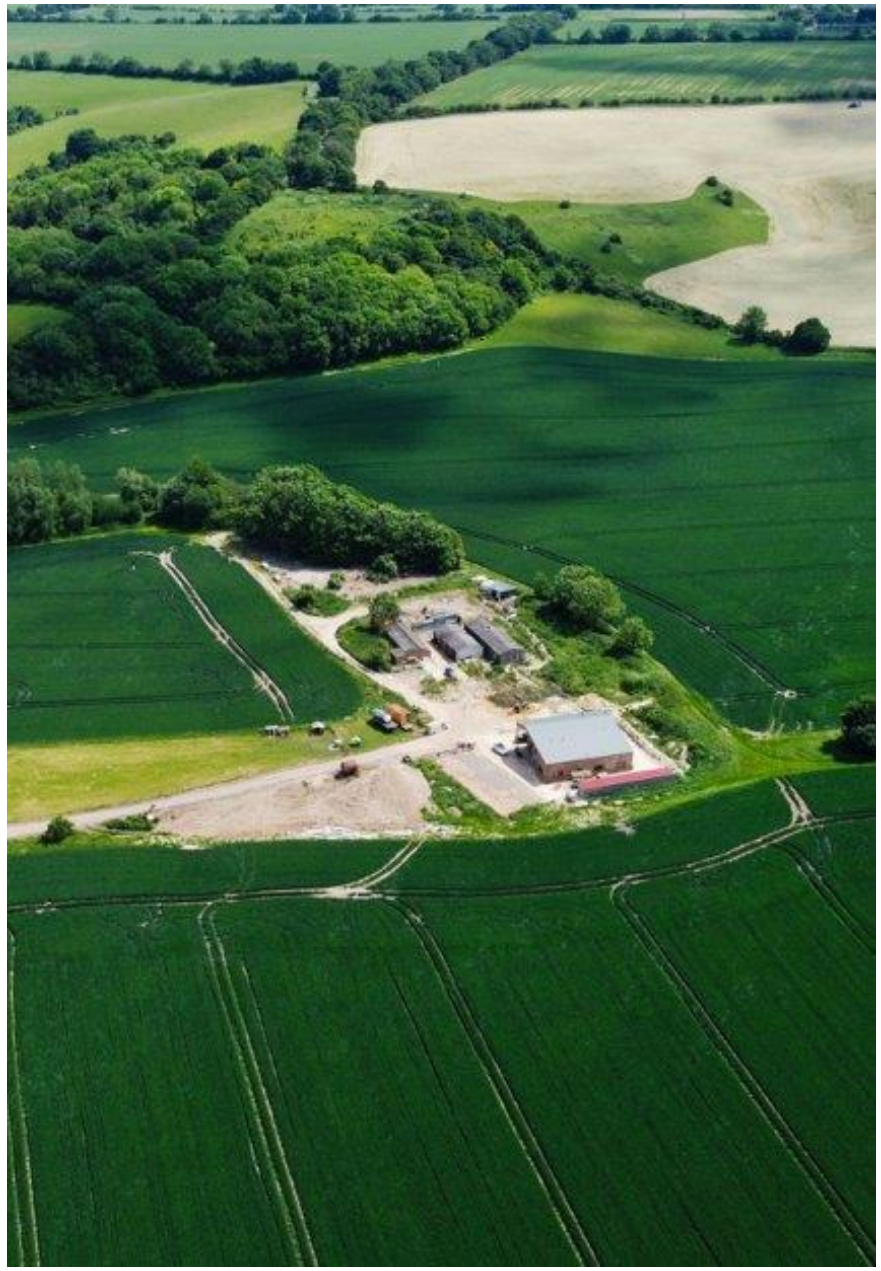

CERES
RESEARCH
AGRONOMY CLUB – MAY 2025
WEATHER IMPACTS, NITROGEN & ROTATIONS



AGENDA

- Welcome, introductions & housekeeping
- Weather review
- Yield and quality expectations for this year
- Nitrogen utilisation & T2/3 applications
- New season nitrogen prices
- Crop rotation options for next year
- Open discussion
- Future meeting dates

MEET THE SPEAKERS

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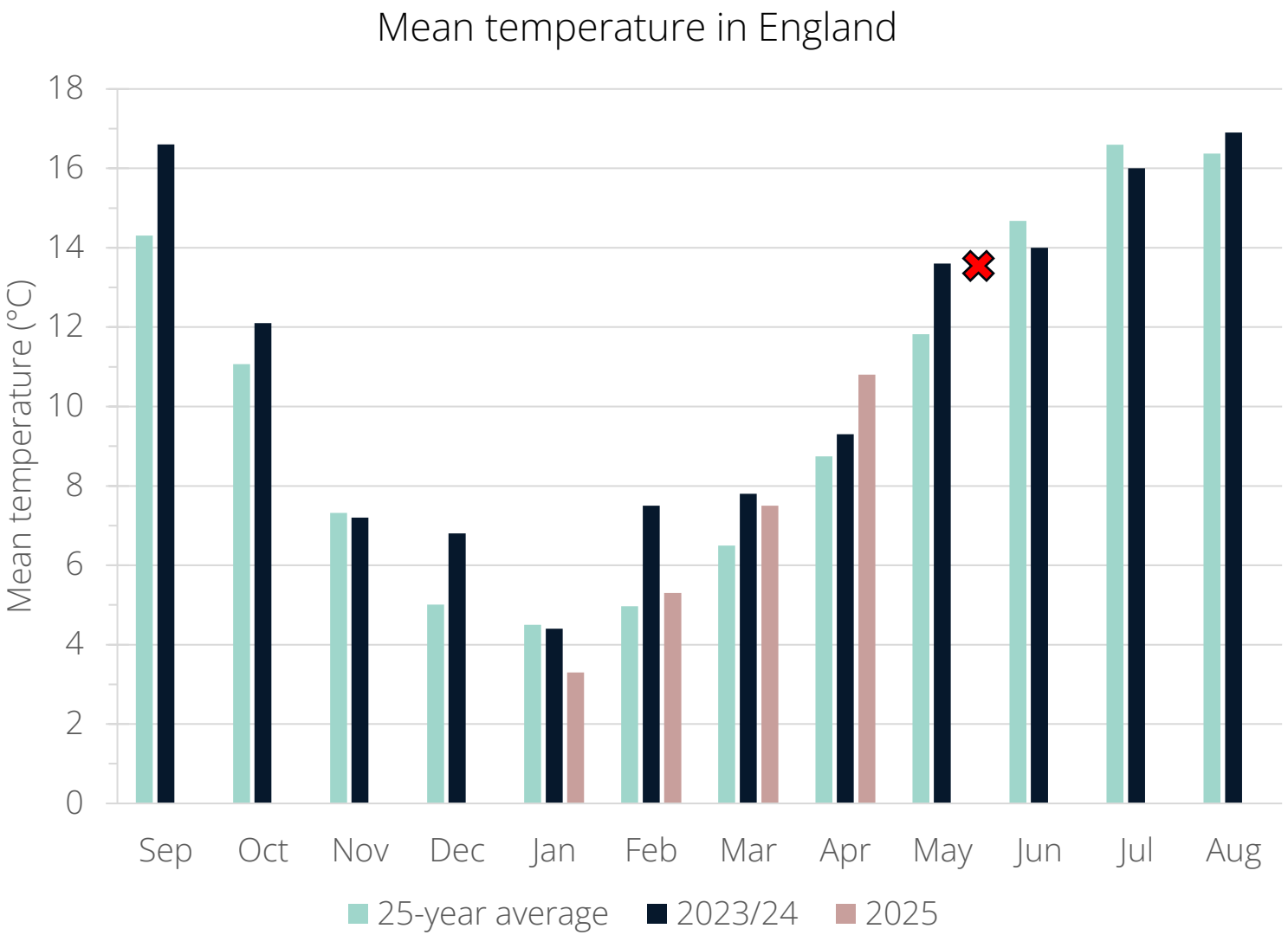
JOCK WILLMOTT
DIRECTOR & AGRONOMIST

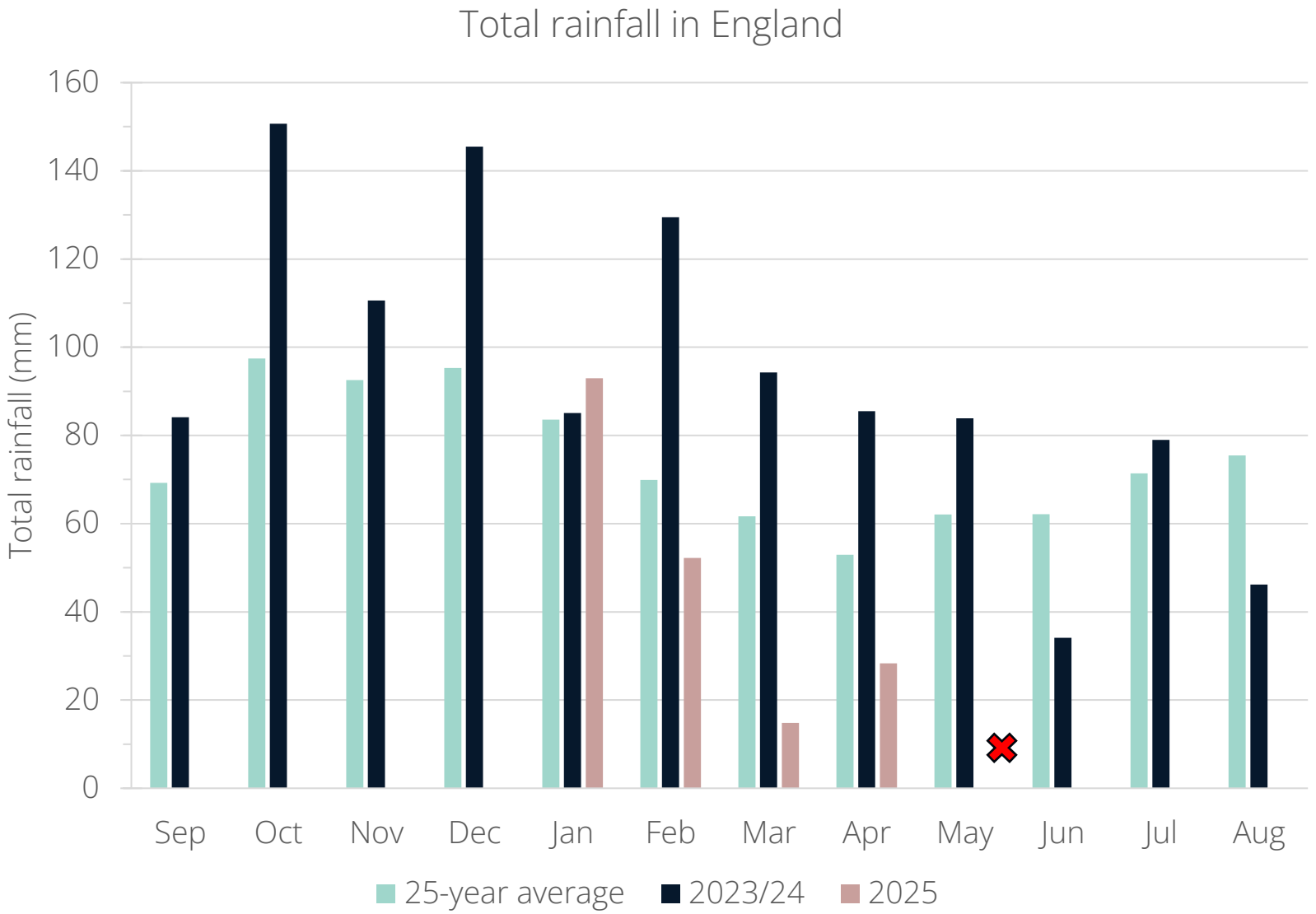
TEMPERATURE PATTERNS



- Not as hot as last year, until April
- Average in May so far is c. 12°C (X on graph)
- Climate Change impacting the rate at which Spring warms up
- 2.1°C difference between April this year and 25-year average

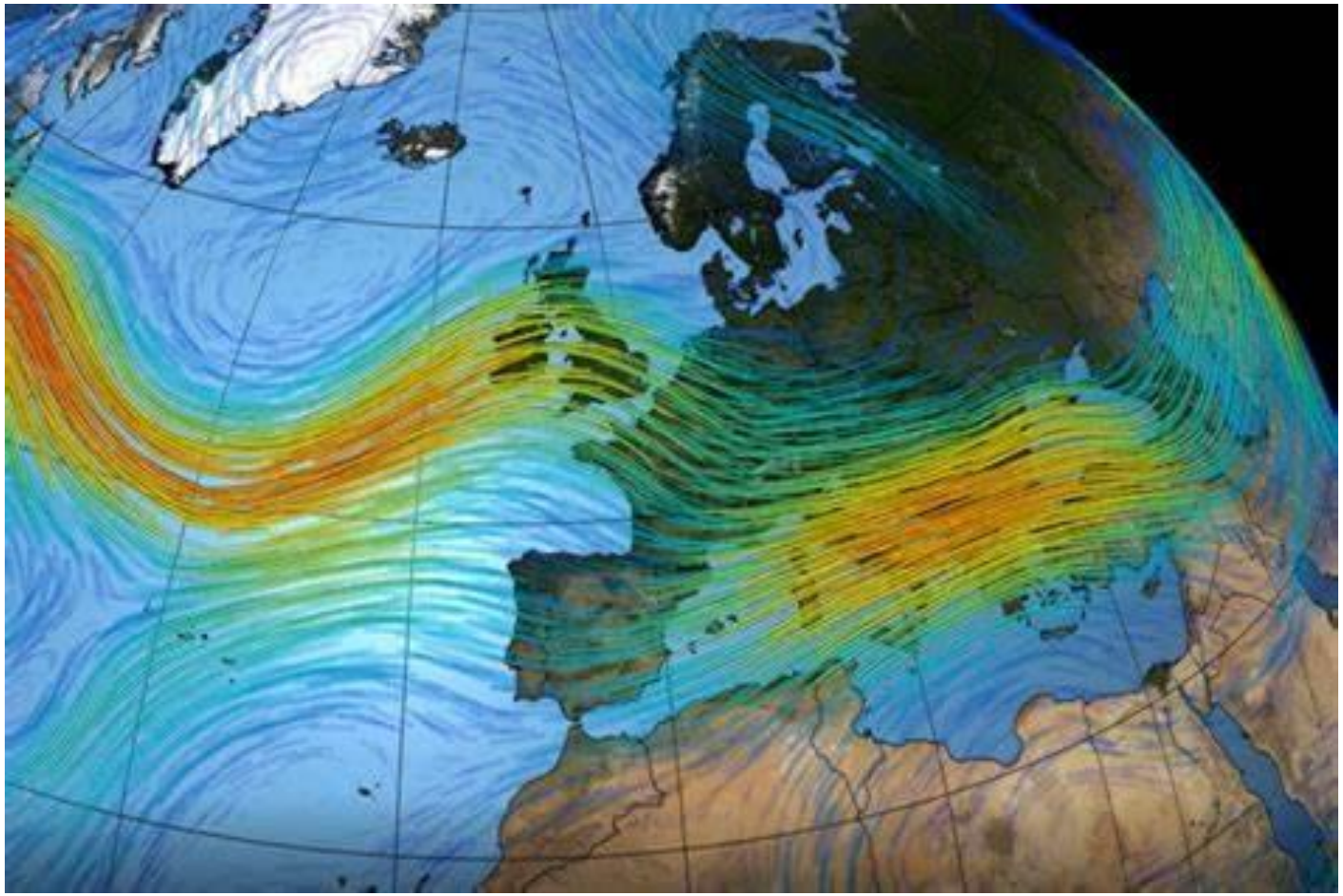
RAINFALL PATTERNS

- **March** was 84% lower than this time last year & 76% lower than the 25-year average
- **April** was 67% & 46% lower respectively
- Average in May so far is < 10 mm
- **Reasons;** climate change and East Atlantic / Western Russia surface air pressure pattern



EAST ATLANTIC SURFACE AIR PRESSURE PATTERN

- Affects jet stream, storm tracks & moisture across Europe
- Oscillating pattern changes from year to year
- Multi-decadal variability (i.e. 10-year pattern)
- Driving reduced rainfall patterns

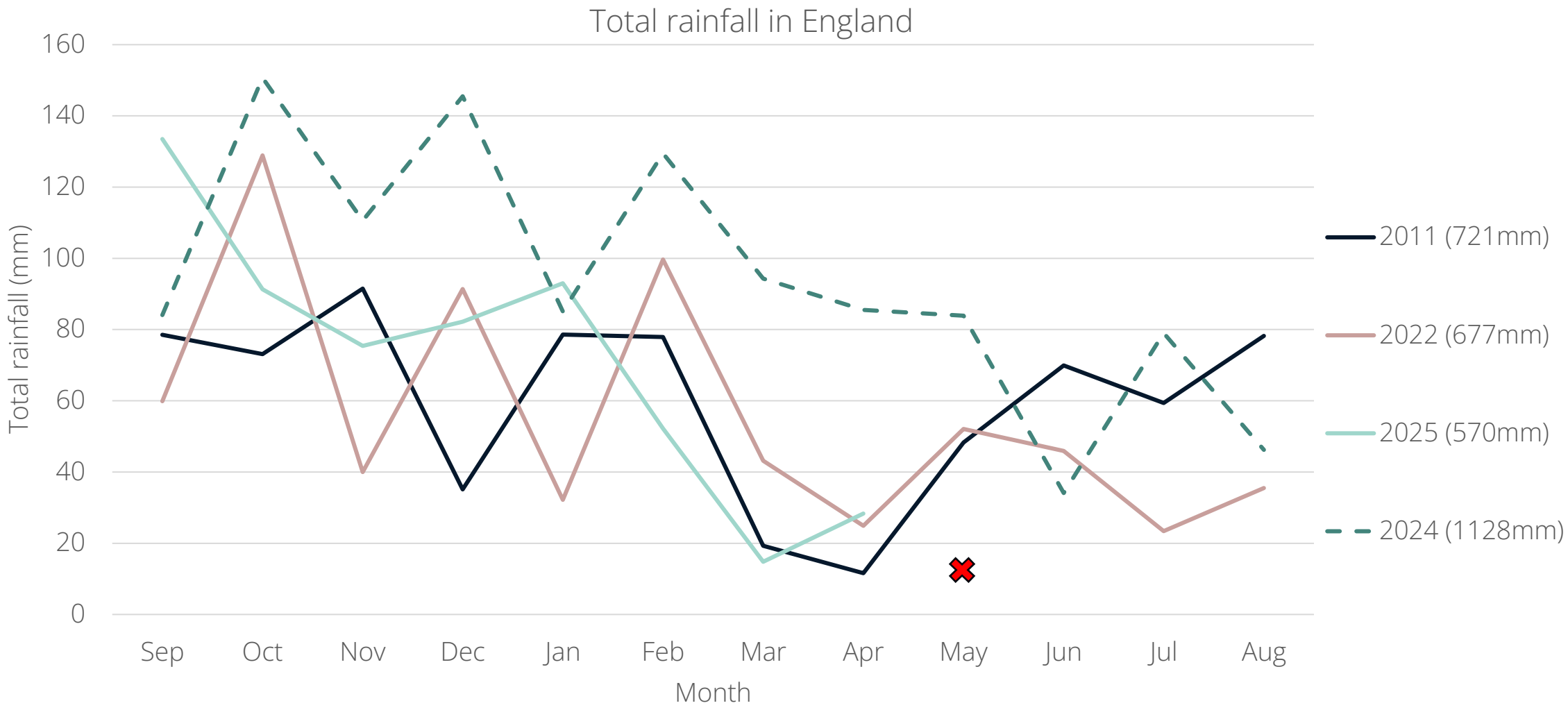


DROUGHT & TEMPERATURE IMPACTS; WHEAT

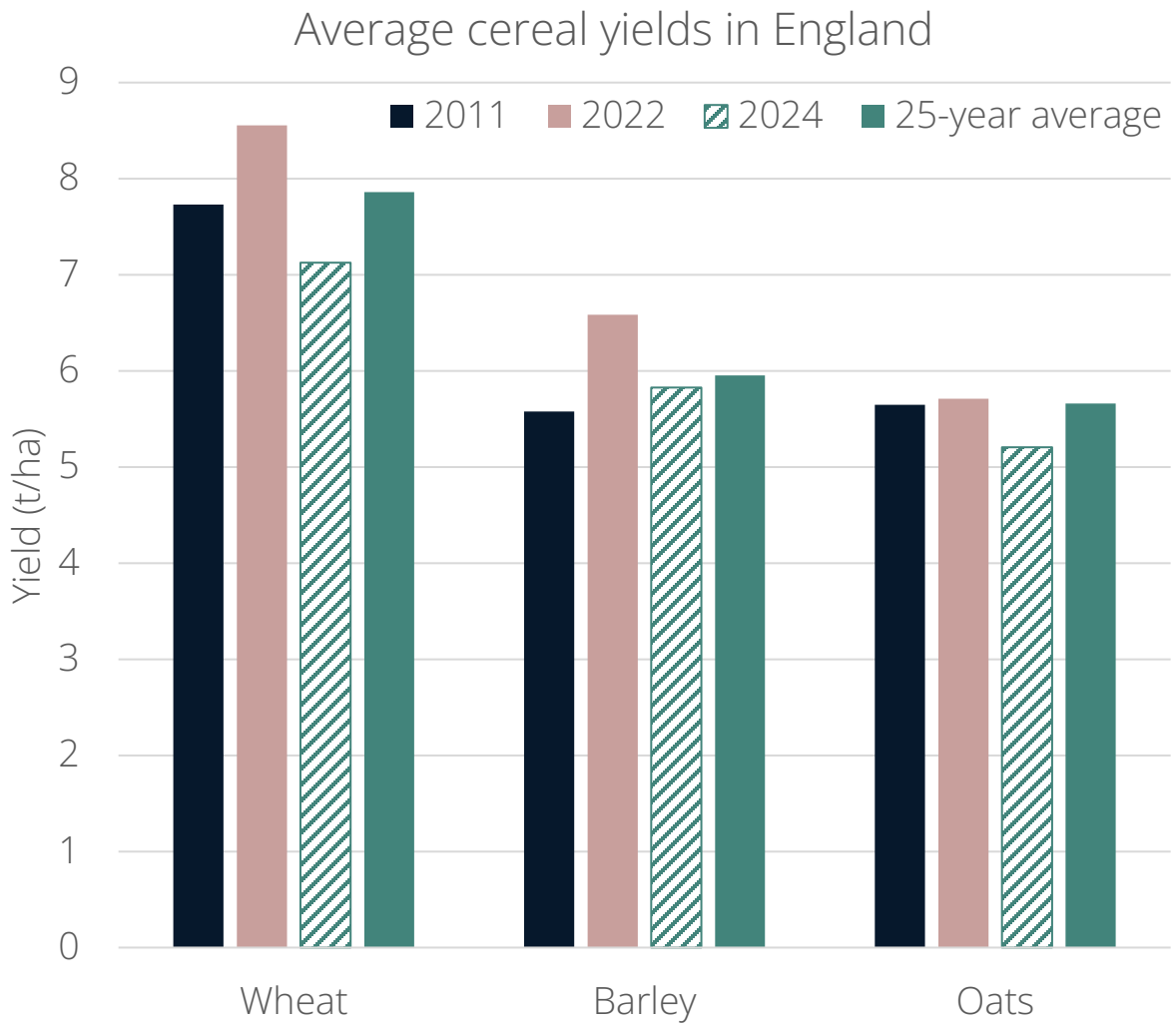
CRITERIA	DROUGHT	HIGH TEMPERATURE
Growth stage	Heading and grain filling	Flowering and grain filling
Yield loss	c. 1-2 t/ha, up to 2.6t/ha (UK)	20-50% (yield impact can exceed that of drought when temps >35°C) (Global)
Mechanism	Reduces photosynthesis (through water conservation), limits grain filling & biomass. **Wait it out**	Reduces grain number & size, accelerates aging/deterioration (protein degradation, cell damage to integrity).
Recovery potential	Sometimes recoverable if rainfall resumes	Difficult to recover

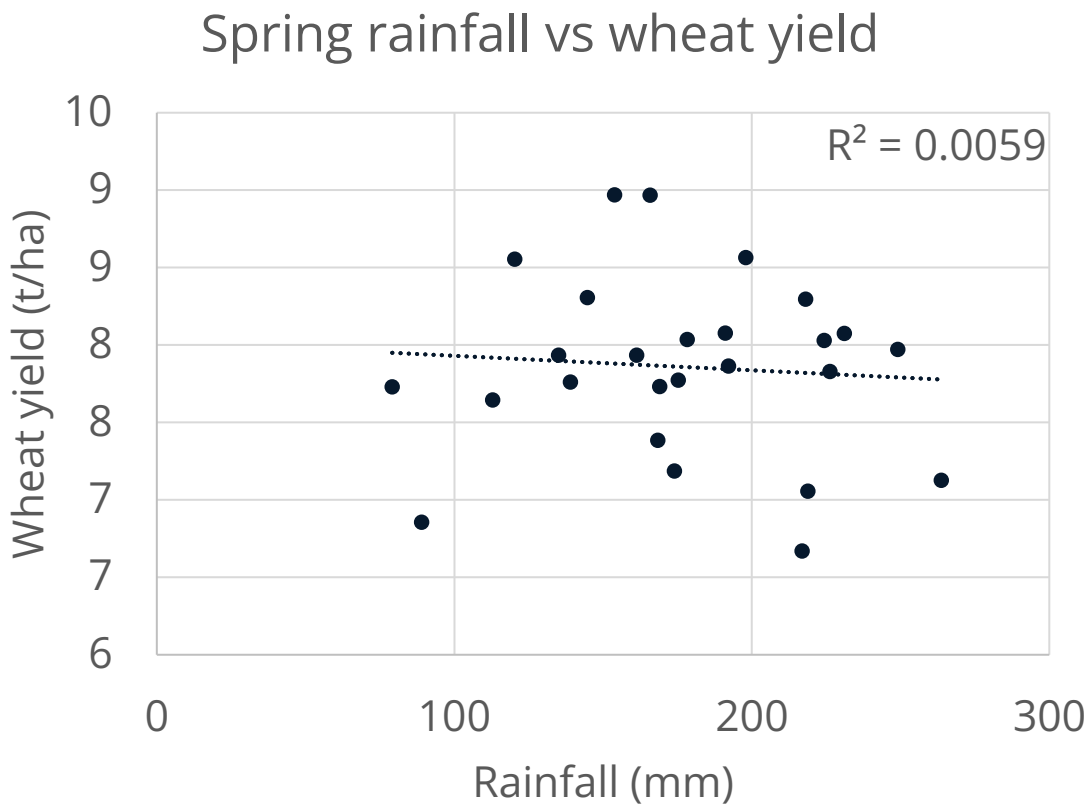
Sources: Nature Climate Change, Science Direct, BMC Plant Biology journals

RAINFALL PATTERNS & YIELDS



RAINFALL PATTERNS & YIELDS





Source: Defra Yield Survey

YIELD EXPECTATIONS

UK picture as of 28th April:

- Most crops in 'good' condition – normal yield prospects, and moisture levels are adequate.
- 'Fair' condition crops – yield loss is a possibility, but the extent of which hangs in the balance…

	Very poor	Poor	Fair	Good	Excellent	Crops not yet planted or emerged
Winter wheat	2%	6%	32%	53%	7%	0%
Winter barley	1%	5%	27%	59%	8%	0%
Winter oats	0%	4%	24%	64%	8%	0%
Winter OSR	3%	7%	31%	48%	12%	0%
Spring wheat	0%	1%	31%	56%	11%	1%
Spring barley	1%	2%	22%	57%	17%	1%
Spring oats	0%	3%	26%	57%	12%	2%

Source: AHDB Crop Development Report, ***as of 28th April.***

YIELD & QUALITY EXPECTATIONS – WHEAT

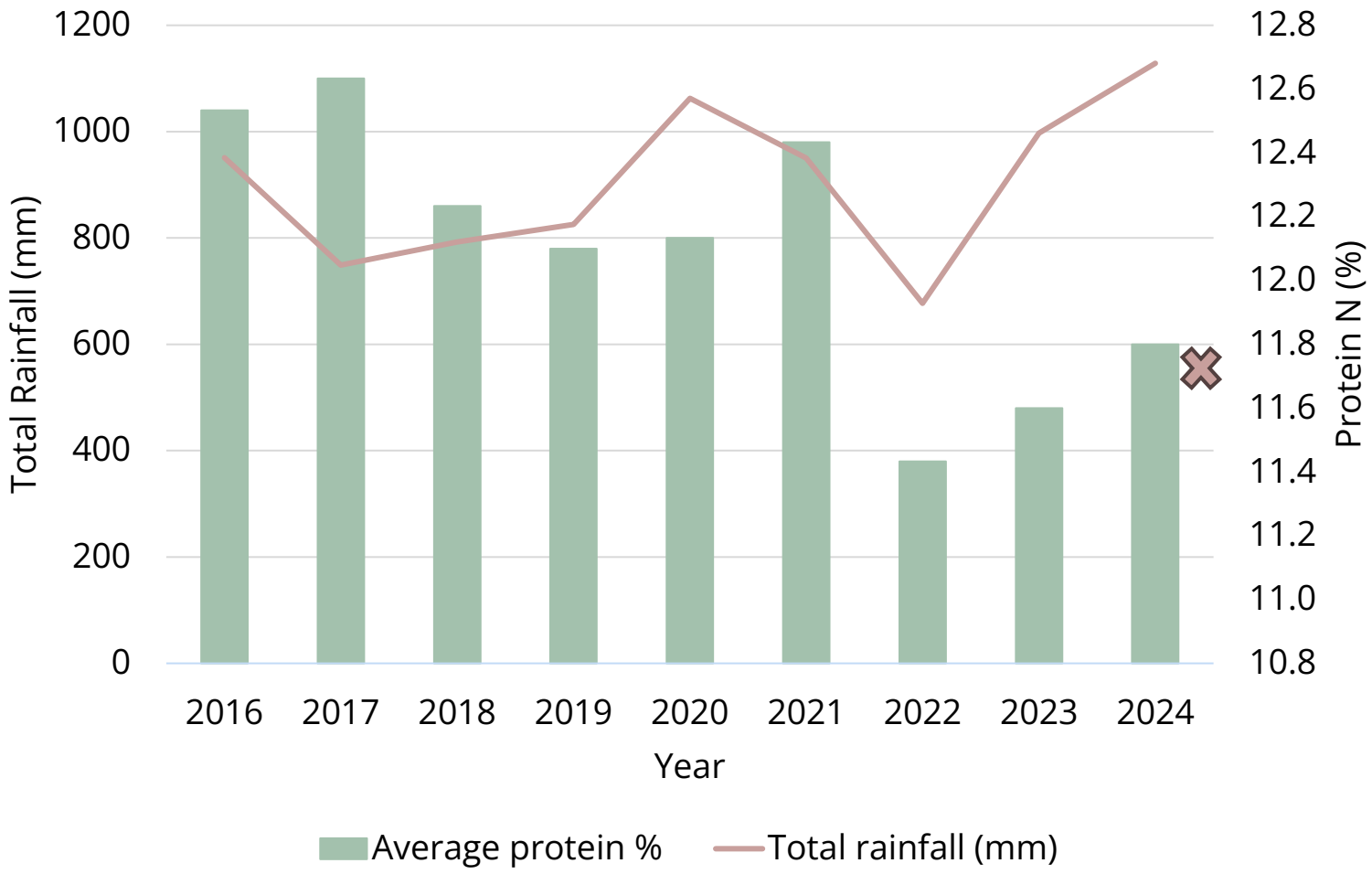
- Would typically expect an inverse relationship between yield and grain protein – higher yields are often associated with lower grain protein concentration (Dilution Effect). Nutrients become 'diluted' across a larger mass of grain.

YEAR	YIELD T/HA	GP 1 GRAIN PROTEIN %	WINTER (MM)	SPRING (MM)	TOTAL (MM)
High Yield 5 Year Av	8.7	11.8	141	248	389
Low Yield 5 Year Av	7.1	11.9	192	281	473
2024	7.1	10.9	228	246	525

Source: AHDB Yield & Grain protein content, Cambridge University Weather Station 2007 – 2024.

- Data indicates other factors are at play beyond the Dilution Effect, e.g. rainfall, temperature.

QUALITY EXPECTATIONS – MILLING WHEAT



- Significant drop in protein N in 2022
- Trend of increasing protein N with total rainfall from 2022 onwards
- Inconclusive rainfall trends

Source: AHDB Cereal Quality Survey 2024 and Met Office weather data.

Nitrogen & T2/3 APPLICATIONS

- Nitrogen applications to date

Minimum amount of RAINFALL to dissolve and move nitrogen into rooting zone

💧 General Guidance for UK Conditions

Fertiliser Type	Minimum Rainfall Needed	Purpose
Urea	10–15 mm (0.4–0.6 inches)	To minimise volatilisation losses and help it move into the soil
Ammonium Nitrate	5–10 mm (0.2–0.4 inches)	Less prone to volatilisation; light rain usually sufficient
Granular NPK	10–20 mm (0.4–0.8 inches)	To dissolve granules and move nutrients into soil pores
Liquid Fertiliser	2–5 mm (0.08–0.2 inches)	Absorbs quickly; minimal rainfall needed

> ⚠️ Note: Light rain (<5 mm) may **not fully incorporate** fertiliser but can help prevent losses. **Heavy rain (>25 mm)** in one event can cause **leaching or runoff**, especially on sloped or compacted ground.

Nitrogen & T2/3 APPLICATIONS

- Extra Nitrogen for milling wheat protein ??
- No real patterns from data
  - High spring rainfall - lower trending protein
  - There must be more available nitrogen this year for later uptake ?
  - Crop Root length should be good – crops good colour

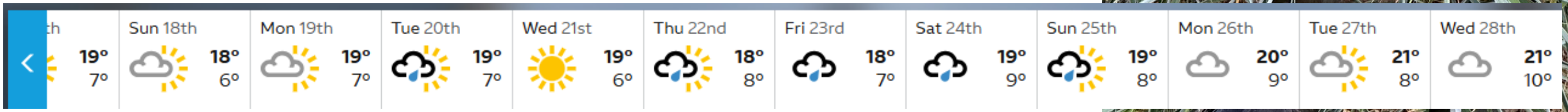
Product	Kg/N Applied	£/T/Cube	£/ha	Application Cost £/ha	£/ha	£/t
Nitram	40	340	39	5	44	5.2
Foliar 20%	40	240	48	15	63	7.5

- Premiums c. £40/t = £340/ha @ full spec.
- Root test & Tissue test to monitor for next 4 weeks.
- Treat the group 1's ?
- Don't treat the group 2's ?
- Variable rate – switch on/off

Nitrogen & T2/3 APPLICATIONS

- T2 fungicide applications 2025 - "septoria light"
  - 6 plus hours of continual leaf wetness for spore germination
  - +85% humidity spore germination and spread
  - More rain events = more disease cycles, frequency of showers over Q of rain
  - 3 – 5 days of rainy humid weather to kick septoria off (12 – 25mm of rain)
  - Low septoria pressure / short crops.

- T3 fungicide applications
  - Early/stressed crops could be flowering 29.05?
  - Opportunity to protect against rust / bolster septoria if required
  - Likely to be in dry conditions – reduce ergot potential



NEW SEASON NITROGEN PRICES

- New Season Ammonium Nitrate price anticipated next week.

Product	£/t	£/kg/N	£/80kg/N	Delivery
34.5 %	325	0.94	£75	July - Sept
Gran Urea (NP)	340 - 345	0.76	£61	July - Sept
UAN	June 24 (£343) +S	0.98	£78	Sept (pay Dec)
Urea + S (38 – 42N + S)	333	0.83	£65	Sept - Dec

- Anticipated to be very similar to last year's opening prices in early June.
- Some will get sold at that price.

GROSS MARGINS: 2026 Harvest

Combinable Crop Gross Margins 2026	Feed Winter Wheat			Milling Winter Wheat			Winter Barley			Winter Oilseed Rape			Winter Beans			Milling Winter Oats		
	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High
Yield (t/ha)	8.0	9.0	10.0	8.0	9.0	10.0	7.5	8.5	9.5	2.5	3.0	3.5	3.0	3.5	4.0	5.2	6.2	7.2
Price (£/t)	180	180	180	180	180	180	160	160	160	390	390	390	220	220	220	174	174	174
Premium (£/t)				35	35	35				31	31	31						
Straw £/ha																80	80	80
Output (£/ha)	**1,440**	**1,620**	**1,800**	**1,720**	**1,935**	**2,150**	**1,200**	**1,360**	**1,520**	**1,053**	**1,264**	**1,474**	**660**	**770**	**880**	**985**	**1,159**	**1,333**
Seed (£/ha)	90	90	90	100	100	100	80	80	80	75	75	75	100	100	100	70	70	70
P&K													40	40	40			
Sludge																		
Nitrogen	**221**	**221**	**221**	**250**	**250**	**250**	**173**	**173**	**173**	**240**	**240**	**240**				**125**	**125**	**125**
Nufol/Protein Boost				**48**	**48**	**48**												
Fertiliser (£/ha)	221	221	221	298	298	298	173	173	173	240	240	240	40	40	40	125	125	125
Herbicides	130	130	130	130	130	130	111	111	111	120	120	120	153	153	153	65	65	65
Fungicides	131	131	131	145	145	145	85	85	85	58	58	58	41	41	41	28	28	28
PGR	11	11	11	19	19	19	17	17	17		0	0				15	15	15
Misc	26	26	26	25	25	25	24	24	24	30	30	30	27	27	27	20	20	20
Sprays (£/ha)	298	298	298	318	318	318	236	236	236	208	208	208	221	221	221	127	127	127
Contractor Use																		
Variable Costs (£/ha)	**608**	**608**	**608**	**716**	**716**	**716**	**489**	**489**	**489**	**523**	**523**	**523**	**361**	**361**	**361**	**322**	**322**	**322**
Gross Margin (£/ha)	**832**	**1,012**	**1,192**	**1,004**	**1,219**	**1,434**	**711**	**871**	**1,031**	**530**	**741**	**952**	**299**	**409**	**519**	**663**	**837**	**1,011**

GROSS MARGINS: 2026 Harvest

Combinable Crop Gross Margins 2026	Spring Beans			Spring Malting Barley			Spring Wheat			Spring Oats			Spring Linseed			Sugar Beet			Rotational NUM3		
	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High
Yield (t/ha)	2.8	3.5	4.0	5.5	6.2	7.3	3.0	4.5	6.0	4.0	4.8	5.3	1.2	1.7	2.4	65.0	75.0	85.0	1.0	1.0	1.0
Price (£/t)	220	220	220	160	160	160	180	180	180	174	174	174	520	520	520	28	28	28	593	593	593
Premium (£/t)				30	30	30	35	35	35												
Straw £/ha										50	50	50									
Output (£/ha)	**616**	**770**	**880**	**1,045**	**1,178**	**1,387**	**645**	**968**	**1,290**	**746**	**885**	**972**	**624**	**884**	**1,248**	**1,820**	**2,100**	**2,380**	**593**	**593**	**593**
Seed (£/ha)	135	135	135	100	100	100	100	100	100	75	75	75	90	90	90	320	320	320	60	60	60
P&K																**120**	**120**	**120**			
Sludge																					
Nitrogen				**115**	**115**	**115**	**173**	**173**	**173**	**77**	**77**	**77**	**77**	**77**	**77**	**115**	**115**	**115**			
Nufol/Protein Boost																					
Fertiliser (£/ha)	0	0	0	115	115	115	173	173	173	77	77	77	77	77	77	235	235	235	0	0	0
Herbicides	167	167	167	112	112	112	71	71	71	42	42	42	76	76	76	185	185	185	20	20	20
Fungicides	28	28	28	45	45	45	53	53	53	29	29	29	15	15	15	48	48	48	0	0	0
PGR				12	12	12	6	6	6	10	10	10		0	0					0	0
Misc	27	27	27	2	2	2	3	3	3	3	3	3	7	7	7	47	47	47	0	0	0
Sprays (£/ha)	222	222	222	171	171	171	132	132	132	84	84	84	98	98	98	280	280	280	20	20	20
Contractor Use																270	270	270			
Variable Costs (£/ha)	**357**	**357**	**357**	**386**	**386**	**386**	**405**	**405**	**405**	**236**	**236**	**236**	**265**	**265**	**265**	**1105**	**1105**	**1105**	**80**	**80**	**80**
Gross Margin (£/ha)	**259**	**413**	**523**	**659**	**792**	**1,001**	**240**	**562**	**885**	**510**	**649**	**736**	**359**	**619**	**983**	**715**	**995**	**1,275**	**513**	**513**	**513**

GROSS MARGINS: 2026 Harvest

Combinable Crop Gross Margins 2026	Winter Oilseed Rape		
	Low	Mid	High
Yield (t/ha)	2.5	3.0	3.5
Price (£/t)	390	390	390
Premium (£/t)	31	31	31
Straw £/ha			
Output (£/ha)	**1,053**	**1,264**	**1,474**
Seed (£/ha)	75	75	75
P&K			
Sludge			
Nitrogen	**240**	**240**	**240**
Nufol/Protein Boost			
Fertiliser (£/ha)	240	240	240
Herbicides	120	120	120
Fungicides	58	58	58
PGR		0	0
Misc	30	30	30
Sprays (£/ha)	208	208	208
Contractor Use			
Variable Costs (£/ha)	**523**	**523**	**523**
Gross Margin (£/ha)	**530**	**741**	**952**

Combinable Crop Gross Margins 2026	Winter HEAR Oilseed Rape		
	Low	Mid	High
Yield (t/ha)	2.5	3.0	3.5
Price (£/t)	390	390	390
Premium (£/t)	160	160	160
Straw £/ha			
Output (£/ha)	**1,375**	**1,650**	**1,925**
Seed (£/ha)	120	120	120
P&K			
Sludge			
Nitrogen	**240**	**240**	**240**
Nufol/Protein Boost			
Fertiliser (£/ha)	240	240	240
Herbicides	120	120	120
Fungicides	58	58	58
PGR		0	0
Misc	30	30	30
Sprays (£/ha)	208	208	208
Contractor Use			
Variable Costs (£/ha)	**568**	**568**	**568**
Gross Margin (£/ha)	**807**	**1,082**	**1,357**

WHEAT VARIETIES
IN A DRY SPRING

- AHDB: Recommended List (2025-26)
- No explicit drought tolerance rating
- Indicative qualities = strong rooting, consistent performance

Milling:

- KWS vibe – shown good resistance to yellow rust but also septoria should a big rain spell happen

Feed:

- RGT Hexton – has shown adaptability to various soil types and a consistent performance suggests a robust root system and resilience under variable moisture conditions.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UPCOMING AGRONOMY CLUBS

19/06/2025	Preparing for Harvest and Oilseed Rape Establishment
17/07/2025	Harvest Quality and Establishment Strategies
21/08/2025	Finalising Autumn Plans and Pre-Emergence Strategies
18/09/2025	Effective Crop Establishment and Post-Emergence Strategies
16/10/2025	Harvest Review and Grain Marketing Strategies
20/11/2025	Year-End Agronomy Tasks and Future Planning
18/12/2025	Harvest Review and Strategies for the New Year
15/01/2026	Nitrogen planning
19/02/2026	Spring Crop Logistics and Planning
19/03/2026	Fungicide Strategies and Nitrogen Planning
16/04/2026	New Season Fertiliser Prices and Spring Application Strategies

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INTERESTED IN COLLABORATING?
HAVE A QUESTION?
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CEREALS – 11th & 12th June

GROUNDSWELL - 2nd & 3rd July

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