*Note: We are referencing the proportional price of nitrogen itself, not a particular product.*

It is clear to visualise that application rates have not returned to their pre-price hike level before 2021, despite reduced availability of residual nitrogen in soils this year, which we discuss further on the next page.

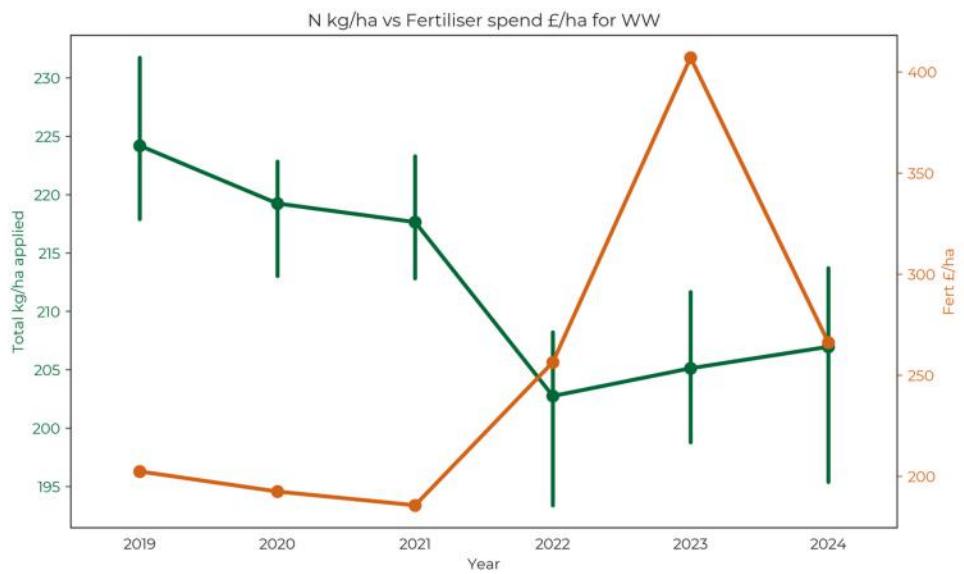
How are you currently approaching fertiliser use on your farm?

Considering it's disproportionate affect on cost of production, and the rise in precision farming technology, have you considered variable rate applications? Perhaps more appealing today with the availability of SFI PRFI (offering £27/ha).

**Chart 4.**  
Nitrogen £/kg vs.  
Fertiliser Spend £/ha  
for Winter Wheat



**Chart 5.**  
Nitrogen kg/ha  
vs. Fertiliser  
Spend £/ha for  
Winter Wheat



**Chart 6. £/ha for Winter Wheat Split by End-Use Group**

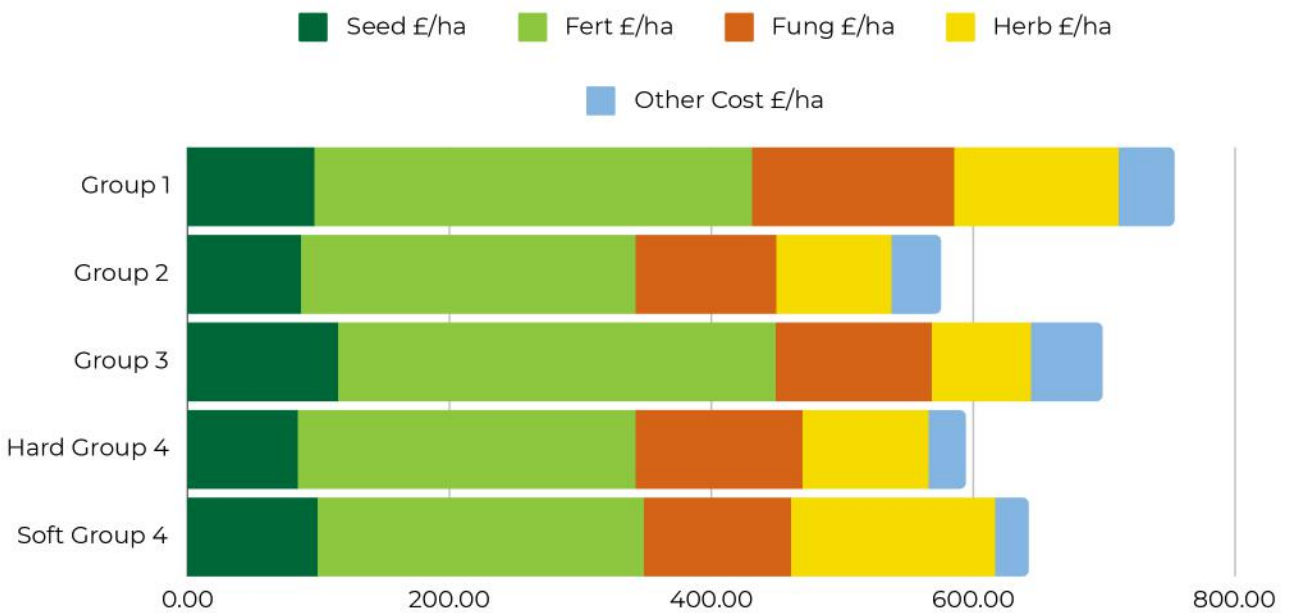
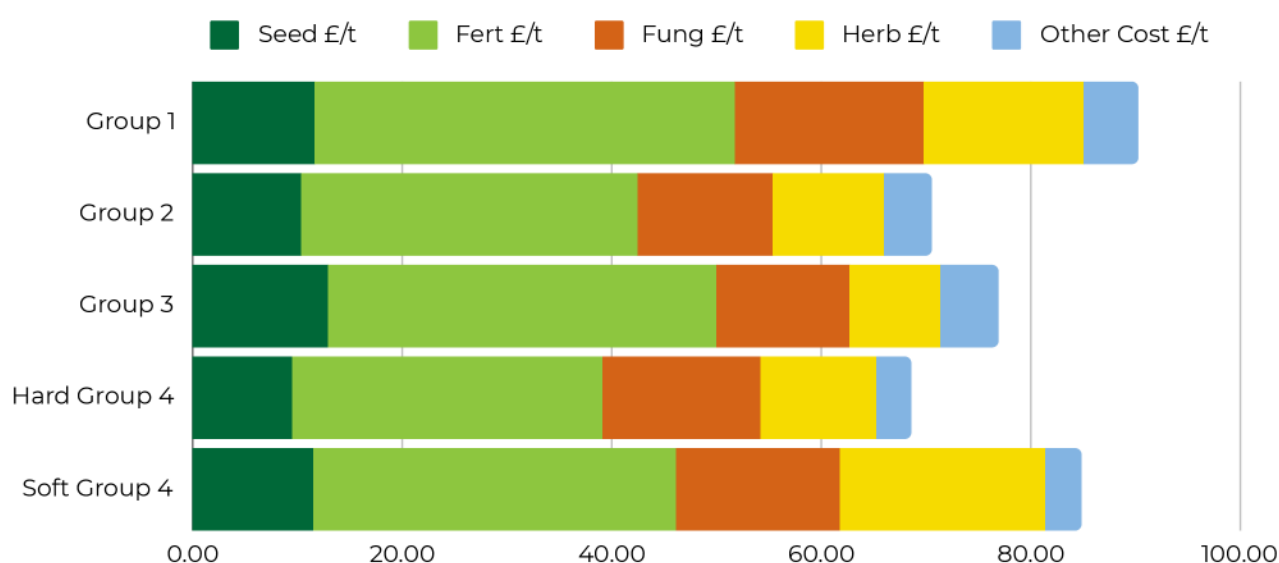


Chart 7. £/t for Winter Wheat Split by End-Use Group



Taking a look from the perspective of end-use groups, nobody will be surprised to see the extra costs (particularly fertiliser) being sunk into group one's as growers chase milling protein & spec (Charts 6 and 7).

But data may suggest not enough was applied - as the amount of group one's meeting milling spec overall became a concern throughout harvest – with Farmers Weekly reporting a “trend emerging of low proteins in milling wheat” on [August 27th](#).

There are several reasons we might have expected to see increased fertiliser usage in this Harvest 24 Review:

- Firstly, the observed decline in applications (Chart 5) was linked to an increase in price (Chart 4), so it made sense to assume vice versa would occur.
- Secondly, residual nitrogen levels in the soil following heavy autumn rainfall would have required compensating and topping up to meet crop demands.

However, Chart 5 shows that N rates did not increase as many would have expected. This data is supported by [The British Survey of Fertiliser Practice](#), which states that average N rates only increased 3kg/ha the last few harvests, despite the fall in prices.

With 2024's dreadful autumn, many farmers seemed to close their cheque books, pulling back on investing in what looked like a poor season for winter crops. However, those that persevered and invested in their winter milling varieties during Spring met protein spec and achieved decent premiums (Circa £76, as of August 2024).

This accounts for the broad range in winter wheat spending with a smaller percentage reaching milling spec.

**Did the price spike in 2022 cause you to re-think your strategies? Or leave you wary of investing despite more stable prices?**

## Varietal Data

Chart 8. £/ha for Winter Wheat Split by Variety

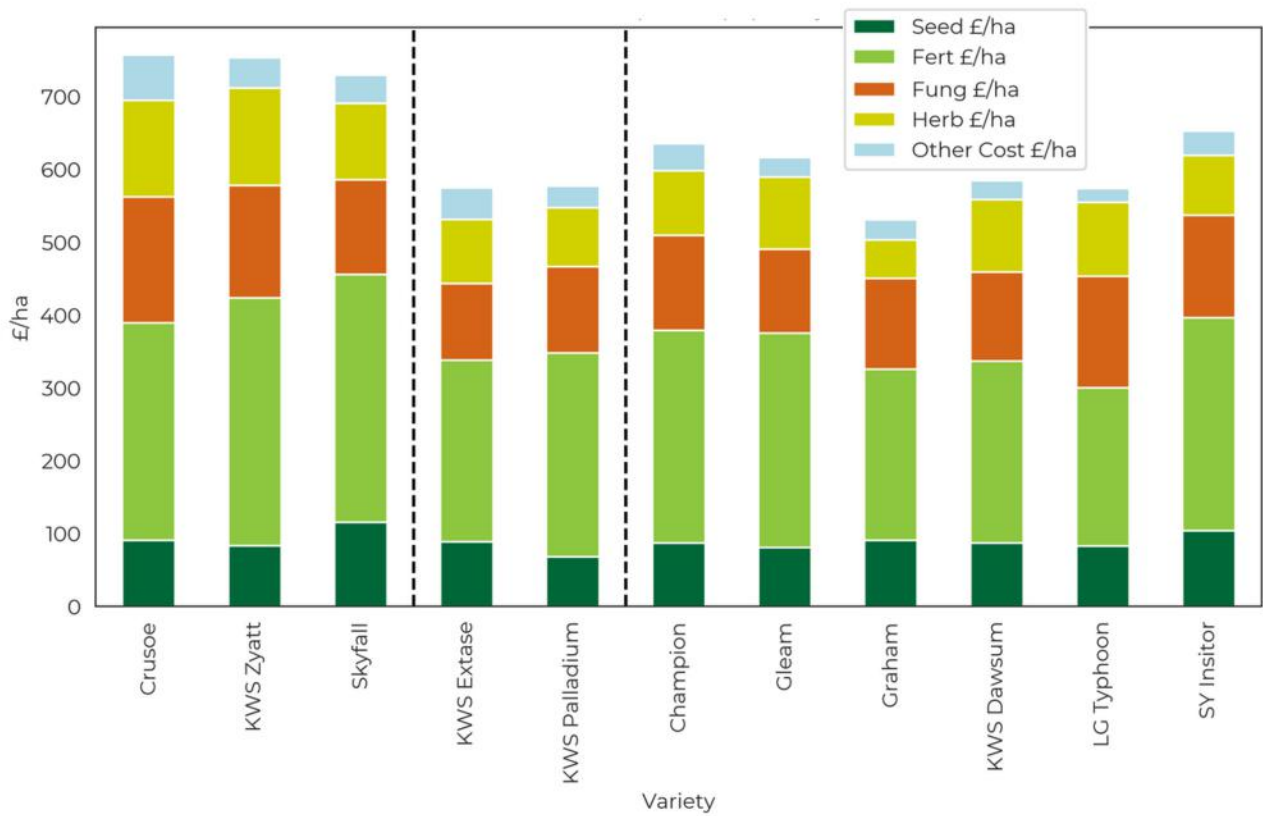
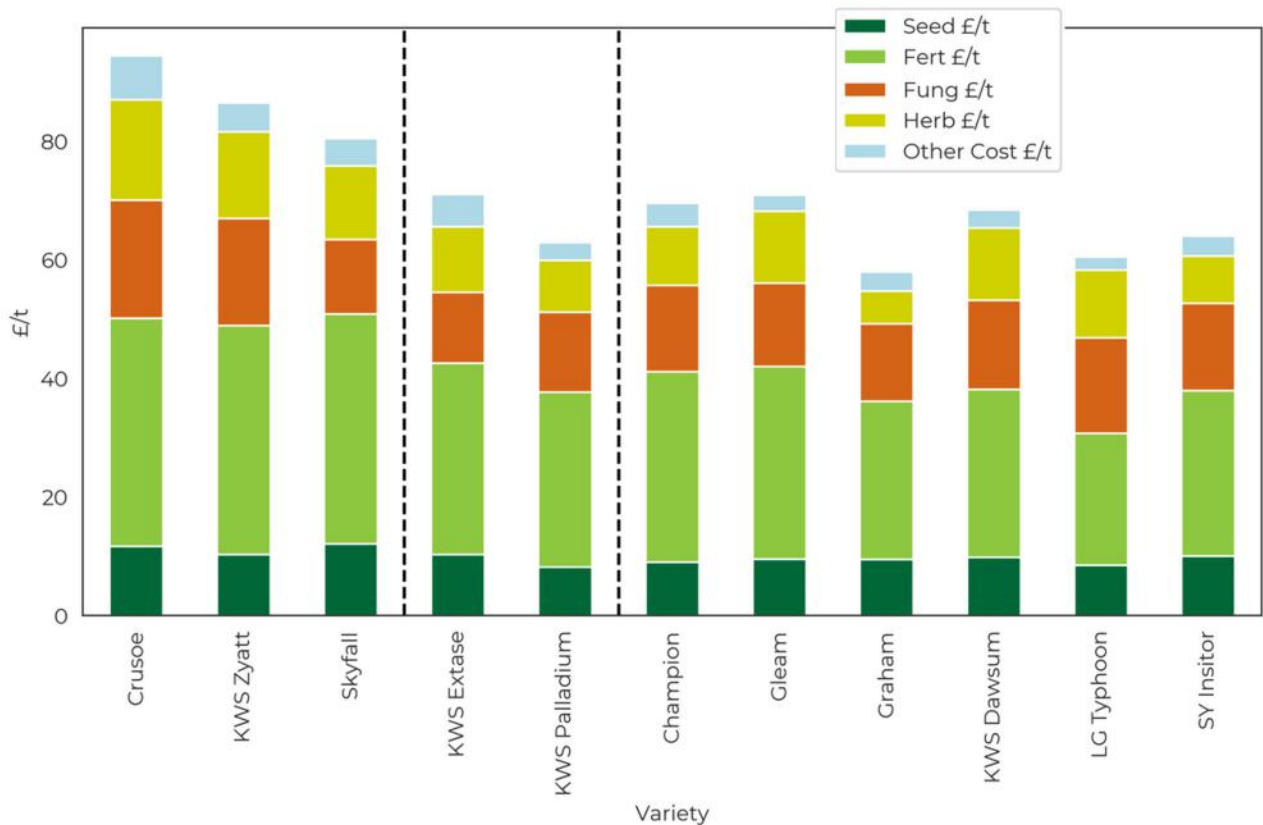


Chart 9. £/t for Winter Wheat Split by Variety

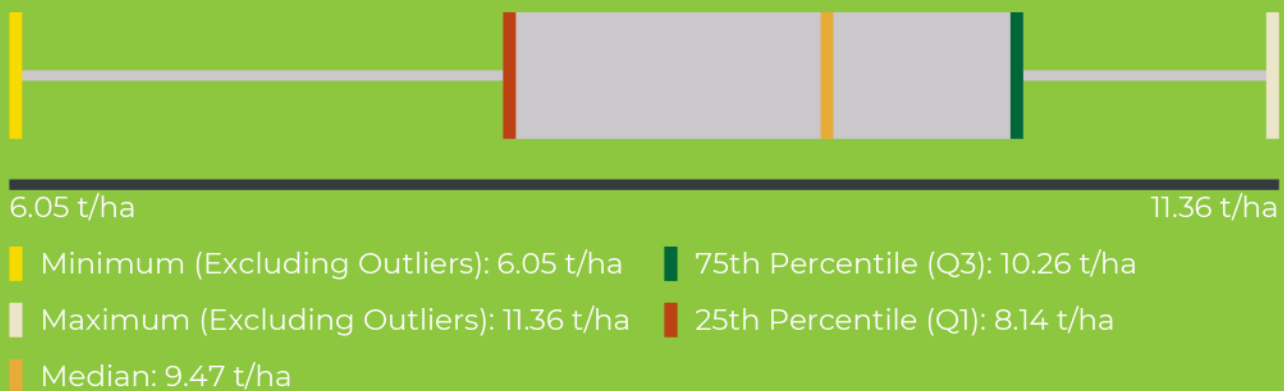


The weather proved a tough year to judge varieties. But, with it, an opportunity to judge how they perform in a tough year.

Skyfall, typically reliably high yielding, returned its relatively low £/ha to compete with other Group One's on £/t basis. Its late sowing window makes Skyfall a highly versatile choice and the second highest-yielding Group 1 seen here with an incredibly broad spend range (Chart 12 below), which shows its versatility in the rotation.

What we also saw this season with Skyfall was a very broad range in yield (Chart 10).

Chart 10. Distribution of Market Range For Yield of Skyfall



Understanding the boxplot

- The 'box' represents the middle 50% of the data, where most farms are situated.
- The green line (Q1) marks the boundary for the top 25% of data, the upper end of performance
- The yellow line (median) is the midpoint of the data set
- The red line (Q3) defines the threshold for the bottom 25% of data, the lower end of performance

Diving into Group 4's, LG Typhoon stands out for cost efficiency, particularly in its balance between cost per hectare (£/ha) and cost per tonne (£/t). Although its total £/ha for key inputs like fungicides, herbicides, and fertiliser is moderate compared to other Group 4 varieties, LG Typhoon has a notably low £/t.

Its fertiliser £/t is approximately 17% lower than the next closest variety, Graham, and 31% lower than Champion. This low £/t figure means that LG Typhoon provides good yield efficiency, delivering higher output relative to each pound spent on inputs.

Similarly, herbicide £/t for LG Typhoon are roughly 6% lower than KWS Dawsum, despite its per-hectare herbicide spend being similar. This balance makes LG Typhoon a good investment for growers, as it combines effective yield with moderate input costs, reducing the overall production £/t.

For fungicide costs, LG Typhoon received around 17% more per hectare than Champion, yet its cost per tonne remains low, signalling efficiency in disease management without driving up £/t expense.

Fungicide inputs overall have risen 17% per hectare since 2019, but Crusoe has been steadily rising since 2020 (up approximately 74% between 2020 – 2024). Likely, this is due to its susceptibility to brown rust, pathogenic resistance to available chemistry, and the favourable conditions provided for that disease during recent warm & wet autumns.

**Chart 11. Top Winter Wheat Varieties by End Use Group in 2024**

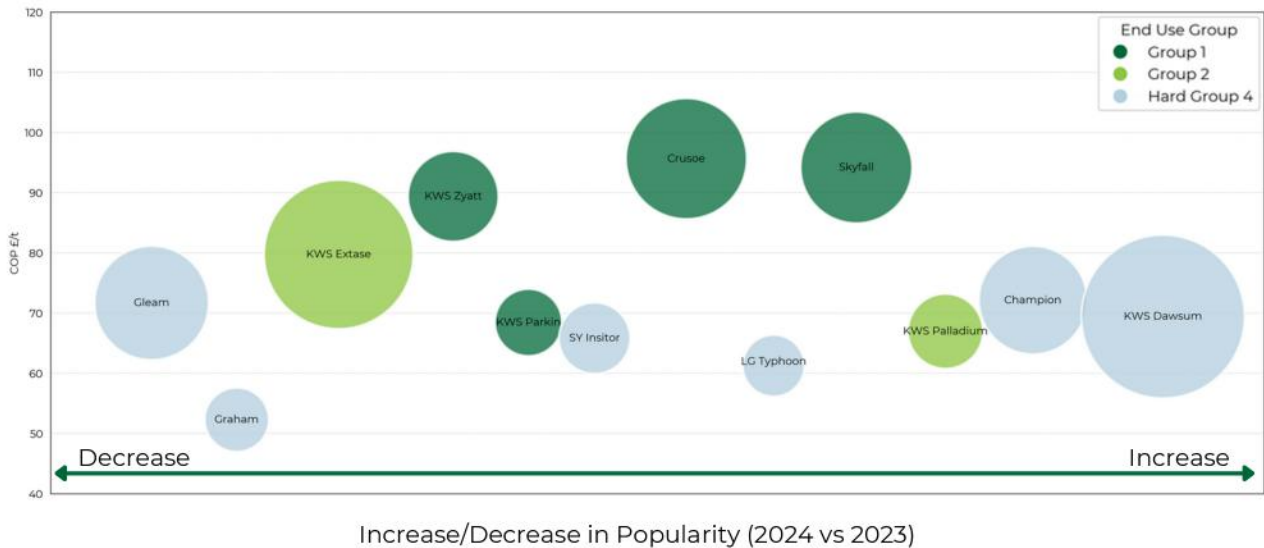


Chart 11 shows us that KWS Dawsum continues to gain in popularity, emerging as one of the most sought-after Group 4 varieties due to its reliable yield potential and balanced cost profile.

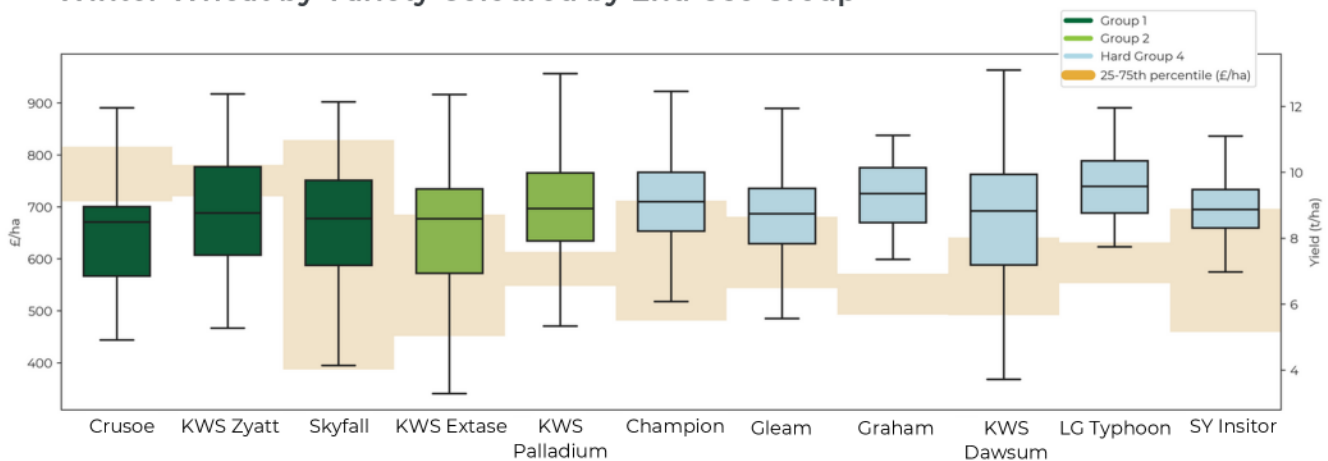
In 2024, KWS Dawsum fungicide costs per hectare were approximately 5% lower than the average across comparable varieties such as LG Typhoon, Champion, and Gleam, while its herbicide spend per hectare is on the higher end.

Despite having higher herbicide £/ha than SY Insitor and LG Typhoon, KWS Dawsum per-hectare costs are offset by a relatively high yield, making it an attractive option for growers focused on maximising output while controlling cost per tonne.



**LG Typhoon led the yields with around 9.8 tonne per hectare**

Chart 12. Yield (t/ha) and Cost per Hectare (Light Orange) for Winter Wheat by Variety Coloured by End Use Group



From the varieties analysed in Chart 12 above, LG Typhoon led the yields with around 9.8t/ha. And it is clear to see its return value above its lower spend, with Graham offering a similar Group 4 outlook.

KWS Dawsum stands out with moderate spend but a huge range in achievable yield.

It's worth stating that drill dates are not displayed in Chart 12, and whether the costs reflected in the discussed varieties are owed to soil tenure is not clear. Sowing late allows for greater pre-em herbicide weed control, whereas early sowing offers the crop a longer growing season.

Interestingly, Skyfall's lowest spend range is beneath that of feed wheats, showing again that it offers options to suit various places in the rotation and end-markets.

## What's Your Appetite to Risk?

Even growing a staple crop like winter wheat isn't without risk today.

Volatility at input & output threatens to squeeze margins each year. But perhaps the biggest risk to growers is the increasingly regular extreme weather events we are experiencing, causing floods and severely hampering production across the UK.

**Understanding the impact and implications of weather is vital for your operation. Have you had to change plans due to heavy rainfall recently? Do you know accurately how much that cost you?**

In our exploration of this topic, we've analysed the potential costs of having to redrill winter wheat fields from a gross margin perspective – as seen in our 'Weather' Chapter further on in this report.



# BARLEY

# Winter Barley

## Costs of Production

Winter barley continues to be an important part of arable rotations for UK farmers, providing an early harvest and supporting cash flow. Its early maturity allows for quick turnarounds for the following crop, which is especially helpful given the increasingly challenging weather conditions.

Like all crops, winter barley production has faced significant challenges with wet weather and input costs. This has contributed to a 26% decrease in winter barley production in 2024 compared to previous harvest, as reported by [DEFRA](#).

Chart 13. £/ha for Winter Barley Over Time

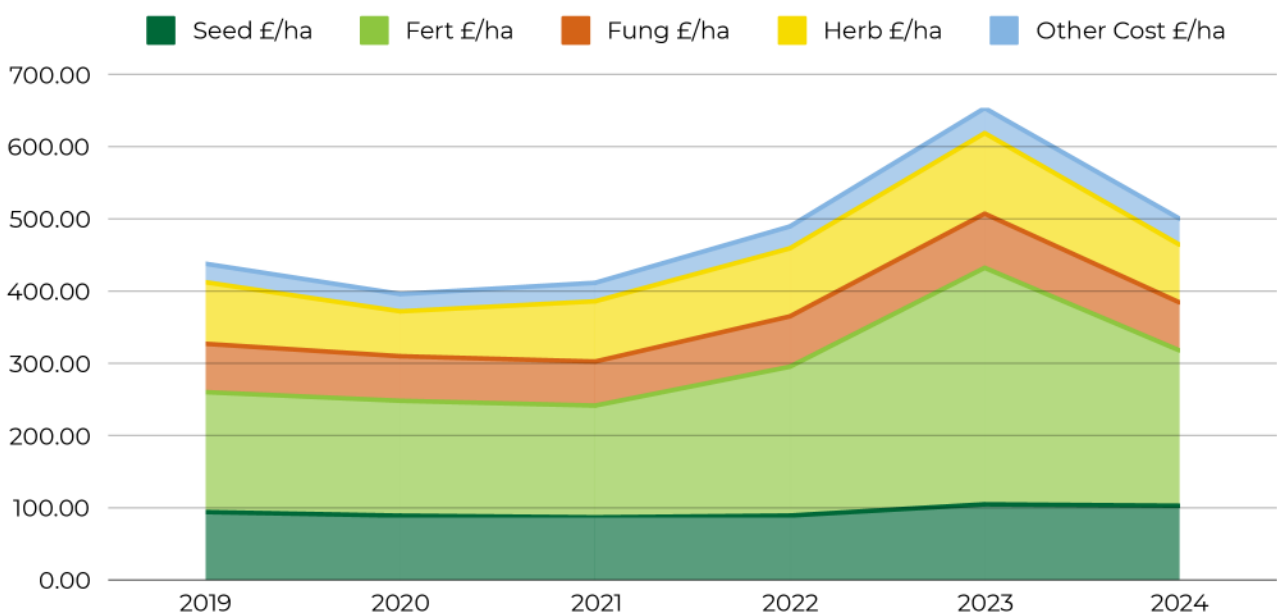
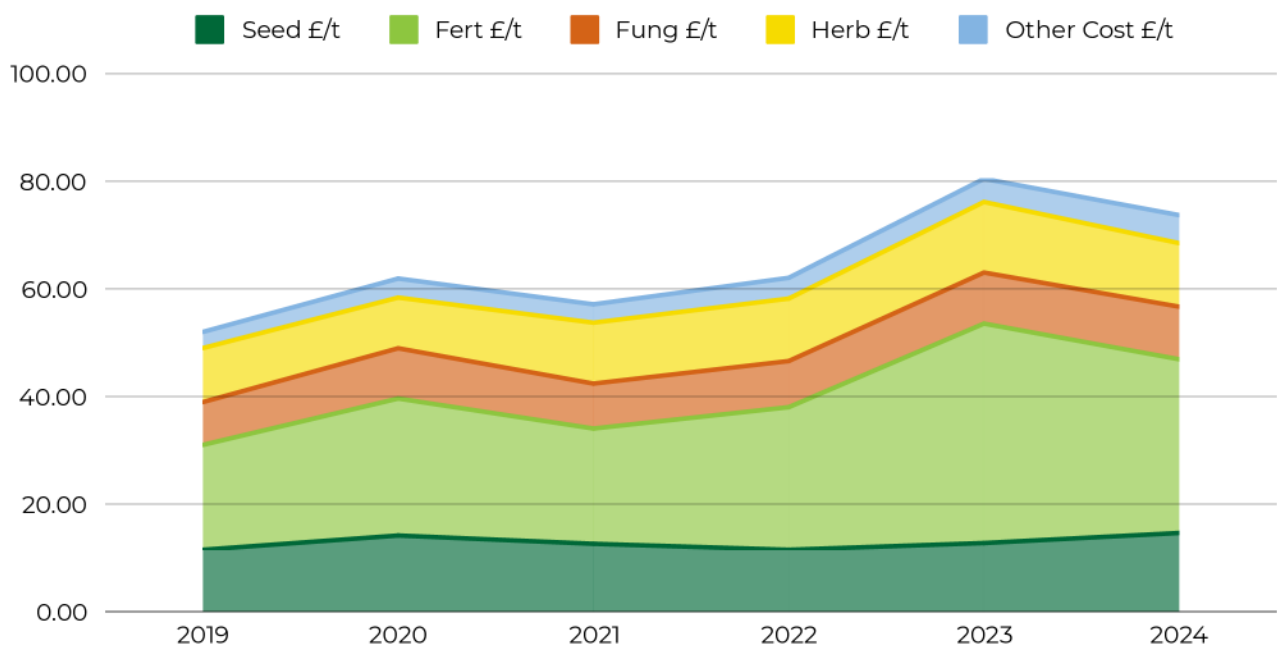


Chart 14. £/t for Winter Barley Over Time



Charts 13 and 14 show that fertiliser costs for winter barley followed a similar trend seen across other crops, with the greatest increase occurring between 2022 and 2023 when they rose by 59%. This year, however, fertiliser costs have decreased by 34%, bringing them down to £215.04/ha (Chart 13).

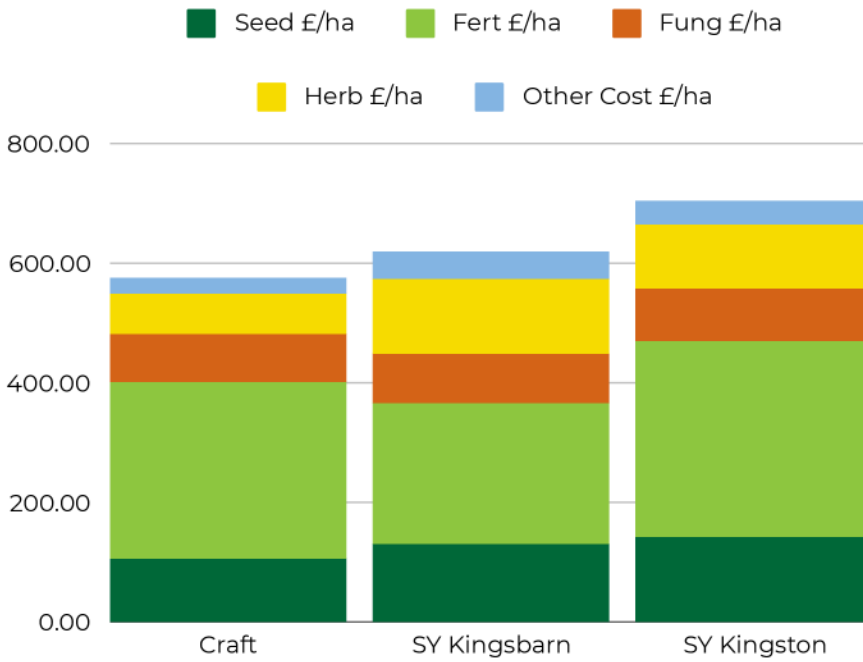
This reduction has helped bring down the overall cost of production for 2024 to an average of £77.48/t. Which, while lower than 2023's level of £81.09/t, it is still higher than every other year since 2019 (Chart 14).

These fluctuations highlight the ongoing volatility in input costs and the importance of careful cost management for growers.

Chart 15. £/t Winter Barley £/ha Variable Inputs 2018-2024

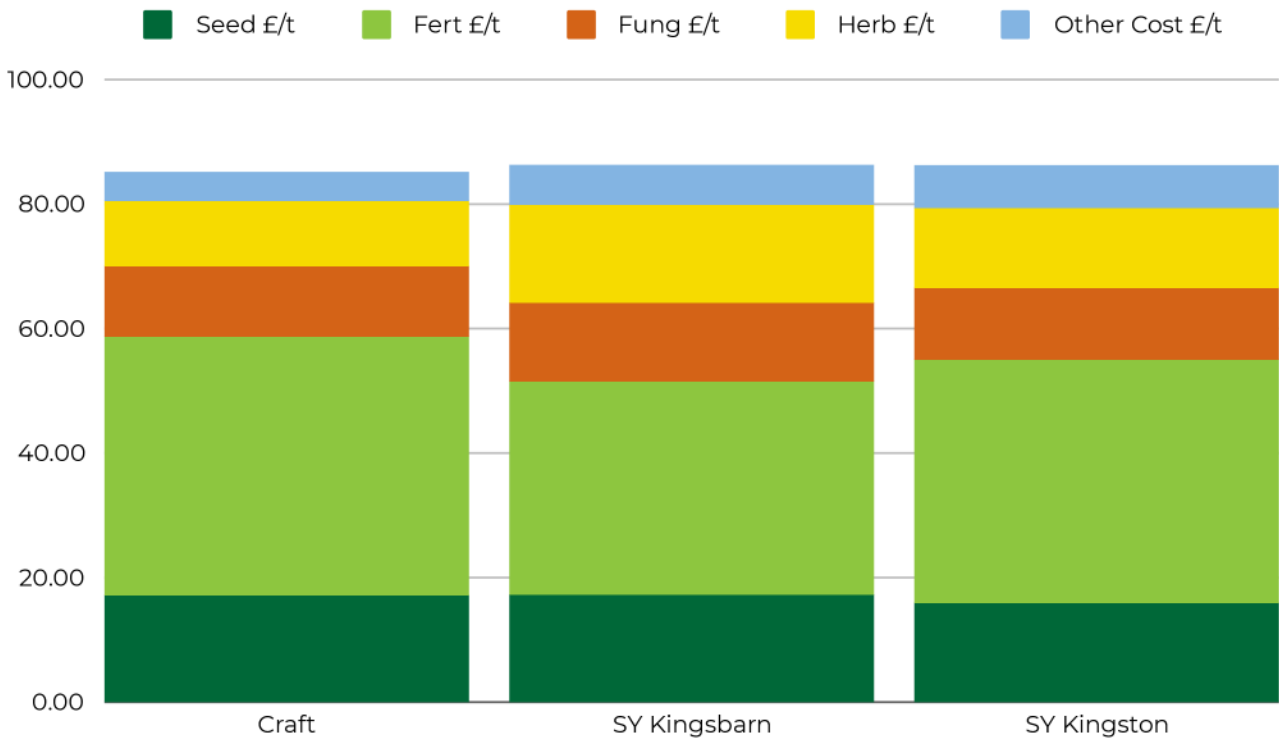


Chart 16. £/ha Winter Barley Split by Variety



**SY Kingston, a hybrid six-row feed barley, delivered the highest average yield at 8.10t/ha in 2024.**

Chart 17. £/t Winter Barley Split by Variety



Winter barley saw three key varieties dominate the 2024 YAGRO dataset: SY Kingston, SY Kingsbarn, and Craft. Each has its unique strengths, offering farmers different options to meet specific needs.

SY Kingston, a hybrid six-row feed barley best suited to lighter soils, delivered the highest average yield at 8.10t/ha in 2024. However, this high yield came with the highest input £/ha of all three varieties analysed.

SY Kingsbarn is Syngenta’s market leading hybrid six-row feed barley. It achieved an average yield of 7.49t/ha and is well-adapted to all growing conditions, including heavier soils.

Craft, a conventional two-row malting barley, is marketed as the highest-yielding malting variety available. It had an average yield of 6.21t/ha, which was lower compared to the feed barleys, but expected given its higher quality and potential for malting premiums (Circa £19 per tonne).

Craft stood out for its low input costs, having previously performed well in untreated trials, recording the lowest costs for seed (£106.27/ha), which was 18% less than SY Kingsbarn and 25% less than SY Kingston (Chart 16). Its fungicide cost of £80.45/ha was also the lowest, being 3.4% less than SY Kingsbarn and 8.4% less than SY Kingston.

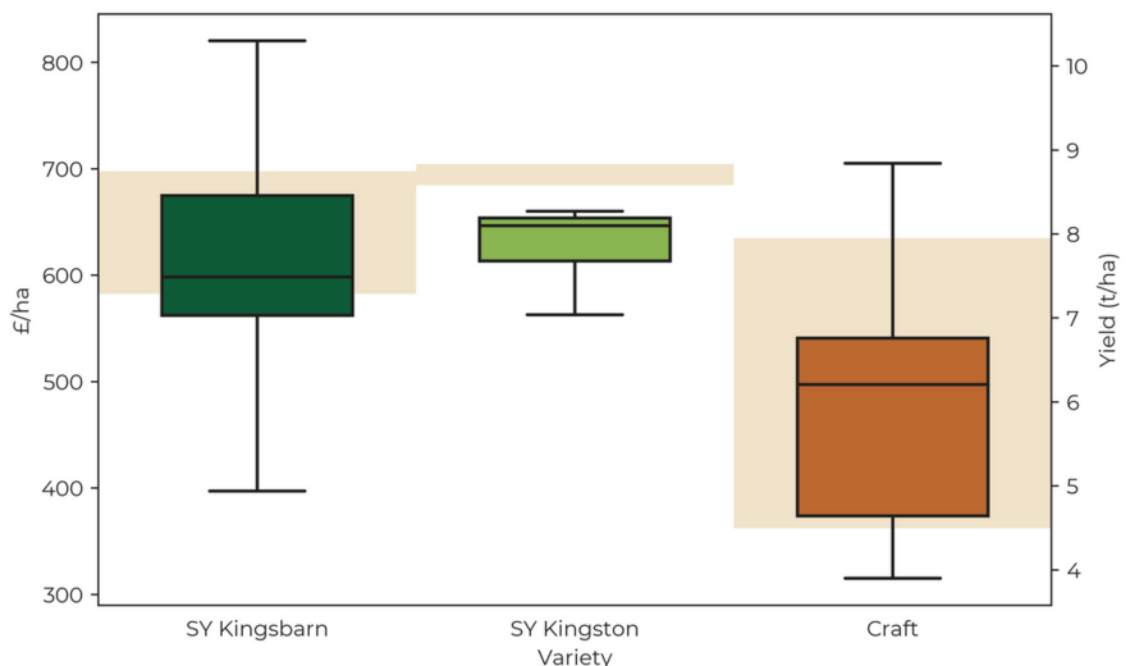
Despite Craft’s low £/ha, it competed on a £/t basis with the other varieties analysed. Considering the potential for malting premiums, this makes Craft an attractive choice for growers looking for strong gross margins despite lower yields.

### Raising the question once again, what do you consider most important – yield or efficiency?

The fact that Craft performs relatively well on a £/t basis following low input spend could explain its increasing popularity, seen on (Chart 19).

The winter barley 2024 dataset shows a positive correlation between yield and variable input £/ha. SY Kingston had the highest yield but also the highest input costs at £704.19/ha, while Craft had the lowest yield with the lowest input costs at £575.61/ha.

Chart 18. Yield t/ha and Cost Per Hectare (Light Orange) for Winter Barley by Variety



This resulted in minimal differences in the overall cost of production per tonne between the three varieties, with SY Kingsbarn and SY Kingston almost identical at £86.29/t and £86.25/t, respectively, and Craft averaging slightly less at £85.16/t.

The input costs for Craft varied significantly (Chart 18), with the 25th percentile spending roughly £362/ha and those in the 75th percentile spending £635/ha (rounded). Growers in the lower range spent 53% less on fertiliser 39% less on fungicide.

Craft's notable range in input spending is likely influenced by programmes used to target malting quality and the variety's high resistance to brown rust. This disease resistance contributed to reduced fungicide costs, particularly for those aiming for untreated or minimal intervention approaches.

Additionally, Craft's good straw strength (which scored 8 on the 24/25 AHDB's Recommended List for resistance to lodging) reduced the need for additional management inputs such as plant growth regulators compared to SY Kingston and SY Kingsbarn.

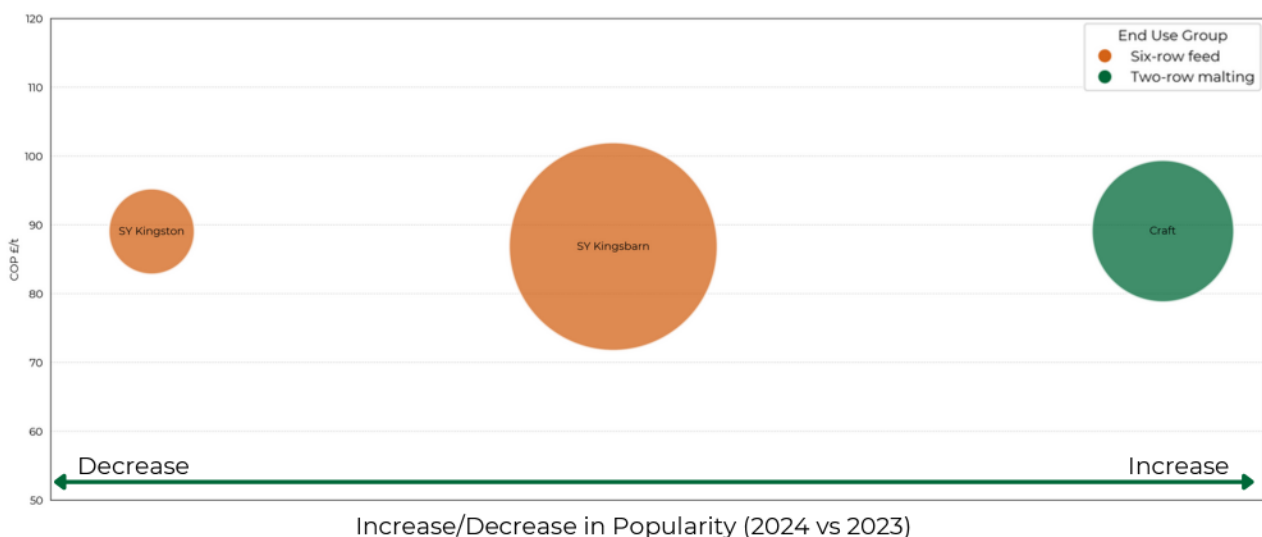
In contrast, SY Kingston and SY Kingsbarn showed more consistency in input costs, likely due to similar programmes being used for these six-row hybrid feed varieties.

SY Kingston had the most consistent range in yields, though it is important to note that this variety had the smallest growing area of the three, which may have influenced the observed consistency.

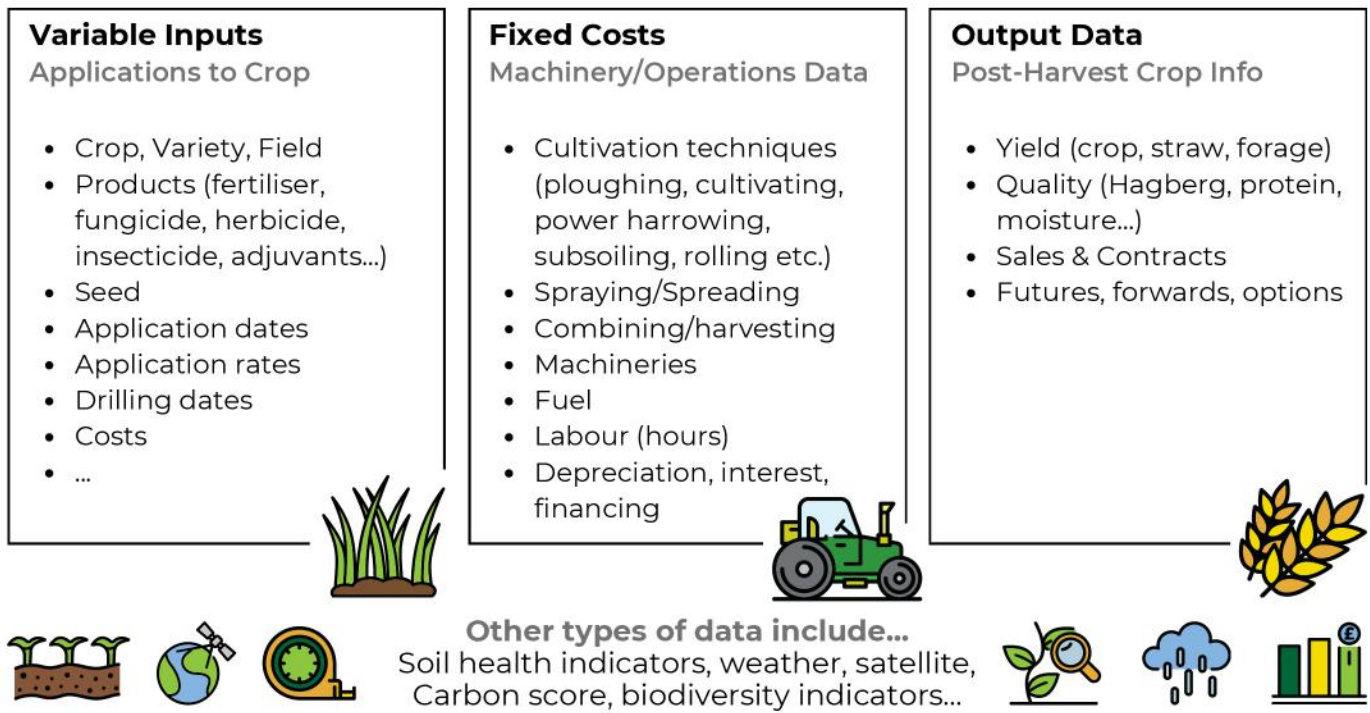
The field area of SY Kingsbarn increased this season compared to 2023. Contributing to its growing popularity could be its reputation as a solid all-rounder with consistent yields and the ability to grow in all regions, including heavy soil areas. Craft also saw an increase in hectareage within our dataset.

In comparison, SY Kingston has seen a slight decrease (1.5%) in area grown, whilst being the variety with the smallest area recorded.

**Chart 19. Top Winter Barley Varieties by End Use Group in 2024**



# WHAT WE CLASS AS FARM DATA AND FARM RECORDS



## WHY ANALYSE YOUR FARM RECORDS?

Farming is a complex business. So many variables influence production, from the soil type and weather patterns to crop rotation choices, variety traits, crop protection strategies, and nutrition regimes. Each of these elements ultimately contributes to yield, tonnage, and market premiums. Bringing all this information together in one place is critical to making informed decisions. However, before a farm can get to that stage, the data—both inputs and outputs—must be carefully collected, stored, verified, analysed, and, most importantly, used effectively.

Over the years, YAGRO's Customer Data Team, have developed deep expertise in agricultural data management. We know where data lives, how it's recorded, and most importantly, where the gaps are. Our tools and processes streamline the standardisation and cleaning of farm data; automating tasks that would otherwise be time-consuming and error-prone. You wouldn't believe how many different ways farms label "Winter Wheat"! By employing reference points and maintaining a strong industry perspective, we ensure that data verification is thorough and precise.

This approach not only helps farms compare their performance internally and to wider market benchmarks but also equips them to analyse production in ways that foster greater efficiency and support sustainability efforts. With reliable data in hand, farmers can confidently answer vital questions like, "What impact does early drilling have on yield?" or "How can I optimise my fertiliser regime to meet my grain market goals?"

In the end, data provides clarity, helping farmers make objective decisions about what really matters to their operations. It's like when I compared various suppliers and realised I could reduce both costs and waste by switching from small organic yoghurt pots to larger, more sustainable alternatives to reduce my plastics consumption — every small decision, backed by the right data, can lead to significant, meaningful change.

**Shirley Eves-van den Akker**  
 Head of Operations at YAGRO



# Example 'Data In' for Benchmarking Gross Margin Field Level Analysis

## Invoices (Verified Factual Confirmations)

Including:

- Product Names
- Prices
- Purchase Date



## Farm Management Software Records (FMS)

Including:

- Product Names
- Prices
- Dates Applied
- Rates Applied
- Field Names
- Field Areas

## Combine Telematics

Including:

- Dates Harvested
- Field Names
- Yields
- Moisture



## Sales Data (Verified Factual Confirmations)

Including:

- Sales Volumes
- Sales Prices
- Grain Quality
- Premiums
- Spec
- Dates of Movement

### Prices

Invoice priced per pack, Farm Management Software priced per field, or per application or per pack.

Automated verification of prices in FMS matching invoice price.

**Structure all prices to be £/L or £/kg**

### Naming Conventions

Example Rodeo - Glyphosate  
MAPP M16242

Invoice Name: Bayer Rodeo

Farm 1 Name: Rodeo 5L

Farm 2 Name: Rodeo 360G

Farm 3 Name: Rodeo

Farm 4: Glyp '360 RDO



**Structure all names to Rodeo with ingredients listed for comparability with other 360g/l glyphosate products.**

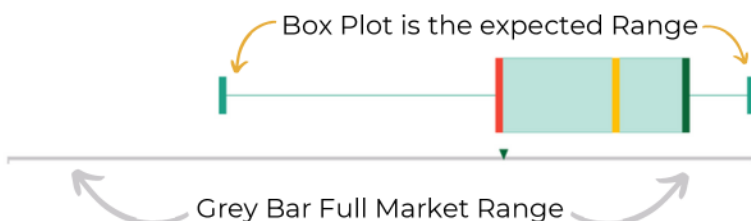
### Yield Verifications

With combine telematics providing valuable but often uncalibrated results, having total sales volumes to verify or adjust field level yields allows farms without weigh bridge data to trust in the results they are analysing.



### Verification of Rates Applied

Our systems validate applications from user input systems such as their Farm Management Software. All applications are matched against an expected market range, if the application volume is outside of an expected (not legal) range, this is flagged for verification with the farm as well as checking invoices for total volume bought to check if the volume applied was achievable.



To allow comparisons, we require all crop types and information to be recorded systematically. If Farm A notes "Winter Wheat" and Farm B says "Wheat Winter", with Farm C recording WW, this is unstructured for comparison.

Therefore, we've created a simple automation and agreement for naming conventions, making this always "Wheat (Winter)".



### Analysis

With cleaned and structured data, trust is instilled in using that information to allow any type of analysis needed to drive informed decision making.

### Collate

Bring multiple sources of data together in one central location to analyse the full picture.



### Verify

Validating application rates and yields vs your other data sources and against expected market ranges and expected outcomes.

### Clean

Ensuring your data is correct, from checking prices applied match prices paid to flag and fill any gaps in your farm records.




### Structure

Building consistency in your records to allow internal benchmarking of your farm by structuring different data sources as well as against market ranges.

# THE YAGRO DATA MANAGEMENT PROCESS

## DATA COLLECTION AND COLLATION

 This first step involves collecting and collating all required farm records into one centralised location. Some elements are easily transferred from farm management softwares and digital records, as well as uploading PDF invoices, combine telematics or Excel files. All collected either by uploads or emailing to our Customer Support Team. At this point we will flag duplicate or missing information.

# 1

## STORAGE

Data is critical to the success of our services, and its storage, security and protection are amongst our most important responsibilities. We use physical, digital and administrative safeguards to protect your data. All our resources are protected using Virtual Private Cloud (VPC), with security groups as virtual firewalls and policies to control what services can access.



# 2

## 3 DATA INGESTION ENGINE (D.I.E)

Through our Data Ingestion Engine, data is validated thanks to a multitude of rules checking, for example, missing or duplicate data, outlier prices, expected application rates or dates. Standardisation is also applied with naming conventions and units to allow for wider comparison.



## DATA VERIFICATION

# 5



# 4

In this step, any gaps in records supplied by farms is flagged and a data verification report is supplied to the farm, requesting any missing elements. If answers aren't available, we are able to apply median or industry recommended figures to any gaps to allow for a complete dataset for every farm.



## DATA COMPLETION

With a complete dataset, a farm's information is uploaded into our platform and their dataset is included in our market ranges allowing the farm to see their own performance as well as a comparison against the wider market range.

## OWNERSHIP AND ACCESS

Analytics and Tracker data is not being used or shared outside of the YAGRO's anonymised market ranges. You own your farm data. We are certified by Farm Data Principles, and take farm data ownership seriously.

You can read more about our [farmer first data policy](#) on our website.



# 6



## 7 ANALYSIS AND USE



The true value of this process comes to life and the fun starts at the analysis stage. We can now provide you with clear, actionable analysis to drive insights. The data allows for benchmarking internally or against industry standards as well as exploring market trends, enabling you to assess your farm's efficiency, costs, and outputs in real terms. A precise understanding of performance - whether it's highlighting areas for growth, identifying potential savings, or recognising risks. Knowledge to make informed, strategic decisions that drive your farm's success, whether for the upcoming season or for long-term planning.



A close-up photograph of a field of spring barley. The barley stalks are in the foreground, showing their green and yellowish heads with long, thin awns. The background is a bright blue sky with scattered white clouds. The text 'SPRING BARLEY' is overlaid in the center in a white, bold, sans-serif font.

**SPRING  
BARLEY**

# Spring Barley

## Costs of Production

With poor autumnal drilling conditions comes a growing opportunity for spring crops – with DEFRA reporting a 40% increase in spring barley 2024 production compared to last year.

The 2024 growing season saw Laureate continue to dominate the market-share of varieties (See Chart 25), performing well in varying conditions with solid malting premiums on offer.

**Have spring crops featured more in your rotations in recent years?**

**What data would you like to see to learn how they can benefit your farm?**

Chart 20. £/ha for Spring Barley Over Time

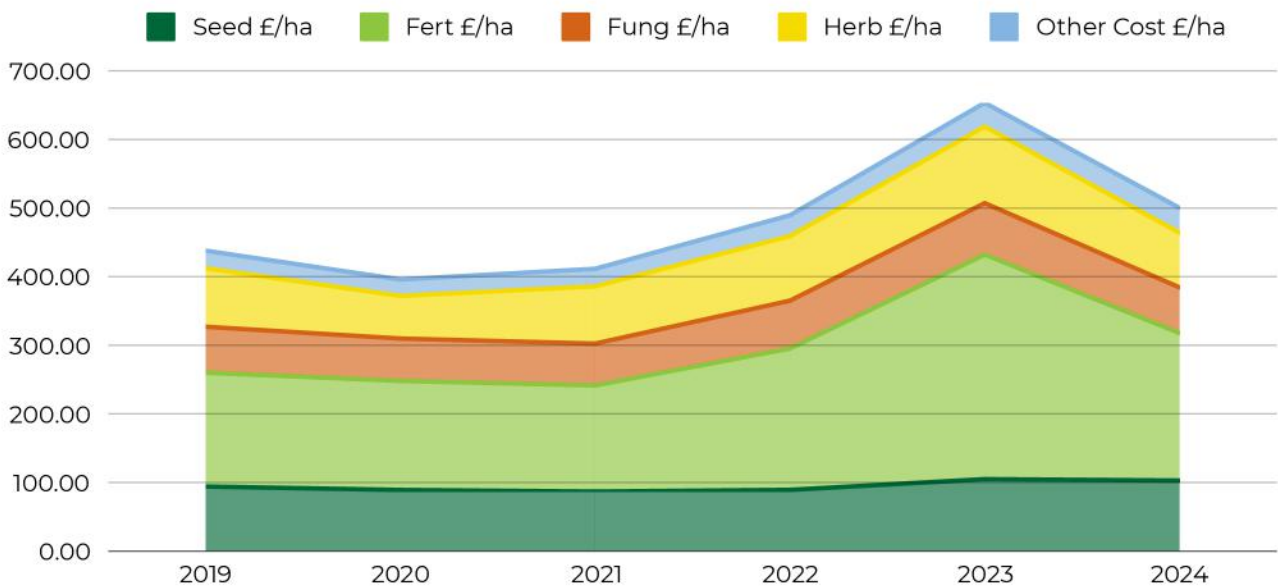
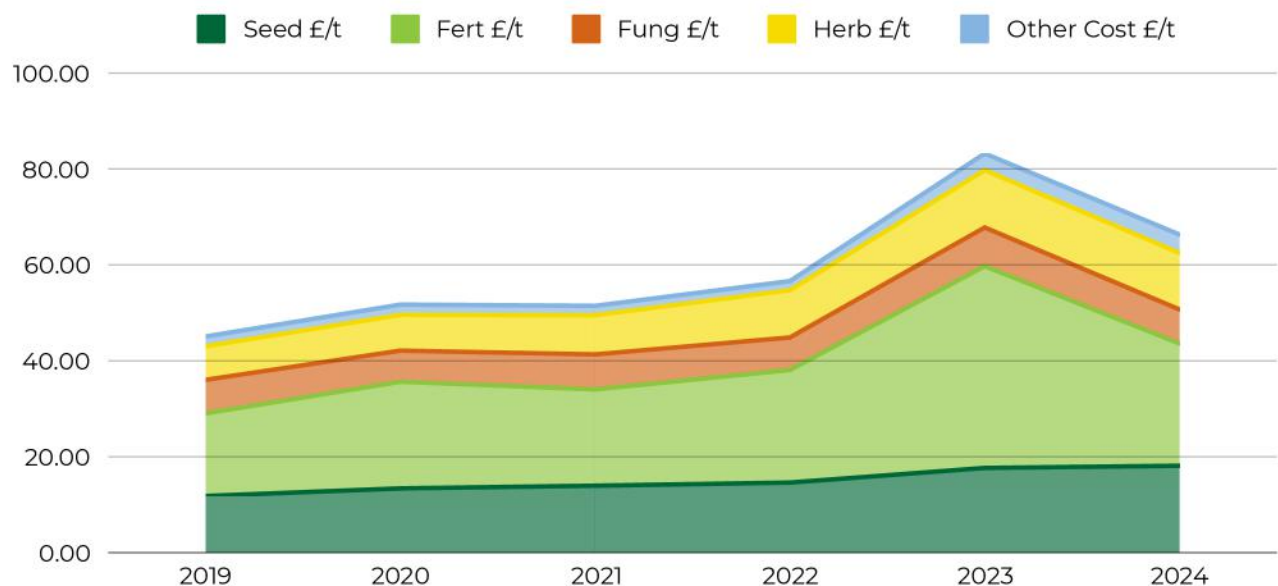


Chart 21. £/t for Spring Barley Over Time



Between 2022 and 2023 fertiliser costs rose by 86% for spring barley - jumping from £138.46/ha to £257.59/ha (Chart 20). Gratefully, 2024 has brought some relief, with a reduction in fertiliser £/ha of 40% compared to last year.

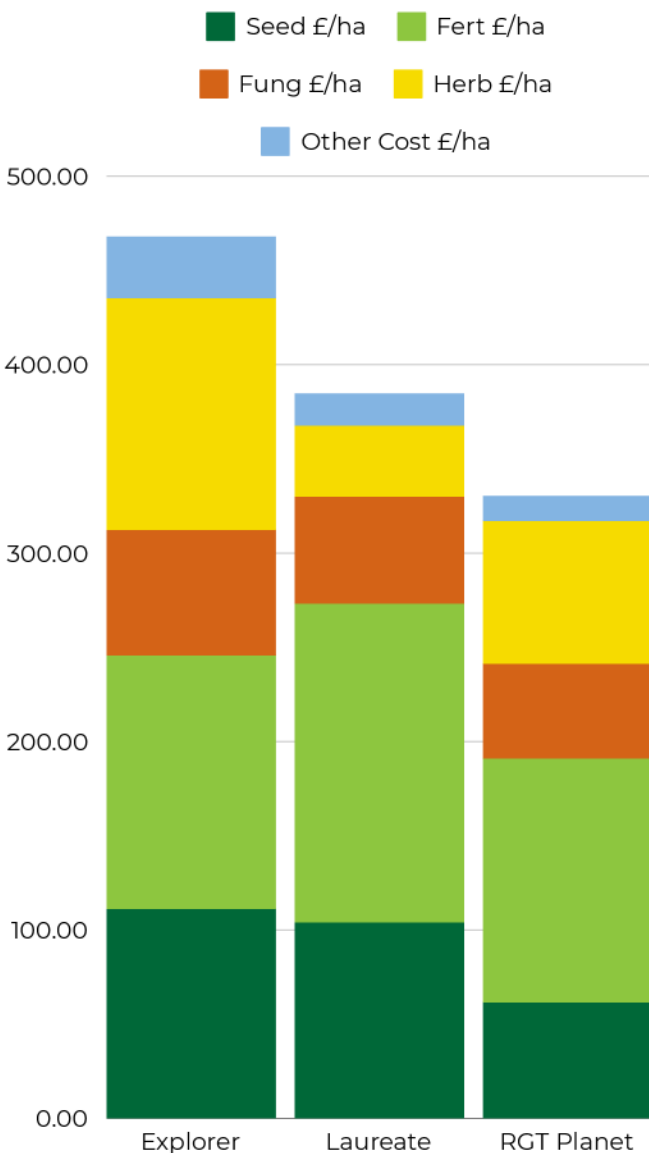
This reduction in fertiliser cost has contributed to a 17% decrease in the overall cost of production for spring barley, which fell from £82.59/t in 2023 to £68.61/t in 2024 (Chart 21).

Despite this recent cost decrease, it is notable that the long-term trend since 2019 has been upward, with the lowest cost of production recorded at £45.95/t back in 2019.

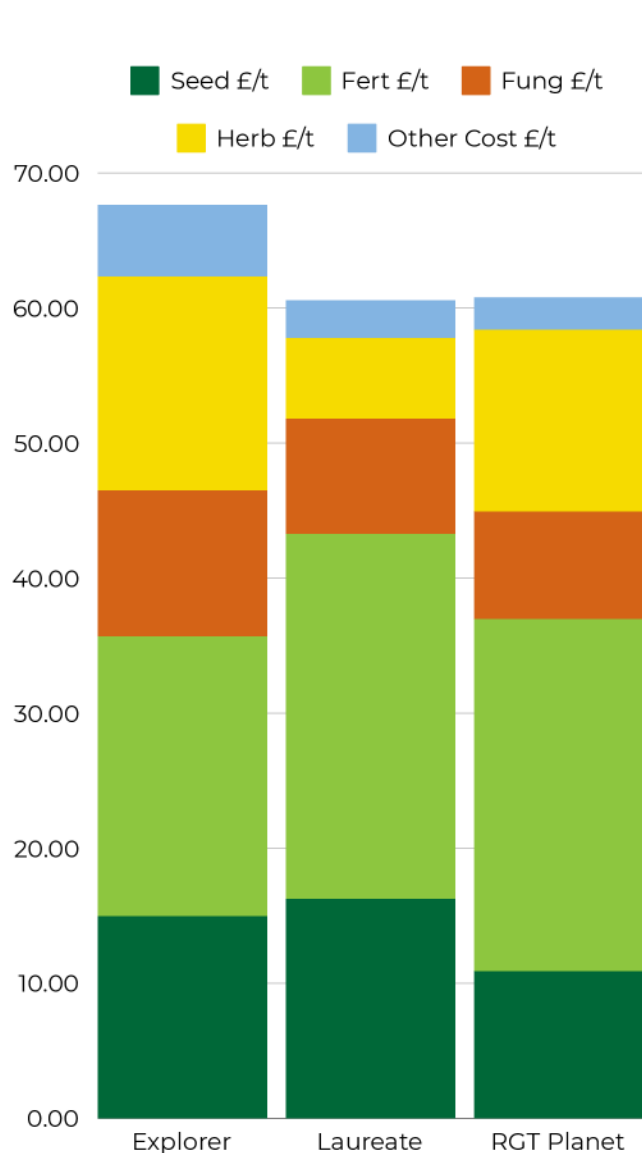
This financial pressure underlines the importance of strategic input management, with fertiliser remaining the key driver determining profitability for spring barley growers.

### Varietal Data

**Chart 22.**  
£/ha for Spring Barley Split by Variety



**Chart 23.**  
£/t for Spring Barley Split by Variety



This spring barley chapter highlights three key varieties: RGT Planet, Laureate, and Explorer.

RGT Planet, a conventional two-row barley, is the most popular malting variety globally, prized for its versatility as both malting and feed barley.

Looking at Chart 22 - In 2024, RGT Planet demonstrated its efficiency as a low input variety, with the lowest overall spend per hectare at £330.39 - 41% less than Explorer and 22% lower than Laureate.

This efficiency extends across input categories, with RGT Planet showing the lowest seed cost, which was 44% less than Explorer and 40% less than Laureate. Fertiliser and fungicide costs were also the lowest at £129.53/ha and £50.54/ha respectively, reflecting the variety's strong disease resistance and reputation for high untreated yield.

Laureate, another two-row brewing and malting barley, is currently the dominant spring barley variety in the UK. It yielded the highest in our 2024 dataset, producing an average of 6.52t/ha - 3.5% higher than Explorer and 17% higher than RGT Planet.

## Laureate is the dominant spring barley variety in the UK and the highest yielding of our data set.

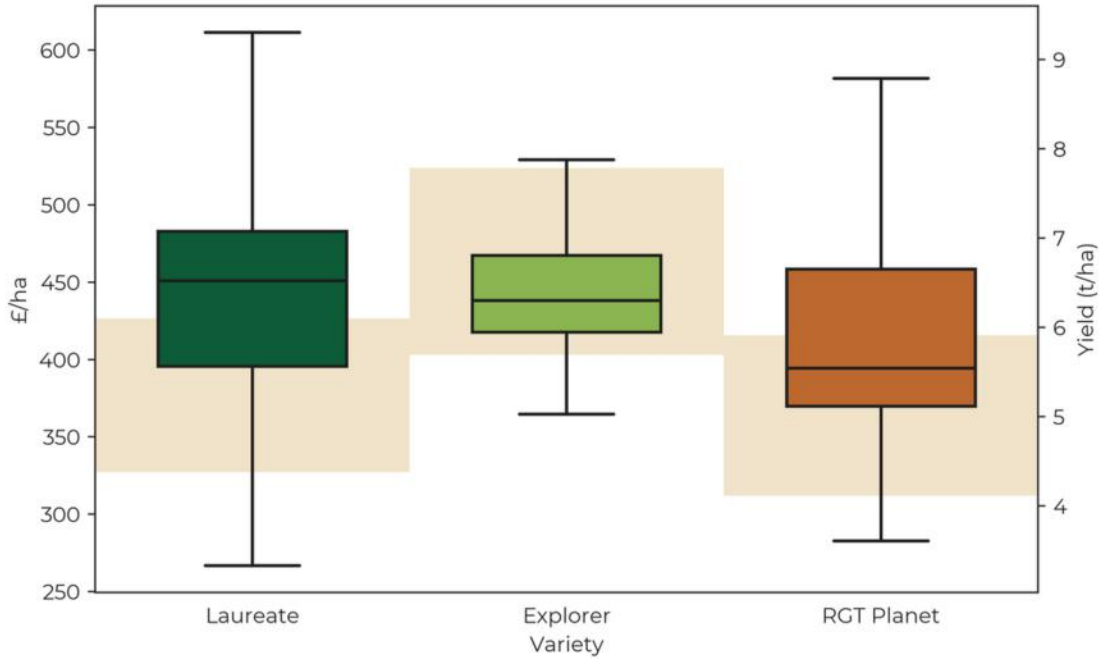
However, despite its higher yield, Laureate's £/t was almost identical to RGT Planet's, suggesting that the latter performs well as a cost-efficient, low-input variety. Herbicide costs for Laureate were also notably low at £37.71/ha, which was 69% lower than Explorer's (Chart 23).

Explorer, a two-row malting barley contracted exclusively to Budweiser, had the highest average input spend of the three varieties at £467.98/ha, largely due to its higher susceptibility to mildew and greater herbicide costs (£122.94/ha).

Although Explorer had the highest herbicide and fungicide costs, its average yield was 3.5% lower than Laureate. If the exclusive Budweiser contract came to an end, Explorer's appeal may be limited going forward - particularly given its higher input costs.

Overall, these three varieties showcase different approaches to growing spring barley - whether targeting high yields with Laureate, low input efficiency with RGT Planet, or specific brewing contracts with Explorer. The choice ultimately comes down to your priorities in balancing cost, yield, and quality as a grower.

Chart 24. Yield (t/ha) and Cost per Ha (Light Orange) for Spring Barley by Variety



The variability of input spending (seen in Chart 24) for RGT Planet and Laureate can be attributed to their suitability for multiple end uses.

In contrast, Explorer had a more consistent yet higher input range due to its exclusive brewing requirements under the Budweiser contract, which demands more precise growing conditions.

Both RGT Planet and Laureate also showed greater inconsistencies in yield compared to Explorer’s narrower range of between 5 and 8t/ha, likely attributed to its more focused management practices.

Chart 25. Top Spring Barley Varieties by End Use Group in 2024

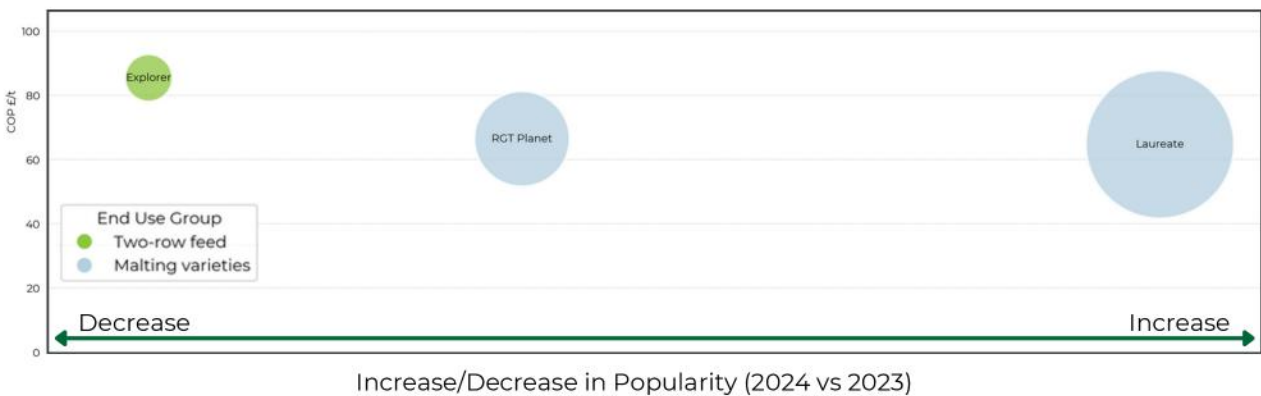


Chart 25 shows that Laureate, the most grown variety, is still gaining popularity.

Explorer remained limited in its growth due to its exclusive contract, which is concentrated in the East of the country. In contrast, RGT Planet and Laureate benefited from greater flexibility in end market use, allowing for broader adoption across the UK and driving their popularity among growers.



A close-up photograph of a bright yellow flower cluster, likely a rapeseed or mustard flower. The flowers are in various stages of bloom, with some fully open and others as buds. A small black insect is perched on the top of the central flower cluster. The background is a soft, out-of-focus yellow. The text "OSR" is overlaid in white, bold, sans-serif font in the center of the image.

OSR

# Oilseed Rape

## Costs of Production

Oilseed rape (OSR) remains a high-risk, high-reward crop. When it performs well, OSR can deliver strong gross margins, but the path to successful establishment is fraught with challenges.

Since the neonicotinoid ban in 2018, farmers have faced increasing pressures from pests, particularly cabbage stem flea beetle, making establishment more unpredictable. The knock-on effects of this included a sharp decline in area allocated to OSR (as explored in Chapter 6 of our [Chemical & Fertiliser Review](#), June 2024).

Despite these risks, some growers continue to persevere with OSR, attracted by current prices above £415 per tonne. One method of establishment has been turning ground around quicker after harvest to allow much earlier OSR drilling, aiming to improve early season vigour enough to survive the pest pressure.

The continued fight to keep OSR within rotations is owed to its valuable role as a break-crop which potentially delivers margins greater than winter beans, or spring alternatives.

The 2024 harvest has seen some success stories - particularly with companion cropping techniques that have achieved strong establishment and improved yields. These innovative practices, alongside careful management, are shown to help navigate the complexities of growing OSR and turning high-risk ventures into profitable outcomes.

You can see the Weather chapter of this Review for data around the true cost implications of taking a successful OSR crop to harvest, versus having to redrill mid-season due to bad weather or pests.

**Chart 26. £/ha for Winter Oilseed Rape Over Time**

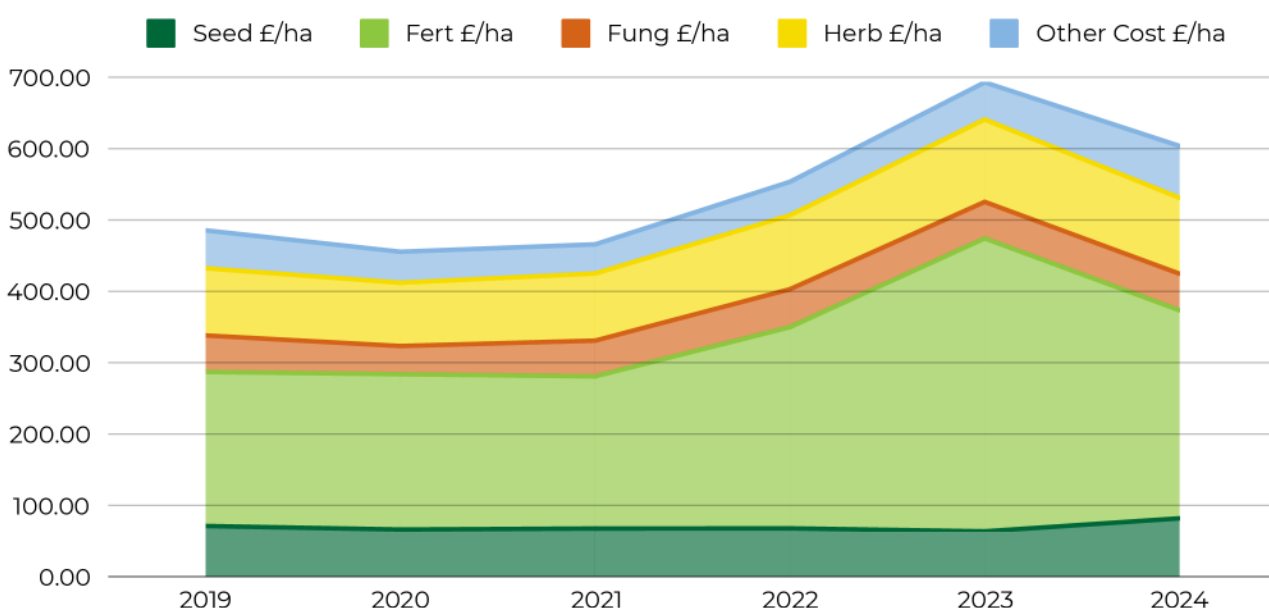
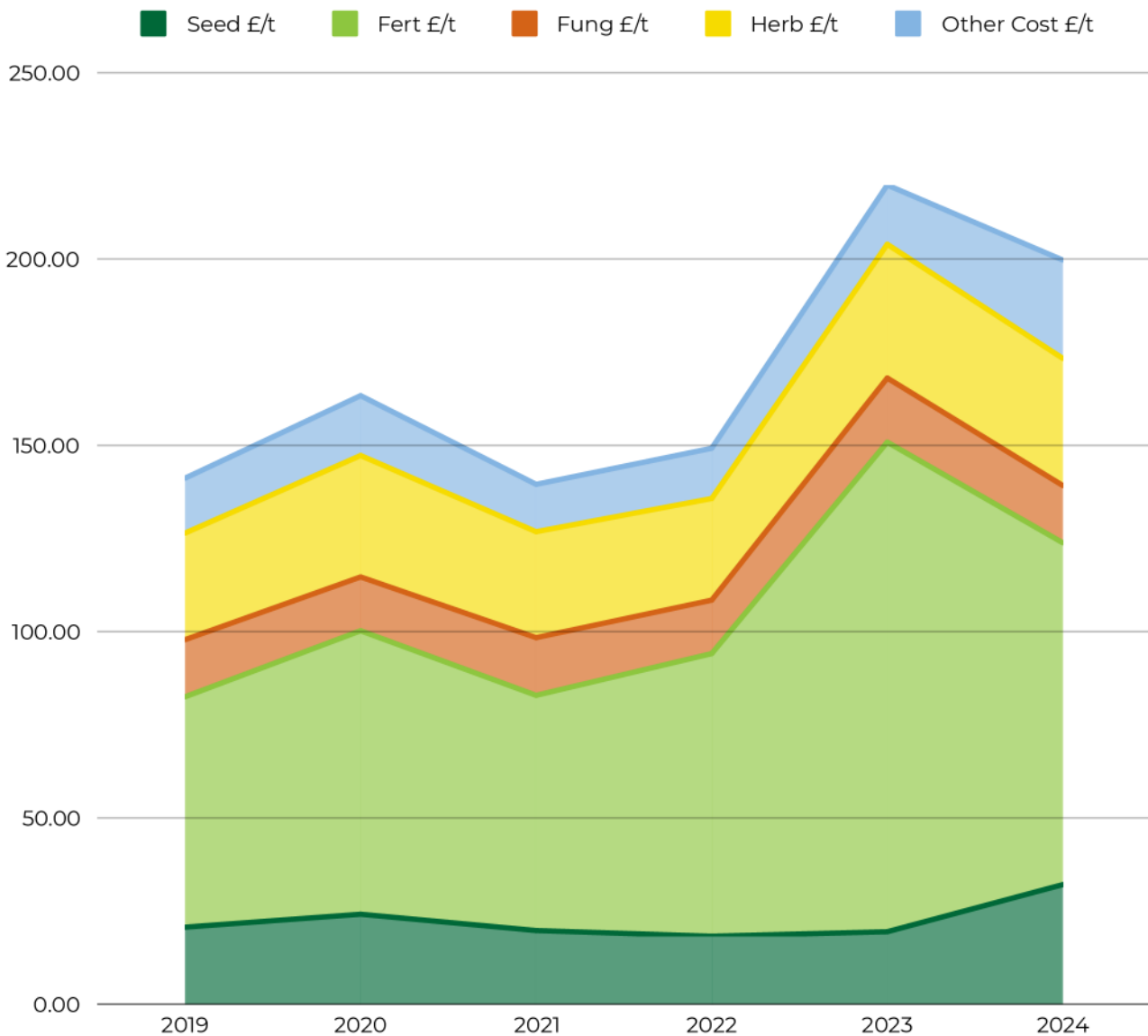


Chart 27. £/t for Winter Oilseed Rape Over Time



Charts 26 and 27 display that fertiliser remains the most influential factor in driving overall £/ha for winter oilseed rape.

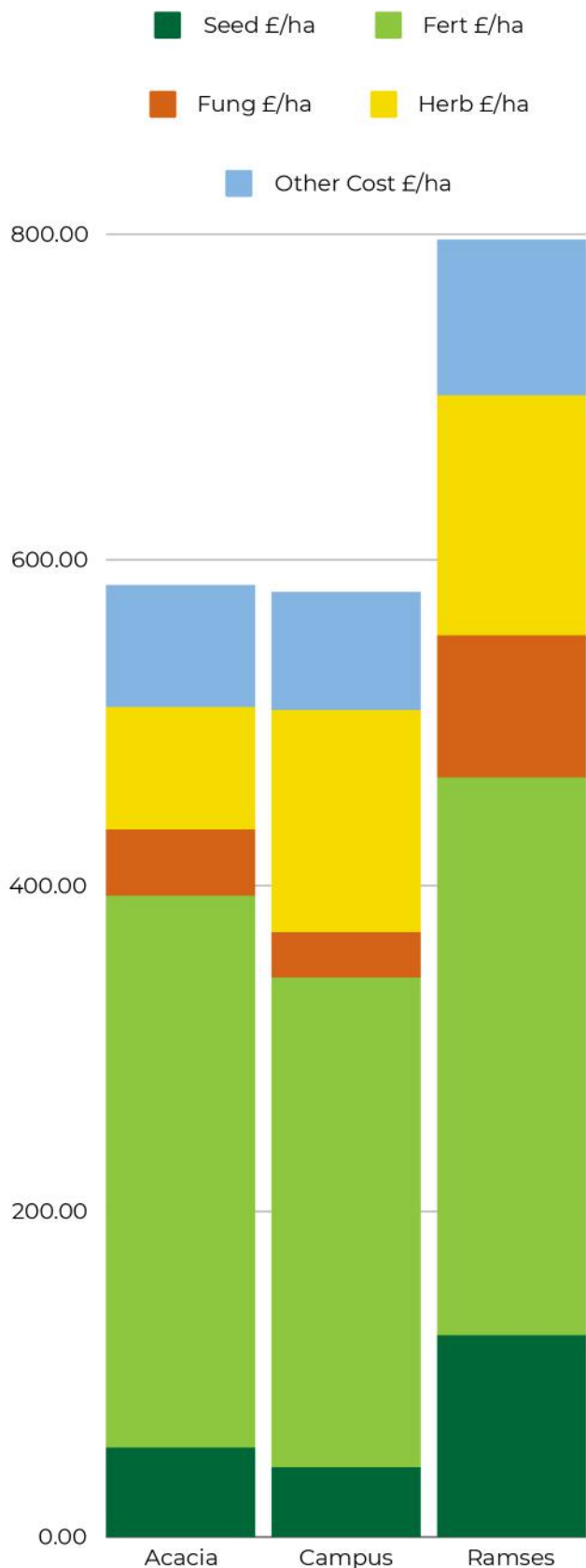
The cost of fertiliser rose significantly between 2022 and 2023, increasing by 46% to reach northwards of £410/ha. However, fertiliser costs have since fallen 29% this year, returning to levels similar to 2022.

Herbicide costs, which are the second biggest spend category after fertiliser, also saw a reduction of 8% this year. These shifts in input costs have collectively contributed to a lower overall cost of production for OSR this harvest, decreasing 5% compared to last harvest, providing a welcome relief to farmers in a challenging market environment.

Interestingly, seed costs are the only main variable to have risen – increasing by 28.6% compared to 2023 season. This could be due to changes in seed prices, hybrid variety choice or varying ability to use farm-saved seed.

## Varietal Data

**Chart 28.**  
£/ha for Winter Oilseed Rape,  
Split by Variety



**Ramses achieved  
the highest  
average yield at  
3.3t/ha.**

**Chart 29.**  
£/t for Winter Oilseed Rape,  
Split by Variety



Of the three most popular varieties seen across the YAGRO dataset in 2024, Ramses achieved the highest average yield at 3.3t/ha.

Ramses is a hybrid High Erucic Acid Rapeseed (HEAR) variety, offering the potential for premium prices through specific contracts. This combination of high yield and premium market opportunities gives Ramses the potential for the highest gross margins among the three analysed varieties.

Campus, a conventional variety known for its early vigour, was the best performer in terms of cost of production at £208.89/t (Chart 29), making it 13% more efficient to produce cost-wise compared to Ramses, despite yielding less on average at 2.9t/ha.

The low £/ha for 2024 Campus was largely due to substantial reductions in seed and fungicide compared the other varieties, with seed costs 65% less than Ramses and 22% less than Acacia (Chart 28).

Campus also had the lowest average fungicide spend in 2024 at £28.06/ha, which was 68% and 31% lower than Ramses and Acacia respectively. Its high disease tolerance, particularly to light leaf spot, stem canker, and verticillium stem stripe, has allowed growers to reduce fungicide spending, making Campus an attractive choice.

Acacia, another conventional and open-pollinated variety characterised by its early vigour, recorded the lowest average yield among the three varieties analysed at 2.07t/ha.

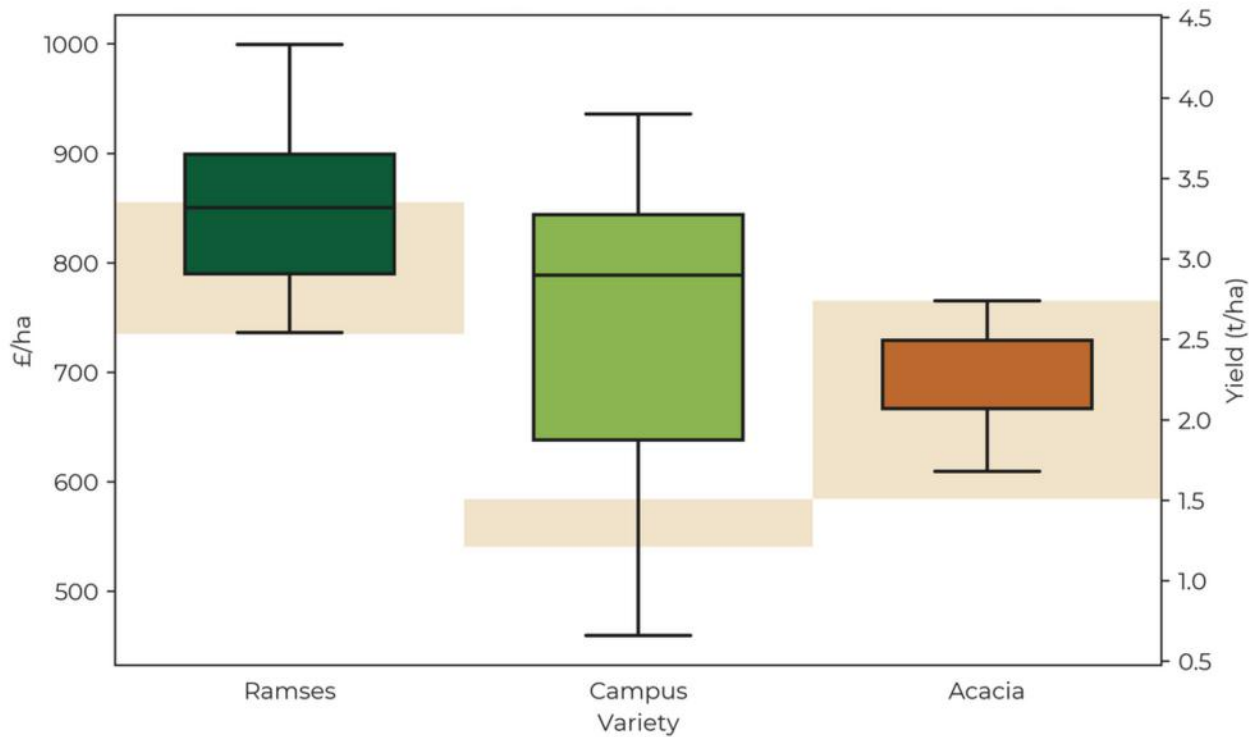
While Acacia's yield may be lower this season, it offers other agronomic benefits which are valuable in poor growing conditions, such as disease resistance and genetic diversity.

These three varieties highlight the diverse approaches farmers can take in selecting winter oilseed rape to match their specific needs, whether aiming for the highest yields, cost-efficiency, or resilience against disease and pests.

**Campus had the lowest average fungicide spend in 2024 at £28.06/ha, which was 68% and 31% lower than Ramses and Acacia respectively.**



**Chart 30. Yield (t/ha) and Cost per Ha (Light Orange) for Oilseed Rape by Variety.**



Ramses HEAR variety clearly stands out when analysing £/ha in relation to yield in Chart 30, with growers focusing on achieving high returns.

Campus saw the widest range in achieved yield, but the lowest range in spend, with cost of production falling within an 8.2% spread – compared to spending on Acacia, which saw a 31% variation between upper and lower spending.

**Do you feel that current premiums on HEAR varieties justify the additional cost of hybrids, in relation to the risk of post-neonic OSR production?**

Of all three OSR varieties analysed in this Harvest Review, only Ramses is increasing in popularity.



1050  
VARIO

CLAAS





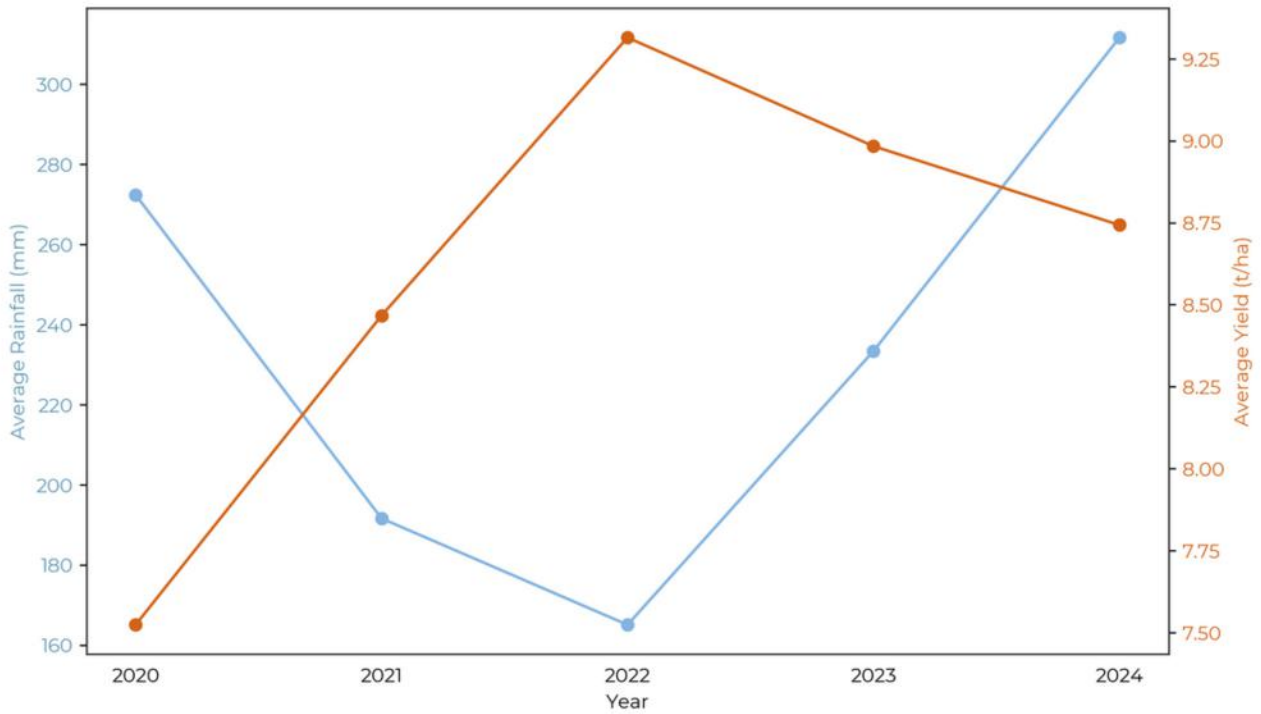
# WEATHER

# Weather

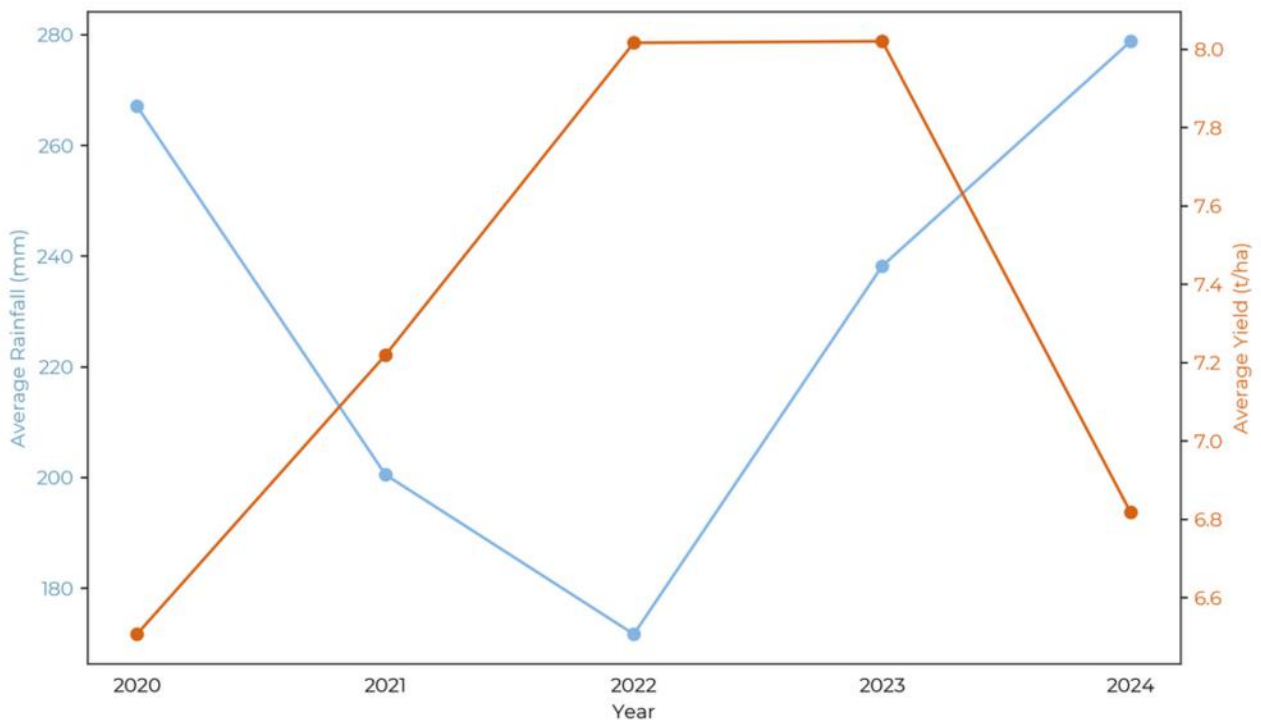
We all know the impact weather has on farming and its crucial role in determining a successful harvest.

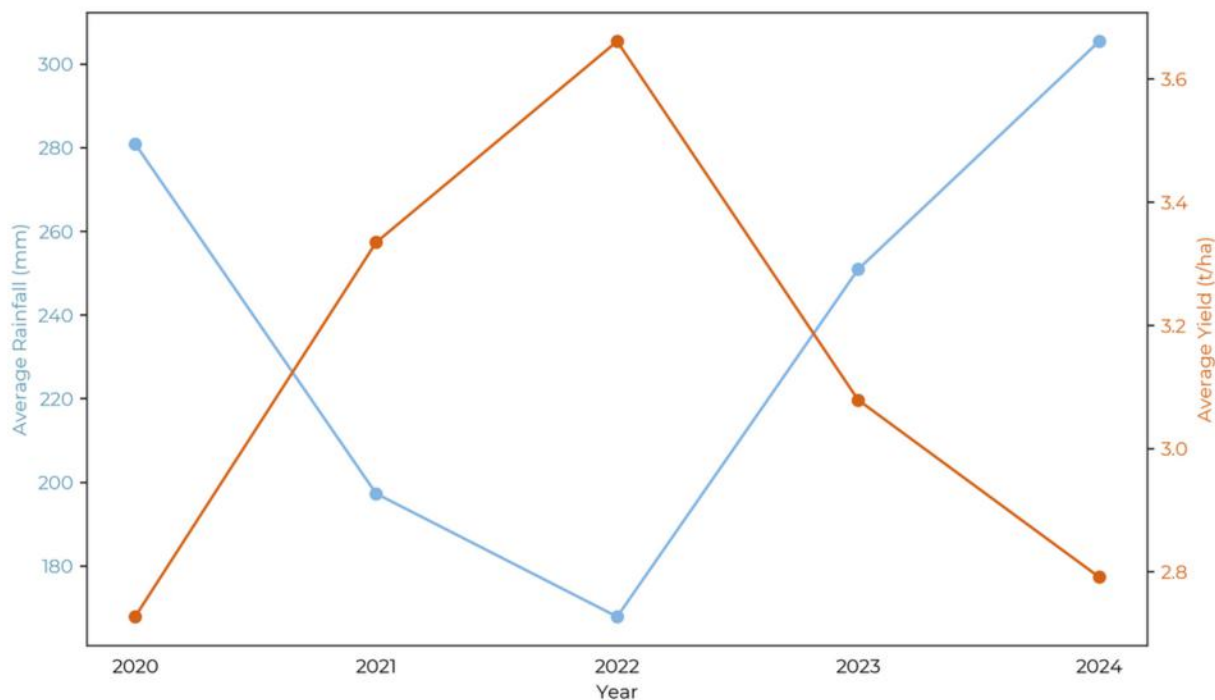
Here, we're visualising rainfall versus yield for the past five years.

**Chart 31. Average Yield vs Autumn Rainfall Over the Years for Winter Wheat**



**Chart 32. Average Yield vs Autumn Rainfall Over the Years for Winter Barley**



**Chart 33. Average Yield vs Autumn Rainfall Over the Years for Oilseed Rape**

The relationship between rainfall and cereal farm outputs is clear in all crops, and an almost perfect inverse correlation for Oilseed Rape.

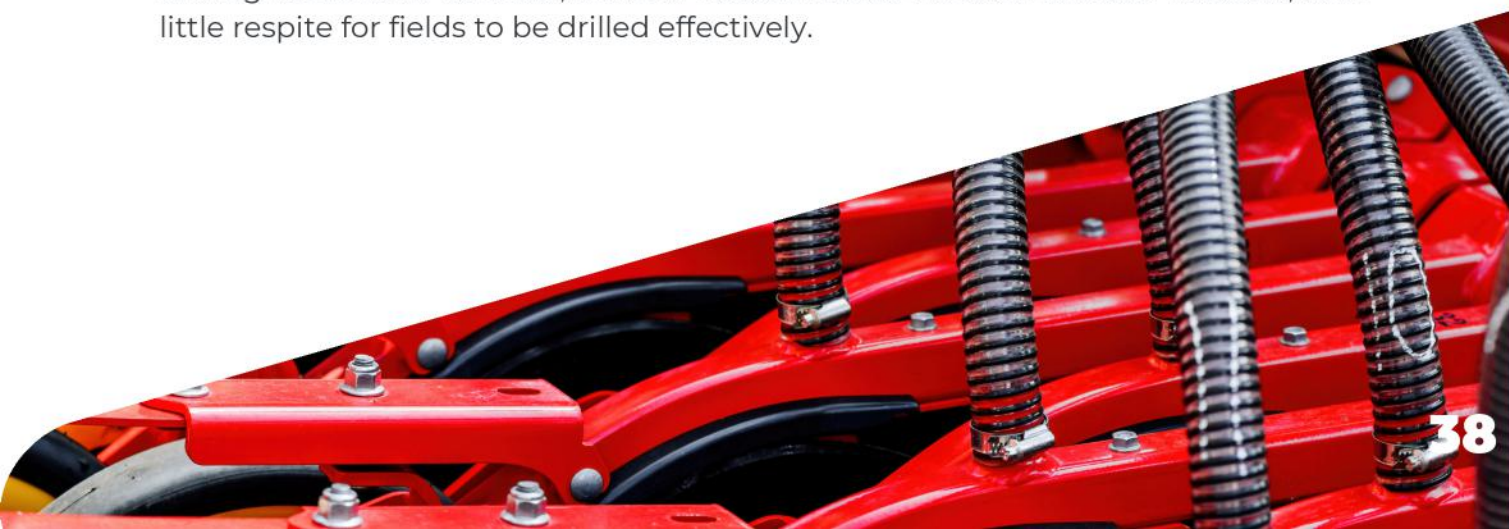
For this exploration, we're focusing on the 2020, 2022, and 2024 seasons - examining a year similar to the recent harvest, as well as comparing it to the more favourable conditions of 2022.

The idea that weather impacts yields isn't news to anyone. But these charts set the scene with hard facts, allowing us to delve deeper with a clear context in mind.

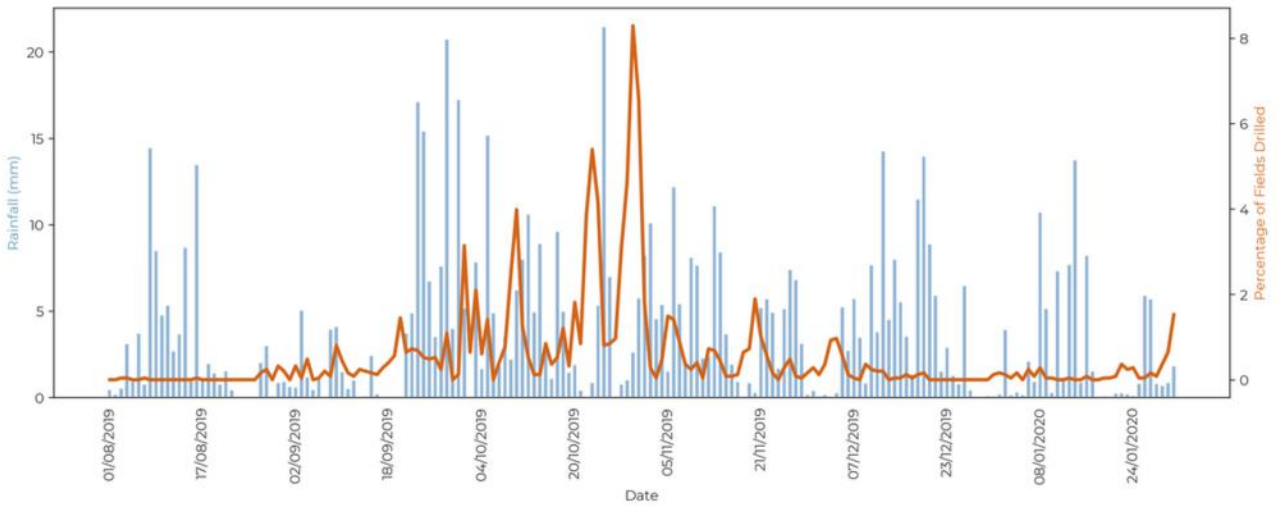
### Establishment: Key to Success

Establishment is fundamental to a successful harvest. In charts 34 - 36 we've illustrated the percentage of fields drilled from our dataset (in orange) against rainfall in millimetres.

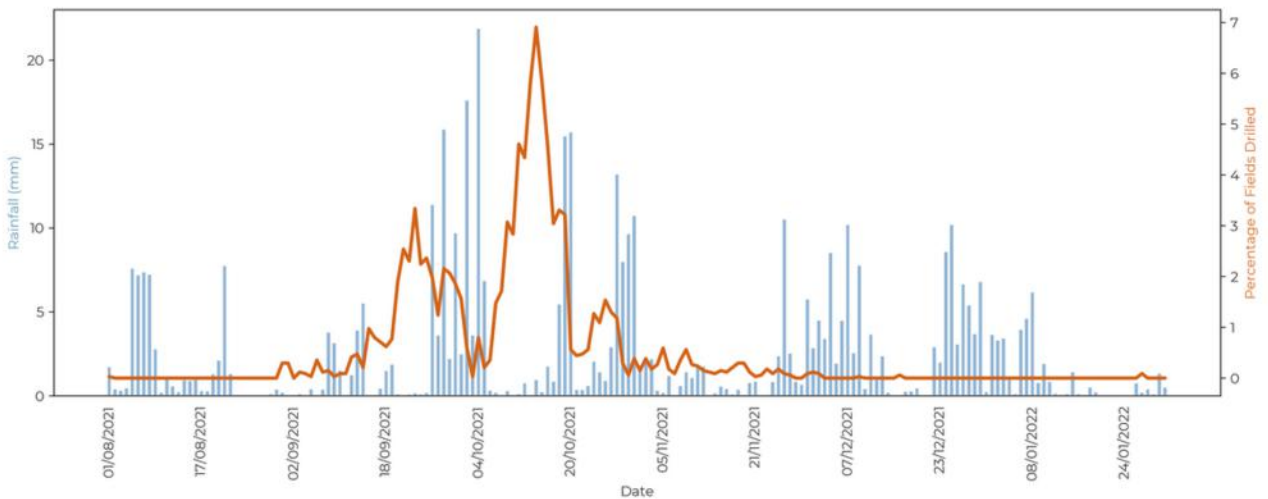
The 2022 season had significantly less rain during the autumn drilling period, and crucially, there were decent breaks between rainfalls - giving farmers a manageable drilling window. In contrast, the 2024 season faced a much narrower window, with little respite for fields to be drilled effectively.



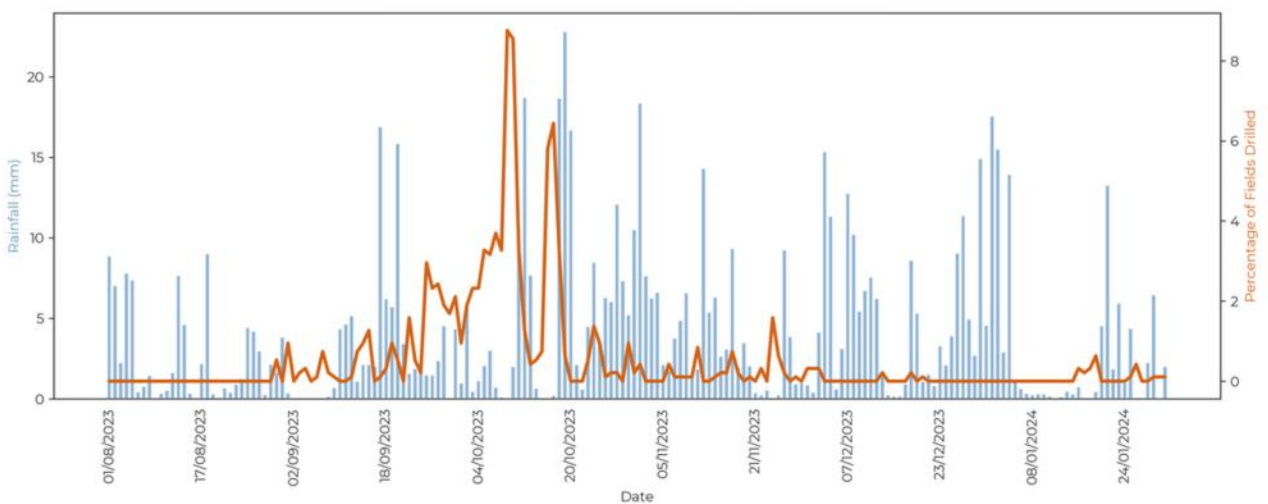
**Chart 34. Drill Dates & Rainfall Distribution of Winter Wheat in Harvest Year 2020**



**Chart 35. Drill Dates & Rainfall Distribution of Winter Wheat in Harvest Year 2022**



**Chart 36. Drill Dates & Rainfall Distribution of Winter Wheat in Harvest Year 2024**

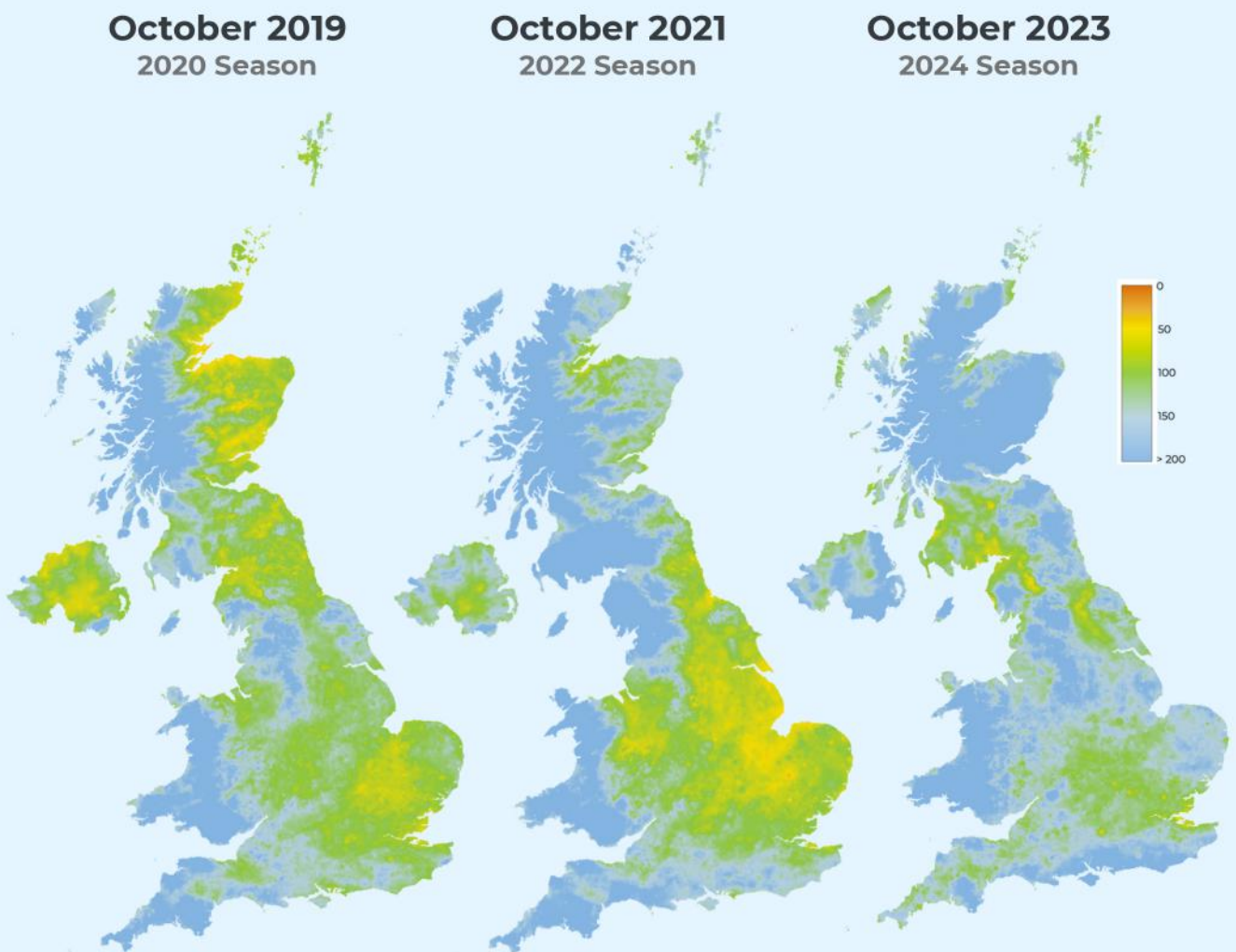




Of course, we acknowledge that weather is localised. Conditions can vary across different parts of a farm, let alone different regions.

To illustrate this, the maps below (Chart 37) compare October 2019 (2020 Season) with October 2023 (2024 Season). For the 2024 season, most of the country experienced prolonged rainfall, whereas in October 2019, some areas were fortunate enough to have longer breaks, offering better opportunities for drilling.

**Chart 37. October Weather Maps for Harvest Years 2020, 2022 and 2024**

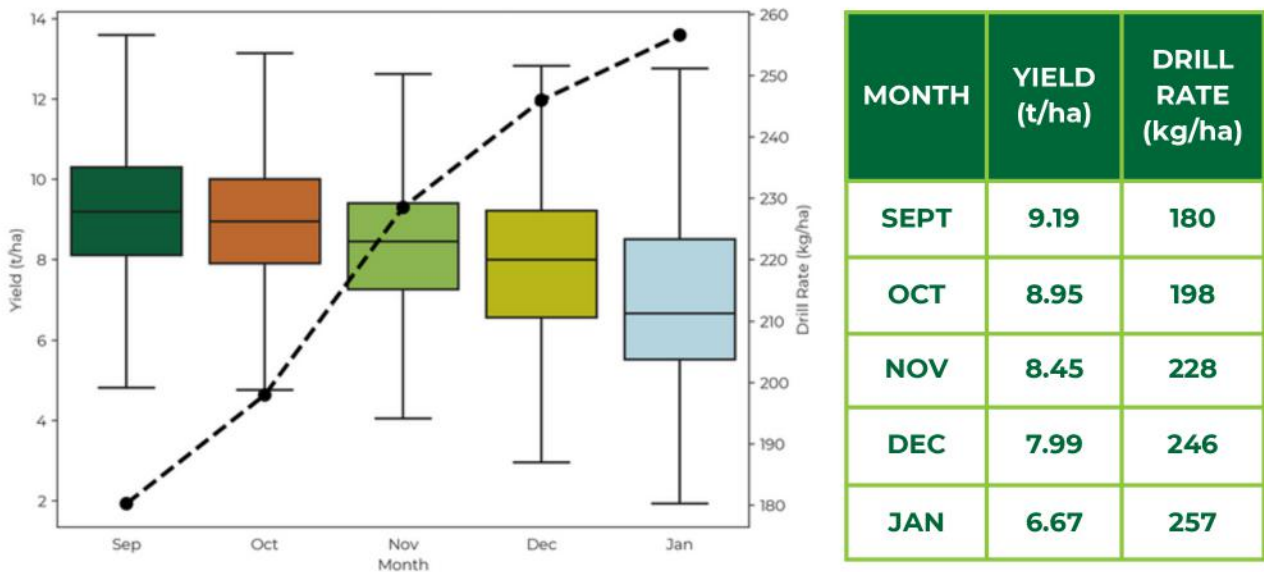


## Drilling Window and Yield Impact

Drill dates are crucial - again, not a new concept, but it helps to visualise it.

We've previously explored drill date timings from September through January and the associated normalised yield ranges. The results were clear; earlier drilling generally leads to higher yields, with a lower drilling rate applied. Increasing the drill rate later in the season doesn't mitigate yield declines (Chart 38).

**Chart 38. Yield and Average Drill Rates (kg/ha) (Black Line) for All Winter Wheat by Drilling Month.**



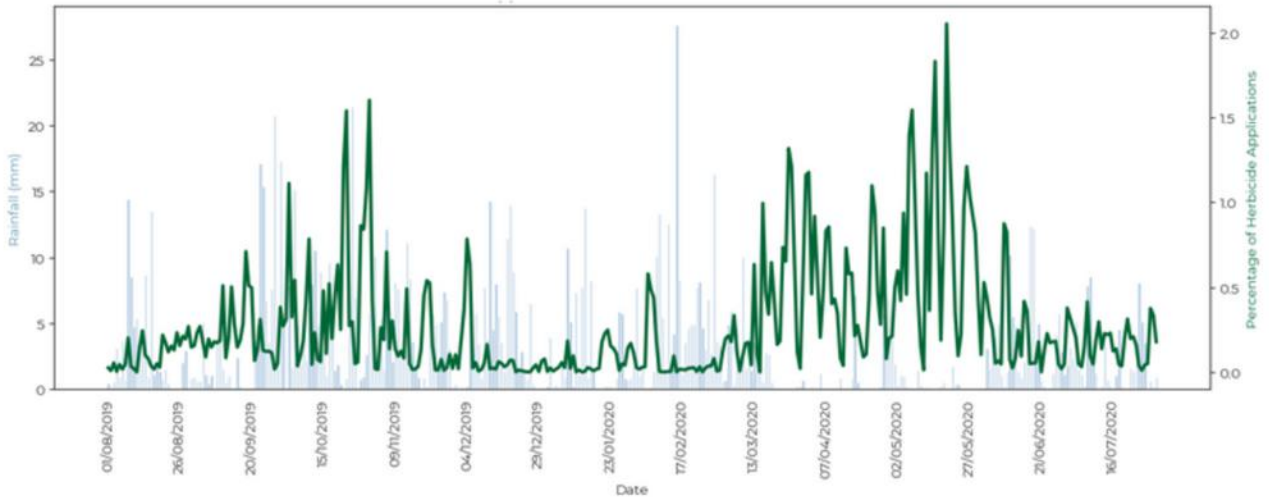
## The Impact of 2024's Wet Start

The wet start to the 2024 season didn't just affect drilling - it also impacted key herbicide applications early on, which are critical for reducing the weed burden and allowing for the best establishment possible.

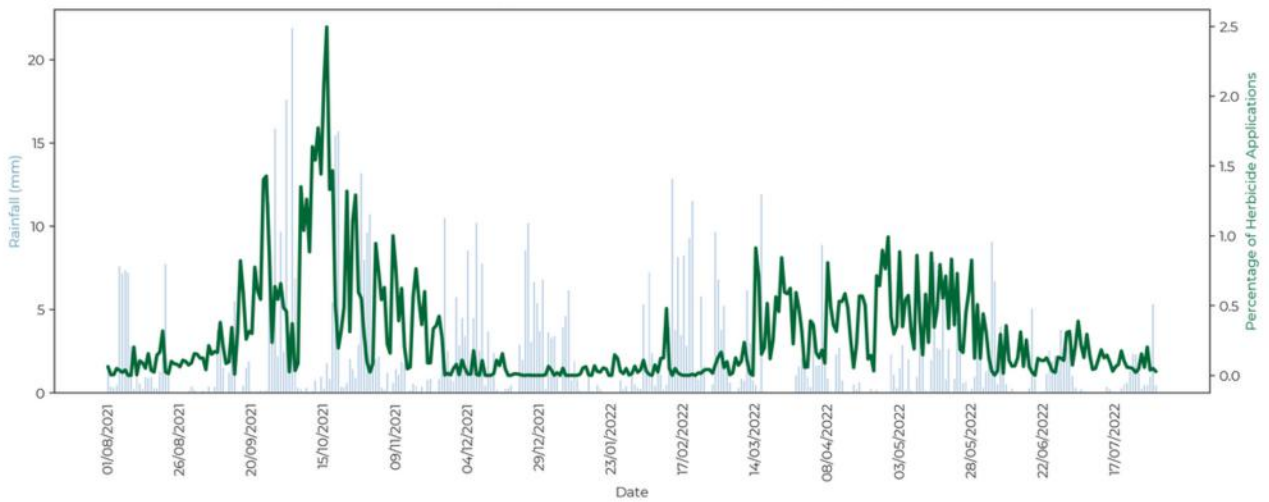
Average rainfall in 2024 was 1315mm, similar to 2020's 1143mm, but a stark contrast to 2022's 768mm. The annual herbicide application and rainfall distributions on page 42 illustrate the challenge: 2022 allowed for more defined spraying windows, while 2020 and 2024 forced a "when we can, we will" approach.

These constant wet conditions severely limited opportunities for any consistent application programmes. What we see from 2022 (Chart 40), with higher application frequencies and clearer spray timings, suggests more confidence in the crops and a willingness to invest - facilitating easier budgeting as the season progressed.

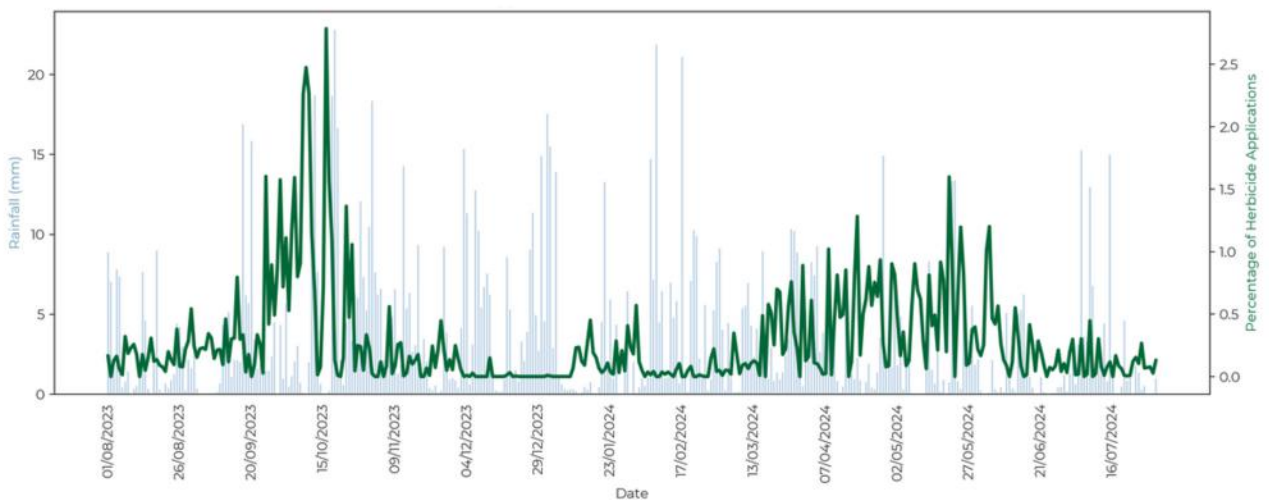
**Chart 39. Herbicide Applications & Rainfall Distribution in Harvest Year 2020**



**Chart 40. Herbicide Applications & Rainfall Distribution in Harvest Year 2022**



**Chart 41. Herbicide Applications & Rainfall Distribution in Harvest Year 2024**



## Fungicides: A Different Picture

When we look at fungicide applications, we see a different picture - an extra triazole application across farms.

Triazoles are a key component in a growers fungicide control, particularly for pathogens such as brown and yellow rust. In years when weather conditions are conducive to rust infection, this group of fungicides are a popular form of control when growing susceptible varieties such as Crusoe.

Brown rust was particularly prominent in the 2024 harvest, with a mild, wet autumn and spring optimal for germination and sporulation of this pathogen.

Brown rust also has a broad temperature range for activity compared to yellow rust, meaning the mild December and February in 2024, with consistently high rainfall, created a perfect environment for disease germination whilst growers struggled to access fields of establishing crops, already weakened by difficult drilling conditions.

Chart 42 shows the rainfall (mm) and averaged temperature for the East Anglia region between 2020-24, across winter and early spring months in which cereal pathogens become symptomatic.

Chart 43 demonstrates the fungicide applications grouped by timing (T0-T3) applied in 2020-2024, again for East Anglia.

We can see that 2024 has been a year with a different approach to fungicide control, with, on average, 3 products applied at the T2 and T3 stage of the season compared to previous years which applied no more than 2 applications. Of these, triazoles were the most likely candidate with at least 2 products applied in this fungicide group at these timings in 2024, double that in 2020.

2021 saw a reduction in the variation of fungicide products applied at T1. With the unseasonably cold and dry spring weather recording just 4.8mm and an average temperature of 6.8 degrees in April for East Anglia limiting pathogen activity.

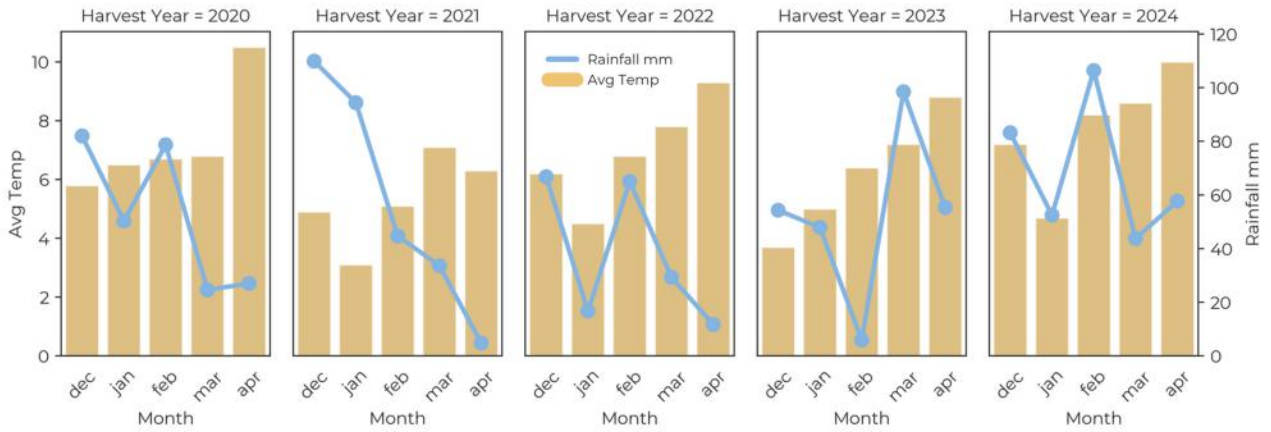
With varying levels of disease, growers had to make tough decisions on whether to invest in their crop protection programmes depending on the expected potential.

In such a challenging year, with fewer early opportunities to travel on the land, later additions of fungicide were applied to tackle disease build-up. Raising a key question:

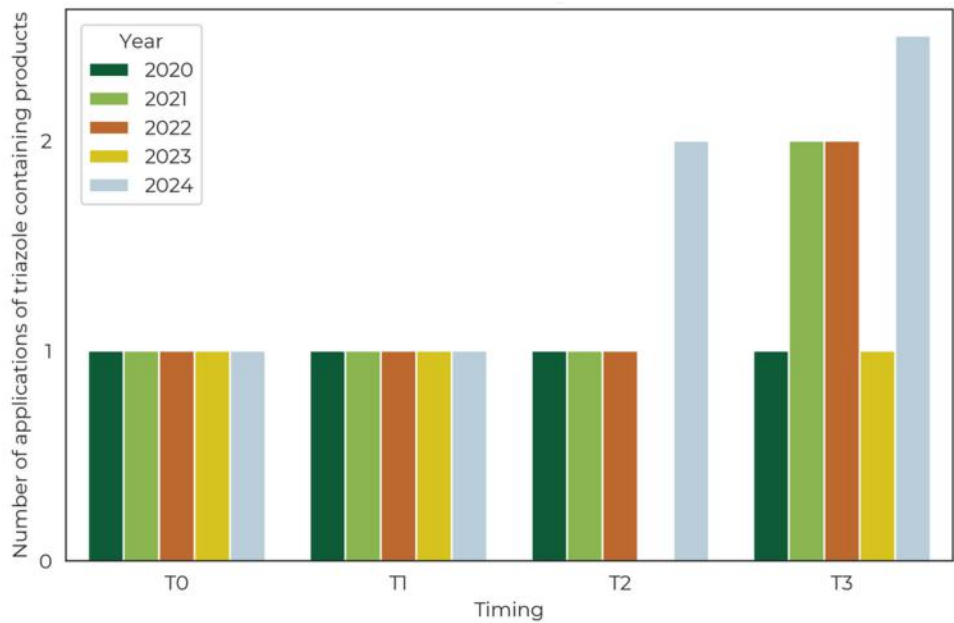
**What is the right decision when investing in a struggling crop?**



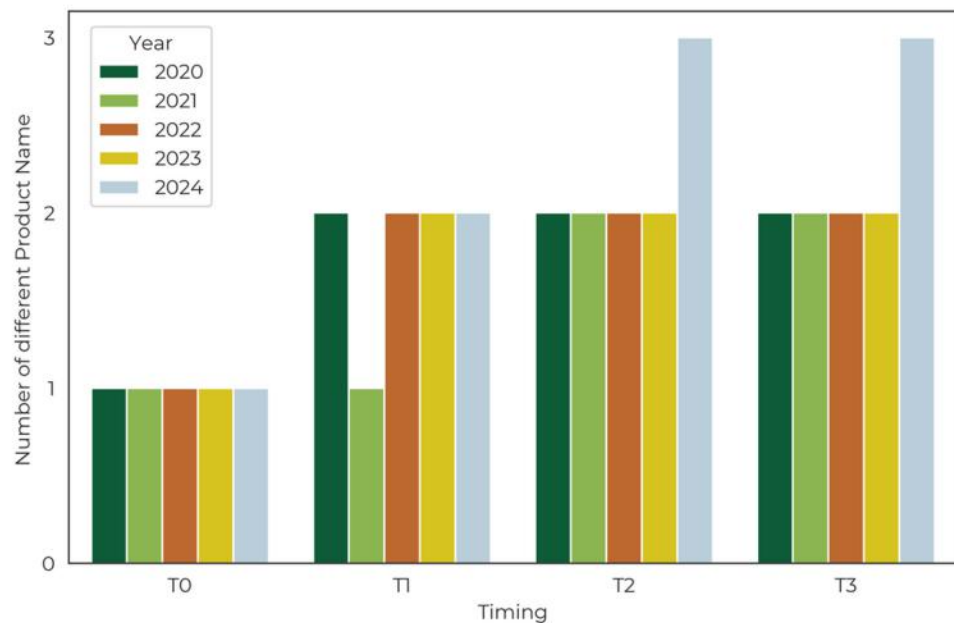
**Chart 42. East Anglia - Average Rainfall and Temperature**



**Chart 43. Median Number of Products Containing Triazole by Timing and Harvest Year in East Anglia**



**Chart 44. Median Number of Different Fungicide Products by Timing and Harvest Year in East Anglia.**



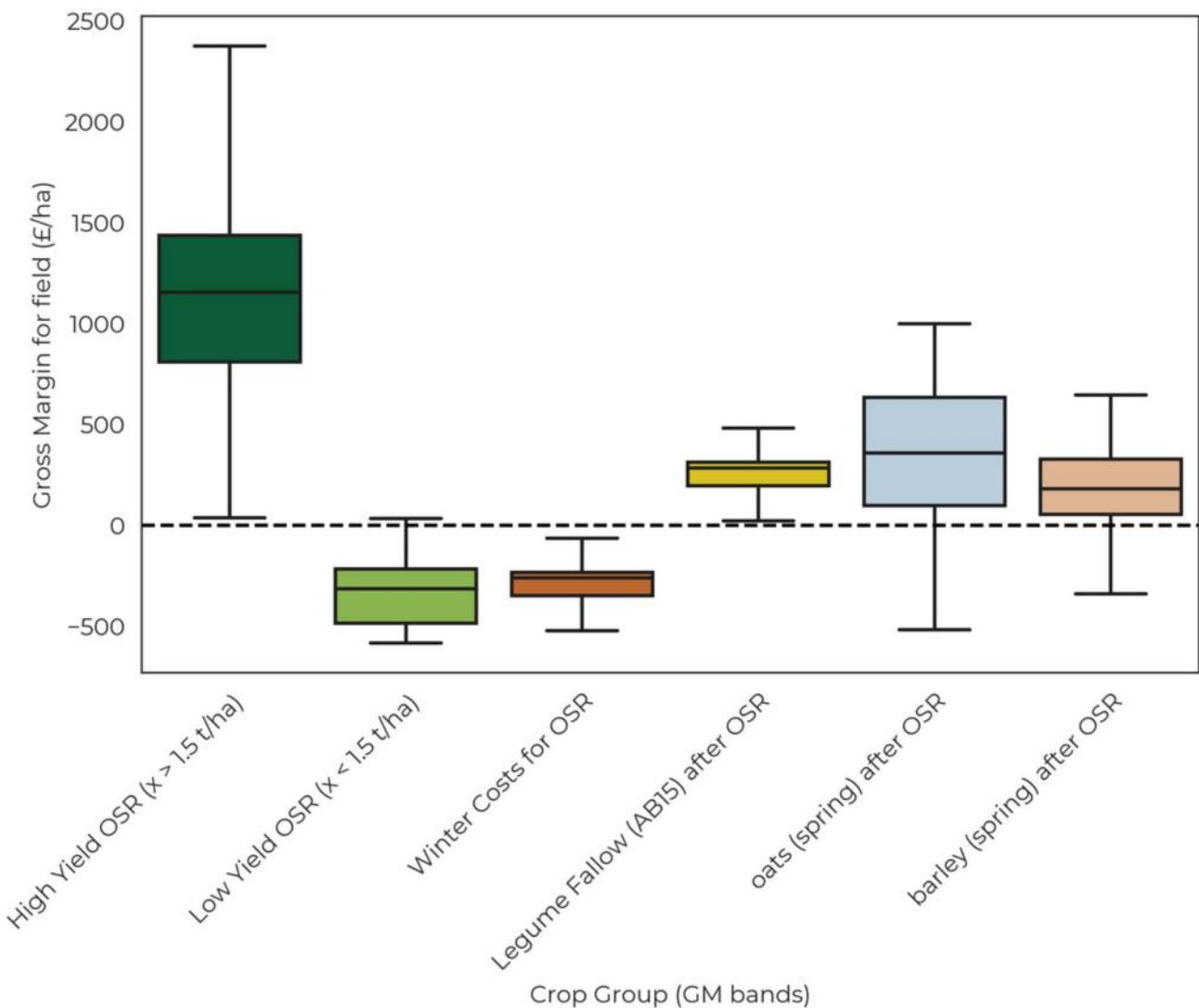
## Managing Risk and Investment Decisions

Ultimately, decisions come down to an individual farm's risk appetite. Understanding your farm's potential, your individual fields, and external factors like sold forward contracts or breakeven figures are all crucial.

### If a crop isn't performing, what do you do? Redrill or continue with a poor crop?

This was the challenge facing OSR in 2020 and 2024. In Chart 45, we analysed all fields originally designated for OSR and looked at the gross margin from the resulting crop. The outcome was clear: when OSR establishes well, it pays. But in 2024, many crops turned into loss-makers, especially since fixed costs weren't included in this analysis.

**Chart 45. Gross Margin Estimations Per Crop**



## Learning from Success

Back in 2022, we spoke with Alan Clifton Holt from AA Clifton in Kent, who won our Best in Field Award for achieving the lowest cost of production for OSR at £88.29 per tonne.

Alan was clear, and his approach is backed up by analysis: "We're ruthless with our OSR, cutting out any field that doesn't establish well by November." He drilled 40 hectares, resulting in his award-winning cost, but chose not to continue with another 60 hectares due to poor establishment.

Alan's pragmatic approach saw him treating OSR seeds as a cover crop - viewing them as an investment in the soil, rather than a failed crop. This is about risk management - pulling out before investing heavily, avoiding the full spend and getting poor returns.

**“To me its all about the risk of it, we make the decision whether to take the crop forward in November just before we start to spend serious money on it.”**

Alan Clifton Holt - AA Clifton

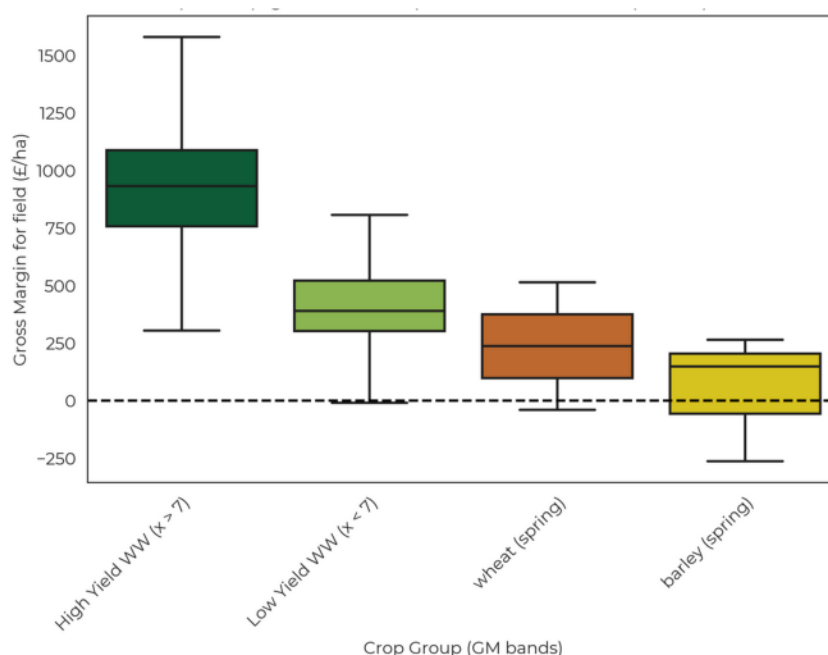
## A Broader Perspective on Decision-Making

It's not just OSR that benefits from this approach. What do you do if wheat is looking poor? Is it better to rip it out or adjust your approach to maximise gross margin?

Understanding your breakeven, staying on top of tracking and budgeting, and working closely with your agronomist all play a role. Sharing data with all stakeholders can make a significant difference during the season.

Check out Chart 46 for our analysis on the best route forwards with a struggling wheat crop...

**Chart 46.**  
**Gross Margin Per**  
**Crop Given All**  
**Were Planned to**  
**be Winter**  
**Wheat in 2024**



## The key question is: what is your appetite for risk, and how do you manage it?

If we pull some figures together for Winter Wheat, let's set a budget for this year.

### Applications:

Seed: £89.25/ha  
Fertiliser: £380/ha  
Chemicals: £246/ha

### Operations

Cultivations: £115/ha  
Drilling: £80/ha  
Fertilising: £78/ha  
Spraying: £90/ha  
Harvesting: £135/ha  
Other Costs: £0/ha

### Output

Yield: 9.5t/ha  
Sale Price: £195/t  
Straw Sales: £100/ha

**Gross Margin: £1237.25 per Hectare**

**Net Margin: £739.25 per Hectare**

For output, we are looking to achieve a yield of 9.5t/ha with an average sales price of £195/tonne and selling straw at £100/ha. With these figures, we would make a Gross Margin of £1237.25/ha and a Net margin of £739.25/ha. Our Break Even Price for our Wheat is £117.18/t.

The sensitivity analysis shows how yield and sale price will impact our budget.

		Yield (t/ha)										
		7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0
Price (£/t)	145	£-98	£-26	£47	£119	£192	£264	£337	£409	£482	£554	£627
	155	£-28	£49	£127	£204	£282	£359	£437	£514	£592	£669	£747
	165	£42	£124	£207	£289	£372	£454	£537	£619	£702	£784	£867
	175	£112	£199	£287	£374	£462	£549	£637	£724	£812	£899	£987
	185	£182	£274	£367	£459	£552	£644	£737	£829	£922	£1014	£1107
	195	£252	£349	£447	£544	£642	£739	£837	£934	£1032	£1129	£1227
	205	£322	£424	£527	£629	£732	£834	£937	£1039	£1142	£1244	£1347
	215	£392	£499	£607	£714	£822	£929	£1037	£1144	£1252	£1359	£1467
	225	£462	£574	£687	£799	£912	£1024	£1137	£1249	£1362	£1474	£1587
	235	£532	£649	£767	£884	£1002	£1119	£1237	£1354	£1472	£1589	£1707
	245	£602	£724	£847	£969	£1092	£1214	£1337	£1459	£1582	£1704	£1827



## Causes of Cabbage Stem Flea Beetle

An increase in cabbage stem flea beetle (CSFB) populations in oilseed rape crops can be attributed to several key factors, many of which are interconnected.

Here are the primary causes

### 1. Mild Winters

Mild winters allow more adult cabbage stem flea beetles to survive, leading to a higher number of beetles emerging in the spring. Warmer winters also lead to an earlier onset of beetle activity.

### 2. Reduced Insecticide Effectiveness

Over time, cabbage stem flea beetles can develop resistance to certain chemical insecticides, particularly pyrethroids, which are commonly used to control them.

### 3. Lack of Natural Predators

Changes in land management, pesticide use, and biodiversity loss have reduced the populations of natural predators. Insects such as ground beetles and parasitic wasps can help keep CSFB numbers in check.

### 4. Removal of Neonicotinoids

Neonicotinoid seed treatments were banned in the EU and the UK due to concerns over their impact on pollinators. These treatments were highly effective at controlling cabbage stem flea beetles, and since their ban, many farmers have struggled to find equally effective replacements, leading to increased beetle pressure.

(See our Chemical and Fertiliser review for a more in depth look at the impact of the removal of Neonicotinoids.)

### 5. Extended Autumn Warmth

Warmer, extended autumns allow the beetles more time to lay eggs and complete their life cycle. This leads to an increase in larvae numbers and subsequently more adult beetles for the following season. Additionally, this extended period gives larvae more opportunity to cause damage to young OSR plants.

### 6. Delayed Crop Establishment

If OSR crops are slow to establish, they are more vulnerable to beetle attacks. Delayed establishment may be caused by dry soil conditions or late planting, giving beetles the opportunity to attack plants when they are most vulnerable, particularly at the seedling stage.

### 8. Environmental Conditions

Specific weather conditions, such as dry autumns followed by periods of rainfall, can also play a role in the population dynamics of cabbage stem flea beetles. Dry conditions stress the plants, making them more vulnerable to beetle attacks, while later rains may promote beetle activity and egg-laying.

### 7. Monocropping and Lack of Crop Rotation

Growing OSR in the same fields year after year without sufficient rotation increases beetle pressure, as it allows populations to build up over time. Beetles can overwinter in the soil and emerge when the next OSR crop is planted, creating a cycle of infestation.



## Weather

### Data sources for weather:

Rainfall for mapping from Met Office CEDA HAD-UK grid (1km).

Cited as: Met Office; Hollis, D.; Carlisle, E.; Kendon, M.; Packman, S.; Doherty, A. (2024): HadUK-Grid Gridded Climate Observations on a 1km grid over the UK, v1.3.0.ceda (1836-2023). NERC EDS Centre for Environmental Data Analysis, 18 July 2024.  
doi:10.5285/b963ead70580451aa7455782224479d5.

Daily rainfall data (England & Wales) used for herbicide/drilling graphs from Met Office HAD-UKP dataset.

Cited as: Alexander, L.V. and Jones, P.D. (2001) Updated precipitation series for the U.K. and discussion of recent extremes, Atmospheric Science Letters doi:10.1006/asle.2001.0025.

Monthly rainfall by region used for fungicide analysis from Met Office UK & Regional series, based on the HAD-UK grid dataset.

All Met Office data used is available under an [Open Government Licence v3.0](#)

Verified field level YAGRO cost and yield data alongside YAGRO crop level sales/contract data split into feed/milling.

### Methodology:

**Drilling:** Winter Wheat only - no drill dates included after 31st of January of a harvest year. Farms with all fields drilled on 1st of September were removed from the analysis (suggests placeholder data only). Number of drilled fields aggregated by date & assigned to a harvest year e.g HY 2024 = 01/08/23 - 31/07/24. Percentage calculated based on total number of winter wheat fields included in the analysis.

**Herbicide:** Number of applications of herbicide (based on product classification) aggregated by date & assigned to a harvest year. Percentage calculated based on total number of winter wheat fields included in the analysis.

**Fungicide:** Farms split by region as determined by Met Office UK & Regional series, fungicide timing windows split by application peak identification as below. FRAC database used to determine chemical group (triazole) from product ingredients.

T0: 01Mar - 15Apr

T1: 15Apr - 9May

T2: 9May - 1Jun

T3: 1Jun - 1Jul

**Yields:** Field level yields linked to weather data from Met Office CEDA HAD-UK grid (1km)

# So What?

As we wrap up Harvest 24 Review, one question lingers in the minds of many farmers: what do we actually do with all this information?

A few weeks ago, I attended a farming meeting, and one farmer's comment struck a chord. He stood up and said, ***"We're being asked to spend more every year, but the price we're getting for outputs is so variable. How are we supposed to make this work?"***

The pressure is real. And the challenges keep stacking up. Even with a gradual return to more stable nitrogen prices, we're seeing many farmers applying less nitrogen than they were just a few years ago. Compared to 2019, nitrogen applications have dropped notably.

This season, however, we've seen a side effect: a decrease in grain meeting milling specifications. Farms that held back saw the impact on quality and returns, with fewer hitting the premium milling thresholds.

And then, we had the rain. A wet autumn washed nitrogen reserves & other nutrients from the soil, further reducing crop quality and yield potential. For some, the response was simply to "close the chequebooks" and accept that it was going to be a tough year. But interestingly, farms that chose to invest strategically, even as conditions turned unpredictable, managed to make their crop meet milling standards.

**So, what can we take from this? The answer isn't easy, but it starts with rethinking investment.**

Investing in your crops isn't just about throwing money at inputs; it's about understanding where that money will have the most impact. This requires knowing your land intimately - your varieties, your fields, and what they need to thrive under varying conditions.

Farming has always required a high level of investment both in terms of initial investment, and seasonally; investing for eleven months before gathering your return in one month, all whilst navigating the weather, cashflow, interest rates and commodity markets. Few other industries have such a challenge. How do you prepare to meet these risks and seasonal volatilities, let alone planning further ahead?

If the information in this Review teaches us anything, it's that every farm is different, and a one-size-fits-all approach rarely works. With the right data, tailored to your unique setup, you'll be able to see where investments are worth making - even in a challenging year.

If you're looking for answers or to discuss what the future might hold, reach out to me and the team at YAGRO. Together, we can help you answer that question posed by your fellow farmer: how do we make this work? Let's find the best path forward for your farm, starting with informed decisions that truly drive value.



**Emma Kelcher**

**Commercial Lead, YAGRO.**

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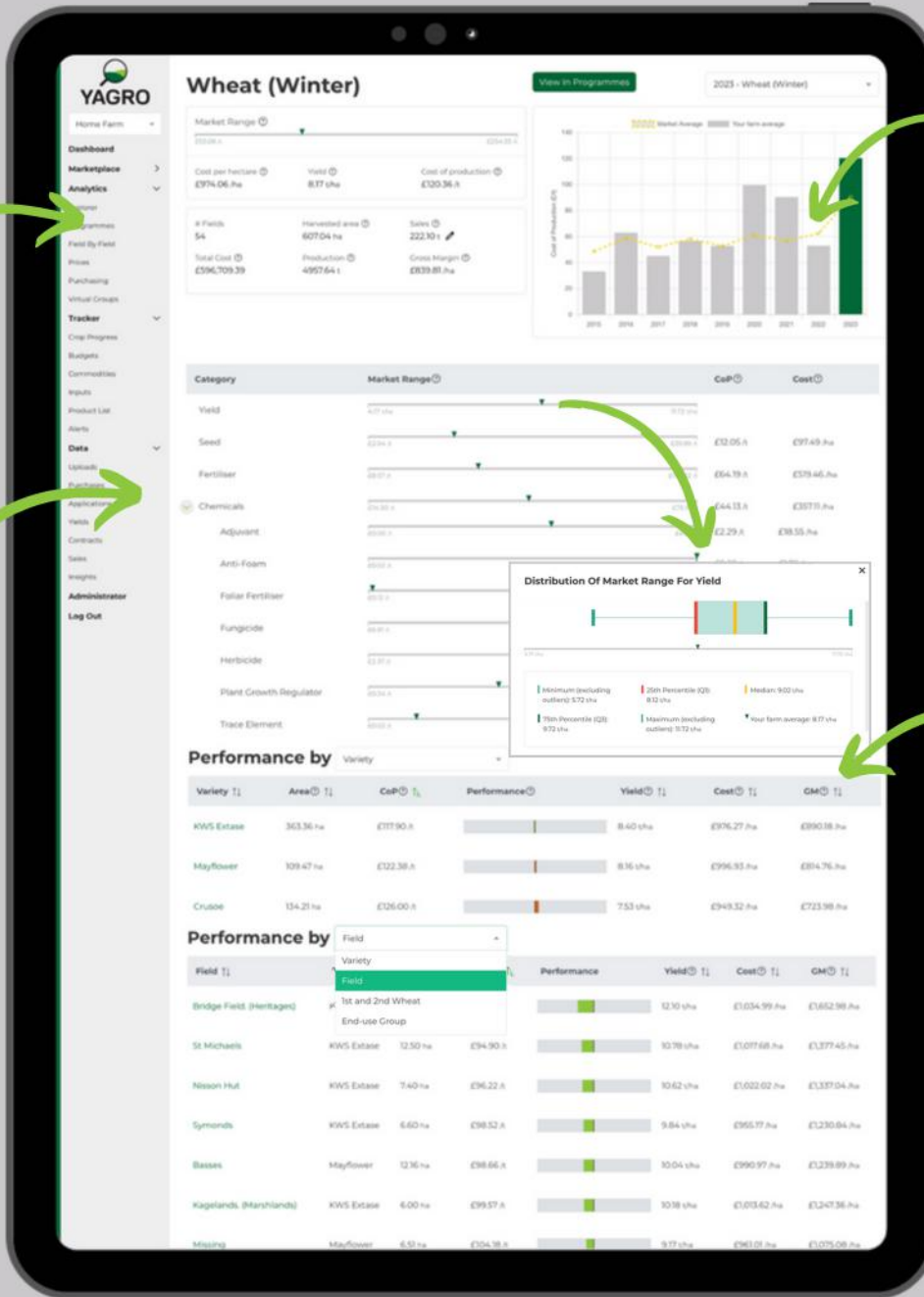


# IS YOUR FARM TRYING TO TELL YOU SOMETHING?

**ANALYSE  
YOUR  
FARM**

Review, understand and critique every decision made

Drill down to view your cost of production for each input

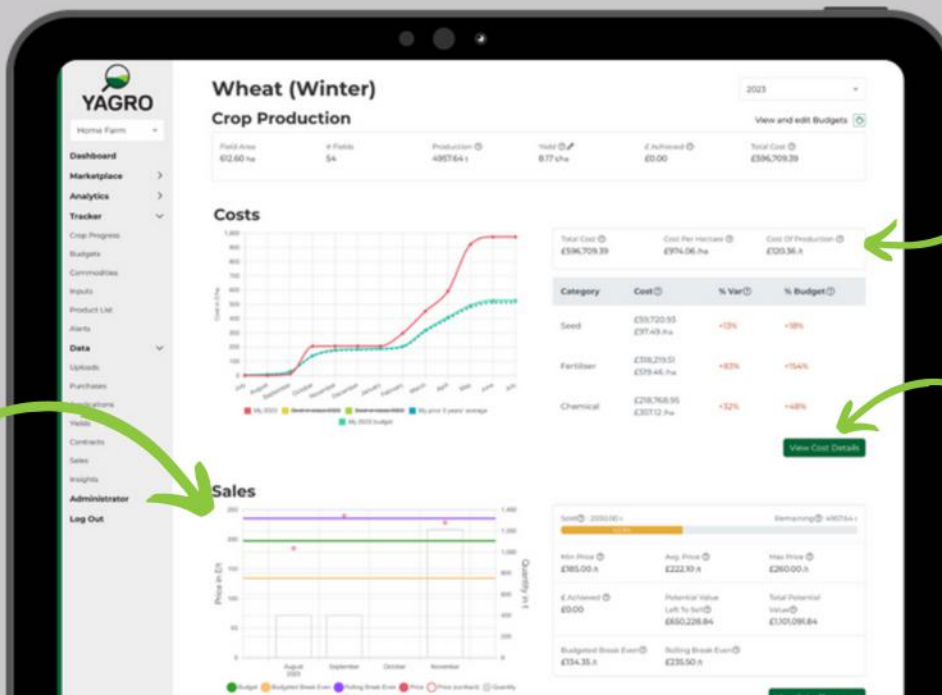


View and compare year on year performance

Understand your variety, end use market, group and field financial performance in seconds.

**TRACK  
YOUR  
SEASON**

Track your grain in store, potential value, sales and prices vs your budget



Instant crop overview of costs to date and sold positions

Chart and measure your input spend per ha vs 3 year average or against a budget



FOR ACCESS TO OUR ONLINE VERSION

**HARVEST 24**  
REVIEW