HARVEST 2023

Agri intelligence

Agrii iFarm Results Report





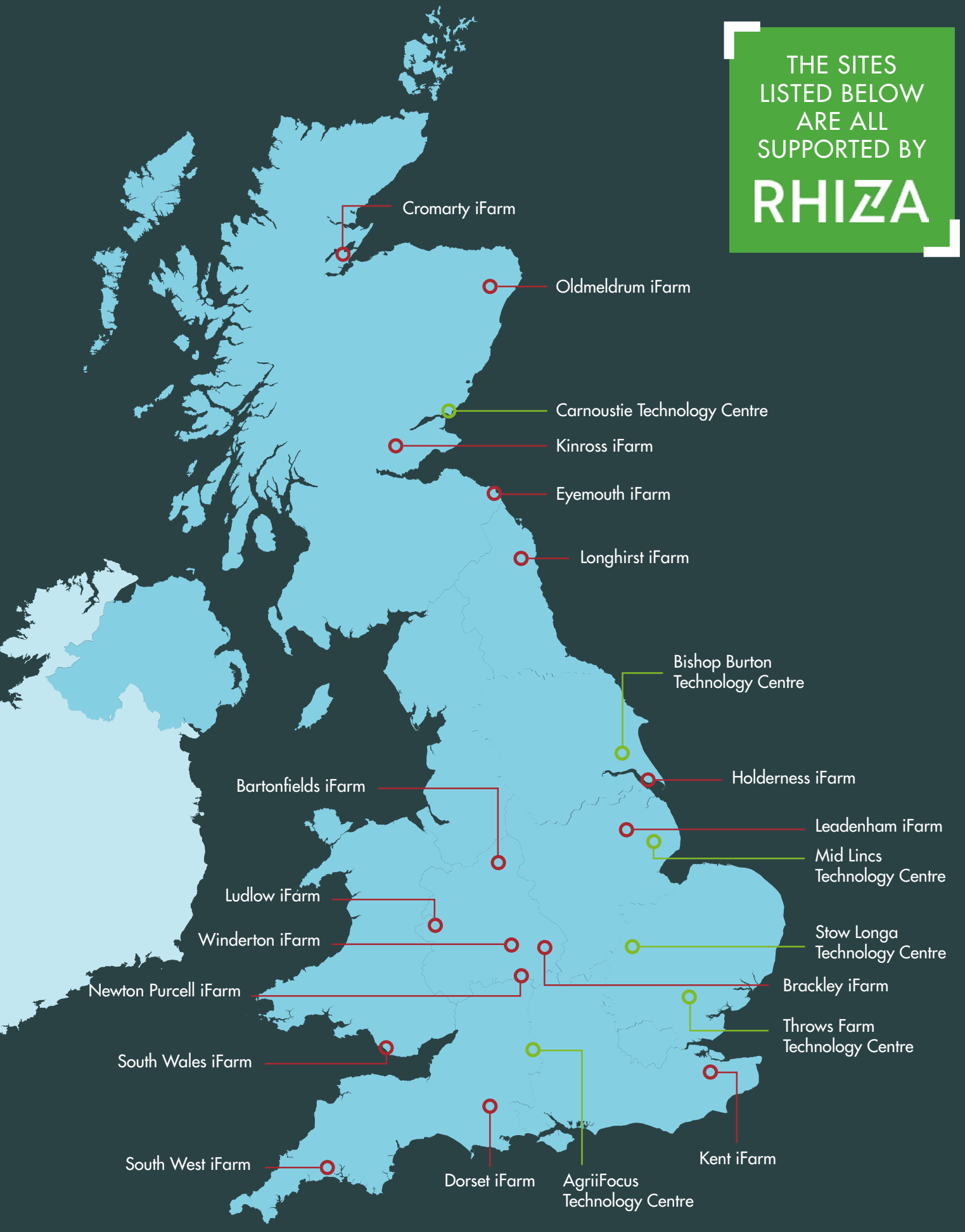

Agrii

Contents

CLICK ON YOUR LOCAL IFARM TO TAKE YOU TO THE PAGE OF RESULTS

ACRONYMS

ROI – Return on investment
PGR – Plant growth regulator
GAI – Green area Index
GLA – Green leaf area
NIR - Near-infrared reflectance
OP – Open pollinating
GS – Growth stage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Summary of Results

Ruth Mann
Head of Integrated Crop Technologies

Jim Carswell
Technical Manager – Fertiliser Trials

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Seed Technical Manager

Variety Intelligence

In such a mixed season for crop performance – with particular disease and lodging pressures and a decidedly catchy harvest – the extensive trials we run up and down the country provide more valuable grower intelligence on variety choice and management than ever.

All the more so, as work on our 16 iFarms and 6 Technology Centres extends from broad, fully-replicated national and regional trials to more focussed local field-scale demonstrations; we employ strict commercial farm input regimes and carefully monitor progress throughout the season, which allows us to highlight key variety characteristics and differences.

This report summarises a cross-section of our 2022/23 cereal and oilseed rape findings. As well as providing a national overview, we have divided our reporting into six main regions to give everyone the easiest access to the most relevant results for their own farm.

A number of established winter wheat favourites performed well nationally last season, with several newcomers standing out – not least for their untreated performance – and a few betraying worrying weaknesses.

Winter barley breeding is showing some progress too, although a tried and trusted hybrid did out-yield all the others. Furthermore, one of the oldest winter OSR hybrids continued to underline its strength alongside far newer genetics.

At the same time, our local trials have highlighted valuable differences and particular crop improvement opportunities.

In our more northern work, for instance, we have continued to see both winter and spring cereals respond positively to technical seed treatments and other nutritional supports.

Trials from Cromarty and Oldmeldrum in northern Scotland to central Kinross and Carnoustie, Eyemouth in the borders, and Longhirst and Holderness down to Bishop Burton in Yorkshire have been clearly demonstrating the best northern varieties.

While there are obvious performance similarities, different varieties have been to the fore in central and western England. What's more, the performance league tables show interesting variations between Brackley in Northamptonshire, Winderton in Warwickshire, Ludlow in Shropshire and Glamorgan in South Wales.

Unsurprisingly too, things look different again to the east and further south, through Leadenham and Revesby in Lincolnshire to Lenham in Kent, AgriiFocus near Swindon, Blandford in Dorset, and Saltash in north east Cornwall, giving plenty of food for future cereal and OSR management thought.

For completeness, our report also includes a special feature on drones in action and the variable rate nitrogen work being undertaken at our Digital Technology Farms.

We very much hope you find these insights into the solid R&D work that sets us apart from others of the greatest possible interest and value.

We look forward to building on them through our regularly-updated Advisory Lists as well as talks and demonstrations at iFarm meetings and open days throughout the season to continue providing you with the best research-led support in the business.

The R&D Team

2416

iFARM ATTENDEES

111

REGIONAL UPDATES

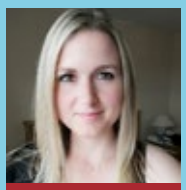
76

VARIETIES

40,000

SMALL PLOT VARIETY TRIALS

Wider R&D Team



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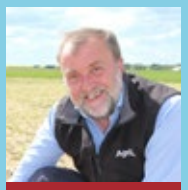

Steve Corbett
South Region iFarm & Tech Centre

Justin Burton
Senior Trials Officer

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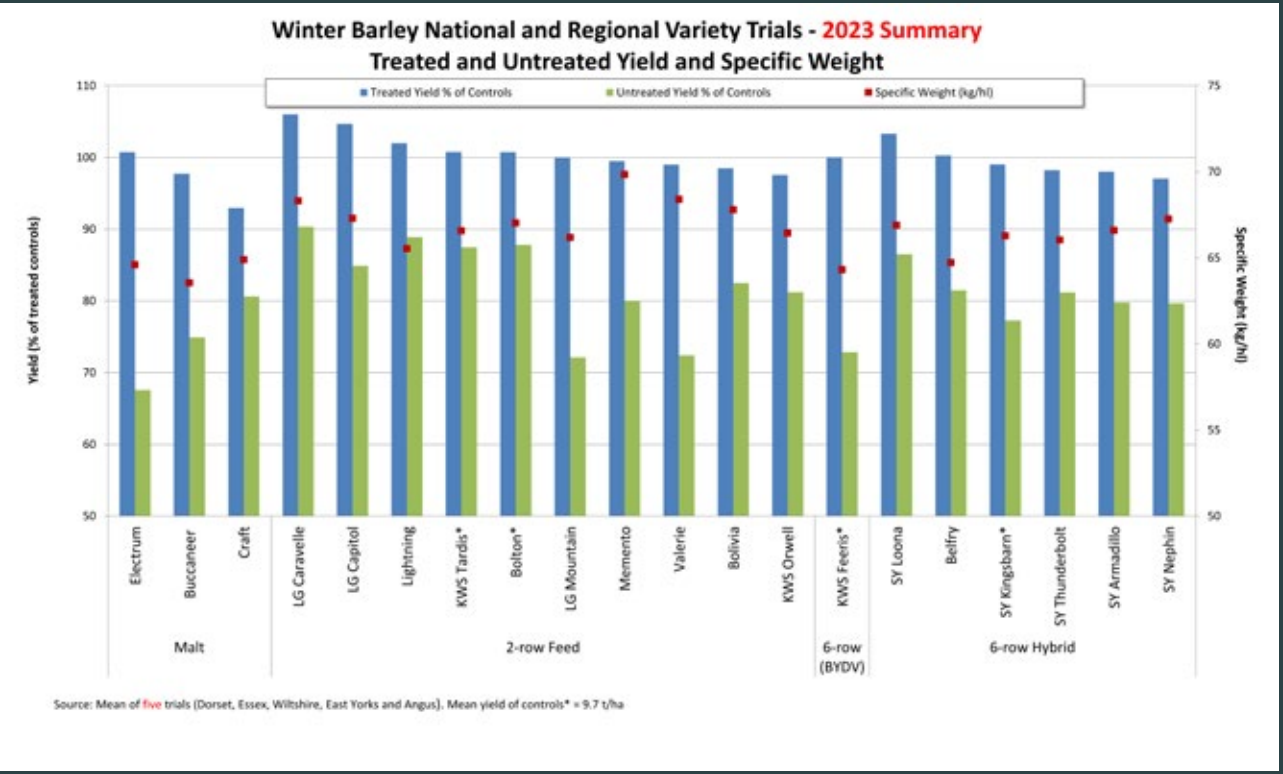
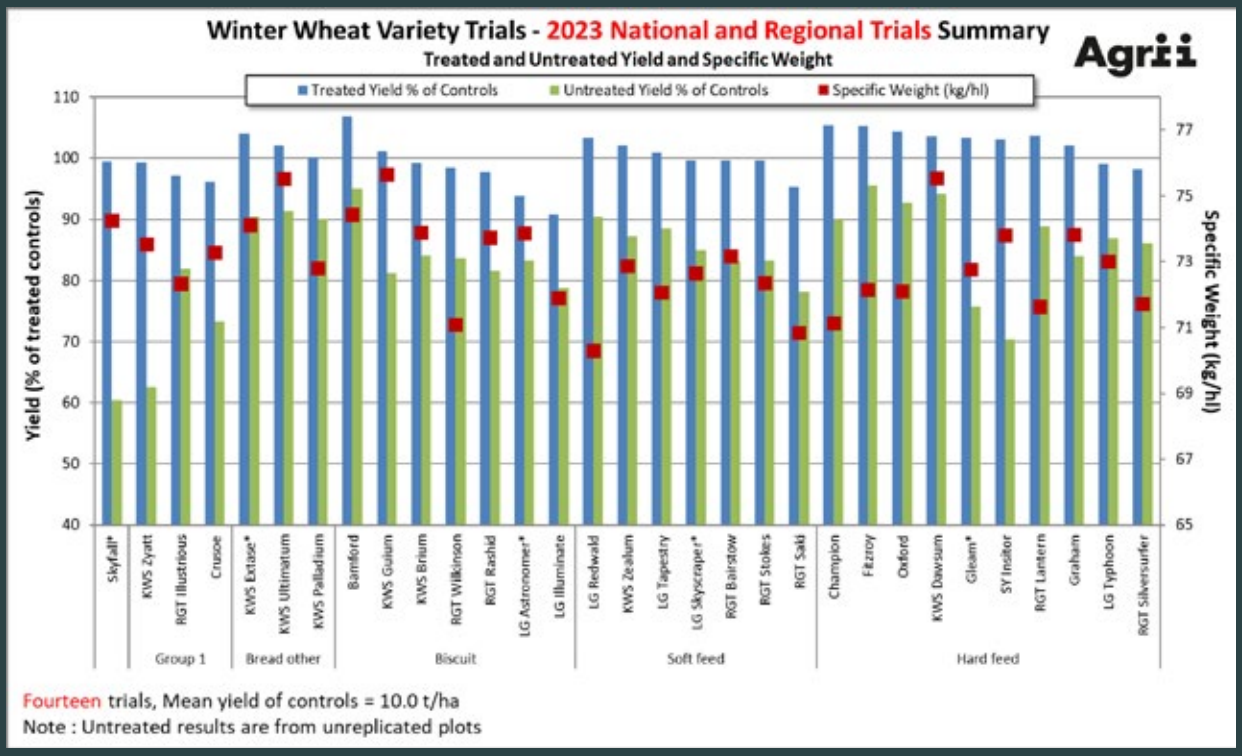
National Results



Winter barley

In the winter malting sector, Electrum outperformed Craft significantly this year. LG Caravelle dominates the two-row feed sector, displaying a clean appearance, good yield, and a reasonable bushel weight. The Candidate variety, though similar, didn't match the performance of our 2023 data. Lightening had a solid showing in 2023 but made minimal market impact.

KWS Tardis maintained its consistent performance this year, in line with previous years. While Bolivia saw a slight drop in yield, it retained its grain quality. KWS Ferris stands out as the only widely available BYDV-tolerant barley material, maintaining a 100% yield performance. Unfortunately, SY Loona has become obsolete. In a surprising twist, the tried-and-trusted Belfry outperformed all others in yield, while the rest showed remarkably similar results.



Winter wheat

Agrii trials encompass farm input programmes, and although they are designed to be robust and cost-effective, they also mirror the practical challenges faced by farms within different seasons and regions. This year, we've observed that some of the "tried and true" older varieties have continued to deliver both quality and yield, underlining the reasons for their enduring popularity.

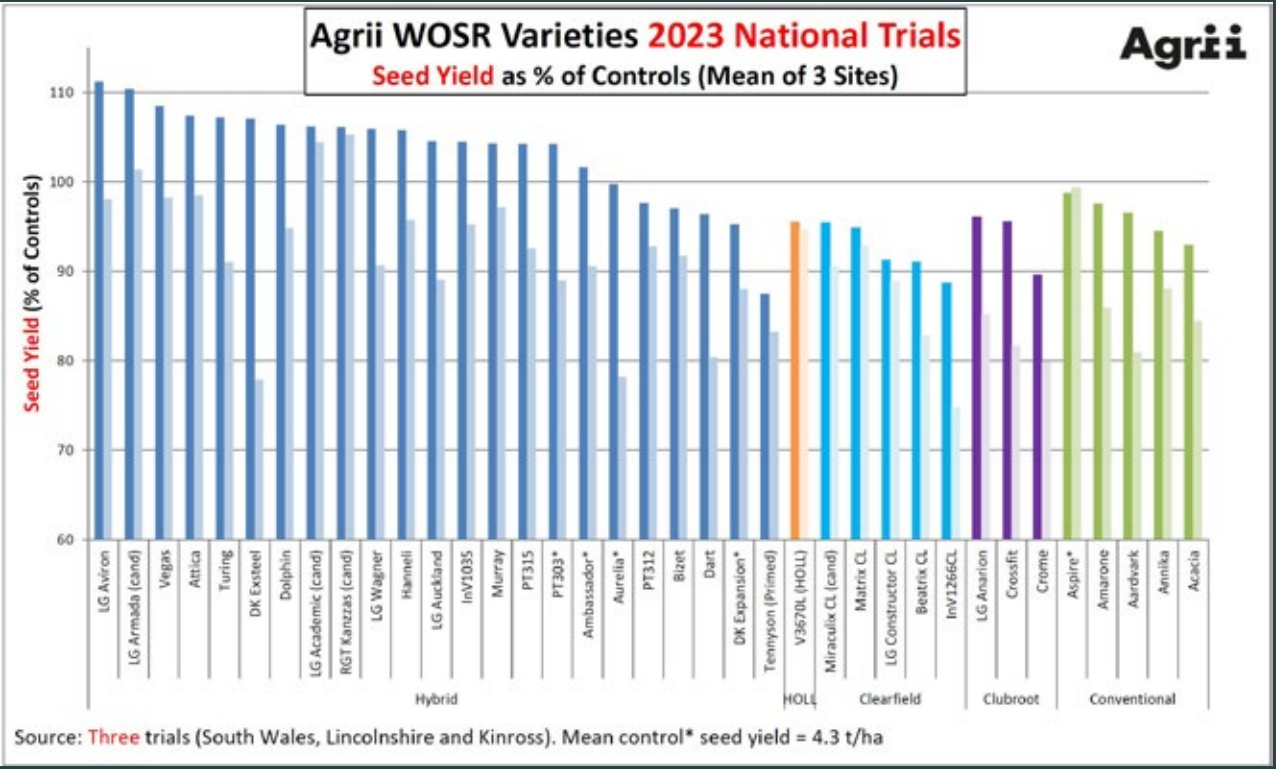
In the class one milling category, Skyfall and KWS Zyatt have consistently performed well, and the regional strengths of each variety are evident once more. Notably, RGT Illustrious stands out as the cleanest among them. However, similar to its previous appearance in Agrii trials, this variety exhibits a 2% lower yield, with the lowest bushel weight in its category for 2023. The group two milling sector remains dominated by KWS Extase, offering high yields in both untreated and treated conditions, along with excellent specific weight. Newcomer Ultimatum has also yielded well in both scenarios, and the grain quality of Costello is quite evident. KWS Palladium performed decently, albeit not as expected given the crop's cleanliness. Its main shortcoming this autumn was a lower-than-expected bushel weight. The new addition, Bamford, turned out to be the highest-yielding soft wheat, both in treated and untreated conditions.

In the group three sector, other varieties continue to have low seed sales. LG Redwald achieved a commendable yield level at the national level but had the lowest bushel weight in variety trials for 2023. KWS Zealum remains a solid choice, and LG Tapestry continues to perform well, indicating its potential had it been sown in recommended list trials. Its untreated yield was only one percent behind LG Redwald.

Within the hard four sector, Fitzroy, a variety from Secobra breeding, matched Champion in treated yield but offered the best untreated yield in this category. Champion's sister line, Oxford, had an exceptional year, even though it isn't as robust against septoria. KWS Dawsum held its own and highlighted the wide range of bushel weights available to growers.

The older varieties did not disappoint, but the untreated yields revealed some management challenges. Graham had a minor setback this year but performed adequately in both national and regional trials. LG Typhoon had high expectations, considering its cleanliness, but it appears that drilling in October may not be the ideal approach for this variety.

National Results



Source: Three trials (South Wales, Lincolnshire and Kinross). Mean control* seed yield = 4.3 t/ha

Winter oilseed rape

These played out very similar to RL trials this year. Crop Input Specialists (CIS) and Agronomists have access to further data such as autumn and spring vigour and stem health and verticillium stem stripe scores which are very helpful when choosing what to grow. The newer introductions again proved their yield potential while the tried and tested DK Exsteel remined us of why it has stuck around for so long.

We have a limited number of trials due to the challenges we now have. The untreated yield column is only a single plot at each site but there is quite a range of performance worth investigating further with the Agrii advisory list.


Read...
Agrii-Seed Spring Crops Yearbook 2024
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North Scotland

CROMARTY 12
Spring barley Quick look results:

+ Compared to base dressings alone (Rancona iMix + i-Man), co-application of Zax (zinc) or Take Off (phosphite+PGA) increased plant numbers established by up to +4%.
+ Mean ear numbers in late June 2023 (642 ears/m^2 averaged over the 8 varieties) were lower than in 2020, 2021 and 2022 (820, 791 and 741 ears/m^2 respectively) at the site.
+ Highest yields came from Laureate (Vibrance Duo) + i-Man at 9.36 t/ha, followed by Laureate + i-Man at 8.97 t/ha and Rocker + i-Man at 8.90 t/ha.

CROMARTY 14
Winter barley Quick look results:

+ Latitude seed treatment increased the yield of 2-row barley by 0.15 t/ha compared to 'base' dressing alone for the third consecutive season at the Cromarty site (and gave a positive ROI averaged over all four treatment blocks).
+ The mean ear numbers for the 2-row varieties (770 ears/m^2) was greater than the 6-row hybrid (367 ears/m^2), averaged over the four treatment regimes.
+ The highest yields were recorded in LG Caravelle at 10.32 t/ha, KWS Tardis + Latitude at 10.28 t/ha and Memento at 10.21 t/ha.

CROMARTY 16
Winter oilseed rape Quick look results:

+ The highest GAI values were recorded in DK Exsteel and LG Auckland on 21st February 2023.
+ The fungicide program gave a positive yield response of +0.44 t/ha across the four varieties which reflected the increased disease pressure at the site in 2023. Ambassador yielded the highest at 4.95 t/ha followed by LG Auckland at 4.93 t/ha and DK Exsteel at 4.85 t/ha.
+ Average oil content by NIR method was reasonable (43.9%) but was lower than recorded at the site in the previous two seasons. LG Auckland and DK Exsteel had the highest oils in this demonstration at 44.3% and 44.4% respectively.

CROMARTY 18
Winter wheat Quick look results:

+ The plots looked really well on 14th March (GS 22) when LG Skyscraper appeared most 'erect' with most ground cover, then RGT Bairstow then LG Astonomer and KWS Dawsum.
+ At harvest, there was a positive response to manganese (as i-Man) with copper (as AgNition) for the third consecutive season or with zinc (as Zax) seed treatment in two out of the last three seasons at the site.
+ The highest yields came from KWS Dawsum at 12.24 t/ha followed by LG Skyscraper + Vibrance Duo seed dressing at 10.83 t/ha and finally LG Skyscraper + i-Man + Zax seed dressings at 10.72 t/ha.

OLDMELDRUM 20

Spring barley
Quick look results:

+ The average grain yield of 8.51t/ha was less than in 2022 but was higher than recorded at the site in 2021. LG Diablo and Laureatte were the highest yielding varieties.

+ At harvest, there was a positive yield response to copper (Fielder Cu) as well as zinc (Zax) seed treatments verses Rancona iMix + i-Man alone.

+ All varieties gave a positive response to fungicide+PGR in 2023; the overall response (+1.95 t/ha averaged over all plots) was considerably higher than in 2020 (+0.73 t/ha), 2021 (+0.62 t/ha) and 2022 (+0.98 t/ha) but reflected the greater ramularia pressure in late season 2023.

OLDMELDRUM 22

Spring oats
Quick look results:

+ The average yield of 7.50 t/ha was lower than the previous two seasons at the site (9.76 and 9.80 t/ha in 2021 and 2022 respectively) but was probably due to the later drilling date in spring 2023. Merlin treated with i-Man and Release was the highest yielding variety.

+ The overall response to the fungicide+PGR programme (+0.29 t/ha) was markedly lower than in the previous two seasons but reflected the lower disease and lodging pressure in 2023 at the site.

+ There was a positive yield response to the phosphate activator (Release) applied pre-crop emergence of +0.31 t/ha which translated into a positive return on investment (ROI).

OLDMELDRUM 24

Winter rye
Quick look results:

+ The average yield across the four varieties was 10.09 t/ha. Astranos (11.19 t/ha) and KWS Igor (10.72t/ha) were the highest yielding varieties.

+ The mean response to fungicide + PGR (+2.09 t/ha) was lower than in 2022 (+2.94 t/ha); whilst lodging pressure was significantly higher in 2023, overall disease pressure was deemed lower.

+ At harvest, there was severe lodging in all untreated plots, but especially SU Bendix and Helltop, which were effectively 'flat'. In the treated block, KWS Igor showed moderate lodging whilst treated Helltop, Astranos and SU Bendix had only 'leant over'.

OLDMELDRUM 26

Winter wheat
Quick look results:

+ Plant emergence was very even and plant establishment was good; average 412 plants/m^2 on 26th October 2022. Compared to where 'base treatment' (Beret Gold + i-Man) had been used, mean plant numbers were higher where Vibrance Duo + i-Man had been used.

+ Dry weather from mid-May to mid-June reduced septoria development and spread; the top two leaves of untreated LG Skyscraper were 'clean' on 25th June. Nevertheless, untreated LG Skyscraper had the highest septoria infection followed by Gleam and KWS Dawsum, and lowest levels were recorded in untreated RGT Bairstow.

+ KWS Dawsum, LG Skyscraper treated with technical seed treatments and LG Typhoon were the best yielding varieties. Highest yields came from KWS Dawsum + i-Man at 12.19 t/ha, followed by LG Skyscraper + i-Man + Zax (Zn) at 11.15 t/ha and finally LG Typhoon + i-Man at 11.08 t/ha.

Cromarty

INVERNESS-SHIRE

John Mason
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Cromarty, Inverness-shire

SOIL TYPE

Sandy loam

TRIALS 2023

Spring barley (unreplicated strips)

PREVIOUS CROP

Winter wheat

DRILLING DATE

6th April 2023

SEED RATE

375 seeds/m^2

HARVEST DATE

18th August 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Spring barley

Plots were sown into a moist seedbed 16 days later than in 2022 but wet weather delayed drilling. Subsequent plant emergence was even. Plant counts on 1st May (GS 12) indicated that mean plant numbers established were good (averaged 369 plants/m2 across all varieties in this demonstration). For the fifth season, in order to demonstrate 'best practice', all seed was treated with manganese seed treatment (i-Man) in 2023 as there has been positive yield responses to manganese seed treatment at the Black Isle iFarm in earlier seasons. Compared to base dressings alone (Rancona iMix + i-Man), co-application of Zax (zinc) or Take Off (phosphite+PGA) increased plant numbers established by up to +4%. All crop canopies looked 'full' on 27th June when ear emergence was 3/4 complete. For the third consecutive season at the site, mean ear numbers were higher where technical seed treatments had been used. The higher ear numbers translated into higher yields of Laureate where Vibrance Duo had been used compared to base seed treatment (and gave the highest yield at harvest in this demonstration).

Disease pressure was low during 2023 with no disease seen in the untreated plots in late June. There was no overall response to fungicide+PGR averaged across all varieties and seed treatments although Diviner, Rocker, Belter and Hurler all showed a positive response in this demonstration. Similarly, there was no overall response to the 'tailored nutrition' approach although positive responses were recorded with Laureate and Firefoxx in this demonstration. However, compared to 'tailored nutrition', there was a positive yield response (+0.25 t/ha) to the addition of the biostimulant Levity Lono at T1 and T2 at the site in 2023 (averaged over varieties and seed treatments).

Mean ear numbers in late June 2023 (642 ears/m2 averaged over the eight varieties) were lower than in 2020, 2021 and 2022 (820, 791 and 741 ears/m2 respectively) at the site. The main reason was probably the later drilling date in 2023 along with predominantly dry conditions in April and May 2023 which could have 'slowed' plant growth, nitrogen uptake and tillering.

All plots were harvested on 18th August (three days earlier than in 2022). There was no crop lodging or brackling at harvest. Average moisture content was 15.3%; ex combine specific weight values were only moderate. Average grain N level (1.45%) was slightly higher than in the previous two seasons (1.31%). Screening levels for all varieties were below 2% ex combine in this demonstration; retention values in the malting and potential malting varieties were good.

We are incredibly grateful to J & J Henderson for allowing us to conduct this demonstration

		Fully treated with farm standard nutrition (block 2)				
Rank	**Variety**	**Yield# t/ha**	**Sp. Wt kg/hl**	**Grain N %**	**Screenings % 2.2 mm**	**Retention % 2.5 mm**
1	Laureate (Vibrance Duo) + i-Man	**9.36**	**63.2**	**1.49**	**0.3**	**98.9**
2	Laureate + i-Man	**8.97**	**64.0**	**1.58**	**0.4**	**98.3**
3	Rocker + i-Man	**8.90**	**62.5**	**1.46**	**0.2**	**98.9**
4	Laureate + i-Man + Take Off	**8.89**	**61.5**	**1.40**	**0.3**	**98.7**
5	Hurler + i-Man	**8.86**	**61.0**	**1.45**	**0.6**	**98.1**
6	Laureate + i-Man + Fielder	**8.55**	**60.7**	**1.37**	**0.2**	**99.2**
7	Laureate + i-Man + Zax	**8.44**	**59.9**	**1.37**	**0.4**	**98.7**
8	Diviner + i-Man	**8.34**	**61.8**	**1.44**	**0.6**	**99.0**
9	Belter + i-Man	**8.33**	**61.3**	**1.49**	**0.2**	**98.6**
10	Skyway + i-Man	**8.29**	**64.5**	**1.52**	**0.2**	**98.9**
11	LG Diablo + i-Man	**8.22**	**62.4**	**1.38**	**0.3**	**98.0**
12	Firefoxx + i-Man	**7.83**	**62.6**	**1.49**	**0.3**	**99.1**
	Mean	**8.58**	**62.1**	**1.45**	**0.3**	**98.7**

 # All yields corrected to 15% moisture content

Cromarty

INVERNESS-SHIRE

John Mason
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Cromarty, Inverness-shire

SOIL TYPE

Sandy silt loam

TRIALS 2023

Winter barley (unreplicated strips)

PREVIOUS CROP

Spring barley

DRILLING DATE

12th September 2022

SEED RATE

Target 400 seeds/m^2 (non hybrids) - target 220 seeds/m^2 (hybrid)

HARVEST DATE

21st July 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Winter barley

Plots were sown into a moist seedbed on 12th September 2022 (two days later than in 2021). Plant emergence was even, and plant establishment was excellent; average 368 plants/m^2 (non-hybrids) and 210 plants/m^2 (hybrids) on 27th September 2022. There was effectively no difference in plant numbers established across the seed treatments, possibly because of 'early' drilling, subsequent rapid emergence and establishment in autumn 2022 at the site. However, it was surprising that plants had only 2 tillers on 14th March (GS 22) despite the early drilling date, which was possibly due to adverse conditions for optimal growth over-winter. Later in the season, mean ear numbers were variable both within and between the treatment blocks, possibly due to differences in soil type and topography. Nevertheless, Latitude seed treatment increased yield of 2-row barley compared to 'base' dressing alone for the 3rd consecutive season at the Cromarty site (and gave a positive ROI averaged over all four treatment blocks).

Disease pressure was low in mid-March with only low levels of largely 'discoloured' mildew in the 2-row varieties and trace/low levels of rhynchosporium in SY Kingsbarn, Valerie, KWS Tardis and LG Caravelle. Disease pressure built up in spring 2023 but was somewhat tempered by the dry weather between mid-May and mid-June. By late June, the leaves in the untreated canopies had almost completely senesced. In contrast, stems were still 'green' in the treated canopies and some green tissue remained in Memento, Lightning and KWS Tardis (in particular). The mean response to fungicide + PGR + 'base' nutrition (+0.24 t/ha for the 8 varieties, excluding seed treatments) was low but reflected the low disease and lodging pressure at the site and 'thinner' canopies.

The 2023 response was considerably lower than in 2021 (+0.87 t/ha) and 2022 (+2.09 t/ha). In contrast to previous seasons, there was no overall yield response to the more comprehensive nutritional input programme at the site in 2023 (most likely due to the lowest mean ear numbers which reflected variable establishment in that 'block'). However, more specifically, all three hybrids gave a positive response to the 'tailored nutrition' programmme (+0.84 t/ha) but none of the 2-row types gave a response in this demonstration. The highest mean yield was recorded where the same 'tailored nutrition' programme was applied but with additional foliar B Evergreen Plus.

Crop canopies were 'thinner' on 8th June 2023 compared to the previous three seasons. Ear counts averaged over the four treatment regimes for all winter barley varieties and seed treatments were 609 ears/m^2 (compared to 887, 924 and 957 ears/m^2 in 2020, 2021 and 2022). One reason for the lower ear numbers in blocks 2,3 and 4 was poor overwintering due to very wet soil conditions.

More specifically the mean for the 2-row varieties (770 ears/m^2) was higher than for the 6-row hybrid (367 ears/m^2), averaged over the four treatment regimes. There was no crop 'leaning' or lodging in late June. Only untreated Valerie and Lightning showed minor lodging at harvest, although untreated plots were more 'brackled' at harvest.

Pre-harvest glyphosate was applied on 9th July 2023 (three days earlier than 2022). All plots were harvested in unsettled, cool conditions on 21st July 2023 (one day earlier than in 2022). Average moisture content at harvest was 19.5% but with very unsettled weather forecast for the following week, it was deemed prudent to harvest the plots. Ex combine specific weights appeared low but reflected the moderate ex combine moisture content of the grain at harvest; ex combine values were lower for the hybrid varieties in this demonstration. Grain N levels were moderate, lower than in 2022. Screening levels were below 2%.

Farm Standard - block 2

Rank	Variety	Yield# t/ha	Sp. Wt kg/hl	Grain N %	Screenings % 2.2 mm
1	LG Caravelle	**10.32**	**59.6**	**1.95**	**0.8**
2	KWS Tardis + Latitude	**10.28**	**62.2**	**1.94**	**0.2**
3	Memento	**10.21**	**64.7**	**1.90**	**0.2**
4	Lightning	**10.20**	**59.3**	**1.96**	**0.4**
5	KWS Tardis	**10.13**	**62.4**	**1.96**	**0.5**
6	SY Armadillo	**10.11**	**54.9**	**1.96**	**2.0**
7	KWS Tardis + i-Man + Zax	**10.09**	**62.4**	**1.96**	**0.1**
8	SY Kingsbarn	**9.66**	**56.7**	**1.85**	**1.1**
9	KWS Tardis + i-Man + Take-off	**9.65**	**62.3**	**1.88**	**0.3**
10	Valerie	**9.62**	**57.2**	**1.79**	**0.2**
11	SY Kingsbarn + Latitude	**9.15**	**56.5**	**1.82**	**0.9**
12	Belfry	**8.70**	**56.9**	**1.90**	**2.1**
	Mean	**9.84**	**59.6**	**1.91**	**0.7**

 # All yields corrected to 15% moisture content

Cromarty

INVERNESS-SHIRE

John Mason
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Cromarty, Inverness-shire

SOIL TYPE

Sandy silt loam

TRIALS 2023

Winter oilseed rape (unreplicated strips)

PREVIOUS CROP

Winter barley

DRILLING DATE

2nd August 2022

SEED RATE

40 seeds/m^2

HARVEST DATE

18th August 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Winter oilseed rape

All plots were sown into a moist, drying seedbed on 2nd August (same date as in autumn 2021) then rolled. Plant emergence was good and very even. There was little cabbage stem flea beetle activity within the plots in autumn 2022; plant counts averaged 39 plants/m^2 on 28th August 2022 when plants had two leaves. Crop growth was good during autumn, aided by above average monthly air temperatures in September, October and November. Pigeon grazing was minimal initially, although there was some grazing of top leaves above snow cover on 14th March. GAI assessed by 'cut and weigh' method on 21st February indicated that the GAI value (0.45) averaged across all four varieties was considerably lower than in January 2022 (1.36), but very similar to late February 2021 (0.40). The highest GAI values were recorded in DK Exsteel and LG Auckland. Light leaf spot pressure was high at the site in 2023. The disease was observed in all untreated plots on 14th March; highest infections were recorded in untreated Ambassador and LG Anarion with decreased (comparable) levels in untreated DK Exsteel and LG Auckland. Light leaf spot 'staining' was observed on the stems of the untreated varieties in late June, particularly DK Exsteel and LG Anarion; staining was also observed in the treated plots as the fungicide programme would have 'run out of steam'. The treated canopies were markedly 'greener' than untreated canopies on 27th June; indeed, most leaves were 'dead' in the untreated canopies at that time. There was no sclerotinia in the treated plots later in the season. The fungicide programme gave a positive yield response of +0.44 t/ha across the four varieties which reflected the high disease pressure at the site in 2023.

Stem extension was underway (particularly LG Auckland) in mid-March, probably encouraged by mild conditions in January and February 2023. Crop canopies were tall and appeared 'full' with good pod set on 27th June.

Plots were harvested three days earlier than in 2022 and there was no crop lodging in the untreated or treated plots, and no seed shedding at harvest. Average moisture content was 10.6% at harvest. Average oil content by NIR method was reasonable (43.9%) but was lower than recorded at the site in the previous two seasons. LG Auckland and DK Exsteel had the highest oils in this demonstration.

		Farm Standard Regime	
Rank	**Variety**	**Yield# t/ha**	**Oil % (NIR)**
1	Ambassador	**4.95**	**43.7**
2	LG Auckland	**4.93**	**44.3**
3	DK Exsteel	**4.85**	**44.4**
4	LG Anarion	**3.98**	**43.2**
	Mean	**4.68**	**43.9**

 # All yields corrected to 9% moisture content

Cromarty

INVERNESS-SHIRE

John Mason
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Cromarty, Inverness-shire

SOIL TYPE

Sandy silt loam

TRIALS 2023

Winter wheat (unreplicated strips)

PREVIOUS CROP

Winter oilseed rape

DRILLING DATE

19th September 2022

SEED RATE

390 seeds/m^2 across all

HARVEST DATE

18th August 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Winter wheat

The plots were sown into a moist seedbed on 19th September, four days earlier than in the previous season. Plant emergence was even, and plant establishment was good; average 374 plants/m^2 for the four varieties on 25th October 2022. There was effectively no difference in plant numbers established across the seed treatments, possibly due to early drilling and subsequent good conditions for rapid emergence and establishment in autumn 2022 at the site. Mild conditions during January and February encouraged plant growth. The plots looked really well on 14th March (GS 22) when LG Skyscraper appeared most 'erect' with most ground cover, then RGT Bairstow then LG Astonomer and KWS Dawsum. At harvest, there was a positive response to manganese (as i-Man) with copper (as AgNition) for the third consecutive season or with zinc (as Zax) seed treatment in two out of the last three seasons at the site.

Foliar disease pressure was negligible in autumn. Septoria tritici levels were generally low on 14th March due to the below average rainfall in each month between drilling and February. Septoria tritici was the main disease at the site in late June but overall infection levels were still modest. Levels were highest in LG Skyscraper and LG Astronomer but even the flag leaves (leaf 1) of these varieties showed little infection. Leaves 1 and 2 at the top of the untreated canopies of KWS Dawsum and RGT Bairstow were effectively 'clean'. In contrast, mildew levels were high in untreated LG Astronomer and to a lesser degree, untreated RGT Bairstow (the treated plots also showed some infection on 27th June). There was a fault with the sprayer at T0 which resulted in part of the untreated plots receiving fungicide+PGR so no yield data was reported for the 'untreated' plots.

The flag leaves of LG Astronomer were 'rolled' and markedly 'tipped', which suggested they were under stress on 27th June. No rust was observed in the plots at the site. All plots in the table received a full fungicide and PGR programme. The more sophisticated foliar nutrition programme outyielded the 'basic farm programme' by +1.38 t/ha averaged over varieties; this response was higher than in the previous three seasons (ranged +0.61 t/ha to +1.27 t/ha) and resulted in a positive ROI for the 4th consecutive season at this site. On the same basis, there was a further yield response (+0.55 t/ha) where Levity Lono and B Evergreen Plus had been applied in addition to the 'tailored nutrition' programme.

Ear counts on 26th June (GS 73) showed that average ear population was reasonable (543 ears/m2); the average mean ear number for the 2023 demonstration was slightly lower than recorded in 2021 and 2022 (564 ears/m^2 in both seasons). There was no response in mean ear numbers to seed treatments in 2023 (similar to the previous season at this site).

For the second consecutive season, compared to the 'untreated' block, mean ear numbers were higher in the 'farm standard' block, and higher still in the 'tailored nutrition' block. Highest mean ear numbers were recorded in block 4 (tailored nutrition 'plus' which included Levity Leno at T0 and T1 along with B Evergreen Plus at T2 and T3) when averaged over all varieties and seed treatments.

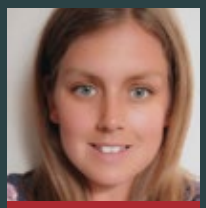
No pre-harvest glyphosate was applied. All plots were harvested on 18th August (three days earlier than in 2022). There was no crop lodging or seed shedding in any plots. Average moisture content was 15.7% and ex combine specific weight values were good. The average grain protein levels were good and were higher than in 2022 (9.99%), probably due to less 'dilution' with lower average grain yields in 2023.

		Farm standard regime-Block 2		
Rank	**Variety (1st cereal slot)**	**Yield# t/ha**	**Sp. Wt kg/hl**	**Protein %**
1	KWS Dawsum	**12.24**	**78.6**	**10.12**
2	LG Skyscraper Vibrance Duo	**10.83**	**76.7**	**10.50**
3	LG Skyscraper + i-Man + Zax	**10.72**	**76.0**	**10.72**
4	LG Skyscraper + i-Man + AgNition	**10.70**	**76.4**	**10.67**
5	LG Skyscraper Beret Gold	**10.60**	**75.2**	**10.04**
6	RGT Bairstow	**8.92**	**76.1**	**10.98**
7	LG Astronomer	**8.77**	**77.2**	**11.63**
	Mean	**10.40**	**76.6**	**10.67**

 # All yields corrected to 15% moisture content

Oldmeldrum

ABERDEENSHIRE



Katy Downie
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Oldmeldrum, Aberdeenshire

SOIL TYPE

Sandy silt loam

TRIALS 2023

Spring barley (unreplicated strips)

PREVIOUS CROP

Winter oilseed rape

DRILLING DATE

18th April 2023

SEED RATE

400 seeds/m^2

HARVEST DATE

6th September 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Spring barley

All plots were sown into a moist but drying seedbed, 26 days later than in 2022 but the wet weather prevented an earlier sowing opportunity. For the sixth consecutive season, all the seed was dressed with a 'base' treatment co-applied with i-Man manganese seed treatment to reflect part of 'best practice' in helping optimise yields at the site. Seedling emergence and establishment were very even on 16th May (GS 11) with no crow damage in the plots. Earlier plant counts on 11th May (GS 11) indicated that plant numbers were reasonable (234 plants/m^2 averaged across all eight varieties in the demonstration). Mean plant numbers of Laureate were slightly higher where zinc seed treatment (Zax) had been co-applied with the base dressings. Despite the dry weather in May, crop canopies were very even in late June with reasonable ear numbers. The mean ear numbers of Laureate were higher where the technical seed treatments either Take Off (phosphite+PGA) or Fielder Cu (copper) had been used compared to the 'standard'. At harvest, there was a positive yield response to copper (Fielder Cu) as well as zinc (Zax) seed treatments verses Rancona iMix + i-Man alone. In addition, Vibrance Duo outyielded Rancona iMix as a base dressing in this demonstration. The main reason was thought to have been the 'growth enhancer' effect and/or additional early nutrient supply via enhanced rooting associated with these technical seed treatments, which would have aided early establishment and growth in this 'late' drilled situation.

Foliar disease pressure was initially low with no visible symptoms apparent on 25th June. However, wet and windy conditions from late June resulted in severe ramularia levels in the untreated plots by 24th July, with the highest levels in untreated Laureate and LG Diablo in this demonstration.

Crop senescence was underway in the untreated canopies of Firefoxx in particular, but also Hurler, Belter and Diviner on 24th July. In contrast, the fungicide programme including Rylox and Phoenix at T2 gave excellent control of ramularia with good green tissue retention in all varieties in late July. All varieties gave a positive response to fungicide+PGR in 2023; the overall response (+1.95 t/ha averaged over all plots) was considerably higher than in 2020 (+0.73 t/ha), 2021 (+0.62 t/ha) and 2022 (+0.98 t/ha) but reflected the greater ramularia pressure in late season 2023.

Ear counts on 27th June indicated that crop canopies were 'thinner' than in 2022 (averaged 674 ears/m^2 compared to 792 ears/m^2 in 2022), averaged over varieties and seed treatments. Overall ear numbers of both Laureate and LG Diablo were greater where Release had been applied pre-emergence (a similar response was recorded in 2022). However, this did not translate into higher yields at this site. There was no lodging but moderate brackling in untreated plots of Laureate at harvest with less incidence in untreated LG Diablo. Untreated Skyway exhibited slight crop 'leaning'.

There was no brackling in all the other untreated plots at harvest. In the treated plots, Laureate showed the most brackling (but less severe than in the untreated block) whilst LG Diablo showed slight crop 'leaning'. All other treated varieties were 'upright' at harvest.

Crop canopies appeared relatively 'short' in late July. Pre-harvest glyphosate was applied on 20th August. All plots were harvested in sunny conditions on 6th September 2023 which was 19 days later than in 2022. Average moisture content at harvest was 17.2% in the fully treated plots in the trial. Ex combine specific weights were reasonable (averaged 64.1 kg/hl) but were lower than in the previous two seasons at the site (66.3 and 68.4 kg/hl in 2021 and 2022 respectively). Indeed, the average grain yield was less than in 2022 but was higher than recorded at the site in 2021. Average grain N level was lower than in the previous two seasons. Ex combine screening levels were higher than in 2022 but were still below 2% across the board. Consequently, retention in the malting and potential malting varieties was good.

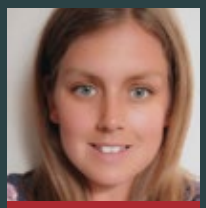
We are very grateful to Messrs A Webster & Son for allowing us to conduct this demonstration

		Treated with standard CP + nutrition				
Rank	**Variety**	**Yield# t/ha**	**Sp. Wt kg/hl**	**Grain N %**	**Screenings % 2.2 mm**	**Retention % 2.5 mm**
1	LG Diablo + i-Man	**9.11**	**63.4**	**1.57**	**0.7**	**95.3**
2	LG Diablo + i-Man with Release	**8.96**	**64.7**	**1.48**	**1.0**	**95.1**
3	Laureate + i-Man + Fielder Cu	**8.78**	**65.2**	**1.51**	**0.7**	**96.1**
4	Laureate (Vibrance Duo) + i-Man	**8.72**	**64.4**	**1.56**	**0.9**	**95.7**
5	Laureate + i-Man + Zax	**8.68**	**63.5**	**1.55**	**0.4**	**97.7**
6	Laureate (Rancona iMix) + i-Man	**8.62**	**64.2**	**1.54**	**0.6**	**96.2**
7	Diviner + i-Man	**8.53**	**64.0**	**1.45**	**0.9**	**94.7**
8	Firefoxx + i-Man	**8.51**	**63.1**	**1.54**	**0.5**	**96.8**
9	Laureate (Rancona iMix) + i-Man with Release	**8.48**	**65.7**	**1.47**	**0.8**	**97.0**
10	Laureate + i-Man + Take-off	**8.38**	**65.3**	**1.52**	**0.9**	**96.5**
11	Rocker + i-Man	**8.35**	**63.4**	**1.47**	**0.7**	**95.7**
12	Belter + i-Man	**8.10**	**62.6**	**1.51**	**0.3**	**98.4**
13	Skyway + i-Man	**8.08**	**65.1**	**1.48**	**0.3**	**98.5**
14	Hurler + i-Man	**7.79**	**63.3**	**1.40**	**0.4**	**97.7**
	Mean	**8.51**	**64.1**	**1.50**	**0.6**	**96.5**

 # All yields corrected to 15% moisture content

Oldmeldrum

ABERDEENSHIRE



Katy Downie
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Oldmeldrum, Aberdeenshire

SOIL TYPE

Sandy silt loam

TRIALS 2023

Spring oats (unreplicated strips)

PREVIOUS CROP

Winter oilseed rape

DRILLING DATE

18th April 2023

SEED RATE

400 seeds/m^2

HARVEST DATE

6th September 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Spring oats

All plots were sown into a moist but drying seedbed, 26 days later than in 2022, but wet weather prevented an earlier sowing opportunity. For the sixth consecutive season, all seed was dressed with a base treatment co-applied with i-Man manganese seed treatment to reflect part of 'best practice' in helping optimise yields at the site. Seedling emergence and establishment was very even on 16th May (GS 10-11) with no crow damage in the plots. Earlier plant counts on 11th May (at GS 10) averaged 257 plants/m^2 across the three varieties at the site. On 23rd May the plants had up to three leaves (GS 13). Panicles were emerging on 25th June.

Disease levels were negligible at the site all season. However, there was some leaf 'reddening' on 24th July in untreated Canyon in particular (symptoms were observed on leaves 2+3) and to a lesser degree on the same leaf layers in untreated WPB Isabel. Reddening was noticeably low in untreated Merlin on the same date (only seen on leaf three in the bottom of the canopy).

Plants were well established with very even canopies on 25th June. Ear counts on 27th June indicated that crop canopies were reasonable (378 ears/m^2). The mean ear numbers in 2023 were greater than in 2022 (364 ears/m^2) but similar to the two earlier seasons (385 and 383 ears/m2 in 2020 and 2021 respectively). Merlin and WPB Isabel had the highest mean ear numbers closely followed by Canyon; there was no increase in ear numbers from the application of Release.

However, there was a positive yield response to the phosphate activator (Release) applied pre-crop emergence of +0.31 t/ha which translated into a positive ROI. Crop canopies appeared relatively 'short' in late July with little visible difference in height between untreated and treated canopies. There was slight crop leaning in the untreated plots at harvest but no lodging (and no lodging in the treated plots).

Pre-harvest glyphosate was applied on 20th August. All plots were harvested in sunny conditions on 6th September 2023 (19 days later than in 2022). Average moisture content was 17.7% in the fully treated plots shown in the table of results. Ex combine specific weights were reasonable but below 50 kg/hl ex combine for Canyon.

Average yield for the trial was lower than the previous two seasons at the Oldmeldrum site (9.76 and 9.80 t/ha in 2021 and 2022 respectively) but was probably due to the later drilling date in spring 2023.

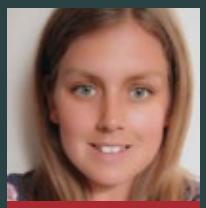
Ex combine screening levels were below 2% for Merlin but higher for Canyon and WPB Isabel. The overall response to the fungicide+PGR programme (+0.29 t/ha) was markedly lower than in the previous two seasons but reflected the lower disease and lodging pressure in 2023 at the site.

		Treated with standard CP + nutrition		
Rank	**Variety**	**Yield# t/ha**	**Sp. Wt kg/hl**	**Screenings % 2.0 mm**
1	Merlin + i-Man with Release	**7.67**	**53.2**	**1.9**
2	Canyon + i-Man	**7.53**	**49.0**	**3.0**
3	WPB Isabel + i-Man	**7.43**	**51.7**	**2.7**
4	Merlin + i-Man	**7.36**	**51.4**	**1.7**
	Mean	**7.50**	**51.3**	**2.3**

 # All yields corrected to 15% moisture content

Oldmeldrum

ABERDEENSHIRE



Katy Downie
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Oldmeldrum, Aberdeenshire

SOIL TYPE

Sandy silt loam

TRIALS 2023

Winter rye (unreplicated strips)

PREVIOUS CROP

Winter oilseed rape

DRILLING DATE

7th October 2022

SEED RATE

400 seeds/m^2

HARVEST DATE

6th September 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Winter rye

Plots were sown five days later than in the previous autumn, into a moist seedbed. Heavy rain in the following days aided germination and establishment. Plant emergence was even, and plant establishment was excellent; average 338 plants/m^2 on 26th October 2022.

Mild conditions during November encouraged growth so all varieties looked really well on 6th December when varieties had started to tiller, although soil conditions were exceedingly wet. There was no apparent 'frost heave' in any of the plots in late December. Following dry conditions in February, the soils turned significantly wet again in mid-March. There was some frost heave evident by the end of March; SU Bendix then KWS Igor showed more than the other two varieties. Astranos and Helltop appeared more vigorous with greater ground cover compared to the other varieties in this demonstration on 13th March, when varieties typically had four tillers. The rye plants started their spring growth markedly earlier than adjacent winter cereals. Stem extension was underway on 30th March (but plants were not quite at GS 30) when the canopies of Astranos appeared 'fullest' followed by Helltop and KWS Igor, then SU Bendix (according to NDVI readings). Stem extension was well underway on 28th April when plants had reached first/second node detectable (GS 31/32) and overall, the plots looked really well. Awns were starting to emerge in untreated Helltop on 16th May when other varieties were at GS 45/47. The treated plots were markedly 'shorter' than the untreated plots by 16th May. Ear counts on 23rd May 2023 showed crop canopies were 'thicker' than in the dry spring of 2022; averaged 609 ears/m^2 across the four varieties (compared to 449 ears/m^2 in late May 2022).

However, there was no crop lodging in any plots in late June (post flowering) even though the untreated plants were visibly taller. The 'thicker' canopies along with wet and windy conditions from late June resulted in lodging in all untreated plots by 24th July when untreated KWS Igor was severely lodged (in terms of both plot area affected and angle of lodging), then SU Bendix. Untreated Helltop and Astranos were least effected, but lodging was still moderately severe. On the same date, the treated plot of KWS Igor was 'leaning' but all other treated varieties were 'upright'.

Disease levels were negligible in autumn and over winter. Except for low levels of rhynchosporium, there was little disease present in the untreated plots in late March and in late April. Rhynchosporium levels had increased in the base of the untreated crop canopies by 16th May, although, there was little overall difference in levels between the four varieties when assessed on 23rd May. Moderate levels of rhynchosporium were observed throughout all untreated canopies on 25th June with generally little difference between the four varieties. The leaves had senesced by late July with only the stems remaining 'green' in the untreated and treated plots.

Nevertheless, green tissue levels in the treated plots were visually greater than in the untreated plots on 24th July. The mean response to fungicide + PGR (+2.09 t/ha) was lower than in 2022 (+2.94 t/ha); whilst lodging pressure was significantly higher in 2023, overall disease pressure was deemed lower.

At harvest, there was severe lodging in all untreated plots, but especially SU Bendix and Helltop, as both were effectively 'flat'. In the treated block, KWS Igor showed moderate lodging whilst treated Helltop, Astranos and SU Bendix had only 'leant over'.

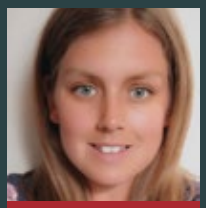
All plots were harvested in sunny conditions on 6th September 2023 (19 days later than in 2022). Average moisture content at harvest was 16.4%. Ex combine specific weights were good with the highest ex combine values being recorded for SU Bendix and Helltop. Average protein levels were moderate. Hagberg values were minimal probably as a result of the heavy rain at the site leading up to harvest. Protein and hagberg values were lower than in the previous two seasons at the site.

	Treated with crop protection + nutrition				
Rank	**Variety**	**Yield# t/ha**	**Sp. Wt kg/hl**	**Protein %**	**HFN**
1	Astranos	**11.19**	**76.5**	**8.6**	**80**
2	KWS Igor	**10.72**	**75.8**	**8.0**	**159**
3	SU Bendix	**9.47**	**77.6**	**7.9**	**134**
4	Helltop	**8.96**	**76.8**	**8.3**	**95**
	Mean	**10.09**	**76.7**	**8.2**	**117**

 # All yields corrected to 15% moisture content

Oldmeldrum

ABERDEENSHIRE



Katy Downie
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Oldmeldrum, Aberdeenshire

SOIL TYPE

Sandy silt loam

TRIALS 2023

Winter wheat (unreplicated strips)

PREVIOUS CROP

Winter oilseed rape

DRILLING DATE

7th October 2022

SEED RATE

500 seeds/m^2 (all i-Man treated)

HARVEST DATE

6th September 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Winter wheat

Plots were sown five days later than in the previous autumn into a moist seedbed. Heavy rain in the following days aided germination and establishment. Plant emergence was very even and plant establishment was good; average 412 plants/m^2 on 26th October 2022. Compared to where 'base treatment' (Beret Gold + i-Man) had been used, mean plant numbers were higher where Vibrance Duo + i-Man had been used. Mean numbers were also greater where zinc treatment (Zax) had been co-applied to Beret Gold + i-Man, possibly because of a 'biostimulant' response to zinc. There were no visible differences, and no differences in NDVI readings between the seed treatments in early December or late March. However, NDVI readings in both LG Skyscraper and KWS Dawsum were higher where Release had been applied. Whilst there was no apparent 'frost heave' in the any of the plots in late December, there was some evidence in late March, although incidence was much lower than in the winter barley and winter oilseed rape plots at the bottom end of the site. LG Tapestry showed the most 'frost heave' whilst LG Skyscraper, Champion and KWS Dawsum displayed the least. In late April, LG Tapestry still appeared 'short' and 'patchy' compared to the other varieties (LG Typhoon was also markedly shorter than other varieties) whilst Champion and LG Skyscraper looked the 'tallest'; similar observations were made on 16th May.

Mild conditions during November encouraged growth so all varieties looked good on 6th December when varieties had three leaves/one tiller even though soil conditions were extremely wet. Despite dry conditions in February, the soil turned very wet again in mid-March. Regardless of the mild weather in February, there was moderate frost heave observed as plant size still appeared generally 'small'; LG Tapestry displayed more than other varieties on 13th March when varieties typically had one tiller. Plants had 1-2 tillers on 30th March. Despite the predominantly wet conditions, all plots looked reasonable on 25th April, but 'active' stem extension was still to get underway (GS 23-24); in comparison, plants had reached GS 30 by 28th April in the previous season.

The plants still appeared 'short' (even in the untreated block) on 16th May (at GS 31-32) and generally 'lethargic'. The treated plots appeared 'shorter' with more 'open' canopies compared to the untreated plots on 25th June, possibly due to an 'adverse' effect from PGR application when crops were stressed in the wet spring conditions. Foliar disease levels were negligible in late autumn 2022. Septoria tritici was recorded in all plots on 13th March but overall levels were low; levels remained low with little visible difference between the varieties on 30th March and 24th April. In late May, septoria was still largely confined to the base of crop canopies with little overall differences between the varieties. Dry weather from mid-May to mid-June largely reduced septoria development and spread; the top two leaves of untreated LG Skyscraper were 'clean' on 25th June. Nevertheless, untreated LG Skyscraper had the highest septoria infection in late June followed by Gleam and KWS Dawsum whilst lowest levels were recorded in untreated RGT Bairstow. Mildew was first seen in untreated LG Tapestry on 23rd May; infection levels had increased and were recorded on the flag leaves in the untreated canopy by 27th June when mildew was also recorded in RGT Bairstow and the 3-way blend. In late July, overall infection levels of septoria had increased in the untreated plots whilst mildew was still lingering in untreated LG Tapestry in particular (where infection was recorded on untreated ears), but also RGT Bairstow, SY Insitor, LG Typhoon and the 3-way blend. Similar to the previous season, yellow rust was recorded in untreated Gleam and SY Insitor in late June 2023 but subsequently died out. Overall foliar disease pressure was relatively low in early season but deemed greater than in 2022 at the site in late season; overall lodging pressure was lower than in 2022. Whilst positive responses to fungicide and PGR were recorded with KWS Dawsum, LG Typhoon and the 3-way blend, there was no overall response to fungicide and PGR. Possible reasons included: differential 'damage' to the plots from earlier frost heave at the site, modest foliar disease pressure for 'most' of the season, as well as the 'robust' PGR programme which may have been too 'harsh' for the spring conditions at the site.

The 'fully treated' plots did look markedly 'shorter' with more 'open' canopies compared to the 'untreated' plots in June.

Mean ear numbers of LG Skyscraper were higher where Release had been applied but the same trend was not found for KWS Dawsum. Mean ear numbers were higher where Vibrance Duo alone or Zax (zinc) seed treatment had been co-applied with Beret Gold (versus Beret Gold alone). There has been a positive response in mean ear numbers to Vibrance Duo in four out of the last five seasons at the Aberdeenshire iFarms. At harvest, there was a positive yield response to i-Man + Zax compared to Beret Gold alone, but there was no yield response to Vibrance Duo.

Pre-harvest glyphosate was applied on 20th August and the plots were harvested in sunny conditions on 6th September 2023 (19 days later than in 2022). There was no lodging at harvest. The average moisture content across all the plots in the fully treated block was 16.6%. Ex combine specific weight values were good. The overall average yield (9.80 t/ha) was higher than in 2021 (9.00 t/ha), but slightly lower than in 2022 (9.94 t/ha). KWS Dawsum, LG Skyscraper treated with technical seed treatments and LG Typhoon were the best yielding varieties in this demonstration which broadly reflected findings in other trials where both varieties were good performers in a '1st cereal' situation. Average grain protein level (9.6%) was considerably lower than in the previous two seasons (11%) but was possibly due to the wet soil conditions over winter and early spring having a deleterious effect on rooting and N uptake.

		Treated with crop protection & nutrition		
Rank	**Variety (1st cereal)**	**Yield# t/ha**	**Sp. Wt (kg/hl)**	**Protein (%)**
1	KWS Dawsum + i-Man	**12.19**	**80.1**	**9.1**
2	LG Skyscraper + i-Man + Zax (Zn)	**11.15**	**76.9**	**9.8**
3	LG Typhoon + i-Man	**11.08**	**76.9**	**9.0**
4	Skyscraper/Bairstow/Tapestry + iMan	**10.78**	**74.3**	**9.6**
5	Champion + i-Man	**10.77**	**76.0**	**9.0**
6	LG Skyscraper + i-Man with Release	**10.42**	**76.3**	**9.5**
7	KWS Dawsum + i-Man with Release	**10.37**	**74.4**	**8.9**
8	SY Insitor + i-Man	**9.77**	**76.0**	**9.7**
9	Gleam + i-Man	**9.10**	**76.4**	**9.7**
10	LG Tapestry + i-Man	**8.58**	**74.2**	**10.4**
11	LG Skyscraper + i-Man	**8.40**	**74.7**	**10.2**
12	LG Skyscraper Vibrance Duo + i-Man	**7.76**	**75.5**	**9.7**
13	RGT Bairstow + i-Man	**6.99**	**76.1**	**9.6**
	Mean	**9.80**	**76.0**	**9.6**

 # All yields corrected to 15% moisture content

Central Scotland

CARNOUSTIE 30
Winter barley Quick look results:

+ Crop canopies were reasonable on 22nd May (GS 51-65) and averaged 825 ears/m^2, 570 ears/m^2 and 450 ears/m^2, respectively, for the 2-row and 6-row non-hybrid varieties and hybrids.
+ At harvest, there was moderate lodging in untreated Aleksandra along with some 'leaning' in the untreated plots of LG Mountain, Belfry, SY Kingsbarn, SY Thunderbolt and SY Nephin. There was no lodging in any of the treated plots.
+ Overall disease pressure had built up in the untreated plots during April and by the 24th, all varieties, except Aleksandra, showed rhynchosporium. By 22nd May, rhynchosporium levels had reduced but were recorded in 14 of the 23 varieties (highest levels in untreated LG Mountain).

CARNOUSTIE 32
Winter oilseed rape Quick look results:

+ DK Exsteel, LG Auckland, InV1266CL, V367OL and DK Excited appeared to show the most vigour/ground cover during plant growth in October.
+ The overall response of the varieties to fungicide (+0.89 t/ha) was higher than in the previous four seasons (+0.42, +0.05, +0.44 and +0.55 t/ha in 2019, 2020, 2021 and 2022 respectively) but reflected the overall higher disease pressure at the site in the 2023 season.
+ Seed yields were high; LG Auckland, DK Exsteel and Ambassador gave the highest yields in this demonstration at 6.37 t/ha, 6.20 t/ha and 6.16 t/ha respectively.

CARNOUSTIE 34
Winter wheat Quick look results:

+ Ear counts on 26th June indicated that ear numbers averaged 624 ears/m^2 across all varieties. This was higher than in similar trials in 2021 (541 ears/m^2) and 2022 (565 ears/m^2). The higher ear numbers reflected the higher seed rate used in autumn 2022; 400 seeds compared to 350 seeds in the previous two seasons.
+ At harvest, untreated plots of LG Grendel and LG Arkle were severely lodged, LG Illuminate and RGT Bairstow showed moderate lodging and untreated RGT Stokes, Bamford and Skyscraper were partially lodged; In the treated plots only, LG Grendel was lodged.
+ The highest yielding varieties were Champion at 12.31 t/ha, followed by Bolinder at 12.29 t/ha and Bamford at 12.16 t/ha.

KINROSS 36
Spring barley Quick look results:

+ Laureate treated with Rancona iMix alone or with Vibrance Duo seemed more 'vigorous' than other seed treatment combinations on 23rd May.
+ At harvest, there was no lodging, but all untreated plots had brackled; untreated Fairing, KWS Curtis and Hurler were the most brackled whilst untreated Firefoxx presented the least. There was reduced brackling in the treated plots with little overall difference between the varieties.
+ The average grain yield (7.25 t/ha) was lower than in 2021 (7.56 t/ha) but higher than in 2022 (7.02 t/ha), averaging over varieties and seed treatments. The highest yields came from Laureate + i-Man + Zax at 7.70 t/ha, followed by Laureate + i-Man + Take-off at 7.52 t/ha and Belter + i-Man at 7.49 t/ha.

KINROSS 38

Spring oats
Quick look results:

+ All of the seed was dressed with Vibrance Duo co-applied with i-Man manganese seed treatment to reflect part of 'best practice' in helping optimise yields on the light soil at the site.
+ For the third consecutive season, WPB Isabel had lower ear numbers (345 ears/m^2) than the other varieties (370 and 390 ears/m^2 for Canyon and Merlin respectively).
+ The highest yield came from WPB Isabel + i-Man at 8.94 t/ha, followed by Canyon + i-Man at 8.50t/ha and Merlin + i-Man at 8.12 t/ha.

KINROSS 40

Winter barley
Quick look results:

+ The average yield across the 17 plots was 8.38t/ha. KWS Feeris (9.08t/ha), SY Kingsbarn (8.93t/ha) and Belfry (8.90t/ha), all dressed with i-Man were the three highest yielding varieties in this trial.
+ The average ex combine specific weight across all plots was good (65.9 kg/hl) with no real differences in values between hybrids and non-hybrids.
+ Average grain N level of 1.55% was lower than in 2021 (1.65%) and 2022 (1.74%).

KINROSS 42

Winter rye
Quick look results:

+ The average yield for the four varieties was 10.27t/ha. KWS Igor was the highest yielding variety at 10.91 t/ha and Astranos was the lowest yielding at 10.03 t/ha.
+ SU Bendix showed the most lodging at harvest in both the treated and untreated plots.
+ The ear counts on 23rd May 2023 averaged 520 ears/m^2 (compared to 451 ears/m2 in 2022) across the four varieties (ranging between 430 and 615 ears/m^2 for Helltop and 615 ears/m^2 for KWS Igor).

KINROSS 44

Winter wheat
Quick look results:

+ LG Skyscraper, treated with technical seed treatments, along with KWS Dawsum and SY Insitor, gave the best yields at harvest.
+ LG Skyscaper, in particular, showed a positive yield response and excellent return on investment (ROI) to the phosphate enhancer (Release) for the second consecutive season at the site.
+ The overall response to fungicide+PGR (+0.55 t/ha averaged over the 10 varieties and one blend) was lower than in 2021 (+0.90 t/ha) and 2022 (+2.59 t/ha) but reflected the lower disease and lodging pressure at this site in 2023.

Carnoustie

ANGUS

Tim Hatton
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Carnoustie, Angus

SOIL TYPE

Sandy silt loam

TRIALS 2023

Winter barley (replicated)

PREVIOUS CROP

Maincrop potatoes

DRILLING DATE

13th October 2022

SEED RATE

325s/m^2 Conv. 225s/m^2 Hybrid

HARVEST DATE

19th July 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Winter barley

Seed was drilled into a moist seedbed following seedbed preparation by tined cultivator and consolidated after drilling. The drilling date had been delayed by wet weather; however, the actual sowing date was the same as in autumn 2021.

Seedlings had started to emerge on 25th October and subsequent crop emergence was even. The average plant establishment on 3rd November 2022 was good (262 plants/m^2 for non-hybrids and 205 plants/m^2 for hybrids) when varieties had one leaf emerged. Mild weather during late autumn helped encourage growth and development; plants had 3 leaves/1 tiller on 5th December, this was likely in response to the mild conditions in November, although soils were extremely wet in early December. Despite the snow cover in mid-December, all plots looked well on 23rd December. Mild weather during February helped encourage growth and plots looked well on 12th March when plants had 5-6 tillers. On closer inspection, 'dead hearts' (later confirmed as wheat bulb fly damage) were obvious in the plots but the first application of nitrogen had been applied 'early' which would aid survival of undamaged tillers. There was no frost heave in the trial. Plots looked well on 29th March at late tillering (GS 25-26) and very well on 24th April (GS 31-32), and awn emergence was underway in most varieties by 15th May.

Disease levels were negligible during late autumn. Rhynchosporium and mildew were first seen on 12th March. Low levels of rhynchosporium were also observed in the plots on 29th March, along with mildew in Memento and KWS Orwell only. The highest rhynchosporium infection was seen in LG Mountain whilst lowest was recorded in SY Armadillo; otherwise, overall differences between varieties were small.

Overall disease pressure had built up in the untreated plots during April and by the 24th, all varieties, except Aleksandra, showed rhynchosporium. Since late March, levels had increased in all 6-row types except SY Nephin as well as in 2-row types (Bolton, LG Caravelle, LG Capitol and especially LG Mountain). By 22nd May, rhynchosporium levels had reduced but were still recorded in 14 of the 23 varieties (highest levels were found in untreated LG Mountain).

Net blotch was observed in 9 out of 23 varieties on 24th April but overall infection levels were low. Net blotch had effectively 'disappeared' by 22nd May although low levels remained in untreated Aleksandra.

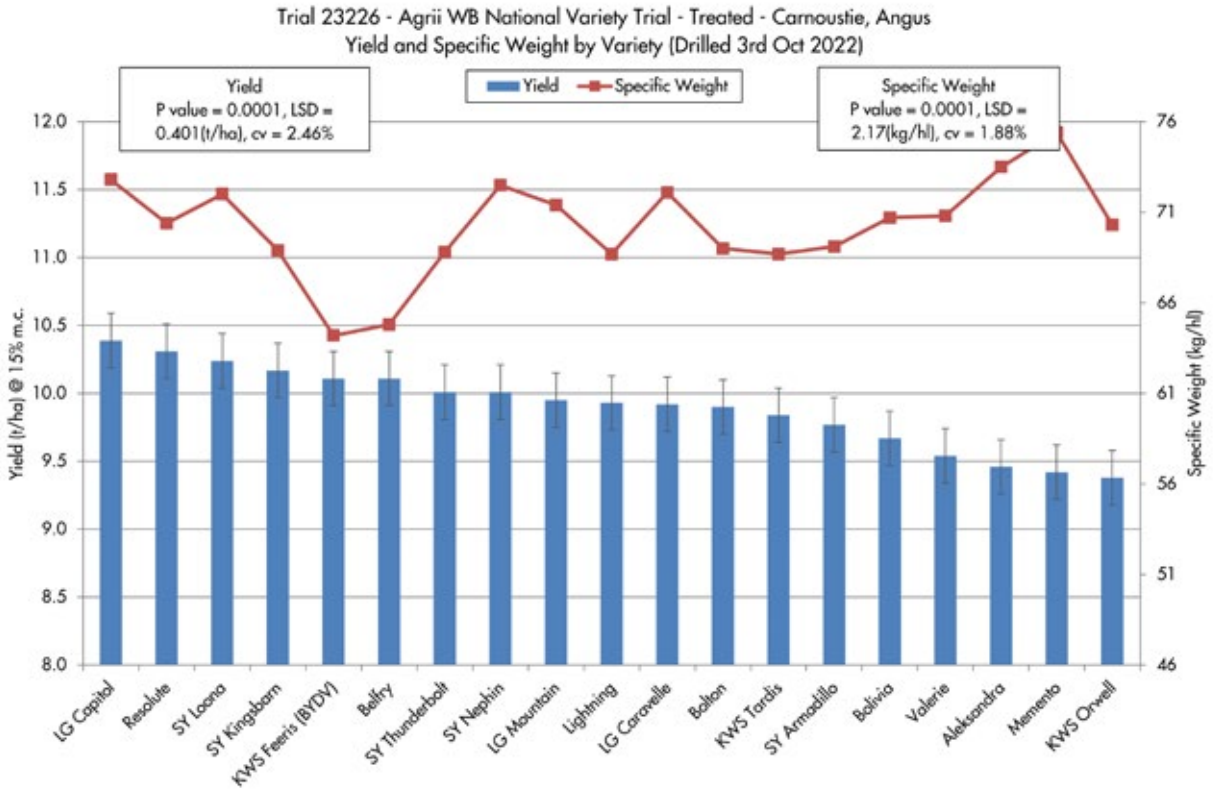
Mildew pressure was low in late April when only 9 out of 23 varieties showed infection; highest levels were recorded in untreated KWS Orwell. However, mildew levels had increased in the trial by 22nd May when all varieties except SY Thunderbolt showed infection; highest infections were recorded in untreated KWS Orwell and Memento.

Low levels of brown rust were recorded in KWS Orwell, KWS Feeris and SY Kingsbarn on 24th April. On the same date, yellow rust was recorded in ten of the varieties (mostly the 6-row types) with the highest infection recorded in SY Kingsbarn. Brown rust had effectively 'disappeared' from the untreated plots by 22nd May.

Senescence in the untreated plots was well underway (with all leaves effectively 'dead') on 24th June. In contrast, leaves 1+ 2 were still 'green' in the 'fully treated' plots. Mildew was recorded on the untreated stems of KWS Tardis. There was no lodging in the plots except part of untreated Aleksandra.

Crop canopies were reasonable on 22nd May (GS 51-65) and averaged 825 ears/m^2, 570 ears/m^2 and 450 ears/m^2, respectively, for the 2-row and 6-row non hybrid varieties and hybrids. The first top dressing of 60 kg/ha of N (along with P, K and S) as Agrii Start Enhance was applied early (20th February 2023), followed by the second top dressing of N (as OEN) on 11th April, the unsettled conditions following this application would have aided N uptake and tiller survival. Total spring nutrients applied as top dressings were 164 kg/ha of N, 40 kg/ha P_2O_5, 135 kg/ha K_2O and 74 kg/ha of SO_3 applied in three splits, the last application of K and S was on 11th April.

At harvest, there was moderate lodging in untreated Aleksandra along with some 'leaning' in the untreated plots of LG Mountain, Belfry, SY Kingsbarn, SY Thunderbolt and SY Nephin. There was no lodging in any of the treated plots. Pre-harvest glyphosate was applied on 6th July and all plots were harvested in predominantly dry conditions, but with patchy showers, on 19th July (two days earlier than in 2022) when average grain moisture content in the treated plots was approximately 17.9%.



Carnoustie

ANGUS

Tim Hatton
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Carnoustie, Angus

SOIL TYPE

Sandy silt loam

TRIALS 2023

Winter oilseed rape (unreplicated strips)

PREVIOUS CROP

Spring barley

DRILLING DATE

12th August 2022

SEED RATE

40 s/m^2

HARVEST DATE

7th August 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Winter oilseed rape

The seed was direct drilled into the stubble of the previous crop, eight days earlier than in autumn 2021. Plant emergence and establishment were both very even, likely aided by rain (8mm) that fell two days after sowing, and then further rain in the following week; plants had 2-3 leaves on 5th September. Plant numbers averaged 38 plants/m^2 (hybrids) and 35 plants/m^2 (non-hybrid) on 14th September when plants had around four leaves; DK Excited looked particularly vigorous whilst InV1266 CL appeared sparse. Plant growth was rapid in October and there seemed to be little overall difference in vigour between varieties on 25th October when plants had seven leaves. Nevertheless, DK Exsteel, LG Auckland, InV1266CL, V367OL and DK Excited appeared to show the most vigour/ground cover. Plant size was generally smaller in early December 2022 compared to the previous season, possibly because of wetter conditions which may have 'slowed' growth in late 2022 (InV1266CL and Aardvark showed most vigour/ground cover on 5th December whilst InV1035 and Tennyson appeared 'slower'). On 23rd December, some older leaves were turning 'white' and senescing due to recent snow cover and frost, but there was no difference between varieties. Crop biomass/ground cover on 23rd December was markedly lower for all varieties where autumn fungicide had been applied (due to 'PGR effect' from Architect) compared to the 'untreated' block. There was no pigeon damage at the site (but some geese damage in V367OL) in mid to late January when the GAI value (0.97) averaged across all varieties was lower than in 2022 (2.72) but similar to January 2021 (0.92). This probably reflected the cooler growing conditions in late autumn/winter 2022. Highest GAI was recorded for Aarvark, InV1266 CL and DK Exsteel. Differences in vigour were still apparent on 12th March when LG Auckland, Aardvark and InV1266CL exhibited most ground cover/vigour whilst Tennyson, DK Excited and LG Anarion exhibited the least; Aardvark was well into stem extension on 12th March followed by InV1266CL.

Canopies looked 'full' and 'even' on 29th March with Aardvark exceptionally well ahead in terms of stem extension. Wet and mild conditions in October were probably the main reasons for the low levels of phoma in untreated Ambassador and Aardvark on 25th October along with minimal levels of phoma in untreated Tennyson and InV1266 CL. However, only trace levels of phoma were observed in untreated InV1035 and Aardvark by early December. Light leaf spot was seen in all the untreated varieties on 12th and 29th March especially DK Exsteel, Inv1266 CL, DK Excited and LG Anarion. Infection levels had remained generally 'static' by 24th April when highest infections were recorded in untreated Tennyson, LG Anarion, LG Auckland and Ambassador. Most of the light leaf spot infections were seen as stem staining along with leaf distortion on 15th and 22nd May when overall infections seemed moderate. The incidence and extent of stem staining from light leaf spot in the untreated plots had increased further by 24th June. No clubroot was recorded in the plots and pod midge damage was minimal. Trace levels of sclerotinia were recorded in the untreated plots of V367OL, Ambassador, DK Exsteel, Tennyson and InV1035 on 23rd July. The overall response to fungicide (+0.89 t/ha) was higher than in the previous four seasons (+0.42, +0.05, +0.44 and +0.55 t/ha in 2019, 2020, 2021 and 2022 respectively) but reflected the overall higher disease pressure at the site in the 2023 season.

Crop biomass appeared 'shorter' in the treated block because of PGR-containing fungicide (1.0 l/ha Architect) in early October. Start of flowering was later than in 2022 when over half of the varieties had started to flower by 28th March (in contrast, no flowers were present on 29th March 2023).

By late April, LG Auckland and Aardvark had most flowers present whilst Tennyson and LG Anarion appeared slowest to flower. Pod set was well underway by 15th May. All canopies appeared tall and 'full' in late June when pod fill was well underway. There was some partial 'leaning over' of the Tennyson and DK Excited untreated canopies on 23rd July. Otherwise, no further crop leaning was recorded, and no lodging was observed at harvest.

All plots were harvested five days later than in 2022 and there was no seed shedding in the plots. Average moisture content at harvest was moderate (15.2%) but with unsettled weather, it was deemed important to harvest the plots. Seed yields were high; LG Auckland, DK Exsteel and Ambassador gave the highest yields in this demonstration. Average oil content as NIR (47.3%) was higher than in 2022 (46.5%).

We are very grateful to David Pattullo for allowing us to conduct this demonstration

Rank	Variety	Fully treated	
		Yield# t/ha	Oil % (NIR)
1	LG Auckland	**6.37**	**46.5**
2	DK Exsteel	**6.20**	**48.3**
3	Ambassador	**6.16**	**46.9**
4	Aardvark	**6.12**	**48.3**
5	InV1266CL	**5.97**	**47.2**
6	V367OL	**5.84**	**46.9**
7	DK Excited	**5.83**	**48.2**
8	LG Anarion	**5.73**	**45.8**
9	InV1035	**5.63**	**47.5**
10	Tennyson	**5.12**	**46.9**
	Mean	**5.90**	**47.3**

 # All yields corrected to 9% moisture content

Carnoustie

ANGUS

Tim Hatton
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Carnoustie, Angus

SOIL TYPE

Clay loam

TRIALS 2023

Winter wheat (replicated)

PREVIOUS CROP

Maincrop potatoes

DRILLING DATE

13th October 2022

SEED RATE

400 s/m^2

HARVEST DATE

22nd August 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Winter wheat

The seed was drilled into a moist seedbed, following seedbed preparation by a tined cultivator and consolidated after drilling. The planned drilling date had been delayed by wet weather. However, the actual sowing date was the same as in autumn 2021. Seedlings started to emerge on 25th October with even crop emergence and the average plant establishment on 3rd November 2022 was reasonable (273 plants/m^2 averaged over all varieties). Mild weather during late autumn encouraged growth and development. The plants had three leaves/one tiller on 5th December due to the mild conditions in November. Soils had turned very wet in early December LG Illuminate appeared slower in development/ground cover (GS 12) compared to the other varieties in the trial on 5th December. Despite the snow cover in mid-December, all plots looked 'well' on 23rd December. Another spell of mild weather during February encouraged growth and the plots looked good on 12th March when plants had two tillers. On closer inspection, 'dead hearts' (later confirmed as wheat bub fly damage) were obvious in the plots, but the first application of nitrogen had been applied early which aided survival of any undamaged tillers. There was no frost heave in the trial. Plots looked healthy on 24th April when plants had reached GS 30-31. However, growth was 'slow' over the following few weeks to 15th May when plants appeared 'short' and canopies appeared 'thin'.

Foliar disease pressure was low in autumn with no visible disease in the plots on 5th December. No mildew was recorded in the plots until 26th June when low levels were recorded in untreated LG Astronomer. The mildew then died out.

The appearance of yellow rust was slower than in 2022. The first active sporulation was recorded on 22nd May in untreated Gleam and SY Insitor; the disease was first seen at the site on 27th April 2022 and in the previous season, on 29th March 2021.

Yellow rust was only recorded in the two aforementioned varieties on 24th June when overall infections had largely 'dried up'.

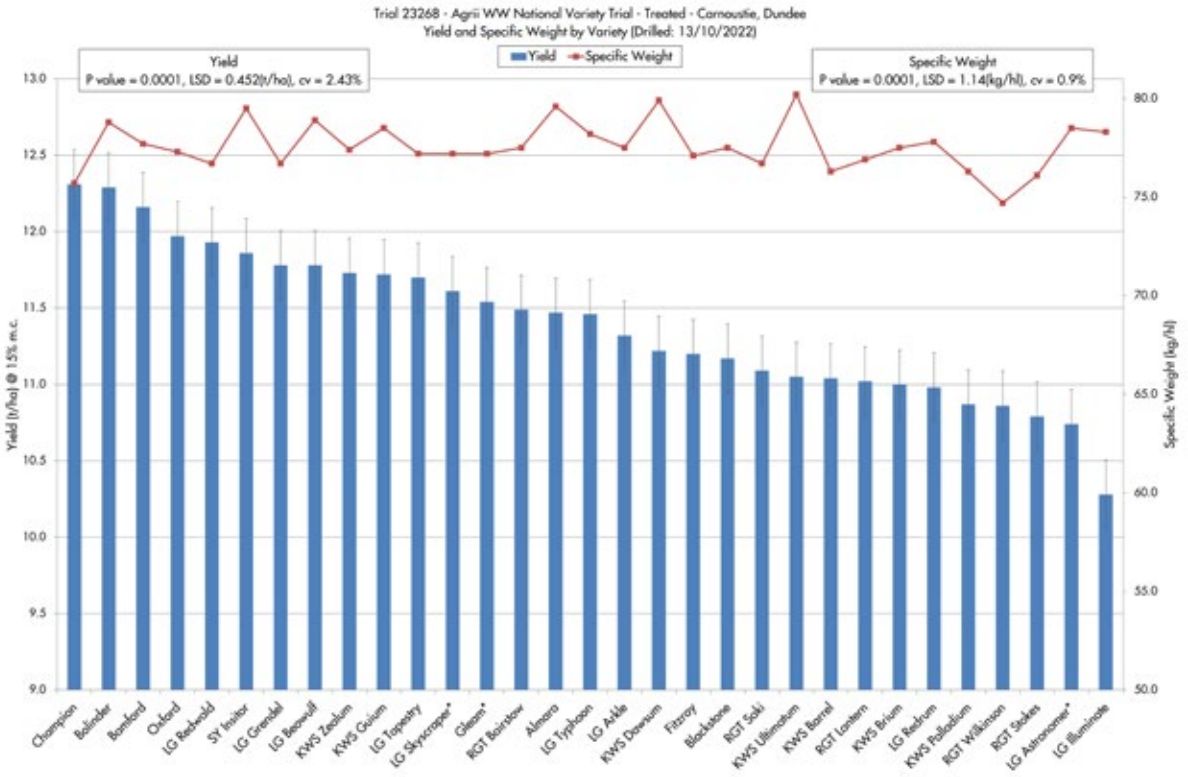
No brown rust was recorded at the site.
Septoria tritici build up was initially slow. However, the disease was present in all varieties by 12th March although differences between varieties appeared small; similar observations were recorded on 29th March. Septoria levels had increased at the site by 24th April in response to the wet and windy conditions in late March/early April, with the highest infections observed in untreated LG Skyscraper, LG Redwald, KWS Palladium, KWS Ultimatum and LG Beowulf. Despite the wet weather, septoria was largely confined to the bottom of untreated canopies by 15th May and seemed to have remained generally 'static' compared to the levels recorded in April. Septoria *tritici* infection was visible up to leaf two in the untreated plots on 24th June but flag leaves remained generally 'clean'. The highest infections were recorded in untreated KWS Barrel, LG Illuminate, RGT Wilkinson, Almara, LG Skyscraper, RGT Saki, Gleam and LG Redrum. Heavy rain between 18th and 20th June resulted in the overall increase of septoria pressure later in the season. Crop senescence was underway by 23rd July with clear differences between the untreated and treated plots.

Ear counts on 26th June indicated that ear numbers averaged 624 ears/m^2 across all plots.

This was higher than in similar trials in 2021 (541 ears/m^2) and 2022 (565 ears/m^2). The raised ear numbers reflected the higher seed rate used in autumn 2022; 400 seeds compared to 350 seeds in the previous two seasons. The first top dressing of 60 kg/ha of N (along with P,K and S) as Agrii Start Enhance was applied early (20th February 2022), which was then followed by the second top dressing of N (as OEN), along with further sulphur and potash, on 11th April. A final application of N (as OEN) was applied on 4th May. The total spring nutrients applied as top dressings were 224 kg/ha of N, 40 kg/ha P_2O_5, 135 kg/ha K_2O and 74 kg/ha of SO_3.

Lodging pressure was relatively low, but a large area of untreated LG Grendel had lodged by 23rd July (the treated plot was partially lodged on the same date). There was also partial lodging in plot areas of untreated LG Skyscraper and RGT Bairstow as well as treated LG Arkle. Pre-harvest glyphosate was applied 14th August. At harvest, untreated plots of LG Grendel and LG Arkle were severely lodged, LG Illuminate and RGT Bairstow showed moderate lodging and untreated RGT Stokes, Bamford and Skyscraper were partially lodged; In the treated plots only, LG Grendel was lodged. There was no grain shedding recorded.

All the plots were harvested on 22nd August (11 days later than in 2022) when average moisture was 16.9% and ex combine specific weight was 75.7 kg/hl across all varieties.



Kinross

PERTHSHIRE

Iain Anderson
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Kinross, Perthshire

SOIL TYPE

Sandy loam

TRIALS 2023

Spring barley (unreplicated strips)

PREVIOUS CROP

Spring barley

DRILLING DATE

9th April 2023

SEED RATE

400 seeds/m^2

HARVEST DATE

9th September 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Spring barley

The plots were sown into a moist seedbed on 9th April, which is 14 days later than in 2022 as the wet weather prevented earlier drilling. Unless stated in the graph, all seed was dressed with Rancona iMix as a 'base' treatment, co-applied with i-Man manganese seed treatment to reflect part of 'best practice' in helping optimise yields on the light soil at the site. Seedling emergence was remarkedly even with no crow damage; average plant population established on 25th April was 337 plants/m^2 averaged over the 11 varieties. Subsequent growth was great, and the plants had started to tiller by 17th May. Laureate treated with Rancona iMix alone or with Vibrance Duo seemed more 'vigorous' than other seed treatment combinations on 23rd May. Plants generally appeared to 'struggle' in the hot, dry weather during May/June, but canopies appeared reasonable on 24th June.

Net blotch was the only disease recorded on 23rd May with the highest infection in SY Tennyson and a lower infection level in Diviner. Net blotch was again recorded in late June, mainly in untreated SY Tennyson but also in Diviner and Firefoxx.

"A farmer can read the AHDB Recommended List, but there is nothing like seeing how varieties perform locally. iFarms are a key part of what Agrii does."

Rhynchosporium (albeit at minimal levels), was recorded in untreated Belter, Firefoxx, Diviner, Rocker and Hurler on 26th June. The disease levels in the untreated plots were raised on 23rd July with net blotch, brown rust, ramularia and rhynchosporium all present at this time. Disease was beginning to develop in the treated canopies as the fungicide programme was 'running out of steam'.

Ear numbers on 26th June averaged 583 ears/m^2 across all 11 varieties, and they were similar to 2021 and 2022 (average 566 and 565 ears/m^2 respectively). At harvest, there was no lodging, but all untreated plots had brackled; untreated Fairing, KWS Curtis and Hurler were the most brackled whilst untreated Firefoxx presented the least brackling.

There was reduced brackling in the treated plots with little overall difference between the varieties (although LG Diablo was more brackled than others in this demonstration). The overall response to fungicide + PGR (+1.56 t/ha) was higher than in 2021 (+1.27 t/ha) but lower than in 2022 (+2.05 t/ha) averaged over varieties and seed treatments but reflected the relative disease and lodging pressures across the three seasons at the site.

Pre harvest glyphosate was applied to all plots, and they were harvested on 9th September (12 days later than in 2022) in dry and breezy conditions. The average moisture content was 16.5%. The average grain yield (7.25 t/ha) was lower than in 2021 (7.56 t/ha) but higher than in 2022 (7.02 t/ha), averaging over varieties and seed treatments.

Ex combine specific weights were modest (averaged 61.5 kg/hl) while average screening levels and retention values were reasonable. Overall, the average grain N value (1.51%) was lower than in 2022 (1.62%) but similar to 2021 (1.57%).

We are very grateful to John & James Russell for allowing us to conduct this demonstration

		Treated with crop protection + nutrition				
Rank	**Variety**	**Yield# t/ha**	**Sp. Wt kg/hl**	**Grain N %**	**Screenings % 2.2 mm**	**Retention % 2.5 mm**
1	Laureate + i-Man + Zax	**7.70**	**61.1**	**1.50**	**1.1**	**94.9**
2	Laureate + i-Man + Take-off	**7.52**	**62.2**	**1.50**	**1.1**	**94.8**
3	Belter + i-Man	**7.49**	**60.2**	**1.49**	**1.2**	**94.1**
4	LG Diablo + i-Man	**7.48**	**60.5**	**1.55**	**1.3**	**93.6**
5	Laureate (Rancona iMix) + i-Man	**7.48**	**61.5**	**1.44**	**0.7**	**96.0**
6	Skyway + i-Man	**7.42**	**64.7**	**1.46**	**0.6**	**95.7**
7	Laureate (Vibrance Duo) + i-Man	**7.34**	**60.4**	**1.49**	**1.3**	**95.4**
8	Laureate + i-Man + Fielder Cu	**7.34**	**61.4**	**1.50**	**1.3**	**94.6**
9	KWS Curtis + i-Man	**7.33**	**61.3**	**1.52**	**2.1**	**90.6**
10	Hurler + i-Man	**7.27**	**59.8**	**1.50**	**1.5**	**93.1**
11	Diviner + i-Man	**7.17**	**61.9**	**1.48**	**2.0**	**91.5**
12	Firefoxx + i-Man	**7.11**	**63.5**	**1.49**	**0.8**	**94.7**
13	Rocker + i-Man	**7.02**	**62.2**	**1.46**	**1.0**	**94.3**
14	SY Tennyson + i-Man	**6.91**	**60.1**	**1.47**	**1.9**	**92.3**
15	Fairing + i-Man	**6.24**	**61.9**	**1.73**	**1.2**	**93.5**
	Mean	**7.25**	**61.5**	**1.51**	**1.3**	**93.9**

 # All yields corrected to 15% moisture content

Kinross

PERTHSHIRE

Iain Anderson
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Kinross, Perthshire

SOIL TYPE

Sandy silt loam

TRIALS 2023

Spring oats (unreplicated strips)

PREVIOUS CROP

Spring barley

DRILLING DATE

9th April 2023

SEED RATE

400 seeds/m^2

HARVEST DATE

9th September 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Spring oats

All plots were sown into a moist seedbed on 9th April 2023 which was 14 days later than in 2022 as wet weather prevented an earlier drilling date. All of the seed was dressed with Vibrance Duo co-applied with i-Man manganese seed treatment to reflect part of 'best practice' in helping optimise yields on the light soil at the site. Seedling emergence was exceedingly even with no crow damage; and the average plant population established on 25th April was 337 plants/m^2. Subsequent growth was good with plants showing 1-2 tillers on 23rd May.

Foliar disease pressure was minimal with negligible disease recorded throughout the season.
The crop canopies appeared somewhat 'thin' in late June but were nevertheless relatively 'even' across the site. The PGR treated plots were markedly shorter compared to the untreated plots. The average ear numbers across all three varieties on 26th June (368 ears/m^2) were like 2021 and 2022 (respectively, 379 and 390 ears/m^2). For the third consecutive season, WPB Isabel had lower ear numbers (345 ears/m^2) than the other varieties (370 and 390 ears/m^2 for Canyon and Merlin respectively).

"The most important crops in Scotland, like malting barley, potatoes and vining peas, also have priority within Agrii nationally. Our advice and research must be relevant for Scottish farmers and the same for our decision-making."

All untreated plots were lodged at harvest; Merlin and WPB Isabel were more severely lodged than Canyon. The treated plots were 'leaning' at harvest but not lodged. The overall response to fungicide and PGR (+1.97 t/ha) was considerably higher than in 2022 (+0.99 t/ha) and averaged over varieties but reflected the increased lodging pressure at the site in 2023.

Pre-harvest glyphosate was applied on 24th August.

All the plots were harvested in dry and breezy conditions on 9th September (12 days later than in 2022 but on the same date as in 2021). Average moisture content was 16.9% in the fully treated plots.

Ex combine specific weights were above 50 for WPB Isabel only; this variety had the lowest ex combine screenings. All varieties had ex combine screenings above 2%. WPB Isabel was amongst the highest yielding varieties at the site for the second consecutive season.

		Treated with standard CP + nutrition		
Rank	**Variety**	**Yield# t/ha**	**Sp. Wt kg/hl**	**Screenings % 2.0 mm**
1	Merlin + i-Man with Release	**7.67**	**53.2**	**1.9**
2	Canyon + i-Man	**7.53**	**49.0**	**3.0**
3	WPB Isabel + i-Man	**7.43**	**51.7**	**2.7**
4	Merlin + i-Man	**7.36**	**51.4**	**1.7**
	Mean	**7.50**	**51.3**	**2.3**

 # All yields corrected to 15% moisture content

Kinross

PERTHSHIRE

Iain Anderson
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Kinross, Perthshire

SOIL TYPE

Sandy silt loam

TRIALS 2023

Winter barley (unreplicated strips)

PREVIOUS CROP

Spring barley

DRILLING DATE

11th October 2022

SEED RATE

425 (non hybrids) or 240 seeds/m^2 (hybrids)

HARVEST DATE

24th July 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Winter barley

All plots were sown into a moist seedbed on 11th October 2022; 4 days earlier than in autumn 2021. Rainfall after drilling aided plant emergence. Plant establishment was excellent on 26th October 2022; 233 plants/m^2 (hybrids) and 399 plants/m^2 (non-hybrids). In contrast to the previous season, there was no increase in mean plant numbers established where Zax (Zn) had been co-applied to Raxil Star + i-Man; but conditions had been conducive to rapid emergence of all seedlings in autumn 2022 at the site. There were no visible differences nor in NDVI readings between the seed treatments in early December. Mild conditions during November encouraged growth so all varieties looked good on 6th December when varieties had started to tiller.

Freezing temperatures around mid-December slowed growth, but all plots still looked well on 22nd December. Mild weather in January and especially February encouraged growth; varieties had 2 tillers on 12th March with no frost heave nor rabbit grazing in the plots. All plots appeared well on 30th March when plants were still tillering; NDVI values of KWS Tardis were higher where Zax had been used (this effect from the zinc seed treatment had also been seen in spring 2021 and 2022 at the site). Awns were starting to appear in the earliest varieties on 17th May; ear emergence was underway on 23rd May.

Disease pressure was low throughout autumn and winter. Plots appeared 'clean' on 12th March. However, like 2022, all plots showed low infections of rhynchosporium in late March 2023 whilst trace levels of net blotch were recorded in Craft.

Rhychosporium levels had increased by late April with net blotch also present in Memento, Valerie and SY Kingsbarn. Mildew was only present in untreated Memento on 23rd May when rhynchosporium was the main foliar disease with highest levels in untreated LG Caravelle and KWS Feeris. On the same date, net blotch was recorded in untreated Craft and SY Kingsbarn only (levels were higher than in late April). There was little green leaf tissue remaining in the untreated plots on 28th June and where present, was mostly infected with rhynchosporium except untreated Bolivia, Memento, Lightning, and Belfry. The treated plots were markedly 'greener' than untreated plots in late June. Overall, response to fungicide + PGR (+1.92 t/ha) was lower than in the previous two seasons at the site (+2.06 t/ha and +2.53 t/ha in 2021 and 2022 respectively) but reflected to lower overall disease pressure in 2023.

The PGR programme gave a marked reduction in canopy height by 17th May compared to untreated plots. Crop canopies were thicker than in 2022. Ear counts on 23rd May 2023 averaged 797 ears/m^2 across the 2-row varieties whilst mean ear numbers in the 6-row types averaged 489 ears/m^2; averaged 711 and 408 ears/m^2 for 2-row and 6-row varieties respectively in 2022. For the third consecutive season at Kinross, there was a trend of higher mean ear numbers where technical seed treatments had been used. Mean ear numbers of KWS Tardis were higher where Latitude or Zax (zinc) had been used (compared to base dressing alone).

Mean ear numbers of KWS Tardis were also higher where Release had been applied (but not SY Kingsbarn in this demonstration), which was opposite to the findings in 2022. Heavy rain between 18th and 20th June was thought to be the cause of lodging in parts of the untreated plots of Lightning and SY Kingsbarn seen on 24th June 2023. Parts of untreated SY Armadillo had lodged by 28th June. Pre-harvest, all untreated plots were brackling or had started to brackle; parts of untreated SY Kingsbarn and Lightning had lodged and brackled. In contrast, there was no brackling in the treated plots on 23rd July. Compared to where Raxil Star + i-Man was used, grain yields of the 2-row variety (KWS Tardis) were higher where Latitude seed treatment had been used (for the third consecutive season at the site). At harvest, Release gave a positive yield response with KWS Tardis but not SY Kingsbarn in this demonstration.

Pre-harvest glyphosate was applied on 17th July. All plots were harvested on 24th July (two days later than in 2022) in cloudy, occasionally sunny conditions. Average moisture content at harvest was good (16.5%). The average ex combine specific weight across all plots was good (65.9 kg/hl) with no real differences in values between hybrids and non hybrids. Average grain N level (1.55%) was lower than in 2021 (1.65%) and 20 22 (1.74%). Ex combine screening levels were below 2% for all varieties.

		Treated with crop protection + nutrition			
Rank	**Variety**	**Yield# t/ha**	**Sp. Wt kg/hl**	**Grain N %**	**Screenings % 2.2 mm**
1	KWS Feeris + i-Man	**9.08**	**65.9**	**1.51**	**0.4**
2	SY Kingsbarn + i-Man	**8.93**	**66.3**	**1.52**	**0.5**
3	Belfry + i-Man	**8.90**	**65.0**	**1.56**	**0.7**
4	LG Caravelle + i-Man	**8.82**	**67.1**	**1.46**	**0.9**
5	SY Kingsbarn + i-Man + Latitude	**8.68**	**66.6**	**1.43**	**0.3**
6	Bolivia + i-Man	**8.60**	**67.6**	**1.50**	**0.3**
7	Valerie + i-Man	**8.56**	**65.0**	**1.48**	**0.3**
8	KWS Tardis + i-Man with Release	**8.44**	**65.2**	**1.56**	**1.0**
9	SY Kingsbarn + i-Man with Release	**8.41**	**66.4**	**1.66**	**0.3**
10	SY Armadillo + i-Man	**8.38**	**66.8**	**1.50**	**0.6**
11	KWS Tardis + Latitude	**8.25**	**65.8**	**1.68**	**0.7**
12	Memento + i-Man	**8.23**	**67.0**	**1.56**	**0.7**
13	KWS Tardis + i-Man	**8.15**	**65.7**	**1.59**	**1.0**
14	Lightning + i-Man	**8.12**	**64.0**	**1.56**	**0.6**
15	KWS Tardis + i-Man + Zax	**8.03**	**65.5**	**1.60**	**0.8**
16	KWS Tardis + i-Man + Take-off	**8.01**	**64.7**	**1.56**	**0.9**
17	Craft + i-Man	**6.93**	**66.0**	**1.66**	**0.4**
	Mean	**8.38**	**65.9**	**1.55**	**0.6**

 # All yields corrected to 15% moisture content

Kinross

PERTHSHIRE

Iain Anderson
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Kinross, Perthshire

SOIL TYPE

Sandy silt loam

TRIALS 2022

Winter rye (unreplicated strips)

PREVIOUS CROP

Spring barley

DRILLING DATE

11th October 2022

SEED RATE

400 seeds/m^2

HARVEST DATE

9th September 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Winter rye

All plots were sown into a moist seedbed on 11th October 2022; four days earlier than in autumn 2021. Rainfall after drilling aided plant emergence which was remarkedly even and the plant establishment was excellent; averaging 356 plants/m^2 on 26th October 2022.

The mild conditions during November encouraged growth so all varieties looked good by 6th December when varieties had started to tiller even though the soil conditions were exceedingly wet. Freezing temperatures around mid-December slowed growth, but all plots still looked good on 22nd December. Mild weather in January and especially February encouraged further growth; the varieties had 4-5 tillers on 12th March with no frost heave nor rabbit grazing in the plots. As expected, crop growth and development in the rye started earlier than other winter cereals at the site and all plots looked fantastic at the end of March when stem extension was underway, but the plants had not reached GS 30. All plots looked 'full' on 25th April at GS32/33. Ears were generally half emerged (GS 55) on 17th May.

Foliar disease pressure was initially low with only minimal levels of rhynchosporium present on the bottom leaves on 12th March and on 24th April. Rhynchosporium levels had remained generally 'static' by 23rd May. By late June, rhynchosporium was the main foliar disease in the untreated plots and resulted in senescence of the canopies. In contrast, canopies were visibly 'greener' where the fungicide programme had been applied. Brown rust levels were negligible all season.

The PGR programme gave a marked reduction in canopy height by 17th May compared to untreated plots. Crop canopies were 'fuller' than in 2022, probably because of the wetter spring which encouraged N uptake and tillering.

The ear counts on 23rd May 2023 averaged 520 ears/m^2 (compared to 451 ears/m^2 in 2022) across the four varieties (ranged between 430 and 615 ears/m^2 for Helltop and KWS Igor respectively). There was no crop leaning or lodging until 26th June when parts of untreated SU Bendix and Astranos were leaning, whilst around half of the untreated plot of KWS Igor had lodged; untreated Helltop showed no leaning or lodging. Untreated Helltop displayed the least lodging on 23rd July then untreated Astranos. In contrast, most of the untreated plot area of KWS Igor (and to a lesser degree SU Bendix) was severely lodged. There was no lodging in any of the treated plots at this stage of the season.

Pre-harvest glyphosate was applied to all plots on 24th August and all plots were harvested in dry, breezy conditions on 9th September (12 days later than in 2022). At harvest, all untreated plots were severely lodged, especially SU Bendix then Astranos.

In the treated plots, SU Bendix showed the most lodging (albeit less severe than in the untreated block) whilst treated Astranos and Helltop were 'leaning'. The average moisture content in the fully treated plots was 16.6%. Ex combine specific weights were moderate.

The average grain protein levels were lower than at the site in the previous two seasons (approximately 9%). Hagberg values were low. The main reason was probably the heavy rain in August and early September 2023. KWS Igor had the highest Hagberg value at harvest in this demonstration.

	Treated with crop protection + nutrition				
Rank	**Variety**	**Yield# t/ha**	**Sp. Wt kg/hl**	**Protein %**	**HFN**
1	KWS Igor	**10.91**	**73.0**	**7.5**	**175**
2	Helltop	**10.09**	**75.1**	**7.9**	**107**
3	SU Bendix	**10.04**	**75.6**	**7.8**	**113**
4	Astranos	**10.03**	**73.7**	**8.2**	**92**
	Mean	**10.27**	**74.3**	**7.8**	**122**

 # All yields corrected to 15% moisture content

Kinross

PERTHSHIRE

Iain Anderson
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Kinross, Perthshire

SOIL TYPE

Sandy silt loam

TRIALS 2023

Winter wheat (unreplicated strips)

PREVIOUS CROP

Spring barley

DRILLING DATE

11th October 2022

SEED RATE

400 seeds/m^2

HARVEST DATE

9th September 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Winter wheat

All plots were sown into a moist seedbed on 11th October 2022; four days earlier than in autumn 2021. Sufficient rainfall after drilling aided plant emergence which was very even with only minor crow damage in late October. Plant establishment on 26th October 2022 (peri-emergence/GS 10) was reasonable as it was deemed further seedlings were still to emerge (292 plants/m^2). For the third season at the site, compared to where 'base treatment' (Beret Gold + Latitude + i-Man) had been used, mean plant numbers were increased where Vibrance Duo + i-Man had been used. For the second consecutive season, mean ear numbers in late June were highest where Vibrance Duo had been used. At harvest, when compared to Beret Gold + i-Man + Latitude as 'base dressing', all technical seed treatments gave a positive yield response in this demonstration for the second consecutive season at the site.

Mild conditions during November encouraged growth so all varieties looked well on 6th December when varieties had three leaves. There were no real differences in NDVI measurements between seed treatments or in response to pre-em Release on 7th December, possibly as a result of the exceedingly mild weather in November which may have somewhat 'masked' the responses. Freezing temperatures around mid-December slowed growth, but all of the plots still looked good on 22nd December. Further mild weather in January and especially February encouraged growth; varieties had 2-3 tillers on 12th March with no frost heave nor rabbit grazing in the plots. Plots looked good on 30th March when plants had 3-4 tillers and again on 25th April when stem extension was underway (almost GS 30). All plots looked well in late May, but crop GS (31-32) was considerably 'later' than at a similar period in 2022 (GS 37-39). Foliar disease pressure was low over the winter period.

Septoria tritici was the only disease recorded in the plots on 12th March, but overall infection levels were low.

At the end of March and at the end of April, LG Skyscraper had greater septoria infections than other varieties in this demonstration (in contrast, Champion looked strikingly 'clean' at the end of April). Despite wet conditions, visible septoria was still largely confined to the base of the crop canopies in mid-May (GS 32) although overall infection levels had increased compared to late April. By the end of June, visible septoria remained mostly confined to the lower/mid canopy leaves in the untreated canopies, at levels only slightly higher than in late May. However, the heavy rain in late June increased 'late season' septoria pressure at the site. Reduced levels of mildew were recorded only in LG Astronomer on 30th March but subsequently 'died out'. Yellow rust was recorded earlier (23rd May) in 2023 compared to the previous season (20th June 2022). Untreated LG Skyscraper, Gleam and the 3-way blend (which included LG Skyscraper) all indicated low infections. Yellow rust was also recorded in the single varieties in late June as well as SY Insitor (where infection levels had increased). In contrast, yellow rust had largely 'dried up' in untreated Gleam. Untreated crops had started to senesce by 23rd July when RGT Bairstow appeared noticeably 'greenest', then LG Typhoon, KWS Dawsum and Champion compared to other varieties.

The fungicide programme gave effective control of disease. In the treated plots at harvest, there was minor bird damage across all plots but no crop lodging. In the untreated plots, bird damage (broken over stems) was more evident; RGT Bairstow in particular and to a lower degree, LG Skyscraper, KWS Dawsum, Champion, RGT Lantern, Gleam and SY Insitor displayed more 'damage' than LG Tapestry, LG Typhoon and LG Astronomer at this site. However, crop lodging incidence in the untreated plots was small; RGT Bairstow showed the most lodging whilst untreated LG Skyscraper, Gleam, SY Insitor and the 3-way blend were 'leaning'.

The overall response to fungicide+PGR (+0.55 t/ha averaged over the 10 varieties and one blend) was lower than in 2021 (+0.90 t/ha) and 2022 (+2.59 t/ha) but reflected the low disease and lodging pressure at this site in 2023. Application of Release had increased the mean ear numbers of both LG Skyscraper and KWS Dawsum. LG Skyscaper, in particular, showed a positive yield response and positive ROI to the phosphate enhancer (Release) for the second consecutive season at the site.

The crops canopies appeared somewhat 'short' on 24th June, possibly due to the 'robust' PGR programme applied (compared to the untreated plots). Crop canopies were also relatively 'thin'; and the ear counts across the 10 varieties + one blend, averaged 534 ears/m^2 on 26th June which was higher than in 2021 (519 ears/m^2) but lower than in 2022 (650 ears/m^2). The later drilling date along with relatively 'late' final 'split' of N+S in 2023 combined with dry weather at the time were thought to have restricted N uptake and reduced tiller production.

Pre-harvest glyphosate was applied, and all the plots were successfully harvested on 9th September (12 days later than in 2022) in dry and breezy conditions. The average moisture content was 17.1% in the treated plots, and ex combine specific weights were reasonable. Average grain protein levels were reduced compared to 2021 and 2022, probably because of the rotational situation. LG Skyscraper treated with technical seed treatments along with KWS Dawsum and SY Insitor gave the best yields at harvest followed by 3-way blend. There was a positive yield response to the phosphate enhancer (Release) applied pre-crop emergence to LG Skyscraper for the second consecutive season at the site.

	Treated with crop protection + nutrition			
Rank	**Variety (2nd cereal)**	**Yield# t/ha**	**Sp. Wt kg/hl**	**Protein %**
1	LG Skyscraper + Zax	**9.00**	**73.6**	**8.44**
2	LG Skyscraper Vibrance Duo (no Latitude)	**8.96**	**72.3**	**8.54**
3	KWS Dawsum	**8.95**	**75.2**	**8.43**
4	SY Insitor	**8.89**	**74.9**	**8.56**
5	Skyscraper/Bairstow/Tapestry blend	**8.86**	**72.5**	**9.02**
6	LG Typhoon	**8.83**	**74.2**	**8.51**
7	LG Skyscraper with Release	**8.76**	**72.3**	**8.71**
8	RGT Bairstow	**8.66**	**71.8**	**8.23**
9	LG Tapestry	**8.63**	**72.2**	**8.74**
10	Gleam	**8.58**	**73.9**	**8.32**
11	LG Skyscraper	**8.53**	**73.7**	**8.62**
12	KWS Dawsum with Release	**8.43**	**75.5**	**8.32**
13	Champion	**8.42**	**73.4**	**8.80**
14	RGT Lantern	**8.26**	**71.8**	**8.10**
15	LG Astronomer	**8.00**	**73.7**	**9.10**
	Mean	**8.65**	**73.4**	**8.56**

 # All yields corrected to 15% moisture content

Lothian & Borders

EYEMOUTH 48
Winter barley
Quick look results:

+ Compared to single-purpose seed treatment alone, mean plant numbers were higher where either i-Man+Zax or Take Off had been used on KWS Tardis, possibly because of a biostimulant effect from the phosphite seed treatment, or from enhanced auxin levels where zinc (as Zax) had been used.
+ Like the previous season, there was no one 'dominant' disease at the site during 2023. The overall response to fungicide and PGR across all varieties and seed treatments (+5.09 t/ha) was higher than the previous three seasons (+1.94 t/ha in 2020, +1.04 t/ha in 2021 and 2022).
+ KWS Tardis was the highest yielding variety with different seed treatments. Highest was KWS Tardis + i-Man + Zax at 14.22t/ha, followed by KWS Tardis + Latitude at 14.04t/ha and KWS Tardis + i-Man + Take-off at 13.41t/ha.

EYEMOUTH 50
Winter oilseed rape
Quick look results:

+ The average yield in the trial was 4.87t/ha. Aardvark (5.46t/ha) gave the highest yield, closely followed by LG Auckland (5.40t/ha) and DK Exsteel (5.39t/ha). InV1266CL (411t/ha) produced the lowest yield variety.
+ The overall response to the fungicide was +0.62t/ha over the nine varieties, mainly due to light leaf spot control as phoma levels were minimal and sclerotinia was not present.
+ The average oil content was 46.5% with DK Exsteel (47.9%) and Aardvark (47.4%) yielding the two highest in the trial.

EYEMOUTH 52
Winter wheat
Quick look results:

+ For the fourth consecutive season, mean plant numbers were greater where the 'SDHI' seed treatment Vibrance Duo, rather than Beret Gold, had been used. Similarly, mean plant numbers were higher where i-Man (Mn) + Zax (Zn) had been used compared to Beret Gold alone (probably due to a 'biostimulant' effect from zinc).
+ Ex combine specific weight values were 'modest' but greater for KWS Dawsum at 77 kg/hl and KWS Ultimatum at 77.8 kg/hl at ex combine moisture.
+ The highest yielding varieties of the trial were KWS Dawsum at 14.86 t/ha, Champion at 14.63 t/ha and KWS Ultimatum at 14.28 t/ha.

Eyemouth iFarm

Agrii™

Eyemouth

SCOTTISH BORDERS

Greig Baird
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Eyemouth, Scottish Borders

SOIL TYPE

Sandy loam

TRIALS 2023

Winter barley (unreplicated strips)

PREVIOUS CROP

Spring barley

DRILLING DATE

23rd September 2022

SEED RATE

375 seeds/m² (non hybrids) 210 seeds/m² (hybrids)

HARVEST DATE

8th August 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Winter barley

The plots were sown two days later than in autumn 2021 into a drying seedbed. Subsequent plant emergence was remarkedly even and the growth was good throughout. The plant establishment looked excellent on 14th October 2022 and averaged 294 plants/m² (non-hybrids) and 165 plants/m² (hybrids). Compared to single-purpose seed treatment alone, mean plant numbers were higher where either i-Man+Zax or Take Off had been used on KWS Tardis, possibly because of a biostimulant effect from the phosphite seed treatment, or from enhanced auxin levels where zinc (as Zax) had been used. Similar effects had been recorded at the site in the previous three seasons. Plant counts in SY Kingsbarn also showed that plant numbers were higher where either Take Off or Latitude had been co-applied with Raxil Star. Despite exceedingly wet soil conditions, all plots looked 'well' on 22nd November when plants had three tillers, although Belfry was 'selectively grazed' by hares. Mild conditions over winter encouraged plant growth so any differences were 'masked' when NDVI readings were recorded on 13th February; although NDVI was highest for KWS Tardis where Latitude had been used and SY Kingsbarn where Take Off had been used. All plots appeared well in mid-February 2023 (when plants had 4-5 tillers which was a similar crop growth stage as early/mid-February 2022). Tiller numbers had increased by 13th March (GS 27-28), but the soil was saturated after a period of heavy rain, and the hybrid varieties in particular were turning 'yellow'.

Disease pressure had built up by late November due to the mild and wet weather conditions. Net blotch was the main disease noted on 22nd November with all varieties showing some infection, whilst reduced levels of mildew were recorded in Craft, Memento, Valerie, KWS Feeris, Belfry and Armadillo. The disease inoculum had built up over winter due to the moderate, mild conditions. All plots except Bolivia and SY Kingsbarn showed low levels of mildew on 13th February. On the same date, net blotch infection was recorded in all varieties except Memento, Bolivia and Belfry (Craft showed the highest infection), whilst minimal levels of rhynchosporium were seen in all varieties except SY Armadillo and SY Kingsbarn. Brown rust had built up in KWS Tardis, Valerie, KWS Feeris and the three hybrids. By 13th March, mildew levels had increased (only Bolivia displayed no mildew), whilst rhynchosporium, net blotch and brown rust infections had remained 'static' compared to mid-February. Increasingly wet conditions during late March and early April 'washed' mildew from the plant leaves, therefore overall infection levels were negligible on 12th April. On the same date, rhynchosporium levels had increased in Bolivia, LG Caravelle and KWS Feeris only, whilst net blotch and brown rust infections were higher than in mid-March.

In contrast, rhynchosporium had effectively 'disappeared' by 17th May whilst mildew levels had elevated in all untreated plots except SY Armadillo, Belfry and LG Caravelle. Continued surveillance on the same date showed net blotch levels were high in untreated Craft, SY Armadillo and SY Kingsbarn whilst brown rust infections were highest in the untreated 6-row varieties and Valerie. In mid-June, mildew was only recorded on four untreated varieties (Memento, KWS Tardis, Lightning and KWS Feeris) with highest infection in untreated Memento. Brown rust was the main disease in the untreated plots on 14th June, especially in Valerie along with SY Kingsbarn, Belfry and KWS Feeris where little green tissue remained in the untreated canopies. By mid/late June, the untreated canopies of most varieties were senescing with only stems remaining 'green'. Ramularia levels were high in the untreated plots. Like the previous season, there was no one 'dominant' disease at the site during 2023. The overall response to fungicide and PGR across all varieties and seed treatments (+5.09 t/ha) was significant, being higher than the previous three seasons (+1.94 t/ha in 2020, +1.04 t/ha in 2021 and 2022). The main reason behind these results was the high disease pressure and the extreme lodging pressure at the site in 2023.

Awns were visible in all varieties by 14th May and the crop canopies at the site were 'thicker' than in the previous three seasons. Ear counts on 14th May 2023 averaged 1190 ears/m^2 across the 2-row varieties (1016, 808 and 1053 ears/m^2 in 2020, 2021 and 2022 respectively) and averaged 748 ears/m^2 across the 6-row types (589, 483 and 654 ears/m^2 in 2020, 2021 and 2022 respectively). Incidence of blind grain sites was negligible, and all plots looked extremely good on 14th June. Torrential rain along with windy conditions late on 18th June resulted in widespread lodging in the untreated plots. At the same time, most of the treated plot of Lightning was lodged along with partial lodging in treated LG Caravelle. Most of the untreated plots of KWS Tardis were lodged 'flat' as well as untreated Lightning, Bolivia and LG Caravelle whilst parts of the untreated hybrid plots were lodged in varying severities. The least lodging was recorded in untreated Craft.

It was observed that the extent of lodging in untreated KWS Tardis and SY Kingsbarn was reduced where the technical seed treatments had been used; it was possible that rooting had been enhanced where the specialist dressings had been applied which may have lowered lodging pressure. Further unsettled weather in late June increased lodging incidence at the site; only the treated plots of KWS Tardis, Valerie and SY Armadillo were fully standing on 6th July. On 25th July, all untreated plots had lodged with the majority of their plot areas effectively 'flat' or completely brackled over (Valerie). Lodging to a lesser degree was also widespread in the treated plots.

Pre-harvest glyphosate was applied on 10th July. Wet weather, compounded by the delay in availability of the contractor's plot combine, resulting in harvest being severely delayed. All plots were finally harvested on 8th August in bright, breezy conditions (19 days later than in 2022). Crop condition was poor with all untreated plots severely lodged whereas the treated plots were mostly brackled. Despite the crop condition, all plots were lifted 'cleanly' but there was moderate ear loss in both the untreated and treated plots. Mean grain yield averaged over all varieties and seed treatments (12.64 t/ha) was higher than in 2022 (10.29 t/ha) likely due to the 'thicker' crop canopies in 2023. The 2-row feed variety KWS Tardis, treated with the technical seed treatments, gave the highest yields at the site whilst there was also a positive response to Take Off seed treatment with SY Kingsbarn for the sixth consecutive season at the Borders iFarm sites. The average moisture content was 15.1% but ex combine specific weight values were moderate (due to early lodging). Valerie and Memento had amongst the highest ex combine specific weight values at harvest for the second consecutive season. Average grain N content (2.06%) was greater than in 2021 (1.61%) and 2022 (1.80%) but reflected the high screening levels which suggested a 'small' grain size, probably because of lodging. Indeed, screening levels were variable (ranging between 0.7% to 6.6% ex combine in this demonstration).

		Treated with crop protection + nutrition			
Rank	**Variety**	**Yield# t/ha**	**Sp. Wt kg/hl**	**Grain N %**	**Screenings % 2.2 mm**
1	KWS Tardis + i-Man + Zax	**14.22**	**62.3**	**2.09**	**2.0**
2	KWS Tardis + Latitude	**14.04**	**62.4**	**2.07**	**1.7**
3	KWS Tardis + i-Man + Take-off	**13.41**	**61.6**	**2.12**	**1.9**
4	SY Armadillo	**13.23**	**57.0**	**2.02**	**2.4**
5	KWS Feeris	**13.20**	**59.3**	**2.00**	**1.4**
6	Lightning	**13.01**	**58.4**	**2.03**	**4.1**
7	Bolivia	**12.98**	**58.9**	**2.24**	**3.3**
8	Valerie	**12.75**	**64.2**	**1.96**	**0.7**
9	LG Caravelle	**12.48**	**59.7**	**2.08**	**3.8**
10	SY Kingsbarn + Take-off	**12.44**	**57.5**	**2.07**	**2.9**
11	KWS Tardis	**12.43**	**61.6**	**2.04**	**2.1**
12	Belfry	**12.13**	**55.1**	**1.99**	**4.1**
13	Memento	**11.99**	**62.5**	**2.28**	**1.0**
14	SY Kingsbarn	**11.90**	**57.0**	**2.01**	**3.2**
15	SY Kingsbarn + Latitude	**11.77**	**56.7**	**2.11**	**3.3**
16	Craft	**10.34**	**60.1**	**1.87**	**6.6**
	Mean	**12.64**	**59.6**	**2.06**	**2.8**

 # All yields corrected to 15% moisture content

Eyemouth

SCOTTISH BORDERS

Greig Baird
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Eyemouth, Scottish Borders

SOIL TYPE

Sandy silt loam

TRIALS 2023

Winter oilseed rape (unreplicated strips)

PREVIOUS CROP

Winter barley

DRILLING DATE

24th August 2022

SEED RATE

40 seeds/m^2 (hybrids and non-hybrids)

HARVEST DATE

8th August 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Winter oilseed rape

All plots were sown into a moist, drying seedbed on 24th August (one day earlier than in the previous autumn) and rolled. Plant emergence was good and even although there appeared to have been an issue with seed flow of Aardvark, with some 'clumps' intermittently in the rows. There was little cabbage stem flea beetle or slug activity within the plots; plant counts averaged 36 plants/m^2 (hybrids) and 25 plants/m^2 (non-hybrid) on 15th September 2022. LG Auckland showed most vigour with larger plant size compared to other varieties in this demonstration, whilst the non-hybrid Aardvark plants were markedly 'smaller' in mid-September. Similar observations were recorded in mid-October when Ambassador, LG Auckland, LG Anarion and Hanneli exhibited the most vigour/ground cover whilst least was seen in Aardvark. Crop growth was good in the mild, unsettled conditions in October and crop canopies were 'full' with great ground cover although Aardvark still appeared 'thinner'. Overall differences in vigour between varieties were generally small on 25th October when plants had seven leaves; Aardvark had the lowest score, followed by DK Exsteel, InV1035 and InV1266 CL. Thereafter, there was no overall difference between the 'fuller' canopies of the other varieties. Mild conditions in November encouraged growth; plants were 'lush' and around 25 cm tall on 22nd November when the plants had nine leaves present. Plant growth was underway by 13th February, in response to bright, mild conditions in early February (flower buds were seen in Aarvark). Differences in varietal vigour/ground cover were minimal; the highest scores were recorded in Ambassador, Hanneli and LG Auckland whilst the lowest score was for InV1266 CL on 13th February. There was minimal pigeon damage. GAI values assessed by 'cut and weigh' method on 23rd January 2023 showed the canopies were 'full' and very similar to the previous season (0.84 compared to mean 0.92 in January 2022). The highest GAI was recorded in LG Auckland (0.98) and LG Anarion (0.92), whilst lowest GAI for the second consecutive season was Aarvark (0.72). For the second season, Aardvark started stem extension earlier than other varieties at this site and had reached GS 3,5 on 13th March.

Whilst there appeared to be little overall difference between varieties, InV1035, DK Exsteel, LG Auckland, Hanneli, Ambassador, InV1266 CL and particularly Aardvark exhibited more vigorous growth than others in this demonstration on 13th March. Canopies looked 'full' on 12th April with little overall difference in vigour/ground cover between the varieties. LG Auckland and Aardvark had the most flowers open on 12th April whilst Tennyson, Hanneli and particularly DK Exsteel had the least numbers open. Pod set was well underway by 15th May and crop potential looked excellent. There was effectively no phoma in the plots in autumn 2022 despite the wet conditions in October. Only very low levels of phoma were recorded in the untreated plots in mid-February. Light leaf spot was first recorded in all untreated plots on 13th February when infection levels seemed highest in Tennyson, LG Auckland, Aardvark and LG Anarion. Overall infection levels had remained generally 'static' by 13th March with slightly raised levels in untreated LG Anarion, Ambassador and Tennyson compared to the other untreated varieties in this demonstration. Light leaf spot infection levels had increased significantly in the untreated plots by 12th April with highest levels in untreated Ambassador and InV1266 CL, then Tennyson and DK Exsteel. Light leaf spot levels were similar in the untreated plots on 17th May although infection was seen as stem staining; highest infections were recorded in untreated InV1035, LG Anarion and Tennyson. Stem staining was evident on 19th June with greatest incidence in the three varieties plus untreated Aardvark. In contrast, minimum levels were recorded in untreated LG Auckland (for the second season at this site) along with untreated Ambassador and Hanneli. No clubroot nor sclerotinia was recorded in the plots. The overall response to fungicide was +0.62 t/ha averaged across the nine varieties in this demonstration.

Crop canopies looked 'full' with good pod set. In contrast to the previous season there appeared to be only a small difference in canopy height between the untreated and treated plots by mid-May and again in mid-June; a probable reason was that wet autumn conditions delayed the first input with 'PGR' activity until 30th January. Pod fill was underway by mid-June and yield potential looked fantastic. The untreated canopy of Tennyson had started to lean over on 19th June. There was no crop lodging in any plots at harvest although untreated Ambassador and Tennyson had 'leant' over; there was negligible seed shedding.

Plots were harvested four days later than in 2022 in bright breezy conditions. The average moisture content was 8.3% at harvest. Average oil content (as NIR) was positive (46.5%); Aardvark and DK Exsteel had the highest oils in this demonstration.

We are very grateful to Mr W Hamilton for allowing us to conduct this demonstration

		Treated Regime	
Rank	**Variety**	**Yield# t/ha**	**Oil % (NIR)**
1	Aardvark	**5.46**	**47.4**
2	LG Auckland	**5.40**	**46.2**
3	DK Exsteel	**5.39**	**47.9**
4	Hanneli	**4.99**	**46.3**
5	Ambassador	**4.83**	**46.2**
6	InV1035	**4.70**	**46.3**
7	LG Anarion	**4.58**	**46.1**
8	Tennyson	**4.39**	**45.7**
9	InV1266CL	**4.11**	**46.2**
	Mean	**4.87**	**46.5**

 # All yields corrected to 9% moisture content

Eyemouth

SCOTTISH BORDERS

Greig Baird
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Eyemouth, Scottish Borders

SOIL TYPE

Sandy silt loam

TRIALS 2023

Winter wheat (unreplicated strips)

PREVIOUS CROP

Winter oilseed rape

DRILLING DATE

26th September 2022

SEED RATE

375 seeds/m^2

HARVEST DATE

4th September 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Winter wheat

The trial plots were sown into a moist seedbed on 26th September, two days later than in the previous autumn. Plant emergence was even, and establishment was good although KWS Ultimatum appeared much slower to emerge than other varieties in this demonstration. Plant counts averaged 273 plants/m^2 across the 11 varieties on 14th October 2022. For the fourth consecutive season, mean plant numbers were greater where the 'SDHI' seed treatment Vibrance Duo, rather than Beret Gold, had been used. Similarly, mean plant numbers were higher where i-Man (Mn) + Zax (Zn) had been used compared to Beret Gold alone (probably due to a 'biostimulant' effect from zinc). All plots appeared very even on 22nd November when plants had 1-2 tillers. There were no differences in NDVI values between the seed treatments in late winter, probably because of the mild conditions which encouraged overall growth with good, even ground cover in all plots observed on 13th February. At harvest, there was a positive yield response to i-Man + Zax compared to Beret Gold alone (but there was no yield response to Vibrance Duo in this demonstration). The mild weather during February encouraged growth and plots had 4-5 tillers on 13th March, which was a similar range to the 2022 demonstration (4-5 tillers on 17th March 2022).

Above average rainfall between September and December, along with mild temperatures in late autumn, encouraged development of septoria. The highest infection levels were recorded in LG Skyscraper and Gleam on 13th February when plants had 2-3 tillers.

Infection levels remained generally 'static' over the next month. Infection levels had then increased by mid-April, probably in response to remarkedly unsettled conditions in late March/early April, and again by mid-May but remained generally in the 'lower' half of the canopies of untreated plots. Infection levels appeared to remain 'static' by 14th June and the hot weather helped reduce disease development and spread. Mildew pressure was generally low, but infection was recorded in untreated LG Astronomer on 17th May and later, on 14th June (mildew was also recorded in untreated KWS Extase in mid-June). Yellow rust was first seen in untreated LG Skyscraper and Graham on 17th May. Whilst yellow rust had remained at minimal levels in untreated Graham on 14th June, disease infection had increased in untreated LG Skyscraper and was also recorded in untreated Gleam. No brown rust was recorded in the plots during 2023. Late season disease pressure seemed relatively low at the site despite the predominantly unsettled conditions. Crop senescence was underway by late July and the fungicide programme gave good control of disease during the season.

Flag leaves were emerging in all plots by 15th May, which was around a week later than in the previous season. Ear counts averaged 572 ears/m^2 on 15th June which was almost identical to 2021 (577 ears/m^2) and 2022 (577 ears/m^2).

LG Typhoon had the highest ear numbers, but many were 'small' tillers in the canopy base. Unsettled weather from mid/late June resulted in slight stem and root lodging by 25th July in untreated LG Skyscraper, KWS Ultimatum and Champion along with crop 'leaning' in untreated Graham and Gleam.

Parts of the treated plots of LG Skyscraper also showed slight 'leaning'. At harvest, there was modest crop 'leaning'/lodging in the aforementioned varieties along with untreated KWS Extase, where around 25% of the plot area was affected. Despite this, all plots were lifted 'cleanly'. There was no 'leaning' or lodging in untreated and treated KWS Palladium, LG Astronomer, RGT Lantern and LG Typhoon. The overall response to fungicide + PGR (averaged over varieties) was +2.09 t/ha; this was lower than the response recorded in 2022 (+2.47 t/ha) at the site.

All plots were harvested in bright and breezy conditions on 4th September 2023 (16 days later than in 2022 but on a similar date to 2021). Average moisture content was 17.8%. Ex combine specific weight values were 'modest' but greater for KWS Dawsum and KWS Ultimatum at ex combine moisture. Grain protein levels were reasonable considering the high grain yield. Despite the wet weather leading up to harvest, Hagberg values for the three NABIM Group two varieties were above 250.

		Treated with crop protection + nutrition			
Rank	**Variety (1st cereal slot)**	**Yield# (t/ha)**	**Sp. Wt (kg/hl)**	**Protein (%)**	**HFN**
1	KWS Dawsum	**14.86**	**77.0**	**9.7**	
2	Champion	**14.63**	**73.3**	**9.2**	
3	KWS Ultimatum	**14.28**	**77.8**	**9.8**	**278**
4	LG Typhoon	**14.27**	**73.5**	**9.0**	
5	KWS Palladium	**13.79**	**75.5**	**9.7**	**343**
6	Gleam	**13.78**	**73.1**	**9.1**	
7	LG Skyscraper + i-Man + Zax	**13.54**	**73.5**	**10.0**	
8	Graham	**13.54**	**73.0**	**9.8**	
9	RGT Lantern	**13.47**	**73.0**	**9.1**	
10	LG Skyscraper	**13.39**	**73.2**	**9.7**	
11	KWS Extase	**13.28**	**75.8**	**10.7**	**310**
12	LG Skyscraper Vibrance Duo	**13.17**	**73.6**	**9.8**	
13	LG Astronomer	**12.17**	**73.3**	**9.4**	
	Mean	**13.71**	**74.3**	**9.6**	**310**

 # All yields corrected to 15% moisture content

North of England

BISHOP BURTON 56

Winter barley
Quick look results:

- The treated crop canopies were 'full' in late May when crop growth stage was 65. Mean ear numbers in the treated plots averaged 740 ears/m^2 (427, 584 and 744 ears/m^2 in 2020, 2021 and 2022) across all 24 varieties on 25th May.
- At harvest, all untreated plots had brackled; untreated Valerie as well as all 6-rows except SY Loona had, in effect, completely brackled over (SY Loona was partially brackled over).
- LG Capitol yielded highest at 10.48 t/ha followed by LG Caravelle at 10.44 t/ha and Belfry at 10.31 t/ha.

BISHOP BURTON 58

Winter oil seed rape
Quick look results:

- Highest GAI values were recorded in DK Exsteel and LG Auckland on 24th January. Where Release had been applied in autumn 2022, the mean GAI was increased from 1.03 to 1.29 (averaged over 11 varieties) in January.
- A positive response to fungicide was recorded in 75% of the varieties in this demonstration; the average response was +0.52 t/ha.
- Highest yields were recorded in LG Auckland at 4.95 t/ha, DK Exsteel at 4.14 t/ha and Amarone at 3.61 t/ha.

BISHOP BURTON 60

Winter wheat (unreplicated strips)
Quick look results:

- Mean ear numbers were higher where either i-Man+Zax or Vibrance Duo, rather than Beret Gold, had been used (+4.2% and +7.1% respectively).
- The most significant yields were recorded in LG Typhoon at 15 t/ha, Gleam at 14.45 t/ha and RGT Grouse at 14.07 t/ha.
- Ex combine specific weights were reasonable (at ex combine moisture); KWS Ultimatum (78.7), KWS Dawsum (77.8) and LG Typhoon (76.2) had the highest values whilst Skyfall (68.6) and LG Redwald (67.2) had the lowest values.

BISHOP BURTON 62

Winter wheat (replicated)
Quick look results:

- The average yield across all plots was 10.11t/ha. KWS Extase (11.20t/ha) Graham (11.16t/ha) Bollinder (10.97t/ha) and Bamford (10.75t/ha) were the top yielding varieties with no significant difference between them.
- Specific weights ranged from 71.4kg/hl (LG Rewald) to78.6kg/hl (KWS Ultimatum). All varieties (except LG Redwald) were above 72kg/hl.
- Septoria and yellow rust were the main diseases present in the untreated with Brown Rust becoming more apparent toward the end of the growing season.

HOLDERNESS 64

Winter wheat
Quick look results:

+ The average yield in the trial was low at 9.06t/ha, due mainly to early and extensive lodging. Graham (11.07t/ha), Champion (10.24t/ha), and Fitzroy (10.13t/ha) were the top three varieties.
+ High protein levels (average 13.09%) were achieved but this reflected the high background fertility of the site.
+ Specific weights were moderate at an average of 73.5kgs/hl.

LONGHIRST 66

Winter barley
Quick look results:

+ The average yield across the 13 plots was 8.31t/ha. KWS Tardis with i-Man and Zax seed dressings was the highest yielding variety with a yield of 9.84t/ha. Lightning (9.15t/ha) was second and LG Caravelle (8.76t/ha) was third.
+ Crop canopies were 'full' with awns emerging especially in Lightning by 14th May. Ear counts across all varieties on 17th May 2023 (average 738 ears/m^2) were lower than in 2022 (803 ears/m^2), but greater than in 2020 and 2021 (671 and 479 ears/m^2 respectively).
+ Ex combine specific weights were low (averaged 52.8 kg/hl) at the high ex combine moisture (25.1%). Another likely reason for the low ex combine specific weight values was the low background soil phosphate levels (P Index was 0.7), combined with sub optimal soil pH (5.7).

LONGHIRST 68

Winter oilseed rape
Quick look results:

+ The average yield across the 13 varieties was 5.38t/ha. LG Auckland with a companion crop of buckwheat and vetch was the highest yielding at 6.43t/ha. DK Exsteel (6.10t/ha) was second and Ambassador (6.03t/ha) was third.
+ The overall response to fungicide was raised (+1.41 t/ha across the varieties in this demonstration) but reflected the high disease and lodging pressure at the fertile site.
+ Oil content was reasonable (45.2% as NIR). Hanelli, LG Auckland and companion crops, Ambassador and InV1035 had the highest oils at harvest.

LONGHIRST 70

Winter wheat
Quick look results:

+ Disease pressure was deemed higher later in the season; by 25th July, all the leaves in untreated Gleam were 'dead' whilst only the flag leaves remained partially 'green' in untreated KWS Extase, LG Astronomer, LG Skyscraper, Graham and RGT Lantern.
+ By 25th July, wet, unsettled weather resulted in partial 'leaning'/lodging in untreated LG Skyscraper, LG Astronomer and RGT Grouse but there was no lodging in any treated plots. At harvest, untreated LG Skyscraper, LG Astronomer, Graham and RGT Grouse were 'leaning'/lodging.
+ Highest yielding variety was Champion at 12.12t/ha, followed by KWS Dawsum at 11.98 t/ha and KWS Ultimatum at 11.98 t/ha.

Bishop Burton

EAST YORKSHIRE

Charles Elvidge
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Bishop Burton, East Yorkshire

SOIL TYPE

Sandy silt loam

TRIALS 2023

Winter barley (replicated)

PREVIOUS CROP

Winter wheat

DRILLING DATE

4th October 2022

SEED RATE

325s/m^2 Conv. 225s/m^2 Hybrid

HARVEST DATE

20th July 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Winter Barley

The seed was drilled into a moist but drying seedbed following seedbed preparation by ploughing and power-harrowing. Plots were not rolled due to rainfall after drilling. All plots had emerged evenly by 21st October when average plant establishment was good (288 plants/m^2 for the 17 non hybrids and 209 plants/m^2 for the 7 hybrids). With mild conditions especially during November, plant growth was good over late autumn; plants typically had 1-2 tillers on 2nd December 2022. In contrast, there appeared to be little growth and development during the freezing temperatures in January. Mild conditions in late January and February encouraged growth and development; plants typically had 3-4 tillers on 23rd February and 4-5 tillers on 8th March. Stem extension appeared somewhat 'slow' but was underway by 5th April when crops were approaching GS 30. Flag leaves were emerging on 4th May when crops looked well. Flag leaves fully emerged in the treated plots by 8th May and the first awns were emerging.

Foliar disease pressure was moderate in late autumn due to the particularly mild and wet conditions. Net blotch was recorded in all varieties on 2nd December; highest incidence was recorded in KWS Orwell, Valerie and LG Mountain. In contrast, mildew incidence on the same date was low, with only low infections observed in LG Capitol and KWS Feeris whilst low levels of brown rust were recorded in KWS Orwell, Valerie, LG Caravelle, KWS Feeris and SY Kingsbarn. No autumn fungicide was applied.

Mildew was present in all varieties on 23rd February albeit at reduced infection levels (Bolivia showed no infection whilst KWS Tardis showed the highest mildew symptoms). Mildew incidence had generally increased by 8th March as all varieties showed some infection, but levels were still 'low'. The incidence and severity of mildew had declined further by 4th April when only 9 of the 24 varieties showed symptoms; the main reason was likely due to excessive rainfall during March. In contrast, mildew pressure had built up again by 4th May when 17 of the 24 varieties showed infection. Mildew incidence had generally increased by 8th March as all varieties showed some symptoms, but levels were still 'low'. The incidence and severity had declined further by 4th April when only 9 of the 24 varieties showed mildew symptoms; the main reason was likely due to excessive rainfall during March. In contrast, mildew pressure had built up again by 4th May when 17 of the 24 varieties showed infection.

By early May, mildew was recorded in most of the untreated varieties – only LG Caravelle, Valerie, Bolivia, SY Kingsbarn, SY Thunderbolt and SY Nephin showed no infection symptoms while in contrast untreated Memento and KWS Orwell showed the highest severity.

Above average air temperatures and damp/wet conditions over winter were probably the main reasons that all varieties showed low levels of net blotch on 23rd February.

Overall infection levels had increased by 8th March notably in LG Capitol and LG Mountain, but Bolivia was 'clean'. Similar to the mildew levels, net blotch severity had generally decreased by 5th April compared to early March. Net blotch levels remained generally 'static' into early May. Net blotch levels had mostly increased in the untreated plots by 5th June (only untreated Memento, Valerie and Bolton showed no net blotch symptoms).

Rhynchosporium was found for the first time on 5th April in untreated LG Mountain, KWS Feeris, SY Kingsbarn and SY Armadillo. Rhynchosporium incidence had increased across the untreated varieties by 4th May when 12 of the 24 varieties showed infection symptoms; highest levels were recorded in untreated LG Mountain. In contrast, rhynchosporium levels had declined in the untreated plots by 5th June, possibly as a result of the switch to drier weather in late May.

Incidence of brown rust increased in the trial over winter. Nearly half of the varieties were infected on 23rd February (all 6-row types except SY Thunderbolt and SY Nephin along with Valerie and KWS Tardis). By 8th March, 20 out of the 24 varieties showed brown rust; brown rust levels were highest in SY Kingsbarn and SY Armadillo. Brown rust incidence and severity increased between early March and early April when only Lightning and Bolivia showed no infection. In contrast, brown rust incidence had generally reduced or remained generally 'static' by 4th May when highest levels were seen in untreated Valerie, KWS Feeris, SY Armadillo and SY Kingsbarn. Brown rust had 'exploded' in untreated Valerie by 5th June.

Brown rust was also recorded in untreated KWS Tardis, Bolton, LG Caravelle and all 6-row types on the same date, albeit at lower infection levels than untreated Valerie. Leaf senescence was underway around late June which restricted any further disease development. The treated crop canopies were 'full' in late May when crop growth stage was 65. Mean ear numbers in the treated plots averaged 740 ears/m^2 (427, 584 and 744 ears/m^2 in 2020, 2021 and 2022) across all 24 varieties on 25th May. More specifically the mean ear numbers were 864 ears/m^2, 593 ears/m^2 and 514 ears/m^2, respectively, for the 2-row, 6-row non hybrid varieties and hybrids.

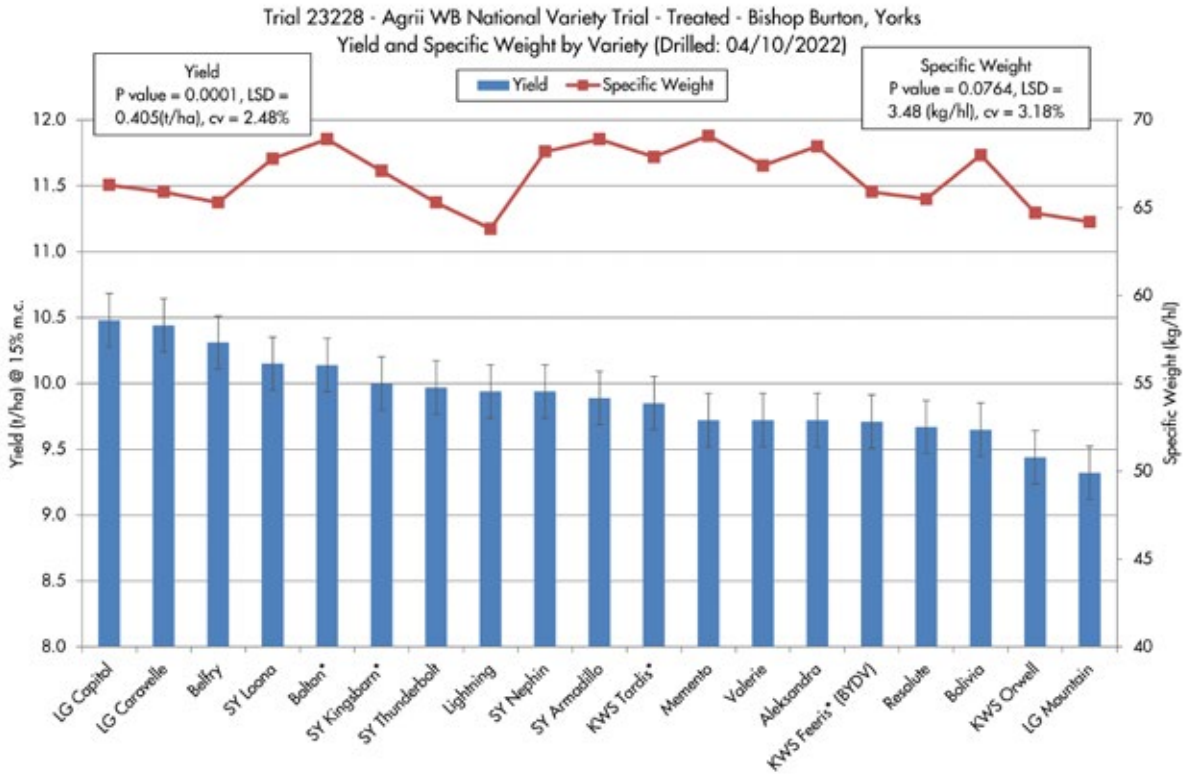
The nitrogen and sulphur top dressing programme consisted of the first top dressing of 80 kg/ha of N and 72 kg/ha SO3 applied on 21st February 2023 followed by 88 kg/ha of N and 26 kg/ha SO_3 (with Liqui-safe) on 28th March. Phosphate (as TSP+P-Reserve) was applied variably (0-126 kg/ha) on 6th February. Total N&S applied was 168 kg/ha of N and 98 kg/ha of SO_3.

Heavy rain showers in late June resulted in lodging in plots of untreated Aleksandra plots. There was some crop leaning in untreated SY Kingsbarn and SY Thunderbolt on 3rd July when all untreated hybrids had just started to brackle. Warm weather and showers in early July encouraged crop senescence which was well underway by mid-July when untreated Valerie, Lightning, LG Mountain were also brackling. In contrast there was no lodging or brackling in any of the treated plots on 12th July.

At harvest, all untreated plots had brackled; untreated Valerie as well as all 6-rows except SY Loona had, in effect, completely brackled over (SY Loona was partially brackled over). Untreated and treated plots of Aleksandra were partially lodged as well as brackled. All other treated plots had just started to brackle.

No pre-harvest glyphosate was applied. All plots were harvested in cool, occasionally sunny conditions on 20th July 2023 (two days later than in 2022).

We are very grateful to T Brumfield for allowing us to conduct this trial



Bishop Burton

EAST YORKSHIRE

Charles Elvidge
iFarm Coordinator

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LOCATION

Bishop Burton, East Yorkshire

SOIL TYPE

Sandy silt loam

TRIALS 2023

Winter oilseed rape (unreplicated strips)

PREVIOUS CROP

Winter barley

DRILLING DATE

26th August 2022

SEED RATE

65 s/m^2

HARVEST DATE

10th August 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Winter oilseed rape

All plots were sown into winter barley stubble, which was previously cultivated with a subsoiler and disc cultivator; drilling date was four days earlier than in autumn 2021 and seed rate was elevated due to the predominantly dry conditions. Plant emergence was initially slow but, overall plant numbers were reasonable following torrential rain on 7th September then several days of unsettled conditions which aided emergence and establishment. There was extremely high pressure from both cabbage stem flea beetle and slugs compared to autumn 2021. Plant counts on 13th September averaged 40 plants/m^2 (non-hybrids) and 42 plants/m^2 (hybrids) across all varieties. Plant growth was still sluggish at the end of September. Crop growth seemed to 'pick up', possibly aided by the unsettled conditions in late September/early October. Varieties typically had 5-6 leaves on 12th October when LG Anarion and DK Excited exhibited the 'greater' plant sizes and ground cover whilst Hanneli was poorest. CSFB was still found on the plants on 14th October. In early November, Tennyson and Aardvark showed lower biomass/ground cover than other varieties but overall differences were minimal. LG Anarion along with LG Auckland exhibited most biomass/ground cover on 4th November when plants had 6-8 leaves. Although overall differences between varieties were generally small in early December, most vigour/biomass was observed in LG Auckland and DK Excited whilst Tennyson and Aardvark showed the least. Incidence of pigeon grazing increased in the plots in late December, so deterrents were erected. Despite freezing temperatures in January 2023, there was little further pigeon damage. Averaged over varieties, the mean GAI value assessed by 'cut and weigh' method on 24th January 2023 (1.03) was lower than in 2022 (2.09) and 2021 (1.17). Highest values were recorded in DK Exsteel and LG Auckland. Where Release had been applied in autumn 2022, the mean GAI was increased from 1.03 to 1.29 (averaged over 11 varieties) on 24th January. In turn, this meant that autumn applied Release had consistently increased mean GAI values at Bishop Burton over three consecutive seasons. In late February, vigour/ground cover differences between the varieties were small although Tennyson appeared 'sparse'. Phoma was slow to develop in the plots; leaf samples sent to Bayer SpotCheck on 24th October indicated that only incredibly low levels were present. Only untreated plots of Ambassador, LG Anarion and LG Auckland showed reduced phoma infection on 4th November.

Wet and extremely mild weather during November encouraged phoma development and levels were high in all untreated plots on 2nd December, especially untreated LG Anarion and Ambassador. Leaf samples sent to Bayer SpotCheck on 31st January indicated moderate phoma incidence in untreated LG Auckland but lower incidence in DK Exsteel. All varieties showed trace levels of mainly 'old' phoma in late February. Phoma had increased by early April likely in response to the wet weather in March, but the disease was largely confined to the older leaves in the untreated canopies. Phoma infections levels had increased in the untreated plots by 4th May, probably as a result of the predominantly unsettled conditions during April. A switch to drier conditions in mid to late May reduced phoma pressure at the site with no lesions recorded in the untreated plots on 5th June. Light leaf spot was first seen in the untreated plots on 31st January; leaf samples sent to Bayer SpotCheck indicated moderate infection in untreated DK Exsteel but lower infection in LG Auckland. All untreated varieties showed light leaf spot on 21st February with highest infections in InV1266 CL, LG Anarion and DK Excited. Low levels of light leaf spot were observed on leaves in early April with minor difference in infection levels across all the untreated varieties. Light leaf spot infections had increased by 4th May. Leaf infection levels were slightly higher in the untreated plots on 5th June when stem staining was also recorded in most varieties. Stem staining remained minimal but had increased in the untreated plots by 10th July. Incidence of sclerotinia was incredibly low in the untreated plots with only trace levels seen in untreated LG Auckland on 10th July. There was no verticillium wilt. A positive response to fungicide was recorded in 75% of the varieties in this demonstration; the average response was +0.52 t/ha.

Despite wet weather in March, temperatures were mild; the very first flowers were present in InV1036, InV1266 CL, DK Excited and Aardvark on 23rd March but overall, flowering was later than in 2022. By 4th April, InV1266CL and Aardvark then LG Auckland, Amarone and DK Excited had most flowers whilst Tennyson was yet to start flowering. Flowering was underway in all varieties by 11th April although Tennyson had only just started.

On 1st May, pod set was well underway in most varieties, especially in LG Auckland. Crop canopies appeared 'full' and well-podded on 5th June with little abortion of pods. There was a slight difference in overall crop height between untreated and treated crop canopies on 5th June. Crop canopies were 'full' through to harvest with only minor incidence of pod midge. Latest to mature (canopies markedly 'greener' on 6th July) were DK Exsteel and Hanneli. The untreated plots of Ambassador and LG Auckland + companion crops had partially lodged on 6th July. Lodging incidence increased by 10th July when untreated LG Auckland with and without companion crops, LG Ambassador and untreated DK Excited lodged. Wet and windy conditions throughout mid to late July resulted in widespread lodging in untreated and treated plots by 31st July when parts of Ambassador, LG Anarion, InV1035 and DK Excited were somewhat 'flat'.

Pre harvest glyphosate was applied on 14th July. However, harvest was delayed until 10th August due to unsettled weather and availability of contractor's plot combine. As a result, crop canopies were completely 'dead' (27 days after glyphosate applied) and stems had 'buckled over' at harvest. This meant plots were moderate to severely lodged at harvest but with dry conditions, all plots were lifted 'cleanly'. Seed shedding was negligible but seemed higher in the non-hybrid Amarone than all other plots. Average moisture content was 6.9%. The yields and average oil content were reasonable.

We are very grateful to Bishop Burton College for allowing us to conduct this demonstration

	Variety	Fully treated	
		Yield# t/ha	Oil % (NIR)
1	LG Auckland	**4.96**	**45.3**
2	DK Exsteel	**4.14**	**45.9**
3	Amarone	**3.61**	**44.9**
4	Hanneli	**3.57**	**43.5**
5	InV1035	**3.54**	**44.8**
6	Aardvark	**3.37**	**45.0**
7	LG Auckland + buckwheat (10 kg/ha)	**3.30**	**45.1**
8	DK Excited	**3.22**	**44.7**
9	LG Anarion	**3.11**	**44.4**
10	Tennyson	**3.11**	**45.2**
11	InV1266CL	**3.08**	**45.6**
12	LG Auckland+buckwheat+vetch (each 6 kg/ha)	**3.07**	**45.0**
13	Ambassador	**2.88**	**44.8**
14	V367OL	**2.62**	**45.5**
	Mean	**3.40**	**45.0**

 # All yields corrected to 9% moisture content

Bishop Burton

EAST YORKSHIRE

CLICK HERE TO FIND OUT MORE ABOUT KWS DAWSUM

Charles Elvidge
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Bishop Burton, East Yorkshire

SOIL TYPE

Sandy silt loam

TRIALS 2023

Winter wheat (unreplicated strips)

PREVIOUS CROP

Winter oilseed rape

DRILLING DATE

23rd October 2022

SEED RATE

350 s/m^2

HARVEST DATE

10th August 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Winter wheat

All plots were sown straight into winter oilseed rape stubble using a Mzuri drill then rolled after to conserve moisture in the predominantly dry conditions; drilling date was six days earlier than in autumn 2021. Plant emergence was very even in the unsettled conditions following sowing although RGT Grouse was markedly slower in emerging in this demonstration. However, overall plant establishment was good on 10th October 2022 at GS 10; average 296 plants/m^2 for the 15 varieties treated with Beret Gold dressing alone. Plants grew well in the mild October conditions; Champion seemed particularly vigorous on 4th November whilst RGT Grouse was still 'slow' but 'filling in'. There were no visible differences between the seed treatment plots in early November and again in early February.

Plant growth was good in the mild November conditions; plants had 2-3 tillers on 2nd December when KWS Extase, LG Astonomer, LG Redwald, Gleam and Champion appeared 'upright' and 'taller' than other varieties in this demonstration. Freezing temperatures during January slowed plant growth and development but no frost heave was observed in the plots. Overall mild weather in February encouraged growth and development; varieties had 3-4 tillers on 23rd February and appeared prominently 'green'. Mild conditions during March encouraged growth and plants had reached first node (GS 30-31) by 26th March but then 'slowed' again. Flag leaves had emerged by 19th May and the first ears of KWS Extase had emerged on 22nd May. Ears of other varieties were half/three quarter emerged by early June. Mean ear numbers were higher where either i-Man+Zax or Vibrance Duo, rather than Beret Gold alone, had been used (+4.2% and +7.1% respectively). In late June, there was more lodging where Vibrance Duo had been used (which reflected the higher ear numbers). As the season progressed, there appeared to be less lodging where i-Man+Zax had been used (compared to Beret Gold alone or Vibrance Duo). At harvest, Beret Gold+i-Man+Zax outyielded Beret Gold alone. In contrast, there was no response to Vibrance Duo in this demonstration possibly because of earlier and widespread lodging compared to the other seed treatments in this comparison.

Foliar disease pressure in autumn 2022 was low with only minimal septoria infections present on the leaves on 2nd December. Septoria tritici was the only foliar disease observed on 23rd February when KWS Zyatt had the highest infection. Levels had increased by early April, likely in response to the extremely wet weather in March.

Septoria pressure increased further during the predominantly wet conditions of April and early May; disease lesions could be easily found in the mid/upper canopies on 3rd May and were highest in untreated LG Redwald and LG Skyscraper. Despite a switch to drier conditions in late May, septoria levels in the untreated varieties had generally increased by 5th June; disease development probably encouraged by the warmer conditions. Unsettled weather in late June meant that infection pressure continued to build so green tissue was largely confined to the top third of the plants in the untreated plots on 10th July. Yellow rust was first recorded in Graham and KWS Zyatt on 7th March; the appearance of the disease was around a month earlier than in 2022 at the site when only KWS Zyatt showed infection. Yellow rust incidence then declined in the plots and only KWS Zyatt showed a small infection on 4th April. However, yellow rust had built up in untreated KWS Zyatt by 1st May (and to a lesser degree in Skyfall), with a large foci in the middle of the untreated plot. 'Active' yellow rust was also seen in treated plots of the same variety on the same date, so all treated plots received a further fungicide (T1.5) to 'restrict' disease development, which was spread on 3rd May. Yellow rust was recorded in untreated Skyfall and KWS Extase on 12th May on the same date when yellow rust had infected most of the plot of untreated KWS Zyatt. Yellow rust pressure then rapidly increased; by 23rd May, only the flag leaves of untreated KWS Zyatt were still 'green' whilst infection levels increased in untreated Skyfall, KWS Extase, LG Astronomer, LG Skyscraper, LG Redwald, RGT Grouse, Gleam and to a lesser degree Graham and RGT Lantern. Yellow rust pressure was intense on 5th June when leaves of untreated KWS Zyatt appeared more infected than 'green'. Significant infections were also recorded in untreated Skyfall, LG Redwald and RGT Grouse with lower infections in other varieties; only KWS Palladium, KWS Ultimatum, KWS Dawsum, LG Typhoon and Champion showed no yellow rust. Such was the pressure that yellow rust was recorded in the treated plots of the two Group 1 milling varieties on 5th June. Yellow rust had effectively 'dried up' on the leaves by 10th July but active spores were recorded on the glumes in the untreated plots of Gleam, Skyfall, KWS Zyatt and LG Skyscraper. Brown rust had developed in untreated KWS Palladium, KWS Extase, KWS Ultimatum, LG Redwald, Gleam, Graham, RGT Lantern, KWS Dawsum, and LG Typhoon on 10th July.

Ear counts on 8th June (GS 55/59) were 739 ears/m^2 averaged across the 15 varieties which indicated that crop canopies were 'thicker' than in the previous two seasons (617 and 598 ears/m2 respectively for 2021 and 2022). Heavy rain in late June resulted in partial lodging in untreated plots of LG Astronomer, LG Skyscraper, LG Lantern. LG Redwald, KWS Dawsum and Champion on 30th June; parts of untreated LG Lantern, KWS Dawsum and Champion were 'flat'. Lodging incidence remained broadly unchanged in the untreated plots by 10th July despite the unsettled conditions. However, strong gusty winds up to 45mph with torrential rain and hail on 15th July resulted in more widespread lodging in the untreated plots and resulted in lodging in all treated plots except KWS Zyatt, LG Typhoon and RGT Grouse; treated Champion was most severely affected with much of the plot area 'flattened'. Further unsettled weather in late July and early August increased the incidence and severity of lodging by harvest; parts of the treated plots of most of the varieties were 'flat' except for LG Typhoon, KWS Ultimatum, Gleam, KWS Zyatt and RGT Grouse where crops were 'leaning' rather than lodging. Despite the 'early' lodging in some varieties, grain sprouting was only observed in LG Skyscraper at harvest.

All plots were harvested in cloudy, hot and humid conditions on 10th August (six days later than 2022). All plots were lifted 'cleanly' despite the extensive lodging; it was observed that grain shedding in Skyfall had only just started. There was only a low incidence of grain sprouting where crops had lodged earlier. Straw felt 'dampish'; it was observed that straw appeared 'green' at the base, but it was deemed important to harvest the 'laid' crops in dry conditions. Average moisture content in the fully treated plots was 14.1%. Ex combine specific weights were reasonable (at ex combine moisture); KWS Ultimatum, KWS Dawsum and LG Typhoon had the highest values whilst the Skyfall and LG Redwald had the lowest values in this demonstration. Grain protein levels of all varieties were reasonable. No 'late N' had been applied to any of the plots in this demonstration. Hagberg values of all NABIM Group 1 and 2 varieties were below 250 except for KWS Ultimatum (340).

		Fully Treated			
Rank	**Variety**	**Yield# t/ha**	**Sp. Wt kg/hl**	**Protein %**	**HFN**
1	LG Typhoon	**15.00**	**76.2**	**9.39**	
2	Gleam	**14.45**	**72.6**	**10.18**	
3	RGT Grouse	**14.07**	**73.6**	**9.53**	
4	KWS Ultimatum	**13.76**	**78.7**	**9.63**	**340**
5	KWS Zyatt	**13.44**	**74.7**	**10.19**	**221**
6	LG Skyscraper i-Man+Zax	**13.36**	**72.4**	**10.37**	
7	Graham	**13.33**	**72.0**	**10.61**	
8	LG Redwald	**13.27**	**67.2**	**9.92**	
9	KWS Dawsum	**13.25**	**77.8**	**9.91**	
10	LG Astronomer	**12.80**	**74.5**	**10.26**	
11	KWS Palladium	**12.53**	**73.5**	**10.20**	**155**
12	LG Skyscraper	**12.52**	**72.4**	**9.80**	
13	Skyfall	**12.26**	**68.8**	**11.10**	**131**
14	KWS Extase	**12.25**	**75.5**	**9.58**	**204**
15	RGT Lantern	**11.68**	**74.2**	**9.59**	
16	LG Skyscraper Vibrance Duo	**11.64**	**73.8**	**10.30**	
17	Champion	**11.55**	**72.1**	**10.52**	
	Mean	**13.01**	**73.5**	**10.06**	**210**

 # All yields corrected to 15% moisture content

Bishop Burton

EAST YORKSHIRE

CLICK HERE TO FIND OUT MORE ABOUT KWS DAWSUM

Charles Elvidge
iFarm Coordinator

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LOCATION

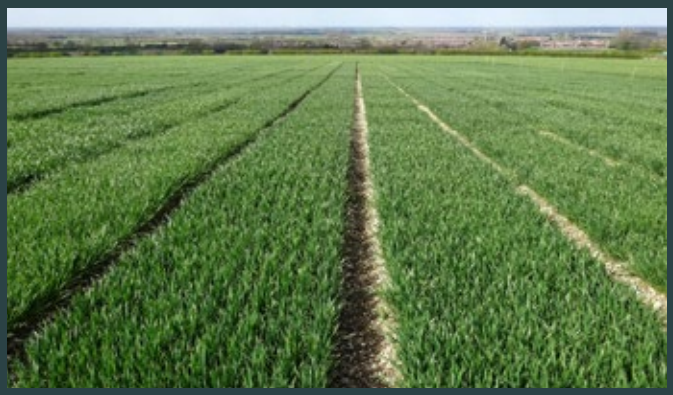
Bishop Burton, East Yorkshire

SOIL TYPE

Sandy silt loam

TRIALS 2023

Winter wheat (replicated)



PREVIOUS CROP

Vining peas

DRILLING DATE

11th October 2022

SEED RATE

400 s/m^2

HARVEST DATE

16th August 2023

SITE NOTES

Winter wheat

Seed was drilled into a moist but drying seedbed following seedbed preparation by ploughing and pressing then one pass using a tine cultivator pre-drilling. Drilling date was seven days later than in autumn 2021, but seed rate had been increased compared to the previous two seasons at the site. Plots were not rolled after drilling. Crop emergence seemed 'quick', probably as a result of good soil moisture levels and mild temperatures during mid/late October. Subsequent crop establishment was even although LG Illuminate, RGT Stokes, RGT Bairstow and RGT Grouse appeared slower to emerge than other varieties at this site. Average plant establishment on 27th October 2022 was reasonable (345 plants/m^2 averaged across all varieties sown at 400 seeds/m^2). Plant growth was good over the late autumn (plants had started to tiller in early December), probably aided by very mild conditions during November. However, there appeared to be little growth and development during the freezing temperatures in January. A switch to mild conditions in February results in plants with typically 2-3 tillers on 21st February and 3-4 tillers on 8th March.

Mild and moist conditions encouraged the development of septoria; all varieties, but especially LG Skyscraper and RGT Saki, showed infection on 8th December. Septoria was the only disease visible on 21st February with generally highest levels in KWS Zyatt and SY Cheer; infection levels had remained broadly static by 8th March. Wet weather during March/early April encouraged Septoria development and spread in the untreated plots; RGT Grouse, RGT Lantern, Fitzroy and Bolinder showed the lowest infections on 18th March at GS 30-31. Septoria levels remained generally 'static' in the untreated plots between mid-April and early May. In contrast, Septoria had developed and spread in the untreated plots, especially in untreated RGT Saki and LG Skyscraper by 7th June. Untreated canopies were effectively 'dead' by mid-July with any green tissue confined to stems; the exception was untreated Fitzroy in particular and to a lesser degree, untreated KWS Dawsum, LG Tapestry, KWS Extase, RGT Wilkinson and RGT Rashid which had greater green tissue retention than other untreated varieties on 13th July.

No mildew was recorded through to early May. However, on 7th June, low levels were recorded in untreated LG Tapestry and KWS Cranium but infections soon dried up.

WRITTEN BY: JIM CARSWELL

The first yellow rust was recorded on 8th March in KWS Zyatt, LG Skyscraper and Graham. Yellow rust infection had increased in untreated KWS Zyatt by 18th April but remained at a similar infection level in the two other aforementioned varieties whilst new infection was observed in Gleam and SY Insitor. Yellow rust was 'rampant' in untreated KWS Zyatt on 4th May and was present in Skyfall, LG Skyscraper, Gleam, Graham, SY Insitor and RGT Grouse on the same date, albeit at lower infection levels. A change to warm conditions in mid/late May encouraged yellow rust development; 18 out of the 46 varieties, as well the blend including LG Skyscraper and SY Insitor, showed some infection on 25th May (GS 39). Yellow rust had 'exploded' by 7th June in untreated KWS Zyatt, Skyfall, Gleam and SY Insitor in particular (these untreated varieties had very little green tissue remaining); overall 25 out of 48 untreated plots showed infection. Such was the disease pressure that treated plots of the four aforementioned varieties, along with Graham, also showed yellow rust infection on 7th June. Infections had dried up by early July.

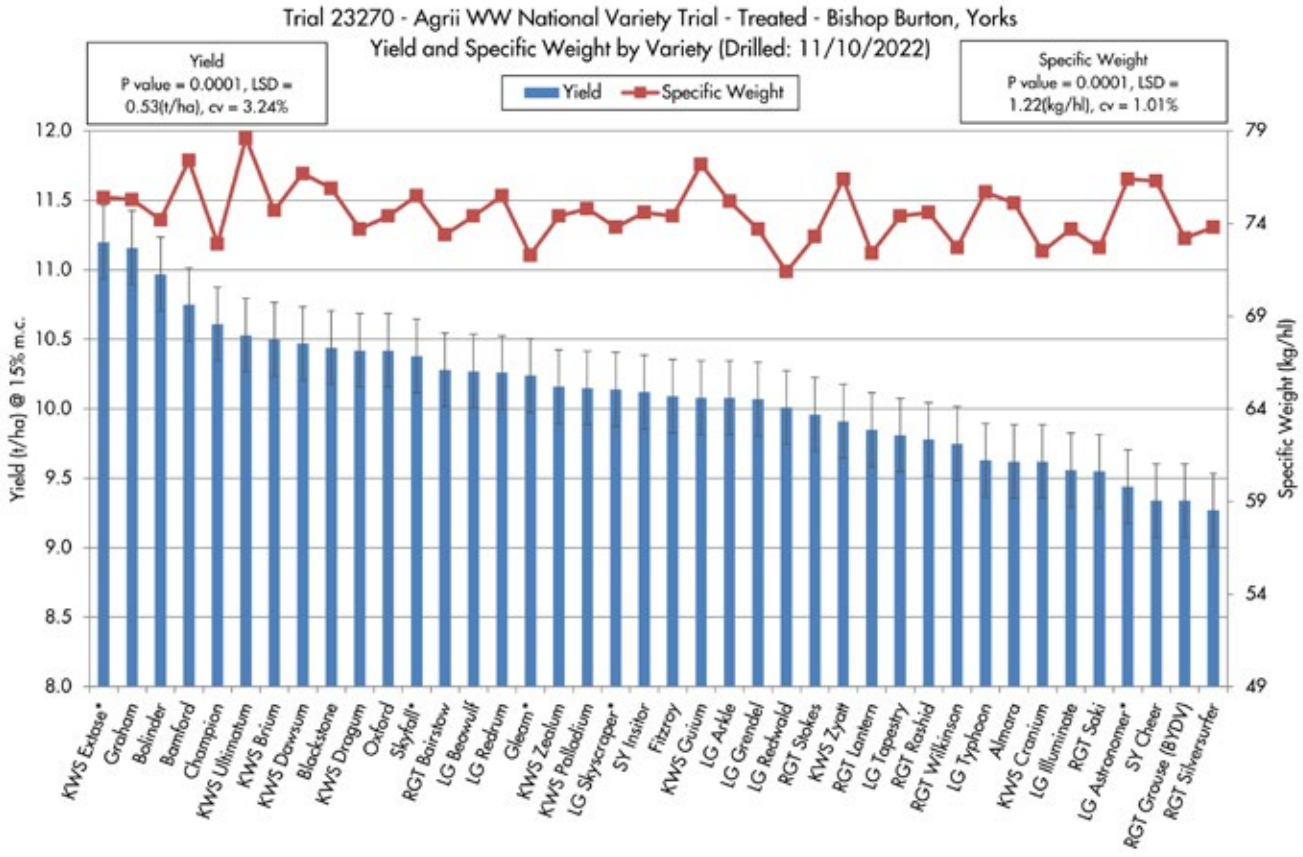
Hot weather in early/mid June encouraged brown rust but cooler weather in early July somewhat curtailed its development and spread. Brown rust was recorded in 22 of the 48 untreated varieties on 13th July but at generally low levels; highest infections was recorded in untreated LG Typhoon. Brown rust had started to colonise remaining green tissue in the treated plots as the fungicide had 'run out of steam'.

Overall plant development in spring was deemed slower than in 2022; ear emergence (GS 55/57) was around a week later than in the previous season. Mean ear numbers averaged 500 ears/m^2 across all varieties on 8th June 2023 which was higher than in the previous season (454 ears/m^2 averaged over 50 varieties).

The main reasons were probably the higher seed rate used in autumn 2022 and the wetter conditions in spring 2023 which would have aided uptake of nitrogen. All top dressings were applied as liquid fertiliser; the first top dressing was applied on 3rd March (64 kg/ha of N) followed by other fertiliser applications on 28th March and 27th April (with Liqui-Safe added to the UAN at all three applications). No organic manures had been applied prior to autumn cultivations so total N rate applied was 212 kg/ha of N along with 63 kg/ha of SO_3 (which was similar to the rates applied in previous seasons).
Despite wet conditions from late June to early August, there was no crop lodging in the trial on 7th August although untreated KWS Zyatt and Gleam had started to lean over. There was no brackling in any of the treated plots on the same date.

No pre-harvest glyphosate was applied. All plots were harvested in warm, occasionally cloudy conditions on 16th August (five days later than in 2022). There was no crop leaning or lodging in the treated plots, but untreated KWS Zyatt had brackled over whilst untreated KWS Extase, LG Grendel, LG Redwald, Gleam and Graham were leaning. There was no grain shedding and all plots were harvested cleanly.

We are very grateful to Charles Rook for allowing us to conduct this trial



Holderness

EAST YORKSHIRE

Billy Hosdell
iFarm Coordinator

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LOCATION

Holderness, East Yorkshire

SOIL TYPE

Sandy silt loam

TRIALS 2023

Winter wheat (unreplicated strips)

PREVIOUS CROP

Vining peas

DRILLING DATE

4th October 2022

SEED RATE

400 s/m^2

HARVEST DATE

21st August 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Winter wheat

Plots were sown into a dry seedbed with some moisture 'below'; the drilling date was ten days earlier than in autumn 2021; heavy rain followed immediately after drilling was completed. Plant emergence was even and plant establishment was good throughout, although RGT Grouse appeared slower to emerge compared to other varieties in this demonstration (average plant population on 24th November was 361 plants/m^2 for the 13 varieties). Similar to previous seasons at the Sunk Island iFarm, mean plant numbers were higher where Vibrance Duo, rather than Beret Gold, had been used. Plant numbers were also greater where i-Man (Mn) + Zax (Zn) seed treatments had been co-applied to Beret Gold (compared to Beret Gold alone). LG Skyscraper treated with Vibrance Duo appeared 'fuller' on 5th December than the plots treated with other seed treatments. Mean NDVI values on 20th February were still highest where Vibrance Duo had been used. At the start of June, mean ear numbers of LG Skyscraper were higher where either Vibrance Duo or i-Man+Zax were used (compared to Beret Gold alone).

Overall mild weather in November encouraged growth, especially in Champion and KWS Extase which appeared more vigorous and 'upright' than all other varieties on 5th December. The two aforementioned varieties along with Fitzroy and LG Skyscraper exhibited greater biomass/ground cover compared to other varieties on 20th February; in contrast, RGT Grouse still appeared somewhat 'sparse' on 20th February. Trends in biomass were similar on 6th March. Varieties had more tillers (6-7 tillers) in late February 2023 compared to 3-4 tillers on 3rd March 2022, but reflected the earlier drilling date and fertile site in the 2023 season. Plant growth and development started to accelerate in late March/early April at the highly fertile site. Varieties had reached GS 31 (first node) with KWS Extase approaching second node (GS 32) on 11th April when canopies appeared extremely 'lush'. The canopies remained remarkedly green and 'lush' in early May (GS 31-32), despite no nitrogen being applied until 5th May. The first ears of KWS Extase emerged on 22nd May.

Septoria tritici was the main foliar disease in early December 2022; the levels were deemed to be higher than in autumn 2021 probably as a result of the earlier drilling date along with milder, wetter conditions in autumn 2022. Infection levels built up during late winter with increased levels on the older leaves on 20th February (especially LG Skyscraper). Septoria tritici remained the main disease at the site through to mid-April, encouraged by the unsettled conditions. By 4th May, septoria levels were advanced in untreated LG Skyscraper and only slightly lower in untreated LG Astronomer, Gleam and the 3-way blend. Infection levels had increased so much during May that septoria along with ascochyta was widespread on the untreated flag leaves of LG Skyscraper in particular, but also LG Astronomer on 3rd June.

In contrast, other untreated varieties were relatively 'cleaner', but still showed heightened disease levels. As well as the stems, only the flag leaves of most untreated canopies were still 'greenish' on 5th July; the untreated canopies of LG Skyscraper and Graham were almost 'dead'. In contrast, the untreated plot of Fitzroy appeared markedly 'greener' compared to the other varieties on 5th July. Septoria levels were reduced in the treated plots where both flag leaf and leaf two were still 'green'. Minimal levels of mildew were recorded in LG Astronomer, LG Skyscraper, Fitzroy, Champion and the 3-way blend including LG Skyscraper on 5th December; when plants had two tillers present, but 'dried up' and no mildew was recorded for the rest of the season at the site. Yellow rust was recorded in Champion on the same date. However, there was no further development of mildew or rust during the first four months of 2023 where no visible signs were observed in the plots. Yellow rust was recorded in untreated LG Skyscraper, Graham, Gleam and RGT Grouse on 4th May (albeit at reduced infection levels). Similar observations were made on 3rd June when the untreated varieties plus KWS Extase showed yellow rust infections. By mid-July, yellow rust had 'dried up' except for a low infection in untreated Gleam where the pathogen remained on surviving green tissue. Brown rust built up in the untreated plots where 7 out of 13 varieties showed infection on 5th July; the highest levels were recorded in untreated LG Typhoon, RGT Grouse and Champion with lower infections in untreated LG Tapestry, Graham, KWS Parkin and Fitzroy. By 13th July, brown rust levels had increased in the aforementioned varieties when infection was also recorded in untreated KWS Dawsum, KWS Ultimatum and Gleam. Untreated crop canopies were senescing or were completely senesced (LG Skyscraper and LG Astronomer) on 13th July. In contrast, untreated Fitzroy was markedly 'greener' whilst untreated KWS Extase, KWS Ultimatum and KWS Dawsum also retained moderate green tissue levels compared to other varieties in this demonstration. The overall fungicide and PGR programme gave good control of disease but lodging control was poor; the overall response to fungicide and PGR (+1.58 t/ha averaged over all plots in this demonstration) was lower than the previous two seasons at the site (+2.95 t/ha and +1.68 t/ha in 2021 and 2022 respectively).

Ear counts on 6th June (GS55-59) indicated that crop canopies were 'thick' (averaged 825 ears/m^2 across 13 varieties) and were higher compared to the previous two seasons at the site (averaged 776 and 641 ears/m^2 in 2021 and 2022 respectively).

Application of Release in autumn increased mean ear numbers of both KWS Extase and KWS Dawsum by approximately 5%. Heavy rain paired with intense winds at the end of June resulted in lodging in the untreated and treated plots of Champion (in particular), KWS Dawsum and LG Skyscraper, whilst untreated plots of Fitzroy and RGT Grouse had also lodged by 5th July. The incidence of lodging and severity increased during further unsettled weather so that only untreated LG Tapestry, Gleam and KWS Parkin showed no lodging on 13th July. Lodging was also recorded in the treated plots except for LG Astronomer, LG Tapestry, Gleam, LG Typhoon, KWS Parkin, RGT Grouse and the 3-way blend on 13th July. With continued heavy rain showers, the incidence and severity of lodging increased at the site and by 19th July, the untreated and treated plots were severely lodged, but treated KWS Parkin and Gleam were 'leaning'. One of the factors for the widespread lodging in the treated plots was the omission of a PGR at T0. Rain continued through to the end of July and by 9th August, lodging severity had increased with only treated KWS Parkin still 'stood'. Treated plots of Champion and LG Typhoon had also sprouted.

All plots were harvested in warm, breezy conditions on 21st August; 16 days later than in 2022. Despite the incidence of lodging, there was little further sprouting, which was only minor in Champion, LG Typhoon, KWS Dawsum and LG Skyscraper at harvest, and no seed shedding. All plots were lifted 'cleanly' with average moisture content of 14.3%; ex combine specific weights were moderate at ex combine moisture. Overall yields were low but reflected the 'early' and extensive lodging. High protein levels were recorded but reflected the increased background fertility of the site.

Hagberg values of the NABIM Group 2 varieties were above 250.

We are very grateful to JA Godfrey & Will Osgerby for allowing us to conduct this demonstration

		Fully treated plots			
Rank	**Variety (1st cereal slot)**	**Yield# t/ha**	**Sp. Wt kg/hl**	**Protein %**	**HFN**
1	Graham	**11.07**	**73.1**	**13.28**	
2	Champion	**10.24**	**73.1**	**12.83**	
3	Fitzroy	**10.13**	**74.2**	**13.61**	
4	KWS Dawsum with Release 4.0 l/ha pre em	**9.86**	**76.6**	**12.52**	
5	KWS Dawsum	**9.82**	**76.4**	**12.84**	
6	Gleam	**9.79**	**72.0**	**12.70**	
7	LG Tapestry	**9.69**	**74.7**	**13.24**	
8	LG Typhoon	**9.45**	**73.3**	**12.48**	
9	KWS Parkin	**9.34**	**72.8**	**13.01**	
10	Skyscraper/Bairstow/Tapestry	**9.03**	**73.1**	**13.26**	
11	LG Skyscraper	**8.71**	**72.7**	**12.96**	
12	RGT Grouse	**8.45**	**71.7**	**13.00**	
13	LG Skyscraper Vibrance Duo	**8.16**	**72.2**	**12.98**	
14	KWS Extase	**8.12**	**74.2**	**13.48**	**292**
15	LG Astronomer	**8.11**	**72.2**	**13.30**	
16	LG Skyscraper + i-Man + Zax	**7.98**	**71.6**	**13.33**	
17	KWS Extase with Release 4.0 l/ha pre em	**7.82**	**72.8**	**13.69**	
18	KWS Ultimatum	**7.25**	**76.8**	**13.09**	**321**
	Mean	**9.06**	**73.5**	**13.09**	**307**

 # All yields corrected to 15% moisture content

Longhirst

NORTHUMBERLAND

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Chris McClymont
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Longhirst, Northumberland

SOIL TYPE

Sandy loam

TRIALS 2023

Winter barley (unreplicated strips)

PREVIOUS CROP

Winter wheat

DRILLING DATE

21st September 2022

SEED RATE

400 s/m² (non-hybrids) 210 s/m² (hybrids)

HARVEST DATE

26th July 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Winter barley

All plots were sown in good conditions on 21st September 2022, three days later than in autumn 2021. Plant emergence was very even, and plant establishment was reasonable on 17th October 2022; 173 plants/m² (hybrids) and 301 plants/m² (non-hybrids). Compared to single-purpose seed treatment alone, mean plant numbers of KWS Tardis and SY Kingsbarn were slightly higher where Latitude had been used, whilst plant numbers of SY Kingsbarn were also higher where Take Off had been used, possibly because of a 'biostimulant' effect from the phosphite seed treatment. Similar positive effects on early plant establishment with specialist seed treatments had been recorded at the site in the previous three seasons. Plant growth was good in the mild conditions of late autumn but was still 'behind' the previous season; plants had two tillers on 23rd November 2022 - this compared to plants with four tillers on the same date in November 2021. In mid-February, KWS Tardis treated with Raxil Star + i-Man + Zax (manganese + zinc) seed treatments showed higher NDVI readings compared to Raxil Star alone or Raxil Star+Latitude. Later in the season, mean ear numbers of KWS Tardis were consistently higher where technical seed treatments had been co-applied with Raxil Star; this reflected findings with 2-row barley in previous seasons at the site and translated into positive yield responses at harvest. Similarly, Take Off boosted mean ear numbers of SY Kingsbarn for the 3rd season whilst Latitude also increased mean ear numbers at the site in 2023; however, there were no yield increases at harvest in this demonstration.

Plants continued to grow and develop in the mild conditions during late winter; varieties had 4-5 tillers on 14th February (slightly lower than in the February 2021 viz 5-6 tillers) and 6-7 tillers on 14th March (this compared to 7-8 tillers on 9th March 2022). The soil was extremely wet and sticky on 14th March following a switch from the dry February conditions to wetter weather in March. Plots looked well in mid-April when plants were around GS 31 and again in mid-May when ears were emerging.

Overall disease pressure for the 2022/2023 season was deemed as moderate. Following wet but mild conditions in October and November 2022, net blotch had developed in all varieties along with lower levels of rhynchosporium in KWS Tardis and Memento by 23rd November. All varieties still showed net blotch on 14th February (highest infection levels were on the three hybrids as well as KWS Feeris).

Brown rust was also recorded in all varieties on 14th February with highest levels in Valerie and lowest levels in Lightning and LG Caravelle. Mildew pressure then increased, and infections were recorded in all varieties on 14th March; highest levels were seen in KWS Tardis and KWS Feeris whilst lowest levels were recorded in Lightning and LG Caravelle. Mildew levels then declined to negligible levels probably 'washed' from the leaves in the very wet conditions during late March/early April. Mildew infections had increased again by mid-May in untreated Memento and KWS Feeris in particular, but also KWS Tardis and SY Armadillo. In mid-June, mildew was recorded in only untreated Memento, KWS Tardis and KWS Feeris, with levels broadly similar to mid-May. Rhynchosporium and brown rust incidence seemed to have increased between mid-February and mid-March, but net blotch incidence had somewhat declined. In mid-April, whilst rhynchosporium infections seemed to have remained somewhat 'static', net blotch had increased in all varieties except Memento and KWS Tardis and brown rust infections had increased especially in SY Kingsbarn, Belfry and KWS Feeris (yellow rust was also observed in SY Kingsbarn). In mid-May, rhynchosporium had reduced to only very low infections in untreated Lightning and LG Caravelle, net blotch levels were generally similar to mid-April and brown rust was variable but still highest in the untreated 6-row varieties. In contrast, late season disease pressure was high with widespread net blotch (especially in untreated hybrids) and brown rust (untreated Valerie and all 6-row types) on 15th June.

In contrast, untreated Lightning appeared very 'clean' compared to all other varieties in this demonstration. Indeed, leaves 1 + 2 of untreated Lightning were still 'green' on 18th June whilst untreated SY Kingsbarn and Belfry had leaves 1+ 2 partially 'green'. In contrast, Memento, KWS Tardis and Valerie had effectively only green stems remaining within their untreated canopies. Ramularia levels were negligible. The overall response to fungicide + PGR (+1.42 t/ha) was lower than in 2022 (+2.74 t/ha) but higher than in the earlier two seasons (+0.14 and 1.33 t/ha in 2020 and 2021 respectively).

Crop canopies were 'full' with awns emerging especially in Lightning by 14th May. Ear counts across all varieties on 17th May 2023 (average 738 ears/m^2) were lower than in 2022 (803 ears/m^2), but higher than in 2020 and 2021 (671 and 479 ears/m^2 respectively). There was no crop lodging at harvest although all untreated plots had completely brackled over, especially the hybrids and Valerie, whilst treated plots were mostly brackled over.

Pre-harvest glyphosate was applied on 8th July 2023. All plots were harvested on 26th July (6 days later than in 2022) in windy, overcast conditions. Average moisture content was high (25.1%) but with the unsettled weather forecast to continue, along with uncertainty about availability of the plot combine, it was deemed important to harvest the plots. Ex combine specific weights were low at ex combine moisture. Another likely reason for the low ex combine specific weight values was the very low background soil phosphate levels (P Index was 0.7), combined with sub optimal soil pH (5.7), which would have had a deleterious effect on grain fill and maturity. Grain N content was reasonable. Ex combine screening levels were mostly below 2%.

		Treated with crop protection + nutrition			
Rank	Variety	Yield# t/ha	Sp. Wt kg/hl	Grain N %	Screenings % 2.2 mm
1	KWS Tardis + i-Man + Zax	9.84	55.7	2.19	0.8
2	Lightning	9.15	52.4	2.19	2.5
3	LG Caravelle	8.76	52.9	2.13	0.8
4	Memento	8.65	55.8	2.21	2.2
5	KWS Tardis + Latitude	8.46	54.7	2.20	0.5
6	KWS Tardis	8.45	53.5	2.19	1.6
7	Belfry	8.41	50.9	2.16	3.9
8	SY Kingsbarn	8.28	50.3	2.02	1.9
9	KWS Feeris	8.04	53.5	2.03	2.5
10	SY Kingsbarn + Latitude	7.77	51.7	2.11	1.1
11	SY Kingsbarn + Take-off	7.55	49.6	2.05	2.5
12	Valerie	7.35	55.7	2.04	2.4
13	SY Armadillo	7.31	50.1	2.17	3.8
	Mean	8.31	52.8	2.13	2.0

 # All yields corrected to 15% moisture content

Longhirst

NORTHUMBERLAND

Chris McClymont
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Longhirst, Northumberland

SOIL TYPE

Sandy silt loam

TRIALS 2023

Winter oilseed rape (unreplicated strips)

PREVIOUS CROP

Winter barley

DRILLING DATE

15th August 2022

SEED RATE

50 s/m^2 (hybrids and non-hybrids)

HARVEST DATE

7th August 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Winter oilseed rape

Plots were sown directly into stubble, into a moist seedbed, ten days earlier than in autumn 2021. Plant emergence and establishment were both very even. There was little cabbage stem flea beetle activity within the plots in autumn 2022; plant numbers established on 9th September averaged 32 plants/m^2 (hybrids) and 28 plants/m^2 (non-hybrid). For the second consecutive season, the number of plants of hybrid WOSR was slightly lower where buckwheat (and vetch) had been drilled with the seed (30 versus 36 plants/m^2 in this demonstration). By mid-October, the buckwheat had grown above the winter rape plants but otherwise, there appeared to be no visual differences between LG Auckland plots with or without buckwheat and vetch. The buckwheat plants were dying off on 22nd November probably as a result of earlier herbicide application followed by frosty conditions on 21st November 2022. All plots looked exceedingly well on 13th October at 7-8 leaves; whilst there was little overall difference on plant vigour/ground cover between varieties, InV1266CL and Aardvark exhibited less than other varieties in this demonstration. Mild conditions in October and early to mid-November encouraged growth; plants had nine leaves on 22nd November and canopies appeared very lush with canopy height typically 35 cm tall. Aurelia and V367OL appeared to exhibit less biomass on 22nd November than all other varieties in this demonstration. There was negligible pigeon grazing in the plots throughout winter 2022 and spring 2023. Using the 'cut and weigh' method, overall GAI value (averaged over all varieties) in late January 2023 (1.17) was significantly higher than in the variety trial in January 2021 (0.40) and greater than in January 2022 (0.94) but lower than in mid/late January 2020 (1.29). Highest GAI values were recorded in LG Anarion (1.55) and Aardvark (1.54) whilst lowest value was V367OL (0.92). Crops looked well with flower buds enclosed by leaves (GS 3,1) on 14th February when the most vigour and ground cover was recorded in InV1035, Ambassador, DK Excited and Aardvark, but overall differences between varieties were low at the site.

The plots looked extremely well on 14th March with full crop canopies and stem extension well underway; Aardvark was 'taller' with an advanced growth stage (3,7) compared to other varieties (3,5). Crop canopy height at the site appeared relatively 'tall' on 13th April possibly as a result of no earlier pigeon damage. Consequently, there were minimal differences in biomass/ground cover between the crop canopies on 13th April. Plants were very tall (up to around 185-190 cm) in mid-May with little difference between treated and untreated plots. LG Auckland was one of the tallest varieties and seemed 'early' with most petal fall / pod set on 18th May.

Leaf samples sent to Bayer SpotCheck on 25th October indicated no disease was present. No visible disease was recorded in the plots on 22nd November. Further samples from untreated plots on 14th February showed light leaf spot infection incidence had increased at the site. Indeed, visual symptoms of the disease were recorded in all untreated varieties on 14th February with highest levels in LG Anarion and Tennyson. Low infection levels of phoma were also seen in all untreated varieties on 14th February with greatest infections in untreated Aardvark and DK Exsteel. Overall light leaf spot infection levels had increased by mid-March especially in untreated LG Anarion, and to a lesser extent in untreated Ambassador, InV1266 CL and V367OL. Light leaf spot infection levels had increased further in the untreated plots by 13th April with highest levels in untreated Tennyson, then Ambassador, LG Auckland and InV1266 CL. In contrast, light leaf spot infection levels seemed to have remained relatively 'static' on 18th May with 'staining' on stems starting to appear. With leaf senescence well underway in untreated plots, only light leaf spot stem staining was scored on 15th June when highest incidence was recorded in untreated DK Exsteel and Tennyson whilst LG Auckland and V367OL showed least staining. No sclerotinia was recorded in the plots.

Flowering was well underway by 13th April when LG Auckland and Aardvark had most flowers present. Canopies looked really well on 18th May with good pod set. Canopies were tall and 'full' with good pod fill on 15th June when some crop 'leaning' was recorded in LG Auckland, InV1266CL, Hanneli and Aurelia. Differences in stem stiffness were apparent in late July when the untreated canopies of Tennyson, LG Anarion, DK Excited and Ambassador in particular had 'leant over' or lodged. In contrast, all other untreated varieties showed only minor crop 'leaning'. In the treated block, Tennyson, LG Auckland, DK Excited, InV1266 CL and V367 OL had 'lent over'; all other treated varieties were 'upright' on 25th July. At harvest untreated and treated plots of Ambassador and InV1035 showed most 'leaning'. However, all plots were lifted 'cleanly', and seed shedding at harvest was negligible. The overall response to fungicide was high (+1.41 t/ha across the 13 varieties in this demonstration) but reflected the high disease and lodging pressure at the fertile site.

All plots were harvested in cloudy conditions with a moderate breeze on 7th August 2023 (3 days later than in 2022). Average moisture content was 9.1% at harvest. Oil content was reasonable (45.2% as NIR). Hanelli, LG Auckland + companion crops, Ambassador and InV1035 had the highest oils at harvest in this demonstration.

We are very grateful to David Jordon for allowing us to conduct this demonstration

Rank	Variety	Fully treated	
		Yield# t/ha	Oil % (NIR)
1	LG Auckland + buckwheat (6) + vetch (6)	**6.43**	**46.4**
2	DK Exsteel	**6.10**	**45.4**
3	Ambassador	**6.03**	**46.1**
4	InV1035	**5.58**	**46.0**
5	LG Auckland	**5.50**	**44.6**
6	Aurelia	**5.47**	**45.2**
7	LG Anarion	**5.32**	**43.7**
8	Hanneli	**5.23**	**46.5**
9	Aardvark	**5.13**	**45.4**
10	DK Excited	**5.06**	**45.1**
11	Tennyson	**5.04**	**43.3**
12	V367OL	**4.79**	**44.4**
13	InV1266CL	**4.23**	**45.1**
	Mean	**5.38**	**45.2**

 # All yields corrected to 9% moisture content

Longhirst

NORTHUMBERLAND

Chris McClymont
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Longhirst, Northumberland

SOIL TYPE

Clay loam

TRIALS 2023

Winter wheat (unreplicated strips)

PREVIOUS CROP

Winter oilseed rape

DRILLING DATE

4th October 2022

SEED RATE

375 s/m^2

HARVEST DATE

4th September 2023

WRITTEN BY: JIM CARSWELL

SITE NOTES

Winter wheat

All plots were sown into a wet seedbed on 4th October 2022, six days later than in autumn 2021. Plant emergence was slow despite the mild conditions in October. Plant establishment was deemed low; average 182 plants/m^2 for the 12 varieties treated with Beret Gold dressing alone on 31st October 2021 at GS 10 (although some seedlings were thought still to emerge). Soil phosphate levels were very low (P Index=0.9); it is possible the low phosphate availability reduced seedling vigour and slowed emergence rate, but the over-riding factor was probably the wet seedbed at drilling. There was no difference between the seed treatments in plant numbers established in this demonstration. Helped by applications of slug pellets, plant population and plant growth seemed to have 'picked up' in the mild conditions through to late November, and it appeared that the demonstration plots would survive. There were no visual differences between the technical seed treatments in autumn 2022 nor differences in NDVI values on 14th February. At harvest there was no yield response to the technical seed treatments in this demonstration.

Autumn plant growth and development were markedly slower than in the previous season probably due to the later drilling date along with saturated, cold soils by late November; the plants had two leaves on 23rd November 2022 compared to 1-2 tillers on the same date in 2021. Mild conditions in early 2023 resulted in the varieties having 3-4 tillers by 14th February 2023 which was similar to the previous year. However, plots still appeared somewhat 'sparse' with small plant size. The mild weather in February encouraged growth and plants had started to 'fill out' by 14th March despite saturated soil conditions. The plots slowly improved during late March/early April; plants had reached GS 31 (first node) on 13th April 2023 (compared to GS 31-32 on 13th April 2022). Foliar disease pressure was minimal in autumn for the fourth consecutive season. Septoria was observed in all of the plots on 14th February when LG Skyscraper and KWS Palladium showed higher infections than other varieties at the site.

Septoria tritici appeared to have decreased slightly by 14th March, possibly because of older leaves 'dying off', so overall infection levels appeared low. The infection levels then increased by mid-April (probably in response to very unsettled conditions in late March/early April), with further development, and spread in the untreated plots by mid-May when untreated Champion appeared 'cleaner' than other varieties. Dry settled conditions from mid-May generally 'held back' further septoria development and spread, so overall levels in mid-June were broadly similar to mid-May (with septoria mostly confined to the lowest leaves in the untreated canopies). Untreated plots of Champion, LG Typhoon and RGT Lantern, along with the three 'Group 2' varieties, had the lowest infections on 15th June. Yellow rust was first seen at the site on 14th February (similar to the first observation of yellow rust in 2022); the highest levels were recorded in Graham then LG Skyscraper and Gleam, then RGT Grouse and RGT Lantern with only trace levels in KWS Extase. Yellow rust incidence had decreased by 14th March when only three varieties (Graham, LG Skyscraper and Gleam) displayed infection (but yellow rust levels had increased in Graham). The disease was again recorded in LG Skyscraper, Gleam, Graham as well as RGT Grouse on 13th April. Higher levels of yellow rust were recorded in the aforementioned varieties on 14th May. Yellow rust pressure had increased further by 15th June, especially in untreated Gleam, but also RGT Grouse, LG Skyscraper and Graham, with infections also recorded in untreated KWS Extase and LG Astronomer. Further yellow rust infection was recorded in treated plots of RGT Grouse and Gleam on 18th June. Overall disease pressure was deemed higher later in the season; by 25th July, all the leaves in untreated Gleam were 'dead' whilst only the flag leaves remained partially 'green' in untreated KWS Extase, LG Astronomer, LG Skyscraper, Graham and RGT Lantern.

In contrast, the top two leaves (leaves 1+2) were still 'green' in untreated KWS Dawsum, LG Typhoon, KWS Palladium, KWS Ultimatum, RGT Grouse, and Champion which reflected better all-round disease resistance in these varieties in this demonstration. The fungicide and PGR programme gave effective control of disease during the season. Averaged over all varieties and seed treatments, the yield response to fungicide and PGR (+1.21 t/ha) was markedly lower than in 2022 (+2.56 t/ha) and was similar to the response in 2021 (+1.27 t/ha). Ear counts on 15th June (518 ears/m^2 averaged over 12 varieties) indicated that crop canopies were 'thin' (and somewhat 'patchy') but reflected the reduced establishment in autumn. These ear numbers were lower than in 2021 and 2022 (respectively, 608 and 745 ears/m^2 averaged over varieties). There was no response in ear numbers to the technical seed treatments. By 25th July, wet, unsettled weather resulted in partial 'leaning'/lodging in untreated LG Skyscraper, LG Astronomer and RGT Grouse but there was no lodging in any treated plots. At harvest, untreated LG Skyscraper, LG Astronomer, Graham and RGT Grouse were 'leaning'/lodging whilst untreated Gleam was severely brackled over. In the treated areas, Gleam was 'leaning' but otherwise there was no 'leaning' or lodging in the other plots. All plots were lifted 'cleanly' at harvest.

All plots were harvested in hot, sunny conditions on 4th September, which was 23 days later than in 2022, but a similar date to the 2021 season. The average moisture content of grain was 15.4% which may have influenced grain maturity. There was no seed shedding at harvest. Ex combine specific weights were moderate but reflected the low soil phosphate status at the site.

Grain protein levels were reasonable, and KWS Palladium had the highest grain protein level out of all the NABIM Group 2 varieties. Despite the heavy rain leading up to harvest, all NABIM Group 2 varieties had Hagberg values above 250.

		Fully Treated			
Rank	Variety	Yield# t/ha	Sp. Wt kg/hl	Protein %	HFN
1	Champion	12.12	73.4	10.0	
2	KWS Dawsum	11.98	75.7	9.7	
3	KWS Ultimatum	11.98	76.1	10.3	354
4	LG Typhoon	11.81	73.7	10.3	
5	RGT Lantern	11.56	72.5	10.3	
6	LG Astronomer	11.44	74.7	10.6	
7	KWS Palladium	11.41	75.5	11.2	294
8	LG Skyscraper	11.40	72.6	8.8	
9	LG Skyscraper Vibrance Duo	11.29	73.6	10.1	
10	LG Skyscraper + i-Man + Zax	10.92	74.3	10.4	
11	Graham	10.50	72.6	9.9	
12	KWS Extase	10.48	74.3	10.4	294
13	RGT Grouse	10.42	74.7	11.0	
14	Gleam	9.92	74.1	11.0	
	Mean	11.23	74.1	10.3	314

 # All yields corrected to 15% moisture content

West Central

BRACKLEY 74

Winter wheat
Quick look results:

+ Yellow rust was active in the untreated plots during June with Skyfall, Gleam, SY Insitor and KWS Zyatt, having significantly high levels, however, it was septoria that was again the most damaging disease. While levels took longer to build at this site, by mid-July, there were damaging levels of septoria, even in the fungicide treated plots of the most susceptible entries, and it played a strong part in the yield rankings.
+ The weather caused some lodging by late July, but only Champion had enough to effectively influence the yield or grain quality.
+ Highest yielding variety was Fitzroy at 11.17 t/ha, followed by Champion at 11.14 t/ha and Bamford at 11.01 t/ha.

LUDLOW 76

Winter wheat
Quick look results:

+ Despite the challenges of the wet spring, then a dull, wet grain fill period, the average yield of 10.48 t/ha is an increase of over 1 t/ha above the 2022 yield of 9.43 t/ha. It is also slightly up on the five year (2018-2022) average yield of 10.18 t/ha.
+ In contrast to the yields, the specific weights were much lower than in 2022 with an average of 72.8 kg/hl this season vs 79.5 kg/hl for last year. However, they are still in line with the average of the previous five seasons (2018-2022) which stands at 72.0 kg/hl.
+ The wet, windy conditions in July caused some lodging in Champion but nothing significant in any other variety, even though the wet, and sometimes windy weather, continued through August and seriously delayed combining to be.

SOUTH WALES 78

Winter oilseed rape
Quick look results:

+ Trial had markedly poor establishment, with some areas leading to the removal of multiple plots due to unreliable yields. This means reliable yields for several of the original entries are not available.
+ The average yield of 4.17 t/ha is 0.77 t/ha lower than the yield of the 2022 trial, but it is close to the 2018 - 2022 5-year average of 4.49 t/ha for this site.
+ Light leaf spot was the main disease present. While the fungicide programme applied to the treated plots did slow development of the disease, the pressure was so intense that it failed to stop it, and by maturity there were extremely prominent levels of light leaf spot evident throughout the canopy in many entries.

SOUTH WALES 80

Winter wheat
Quick look results:

+ Yields were disappointing for the site and were 1.7 t/ha behind last year's yield. Last year's highest yield was 11.5 t/ha, but this year it is 9.9 t/ha (Fitzroy). These results may be the result of disease resistance or lodging behind the performance, but there are some stiff, clean types at the bottom that didn't perform.
+ Grain quality was exceptionally low; without obvious signs of ear infection and no grain sprouting, apart from in LG Redwald, indicated that grain fill conditions were sub-optimal for an extended period.
+ The average specific weight of 66.5kgs/hl is extremely low for this site. KWS Dawsum had the highest specific weight, which was 69.8kg/hl.

WINDERTON 82

Winter wheat Quick look results:

+ This year's average yield of 9.96 t/ha is 2.1 t/ha down on the exceedingly high figure of 12.08 t/ha from 2022, but it is still 1.6 t/ha higher than the result of 8.41 t/ha from 2021. Fitzroy (11.15t/ha), Theodore (10.96t/ha) and Bamford (10.86t/ha) were the three highest yielding varieties in the trial.

+ Average specific weights are also down at 71.1 kg/hl compared to 86.4 kg/hl from 2022, however, they are again better than the low 64.9 kg/hl in 2021.

+ Given the range of different pressures this season, multiple factors drove yield rankings and grain quality. Septoria, lodging and stem base disease, plus the dull, cool, grain fill period all contributed, at numerous levels, to each variety's performance.

Brackley

NORTHAMPTONSHIRE

Greg Taylor
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Brackley, Northamptonshire

SOIL TYPE

Clay loam

TRIALS 2023

Winter wheat (replicated)

PREVIOUS CROP

Spring Barley

DRILLING DATE

12th October 2022

SEED RATE

375s/m^2

HARVEST DATE

15th August 2023

WRITTEN BY: JOHN MILES

SITE NOTES

Winter wheat

The seedbed conditions in mid-October were excellent following a remarkedly good previous crop of winter beans so emergence was even, leading to generally good plant establishment. Rainfall levels over winter weren't excessive at this site and despite relatively frequent frosts the plots came through to the spring in excellent condition, with varieties ranging from GS 25-31 on 30th March.

While March and April saw a total 128mm of rain, June and early July then turned much drier with a period of 25 - 30°C during the middle of June. This weather put crops under moderate drought stress even on this site's moisture retentive soil type. The remainder of July turned exceedingly wet and occasionally windy, with a rainfall total of 88mm for the month.

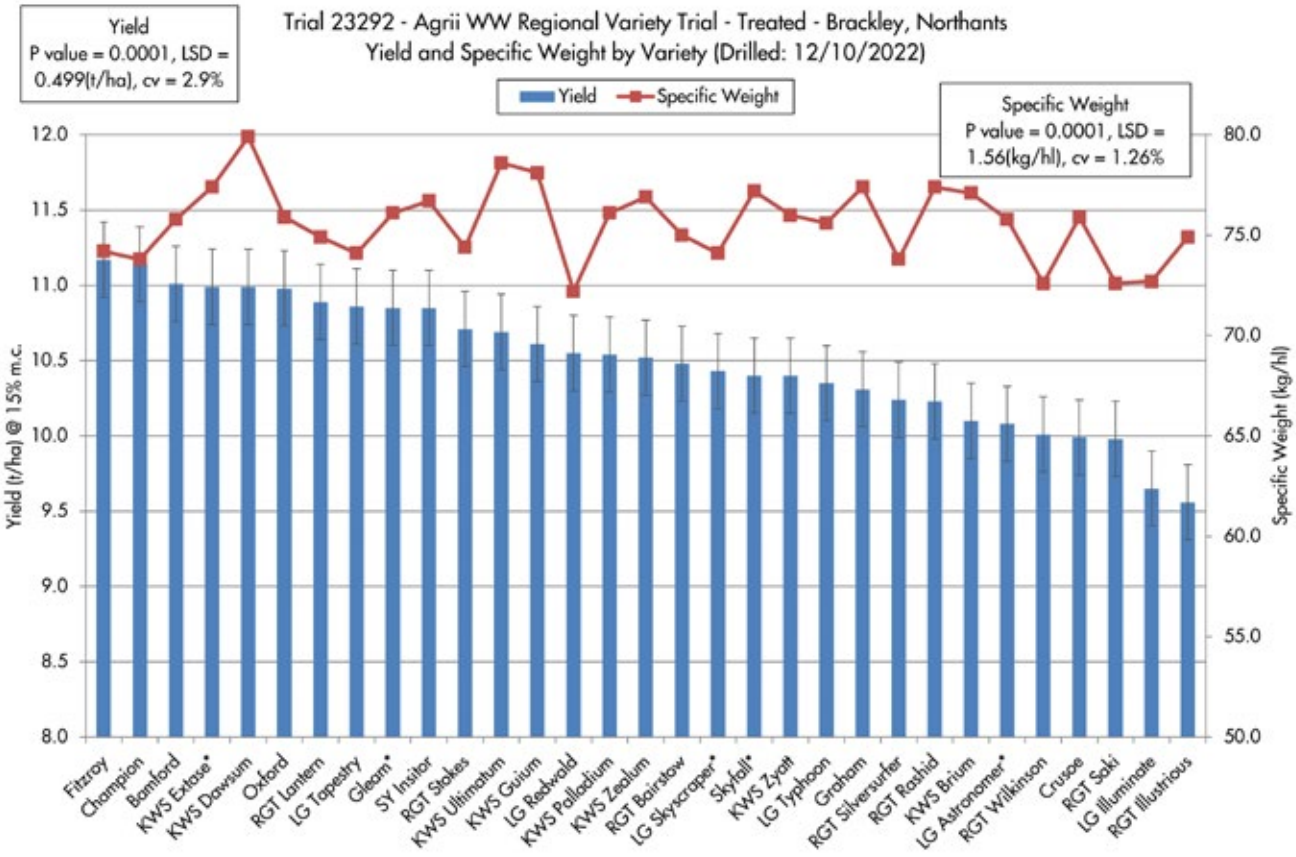
Yellow rust was active in the untreated plots during June with Skyfall, Gleam, SY Insitor and KWS Zyatt, having significantly high levels, however, it was septoria that was again the most damaging disease.

While levels took longer to build at this site, by mid-July, there were damaging levels of septoria even in the fungicide treated plots of the most susceptible entries, and it played a strong part in the yield rankings. Pressure from stem base disease was much lower here than in many other sites with no significant amounts apparent in the treated plots.

The weather forced some lodging by late July, but only Champion had enough to effectively influence the yield or grain quality.

With the septoria pressure, hot June, and dull grain fill period, this had a negative impact on yield, and an average of 10.50 t/ha is relatively good given the season, but it is 0.75 t/ha behind the high yields seen from the equivalent trial in 2022. Specific weights were also down from 2022 at 75.6 kg/hl verses 80.8 kg/hl and this is due largely to the hot, dry period in June, coupled with the poor conditions during grain fill.

We are very grateful to Lawrence, Antony Bonner and family for allowing us to conduct this demonstration



Ludlow

SHROPSHIRE

Ben Burgess
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Ludlow, Shropshire

SOIL TYPE

Silty clay loam

TRIALS 2023

Winter wheat (replicated)

PREVIOUS CROP

Winter oilseed rape

DRILLING DATE

12th October 2022

SEED RATE

375s/m^2

HARVEST DATE

30th August 2023

WRITTEN BY: JOHN MILES

SITE NOTES

Winter wheat

Seedbed conditions were good at drilling, which allowed even emergence and great establishment, despite conditions turning exceedingly wet through the remainder of October and November. By 22nd November, the plots had reached GS 13 at which point the site looked excellent. Early December turned drier with a significant cold spell arriving towards the middle of the month, with lows down to -10°C and daytime temperatures struggling to reach 5°C. The weather turned milder but wetter in late December, and this continued through to mid-January when exceedingly dry weather returned and remained until the end of February.

March brought a return to extremely wet weather with a total of 112mm of rain during the month. By the end of March the growth stages ranged from GS 25 up to GS 30 and while the majority of the varieties looked remarkedly well, with good plant numbers and tillering, LG Illuminate looked very 'ragged' with lower plant numbers and lower/variable tillering across all reps.

April and the first half of May continued to be noticeably wet, however, levels of septoria in the untreated plots at this site were generally lower at this point in the season compared to similar trials further south and west. Powdery mildew was highly active though, with significant levels developing on many varieties but on LG Illuminate, RGT Rashid, LG Tapestry, Gleam, RGT Silversurfer and Champion in particular. At this stage KWS Zyatt, KWS Palladium, KWS Brium and LG Skyscraper showed only extremely low levels.

Mildew pressure remained high for the rest of spring and early summer, and by 13th July levels of infection were high in the untreated plots.

Even where fungicide treated, varieties such as Crusoe and Skyfall showed some mildew infection with lower, but still noticeable levels, in Theodore, RGT Silversurfer and RGT Rashid. While slower to start than at some other sites, the septoria pressure ramped up during June and July with elevated levels present in most untreated entries by mid-July. Even with a robust fungicide programme many entries had moderate to high levels in the treated plots by that stage, and therefore septoria was likely to be one of the key drivers of yield rankings at this site again this year.

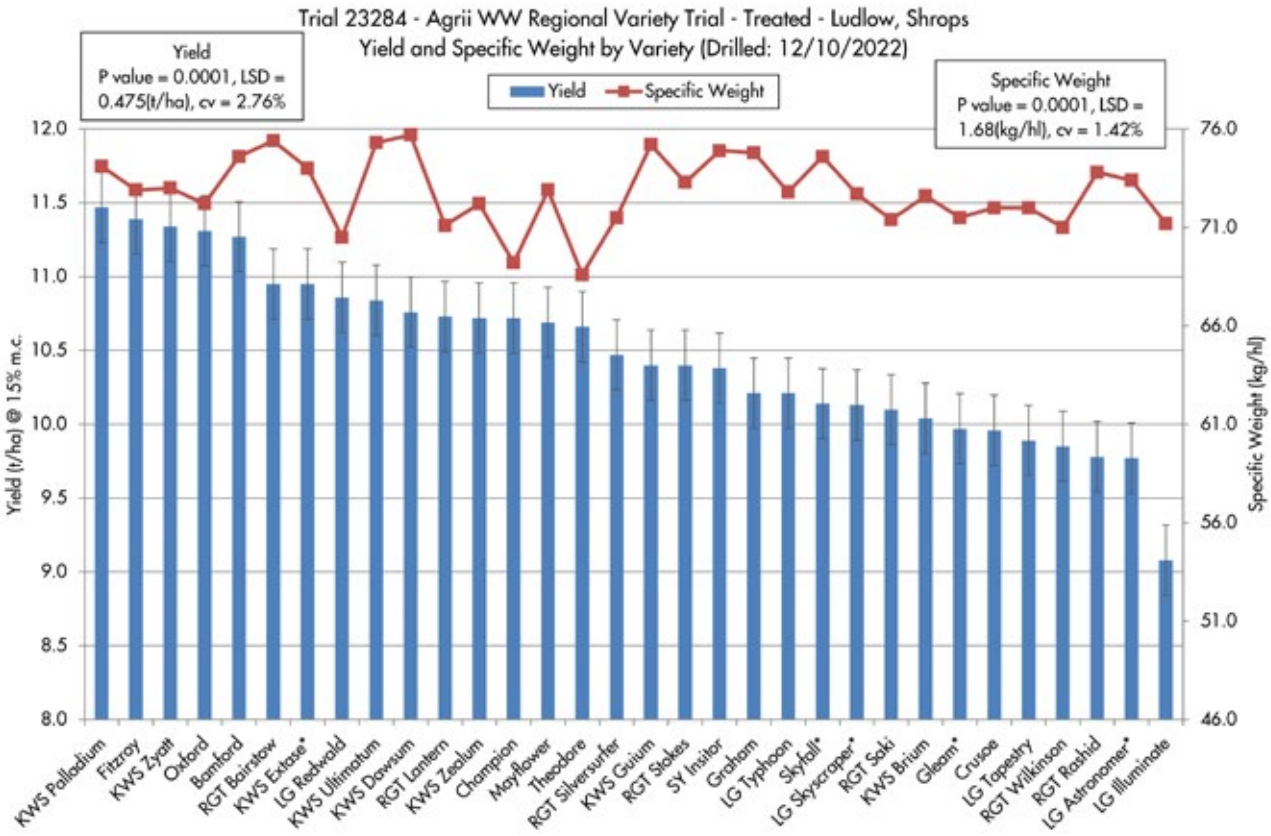
Both yellow and brown rust were present in the untreated plots, but these were well controlled by the fungicides applied. Encouraged by the wet spring conditions, prominent levels of stem base disease, including true and sharp eyespot, and stem base fusarium, were easily found across many entries even where fungicide treated.

The wet, windy conditions in July caused some lodging in Champion but nothing significant in any other variety, even though the wet, and sometimes windy weather, continued through August and caused combining to be seriously delayed.

Despite the challenges of the incredibly wet spring, then a dull, wet grain fill period, the average yield of 10.48 t/ha is an increase of over 1 t/ha above the 2022 yield of 9.43 t/ha. It is also slightly up on the five year (2018-2022) average yield of 10.18 t/ha for this site.

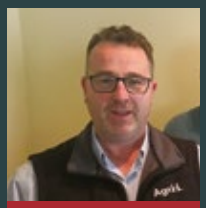
In contrast to the yields the specific weights were much lower than in 2022 with an average of 72.8 kg/hl this season verses 79.5 kg/hl for last year. However, they are still in line with the average of the previous five seasons (2018-2022) which stands at 72.0 kg/hl. These averages cover a very wide range of values from the strong performance of varieties such as KWS Dawsum, RGT Bairstow and KWS Ultimatum to worryingly low values produced by LG Redwald, Theodore and Champion in particular.

We are thankful to Phillip Dunne and James Oliver for allowing us to conduct this demonstration



South Wales

GLAMORGAN



Dai Llewellyn
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Bridge End, South Wales

SOIL TYPE

Silt loam

TRIALS 2023

Winter oilseed rape (replicated)

PREVIOUS CROP

Winter wheat

DRILLING DATE

2nd September 2022

SEED RATE

70/50

HARVEST DATE

18th July 2023

WRITTEN BY: JOHN MILES

SITE NOTES

Winter oilseed rape

Initial plant emergence at this site was good following drilling into good seedbed conditions in early September; and just prior to a total of 42mm of rain falling over the next seven days. Unfortunately, the following three months continued to be extremely wet with a total of 367mm of rain falling on the site between drilling and the end of November. This prolonged heavy rainfall encouraged slug grazing in patches and combined with the persistent soil saturation, some areas of the trials saw extremely reduced plant numbers to the point where many plots became too thin and/or gappy to be reliable for yield. December through till February brought a respite with lower rainfall totals before a quite wet March. The rest of the spring and early summer became relatively dry with only 21mm of rain falling between 8th May and 8th July.

Where plants had managed to survive, growth over the autumn was generally good and when autumn vigour was assessed in late November the varieties showed a wide range of autumn vigour differences with LG Aviron, PT303, Ambassador, InV1035, Dart, Hanneli, LG Auckland, LG Constructor CL, and Matrix CL all having the highest biomass at this point in the season.

In contrast, Aardvark in particular, but also Aurelia, Dolphin, Tennyson (Primed), Aspire and Murray all had developed much lower levels of growth by this date.

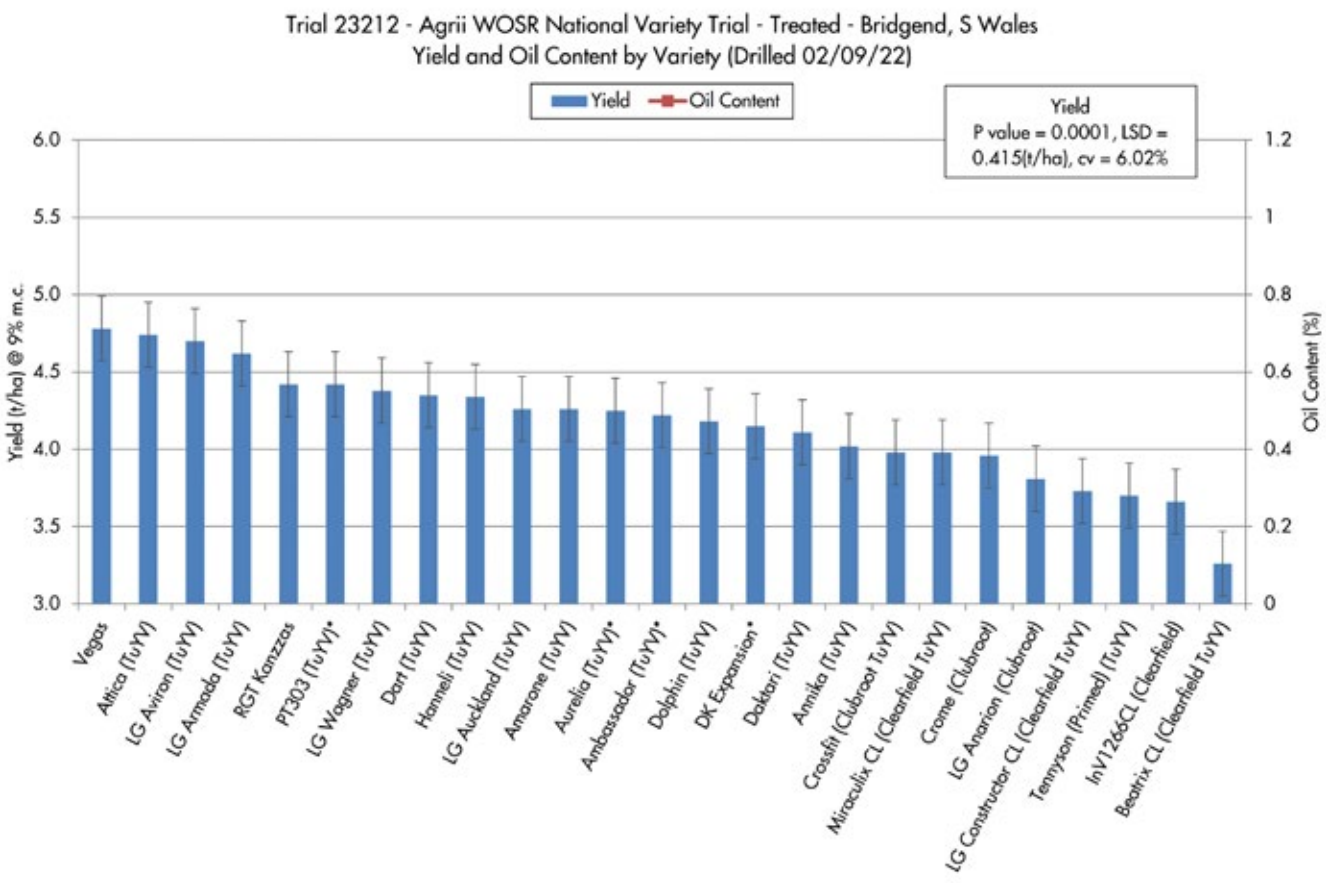
Spring vigour was assessed in late April as flowering was just beginning and at this point both RGT Kanzzas and LG Academic were standing out as being the most vigorous, however, they were closely followed by Dart, Hanneli, Crome, LG Armada and Attica. At the other end of the scale Aurelia, Tennyson (Primed), Aspire and Aardvark were all much slower to get going and 'grow away'. The conditions over the winter and spring encouraged development of light leaf spot and by mid-May (mid-flower) the disease had reached elevated levels of infection in the untreated plots.

While the fungicide programme applied to the treated plots did slow development of the disease the pressure was so high it failed to stop it and by maturity there were extremely prominent levels of light leaf spot evident throughout the canopy in many entries.

In addition to the overall yield effect, the disease caused premature senescence of the stems and pods, hugely increased the risk of shedding where weather conditions delay harvest.

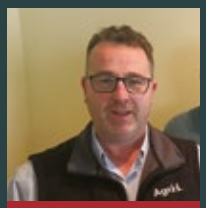
Relative to the surrounding farm crop of Ambassador, which had an estimated yield of 3.55 t/ha, the trial has yielded well despite the conditions. While the average yield of 4.17 t/ha is 0.77 t/ha lower than the yield of the 2022 trial it is close to the 2018 - 2022 5-year average of 4.49 t/ha for this site.

We are thankful to R L and D Anthony for allowing us to conduct this demonstration



South Wales

GLAMORGAN



Dai Llewellyn
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Bridge End, South Wales

SOIL TYPE

Silt loam

TRIALS 2022

Winter wheat (replicated)

PREVIOUS CROP

Winter oilseed rape

DRILLING DATE

4th October 2022

SEED RATE

325s/m^2

HARVEST DATE

10th August 2023

WRITTEN BY: JOHN MILES

SITE NOTES

Winter wheat

Crops were sown on the 4th of October at 325 seeds. Approximately 25mm of rain in the week preceding drilling, and air temperatures averaging 14 degrees, resulted in damp, sticky seedbed conditions.

Temperatures remained mild until 14th November, the last high of 15 degrees. Only 141mm of rain from drilling had been recorded to this point. Temperatures fell in late November until the first frost, which was recorded on 8th December. By the 17th December, temperatures rose again until early January with an average temperature of 13 degrees on 19th of December. The growth habit scores confirmed the development of KWS Extase as being the most forward in this trial. The new candidate, Bamford from Elsoms, was similarly of large biomass. LG Redwald and the candidates; LG Beowulf and LG Redrum, were a close second to Bamford. LG Tapestry and RGT Grouse were behind in comparison.

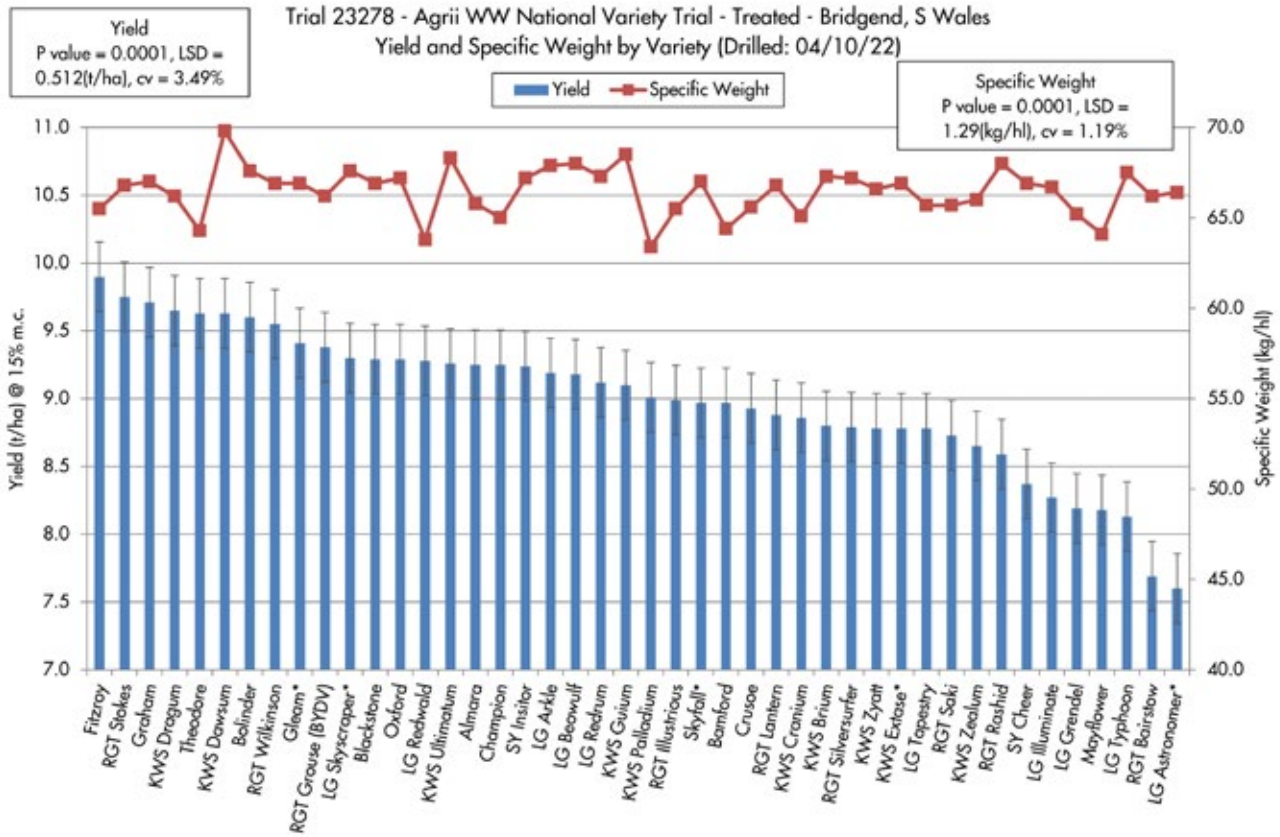
From drilling until the end of the year, the rainfall totalled 412mm compared to 420mm from the previous year.

Early January brought 25mm of rain before a dry spell from 8th January until 5th March brought only 9mm of rain. The rest of March saw 99mm of rain fall, giving 545mm from drilling. Temperatures were cold in early March but improved and were stable in mid-March until mid-April.

Solar radiation remained low though March, only improving from last year's mid-March levels by early April.

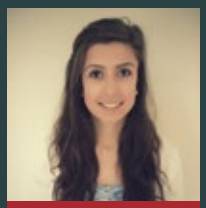
Spring growth differences were similar to autumn. LG Skyscraper was fast moving with LG Typhoon and LG Tapestry the slowest to build biomass and progress through growth stages. Another dry spell saw only 38mm of rain fall between 9th May and 13th July. The temperatures had an average of 12 degrees in early May and climbed to 15 degrees by mid-month. June saw a string of 20-degree days, but July fell back to maximums of below 20 degrees. Solar radiation was at its highest from mid-May to mid-June and again the temperature fell away in July to half the levels which were seen pre-flowering.

Good disease scores were taken thoughtout June. Lodging was scored on 10th July with LG Redwald having the worst scores. Many varieties this year had results like LG Skyscraper. Yields were disappointing for the site and were 1.7 t/ha behind last year's yield. Last year's highest yield was 11.5 t/ha, but this year it is 9.9 t/ha. These results may be the result of disease resistance or lodging behind the performance, but there are some stiff, clean types at the bottom that didn't perform. Grain quality was exceptionally low; without obvious signs of ear infection and no grain sprouting, apart from in LG Redwald, this indicates grain fill conditions were sub-optimal for an extended period.



Winderton

BANBURY



Sarah Hookway
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Winderton, Banbury

SOIL TYPE

Silt clay loam

TRIALS 2023

Winter wheat (replicated)

PREVIOUS CROP

Winter oilseed rape

DRILLING DATE

12th October 2022

SEED RATE

400s/m^2

HARVEST DATE

18th August 2023

WRITTEN BY: JOHN MILES

SITE NOTES

Winter wheat

Thanks to good seedbed conditions, emergence was even, with exceptional final plant establishment. By 22nd November plots had reached GS 13 and looked excellent. Rainfall levels over winter at this site were more typical of an average winter and despite lows of down to -11°C in mid-December the plots came through the winter extremely well. Early spring growth was strong with GS 29-31 being reached around 30th March. March had been remarkedly wet with a total of 143mm of rainfall compared to the average of the previous four years at 30mm. In fact, of the previous eight years, only 2018's total of 138mm came anywhere close.

April to June saw much lower rainfall, but still sufficient to prevent any signs of the drought stress seen in other areas. Not surprisingly septoria pressure was elevated during this time with the untreated plots of LG Skyscraper, RGT Stokes, RGT Bairstow, LG Illuminate, RGT Saki and LG Astronomer all having high levels by the middle of the month.

Mayflower, in very stark contrast, remained totally clear up to this point. Yellow rust was also active over this period with Skyfall, Gleam, KWS Zyatt and SY Insitor all showing raised levels. Brown rust levels were low with only Crusoe having significant amounts.

Thoroughly wet and occasionally windy conditions arrived in July keeping up the septoria pressure and, despite the robust fungicide programme applied, levels were significant in susceptible entries.

The wet spring conditions were also ideal for high levels of stem base disease to develop, including both true and sharp eyespot, as well as stem base fusarium.

The weather also brought raised lodging pressure and by mid-July, even PGR treated, there was severe lodging in Mayflower.

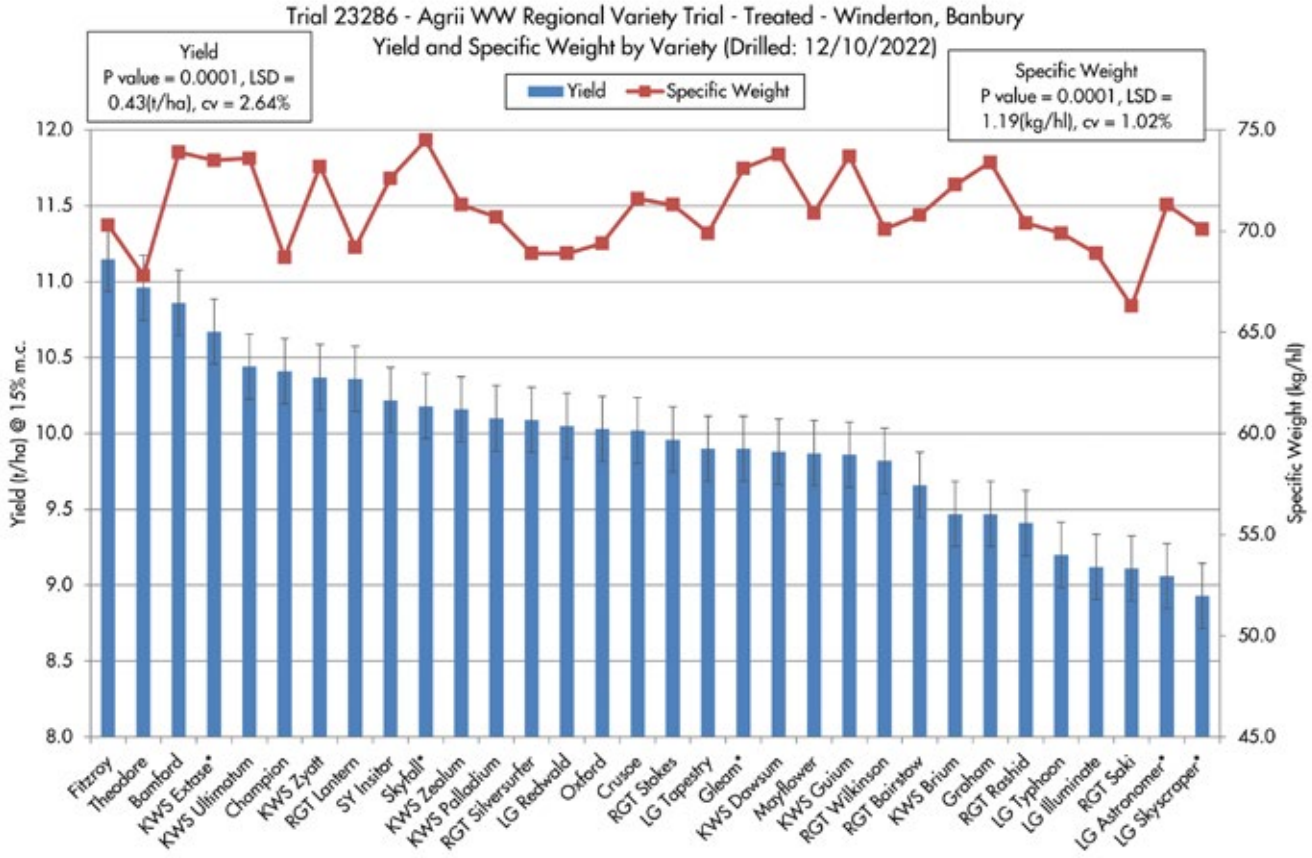
LG Skyscraper, KWS Zealum, SY Insitor and LG Redwald had prominent levels at this stage with Champion, and unusually, Graham having more moderate levels.

The lodging pressure continued through until maturity with many entries showing moderate to high levels of lodging by the time weather allowed combining on 16th August.

This year's average yield of 9.96 t/ha is 2.1 t/ha down on the exceedingly high figure of 12.08 t/ha from 2022, but it is still 1.6 t/ha higher than the incredibly low result of 8.41 t/ha from 2021.

Average specific weights are also down at 71.1 kg/hl compared to 86.4 kg/hl from 2022, however, they are again better than the low 64.9 kg/hl in 2021. Given the range of different pressures this season multiple factors will have driven yield rankings and grain quality, but certainly, septoria, lodging and stem base disease, plus the dull, cool, grain fill period will all have contributed, at numerous levels, to each variety's performance.

We are thankful to John and Edward Walton for allowing us to conduct this demonstration



South of England

LEADENHAM DRILLING DEMO 100

LEADENHAM 98

Winter barley
Quick look results:

+ The 45 treated variety and seed treatment plots produced an average yield of 10.00 t/ha. KWS Dawsum (10.68 t/ha) was the highest yielding variety, closely followed by KWS Extase and LG Redrum which both yielded 10.60 t/ha.
+ The response to the fungicide and growth regulator treatment averaged 1.3 t/ha over the 45 plots. The cleanest varieties in the untreated plots were KWS Palladium and LG Typhoon.
+ Grain quality was poor with 12 of the 45 plots failing to achieve 70kg/hl specific weight.

MID LINCS 102

Winter oilseed rape
Quick look results:

+ The trial was severely infested with Cabbage Stem Flea Beetle and Rape Winter Stem Weevil larvae giving high CV and LSD, therefore close yield rankings should be treated with caution. The rankings are also extremely likely to have been influenced by the ability of individual varieties to cope with this pressure.
+ Given the levels of larvae pressure the average yield of 3.64 t/ha is surprising and while it is a long way behind what would be considered a 'decent' WOSR yield, it is good given how poor the trial looked in the spring.
+ Turing was the highest yielding variety at 4.19t/ha, closely followed by RGT Kanzzas at 4.18t/ha. However, statistically there was no difference between the 13 varieties of the 35 variety trial.

MID LINCS 104

Winter wheat
Quick look results:

+ The average yield of the treated plots was 8.63 t/ha. SY Insitor (9.19 t/ha) was the highest yielding variety closely followed by KWS Ultimatum and Bamford , which both yielded 9.13 t/ha. However, there was no statistical difference in yield in the top 14 varieties.
+ The grain quality is low but consistent with the results from other sites. LG Redwald is the only recommended variety with a 69 kg/hl bushel weight. As expected, the top grain quality comes from Costello.
+ The untreated yields in the yellow rust susceptible varieties, Skyfall and KWS Zyatt were down at 2.67 t/ha and 2.8 t/ha. The highest untreated yields were 8.18 t/ha from KWS Dawsum, Bamford, KWS Ultimatum and Fitzroy + Latitude.

SOUTH WEST 106

Winter barley
Quick look results:

+ The wet conditions during early spring brought elevated disease pressure with brown rust, mildew, rhynchosporium and net blotch at moderate to high levels in the fungicide untreated plots. Most varieties showed resistance to rynchosporium, but it did reach high levels in Bolton, Lightning, and Bolivia, with Lightning and Bolivia being the most susceptible.
+ Despite the robust growth, lodging in the treated trial was well controlled with only Lightning and Valvira showing significant levels. Brackling was much more widespread with only Valerie and Bolton remaining free by harvest.
+ An average yield of 9.76 t/ha is particularly good and not surprising given how well the site looked all season. SY Loona had the best yield at 11.21 t/ha, followed by LG Caravelle at 10.86 t/ha and SY Kingsbarn at 10.24 t/ha.

South of England

SOUTH WEST 108

Winter wheat Quick look results:

- Disease pressure from septoria tritici, in particular, was remarkedly high during March, April and May 2023. By mid-May (mid-boot) the disease was present in most of the entries in the fungicide untreated plots, with LG Illuminate, RGT Rashid and LG Skyscraper having the highest levels at this stage, with only traces visible in Mayflower and Theodore.
- Highest specific weights were recorded in Skyfall at 78,1, Mayflower at 77.8 and Graham 77.2
- Given the extremely prominent level of pressure from septoria but also stem base disease, an average yield of 9.13 t/ha was surprisingly good and was well above some of the average yields reported locally from commercial crops. Highest yielding varieties were Theodore at 10.53 t/ha, RGT Lantern at 10.33 t/ha and Bamford at 10.17 t/ha.

AgriiFocus Technology Centre

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SWINDON

CLICK HERE FOR HIGHLIGHTS FROM THE AGRII-FOCUS 2021 DRILLING DAY

Rob Baker
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

AgriiFocus, Swindon

SOIL TYPE

Clay loam

TRIALS 2023

Winter barley (replicated)

PREVIOUS CROP

Winter wheat

DRILLING DATE

7th October 2022

SEED RATE

Conv. 325 s/m^2 Hybrid 225 s/m^2

HARVEST DATE

12th July 2023

WRITTEN BY: JOHN MILES

SITE NOTES

Winter barley

Seedbed conditions were good in early October allowing this trial to emerge evenly with good plant establishment despite around 170mm of rain falling on the site between mid-October and the end of November. By mid-November, the 6 row varieties in general, and hybrids in particular, did appear to be suffering more from the conditions than the two row entries and looked generally paler and less vigorous at this stage. The reasons for this are not clear but may be a combination of herbicide effects and the very heavy rainfall following application.

Apart from a drier period during February the remainder of the winter and spring remained vastly wet with the rain only eventually easing in early May. Spring temperatures were generally lower and, combined with the wet field conditions delaying first N applications until 20th March. This may have reduced the ability of the hybrids to tiller as much as required to fully compensate for the earlier reduction in vigour, and potential reduction in plant number over winter. Once soils became less saturated and N applications became available, growth was routinely strong.

In contrast to previous years disease at this site took longer to build in the fungicide untreated plots and it was 2nd June (end of flowering) before significant levels were reached. At this stage brown rust was the most serious disease with Valerie having by far the highest levels and moderate levels also in KWS Feeris. The remaining entries were either clean or had incredibly low levels at this point.

By 14th June Valerie had lost effectively all of its green leaf to brown rust where untreated, with KWS Feeris and KWS Tardis now also having moderate levels.

The remaining entries were again either clean or had very low infection levels. By mid-June net blotch had also increased dramatically in a few of the varieties with LG Mountain having the most crucial infection, but it was closely followed by Craft. Belfry, Buccaneer, Electrum and SY Kingsbarn also showed significant infection while the remainder of the entries remained relatively free of the disease.

Rynchosporium was also present but only significant in LG Mountain and Electrum while mildew was present but only at meaningful levels in Bolton, Belfry, KWS Feeris, SY Kingsbarn, SY Armadillo, Memento and KWS Orwell.

Conditions in mid-June led to some lodging occurring in a few varieties in the untreated plots with Buccaneer and Lightning being the first to show significant levels. By the end of June, a period of wet, windy weather caused lodging quite widely in the fungicide and PGR treated plots.

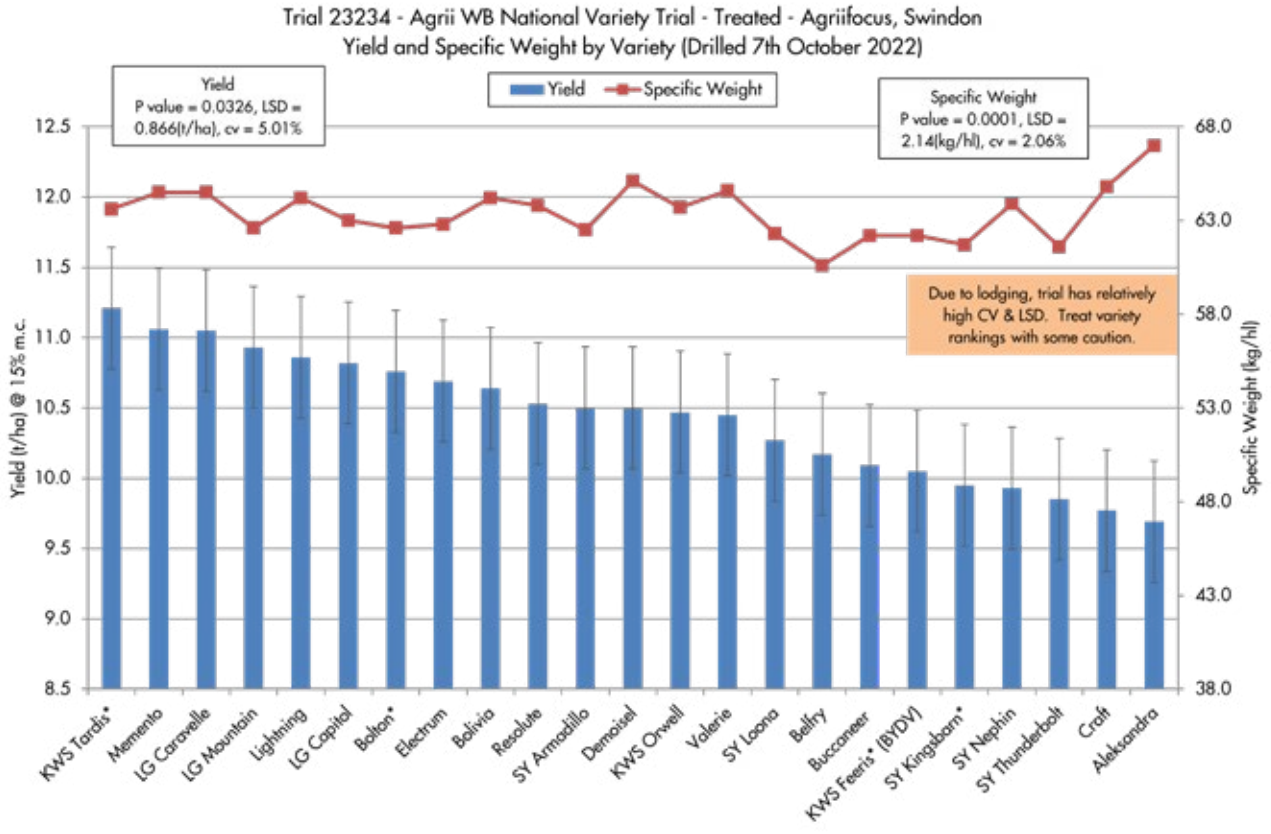
By its nature, the lodging was variable across the trial, but it was clear that SY Loona, Buccaneer, SY Thunderbolt and Alexandra were severely lodged across all three replications with lesser, but still serious levels, in Lightning. While pigeon grazing in some of the worst lodged plots caused serious yield loss, these plots were removed from the yield analysis.

Despite this adjustment the CV and LSD for the trial remains moderately high due to the extent of the lodging so some care needs to be taken when comparing yield rankings.

Despite continued 'catchy' weather at harvest the trial was combined in good condition on 12th July which is six days earlier than in 2022. Given the winter and spring conditions the top yield of 11.21 t/ha and an overall average of 10.45 t/ha is particularly good compared to the 2022 average of 9.17 t/ha. It is also up around 1 t/ha over the longer term 2018-2022 site average of 9.47 t/ha.

At 63.4 kg/hl the average specific weight is slightly disappointing compared to the sites 2018-2022 average of 64.6 kg/hl, however, as always, it includes a wide range, from the low of 60.6 kg/hl for Belfry up to a high of 67.0 kg/hl for Aleksandra.

We are very grateful to Jeremy and Ben Margesson for allowing us to conduct this demonstration



AgriiFocus

SWINDON

Rob Baker
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

AgriiFocus, Swindon

SOIL TYPE

Silty clay loam over chalk

TRIALS 2023

Winter wheat (replicated)

PREVIOUS CROP

1 year grass

DRILLING DATE

18th October 2022

SEED RATE

375 s/m^2

HARVEST DATE

15th August 2023

WRITTEN BY: JOHN MILES

SITE NOTES

Winter wheat

Sown on 18th October, 59mm of rain fell in the 13 days following sowing. November and December saw 170mm of rain and temperatures drop. November saw a maximum of 17 degrees mid-month and quite a few 15 degrees with an average of 8.6 degrees.

December got colder with a minimum temp of below freezing on 14 days, a minimum of -9 and an average of 3.3°C.

January was fairly standard for rainfall and temperature, but February saw just 7mm in a month which normally sees 40/50mm average. Temperatures were average.

March saw an even spread of rain throughout the month, but was on the cool side, with 1-1.5 degrees lower average temperatures and a few degrees down on the exceeding temperatures achieved in recent years. April was similar to 2020 with top end rainfall of 61mm and reduced temperatures.

The septoria was starting to build, but much more slowly than elsewhere, and plant development seemed much slower. The site is situated 160 m above sea level surrounded by land at 250-270 m.

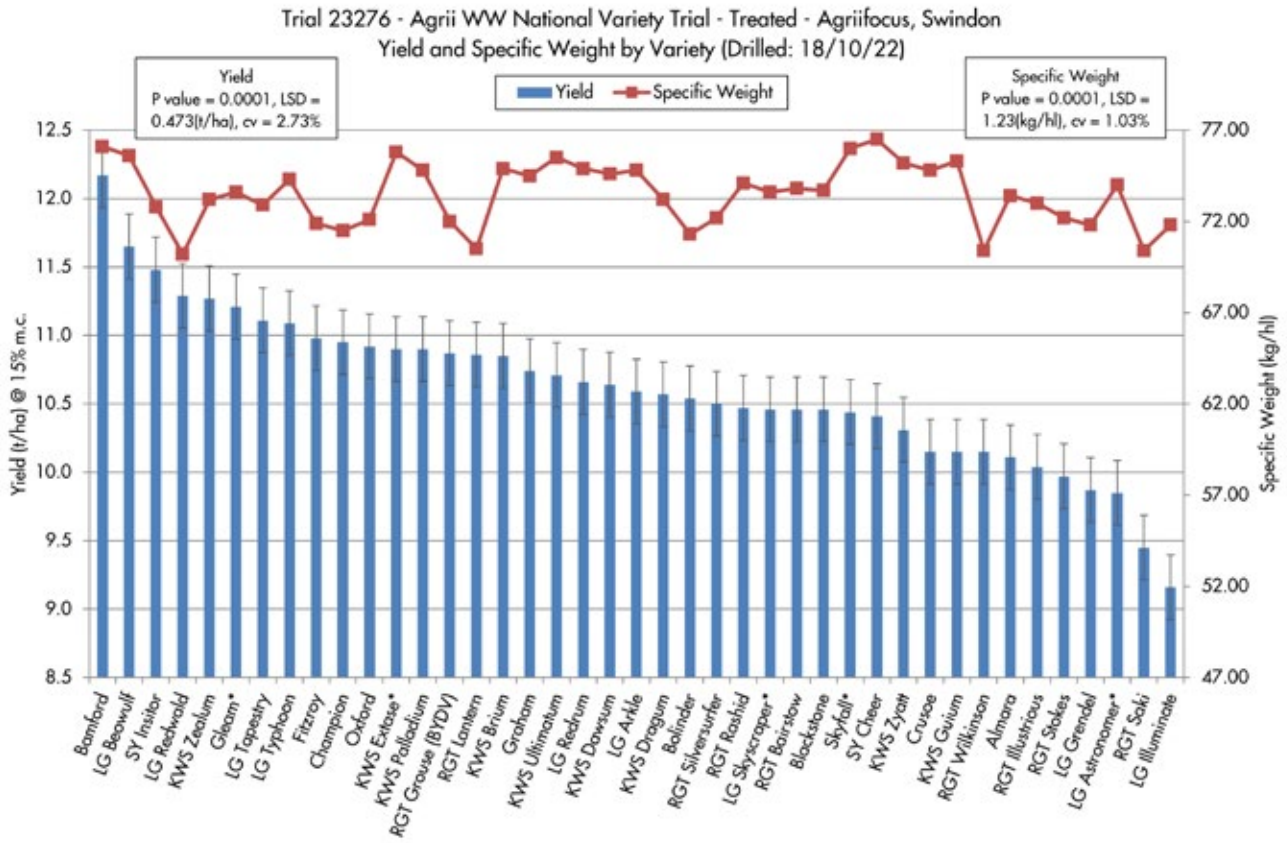
As with other sites there was little to no rain from the 9th of May until 19th of June. Temperatures rose from May and early June, ranging from mid to high 20's before the rains came. Post rain, the high temperatures disappeared, but the average remained quite constant.

May sunshine was 5% down on the previous year, June was about equal, but July was down 10% as an average on the year before. Yellow rust affected the normal candidates and by the July demo day the septoria levels in the untreated plots were at fantastic levels for demonstration. There is definitely a hint of septoria resistance steering these results. The order is mixed with slow, fast, late, and early types. It is perhaps a result that we cannot fully explain the performance patterns, but it does offer a steer in variety choice and belongs in a larger body of data.

We were unable to publish last year's result as plots varied by 2.5 t/ha depending on location but compared to 2021, the trial averaged 0.5t/ha more. The top yield is greater, 11.9 t/ha in 2021 verses 12.17 t/ha in 2023. The bottom yields are not as low as 2021 at 8.28 t/ha verses 9.16 t/ha in 2023.

The site has always pulled varieties apart for grain quality and this year is no exception so well worth paying attention to.

We are very grateful to R N & M Lawton and Aldbourne Chase Farms for allowing us to conduct this demonstration



Agrii™

Dorset

BLANDFORD FORUM

CLICK HERE TO SEE DORSET'S WINTER WHEAT VARIETIES

Todd Jex
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Dorset, Blandford Forum

SOIL TYPE

Medium loam over chalk

TRIALS 2023

Winter wheat (replicated)

PREVIOUS CROP

Winter oilseed rape

DRILLING DATE

11th October 2022

SEED RATE

350 s/m^2

HARVEST DATE

23rd August 2023

WRITTEN BY: JOHN MILES

SITE NOTES

Winter wheat

It rained the day after drilling and for the next twenty days. There was 110mm of rainfall post-drilling, in the remainder of October. November saw 160mm and December had 131mm of rain. A week after drilling the temperature reached highs of 21°C. Like other southern sites, the season cooled down with a cold start to December followed by a brief rise in temperature, reaching above 11°C from the 18th to the 28th.

98mm of rainfall in January was followed by 8.4mm in February. Six out of the eight frosts were in early Feb. After the seasonal frost, the monthly average temperature increased by 0.6°C and the middle of the month saw six days with a maximum temperature of 12°C. March saw 119mm of rain and only seven of the thirty-one days didn't have a rain record. Temperatures progressed from February's average of 5.9°C, and March had an average of 7.1°C and April 8.4°C.

May rainfall started with a few events reaching 15mm, but after the 10th there was no meaningful rain for the next forty days until it broke on 19th June. This was a singular event of nearly 20mm and completed rain for that month. Just before the 19th, temperature rose above 26°C for six consecutive days.

Like other sites the best sunshine was to be had in May, June had moderate sun, but July was poor. There was a great range of yields at the site, not quite beating last year's top regional yield of 12.8 t/ha but comfortably topping the 2021 yield of 10.3 t/ha. Septoria levels were the biggest single factor behind the yield results. Septoria scores taken on 26th June, seven days after the one rainfall event in June, showed that Theodore, Fitzroy, Mayflower and SY Insitor had the lowest septoria levels, whilst LG Illuminate, LG Skyscraper, RGT Saki, LG Astronomer, and RGT Stokes had the highest levels. The scores indicated the early septoria pressure from March onwards but did not capture what happened with the following July weather. KWS Ultimatum and LG Typhoon did not follow the pattern of the other varieties, in that their septoria levels were relatively low, but their yield was also reduced when compared to Fitzroy and Theodore.

The varieties, with Cougar in their parentage, all had raised levels of septoria and subsequently yielded poorly. The market share for all these varieties except LG Astronomer remains small.

Yellow rust was present on the site, affecting Skyfall but not KWS Zyatt. Like other sites, RGT Illustrious takes a bit of yellow rust throughout the season. We have updated our data and do not plan to put Illustrious back into trials for 2024.

The highest untreated yields were 9.8/9.7 t/ha. Seven untreated varieties yielded more than 9 t/ha. These are single plots and so, caution must be used when comparing results but the average response was 0.9 t/ha.

A good range of bushel weights were seen in all trials and across all sites, and they have been remarkedly consistent. The bottom is exceedingly close to unsaleable, and the top is worth a premium in bad years. A very different picture from last year.

We are very grateful to Jim Farquharson and Eastbury Estates for allowing us to conduct this demonstration

Rank	Variety (* = Control Variety)	Treated			
		Yield (t/ha) #	% of Cont.	SpWt (kg/hl) #	Sept Trit. GS 85 26/06/2023
1	Fitzroy	11.37	119.1	72.6	3
2	Theodore	11.34	118.8	70.5	2
3	RGT Lantern	11.06	115.8	70.9	5
4	Bamford	10.89	114.1	75.2	5
5	Mayflower	10.62	111.2	74.5	3
6	KWS Extase*	10.59	110.9	74.4	5
7	KWS Palladium	10.49	109.9	73.2	4
8	Graham	10.35	108.4	73.7	5
9	Oxford	10.31	108.0	70.1	5
10	KWS Zealum	10.26	107.4	72.9	5
11	SY Insitor	10.24	107.2	73.7	3
12	KWS Zyatt	9.96	104.3	73.5	5
13	RGT Illustrious	9.92	103.9	73.4	4
14	Gleam*	9.90	103.7	72.6	6
15	Skyfall*	9.88	103.5	75.1	5
16	KWS Dawsum	9.86	103.2	74.5	6
17	Crusoe	9.84	103.0	74.2	6
18	RGT Silversurfer	9.82	102.9	71.3	6
19	LG Tapestry	9.71	101.7	71.8	5
20	RGT Wilkinson	9.59	100.5	71.0	6
21	LG Redwald	9.54	99.9	69.4	6
22	LG Typhoon	9.50	99.5	72.3	4
23	KWS Ultimatum	9.49	99.4	75.0	4
24	SY Cheer	9.47	99.2	75.9	6
25	RGT Rashid	9.43	98.8	75.7	6
26	RGT Stokes	9.30	97.3	71.5	7
27	RGT Bairstow	9.28	97.2	73.4	6
28	LG Astronomer*	8.81	92.3	73.3	7
29	RGT Saki	8.68	90.9	69.1	7
30	LG Skyscraper*	8.57	89.8	72.9	7
31	LG Illuminate	8.48	88.8	70.1	7
	Mean	9.89			

Kent

LENHAM

Neil Harper
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Kent, Lenham

SOIL TYPE

Clay loam

TRIALS 2023

Winter wheat (replicated)

PREVIOUS CROP

Winter oilseed rape

DRILLING DATE

12th October 2022

SEED RATE

325 s/m^2

HARVEST DATE

10th August 2023

WRITTEN BY: JOHN MILES

SITE NOTES

Winter wheat

Following a relatively wet September this site was drilled into a particularly good seedbed condition on 12th October. Subsequent emergence was even and led to exceptionally good, even establishment despite the remainder of the late autumn turning very wet with a total of 220mm of rainfall recorded in November and December. Come the early spring the site generally looked excellent with no significant plant loss.

One issue that was obvious during the spring was that there were a few, significantly localised, areas of wheat bulb fly activity. Unusually, this pest seems to have selected RGT Rashid, causing severe plant loss and stunted growth in the untreated and all three fungicide treated plots. While there was also a small area of severe damage in the untreated plot of RGT Bairstow, the remainder of the trial entries showed little, if any, signs of having been infested. Why the pest has selected RGT Rashid in preference to those surrounding it is not clear, but damage was sufficient to mean yield and other scores from its plots are unreliable so have been excluded.

Wet weather during May in particular encouraged development of septoria tritici while yellow rust on the other hand, was almost absent from this site this year. Dryer, hotter weather in June encouraged brown rust, which also reached very high levels in some entries. In this trial, levels of eyespot and other stem base diseases were typically lower than seen elsewhere.

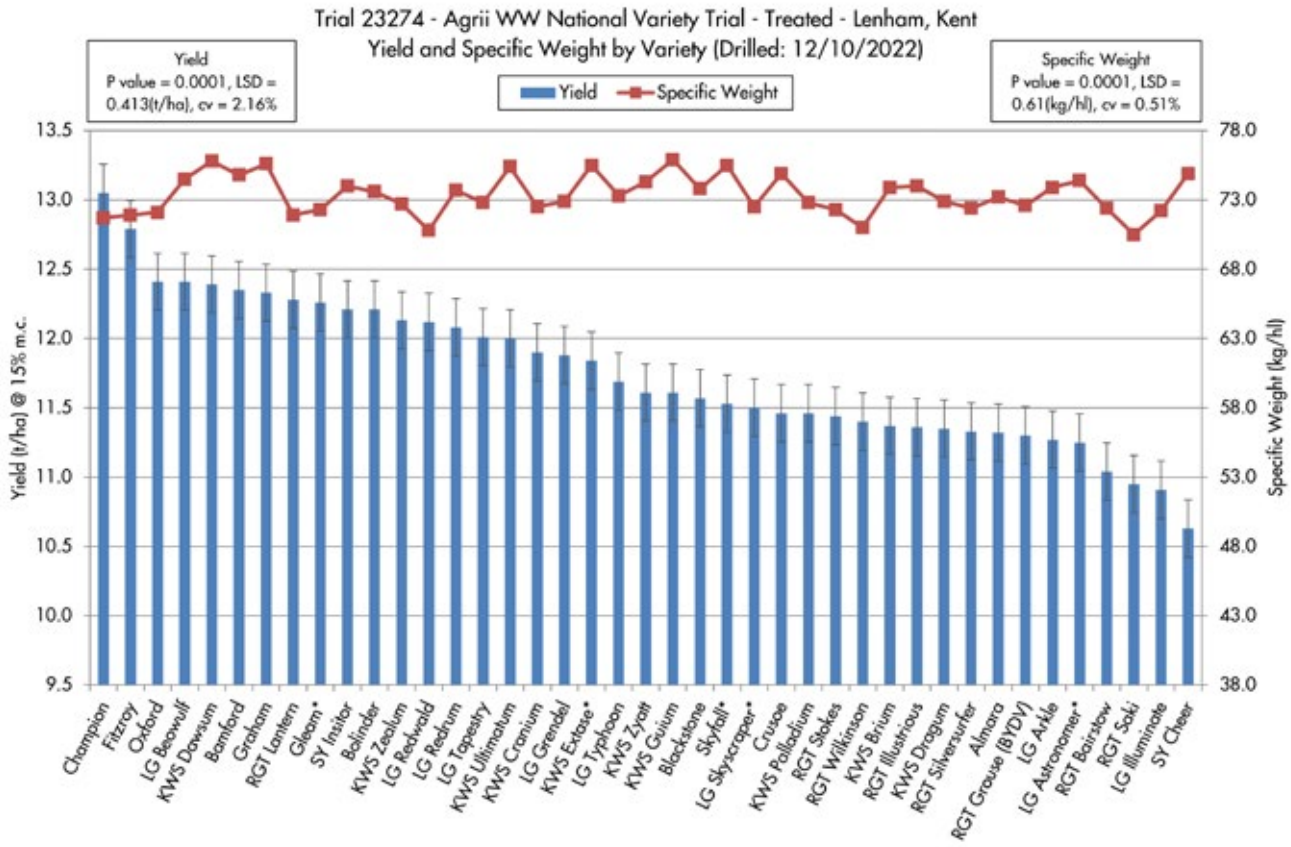
The fungicide program controlled both rusts very well. However, septoria pressure was sufficient to mean it did reach moderate levels in the most susceptible varieties even where fungicide treated and so is highly likely to have had an impact on yield rankings. Despite high lodging pressure during July there was no significant lodging or leaning and there was no sprouting in any variety at harvest.

Following a slight delay due to wet weather the trial was harvested in reasonable conditions on 10th August which is exactly one week later than in harvest 2022, but close to the longer-term average for this site.

An average yield of 11.76 t/ha appears to be a relatively good result compared to local farm yields so far for this season. However, it is considerably down on the exceedingly high figure of 13.68 t/h from 2022. It does, though, closely match the rolling average of 11.65 t/ha from the previous four years.

The average specific weight of 73.4 kg/hl is also hugely down on the 2022 value of 82.9 kg/hl, however, it needs to be borne in mind that last year's figure was extremely high compared to 77.2 kg/ha, which is the average of the previous 4 successful trials between 2018 and 2022. In fact, this year's figure is up by 3.5 kg/hl over the incredibly low result of 69.9 kg/hl recorded in 2021.

We are very grateful to John Boyd Farms Ltd for allowing us to conduct this demonstration



Drilling Demo

KENT

CLICK HERE TO WATCH HIGHLIGHTS FROM THE KENT DRILLING DEMO

DATE

29th March 2023

ATTENDANCE

Over 220 growers

DRILLS

17

MANUFACTURERS

13

AGRII DRILL DEMO IS A BIG SUCCESS

The latest drill demo day organised by crop advisers and trials specialists, Agrii took place in Kent in late March. More than 220 growers from across the south-east and East Anglia travelled to Harrietsham, south of Maidstone for the chance to see 17 drills from 13 manufacturers tackling the same conditions. Unfortunately, the wettest March for 40-years meant conditions on the day were far from suitable, so what should have been a working demonstration became a static display with the base treatment.

Across the morning and afternoon sessions, more than 220 growers attended the Agrii drill demo day in Kent in March.

Despite the inclement weather, interest was strong with growers questioning every aspect of the machines – including if they could be configured to qualify for grants under the Farming Equipment and Technology Fund (FETF) 2023. Having understood the importance of such questions, most manufactures replied in the affirmative.

There was a drill for almost all situations except wet and sticky clay, said Steve Corbett, Agrii trials manager who helped arrange the day. To read more about this event click here.

> **"It's not often that you get so many brands of seed drill in the same field at the same time."**
>
> **- Steve Corbett**

> "Dad and I were commenting on the way home how much we think of the company and the effort you put into providing all this for us farmers. One of the few working relationships where we feel there is genuinely a mutual benefit to both parties."

Listen to...

Taking a Reality Check on Regen Farming

Today we are talking to farmer, Tom Martin, well-known farmer and influencer, farming near Peterborough and Agrii agronomist Neil Harper. Regen, what is the reality check that we honestly need to answer to be able to learn from and go forward? Today we are going to look at some of the critical areas in crop production to find that right balance.

Listen Now:

Agrii™

Leadenham

LINCOLNSHIRE

Michael Dungworth
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Leadenham, Lincolnshire

SOIL TYPE

Clay loam

TRIALS 2023

Winter wheat (replicated)

PREVIOUS CROP

Winter wheat

DRILLING DATE

19th October 2022

SEED RATE

400 s/m^2

HARVEST DATE

11th August 2023

WRITTEN BY: JOHN MILES

SITE NOTES

Winter wheat

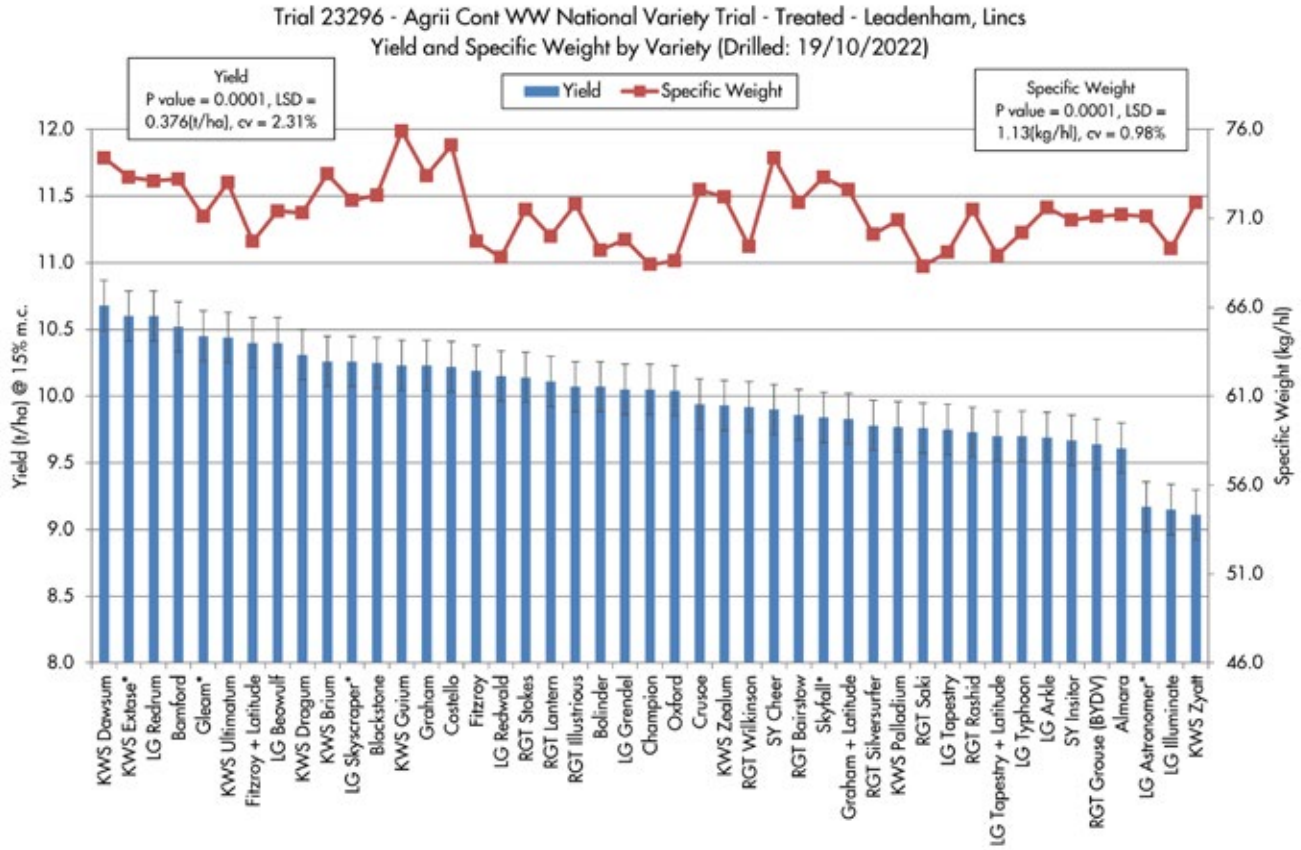
On 19th October the site was well established considering the following day it received 23mm of rain a further 61mm by the end of the month.

As with many sites, February received just 9mm of rain while March produced 76mm. A relatively dry May and June, with 27mm per month, was then followed by 121mm in July. Leadenham was the first trials site to show signs of yellow rust in the early spring and it continued to be present throughout the season. There were no surprises in those varieties infected: KWS Zyatt, SY Insitor and RGT Grouse. Similar to the Boston site, KWS Extase and Graham displayed season long infection in untreated plots. RGT Illustrious suffered early infection and retained levels similar to LG Skyscraper.

Septoria and brown rust were evident by late June, and the yellow rust prone varieties Skyfall and KWS Zyatt averaged 3.75 t/ha in the untreated plots. The trial average for the untreated unreplicated variety plots was 8.7 t/ha with the cleanest varieties KWS Palladium and LG Typhoon yielding 9-9.5t/ha. The treated variety plots averaged 10.04 t/ha.

Grain quality was poor with 13 of the 48 varieties achieving a bushel weight of below 70 kg/hl.

We are very grateful to Andrew Ward of Roy Ward Farms for allowing us to conduct this demonstration



Drilling Demo

LEADENHAM

CLICK HERE TO WATCH HIGHLIGHTS FROM THE LEADENHAM DRILLING DEMO

DATE

6th April 2022

ATTENDANCE

178 growers and manufacturers

DRILLS

9

MANUFACTURERS

9

IS DIRECT DRILLING A ROUTE TO GREATER PROFITABILITY OR A FOOL'S FOLLY?

For many farmers, especially those keen to adopt regenerative practices where the objective is to move less soil, direct drilling holds great appeal. It is also seen by some as a necessary measure to meet net zero targets through reduced carbon emissions. What few stop to consider, however, is the potential impact on performance. Do direct drilled crops yield more, the same or less than those sown following some form of cultivation and do the savings in production costs translate to greater profitability?

The short answer, explains Steve Corbett, Agrii trials manager, is that it depends on the situation. "The first consideration is, what is your objective? The evidence shows you can't have lower production costs and higher crop yields. Where direct drilling is done well over a number of years, we see that there is an appreciation for how the soil properties involved can influence the transition and an understanding of how to manage the trade-offs that occur along the way," Mr Corbett says.

For many years Mr Corbett and his Agrii colleagues have advised those keen to make the move to direct drilling that you 'have to earn the right' by which they mean the soil needs to be prepared first. This can take time. To read more about this event from host farmer Andrew Ward, click here.

"When the day comes that I am truly happy with how my direct drilled crops look and with the financial reeturns they deliver, it will be because I have battled hard to create that situation."

- Andrew Ward

Listen to...

Direct Drilling: A Farm Scale Experiment with Andrew Ward and Agrii

In this episode we are talking to Andrew Ward who farms Glebe Farm near Leadenham, in Lincolnshire and Steve Corbett, Trials Manager from Agrii. Today we are going to be looking into a farm scale experiment that investigates if a change was needed to the farm system, that focused on drilling techniques and min-till. Andrew is also the host farmer for our Leadenham iFarm site.

Listen Now:

Agrii

DIGITAL TECHNOLOGY FARM

Mid Lincs

REVESBY ESTATES

Richard Butler
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Mid Lincs, Revesby Estates

SOIL TYPE

Clay loam

TRIALS 2023

Winter oilseed rape (replicated)

PREVIOUS CROP

Winter wheat

DRILLING DATE

29th August 2022

SEED RATE

Conv. 70 s/m^2 Hybrid 50 s/m^2

HARVEST DATE

29th July 2023

WRITTEN BY: JOHN MILES

SITE NOTES

Winter oilseed rape

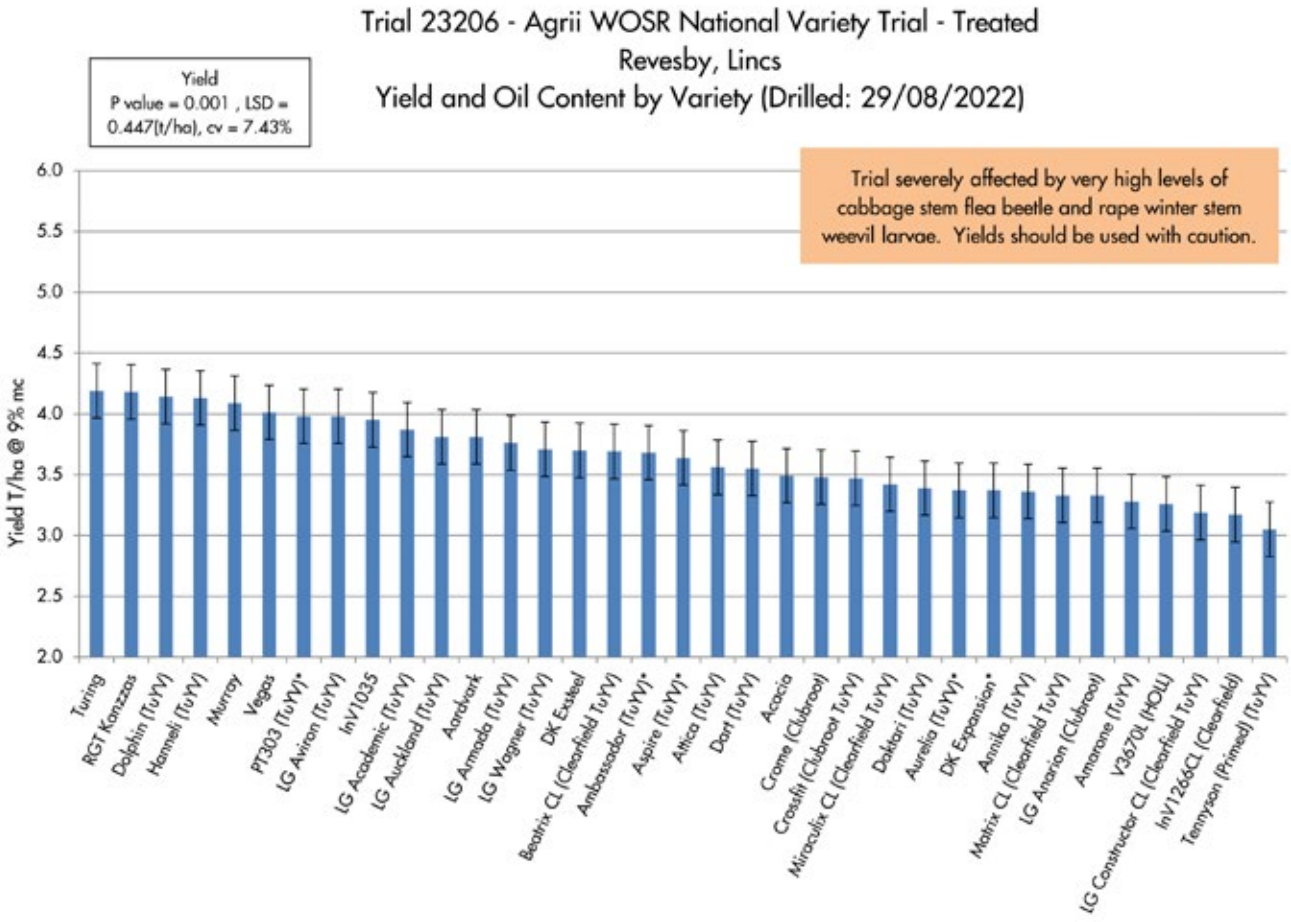
Initial plant emergence and establishment at this site was particularly good, largely thanks to 20mm of rain falling 7 - 10 days after drilling. By early December, the plants had reached around nine leaves (GS19) though growth through the autumn seemed quite slow for much of this trial, but with no obvious cause other than potential changes in soil fertility across the field. At this stage, there was little evidence of significant levels of leaf grazing by Cabbage Stem Flea Beetle.

Plant numbers remained stable through the winter, but by early spring it became vastly apparent that the plants were not growing as expected. Large areas of the trial remained decidedly stunted with many main growing points either dying off completely or being very distorted. On further investigation exceptionally high numbers of CSFB larvae, plus also some Rape Winter Stem Weevil larvae were found feeding in the plants. A destructive assessment of plants in two reps of the trial in mid-April showed that up to 80% of some varieties were infested with significant numbers of larvae. It was also visually obvious that some varieties were coping much better with this pressure, with many entries remaining largely stunted and low vigour while others were still obviously affected but had generally better growth. It is fair to say that at several points during the spring the trial overall looked sufficiently poor that an equivalent commercial crop would likely have been 'written-off'.

With the larvae pressure, plus the dry weather in May and June, the trial remained short with an average height of only 1.18 m. Surprisingly, given the dry weather, levels of light leaf spot did build rapidly towards the end of the season and reached prominent levels in the most susceptible entries such as LG Constructor CL and InV1266CL.

Given the levels of larvae pressure the average yield of 3.64 t/ha is surprising and while it is a long way behind what would be considered a 'decent' WOSR yield, it is good given how poor the trial looked in the spring. The yield of Ambassador in the trial also matches well with the surrounding commercial crop which averaged 3.8 t/ha.

We are incredibly grateful to Peter Cartwright and Revesby Estate for allowing us to conduct this demonstration



DIGITAL TECHNOLOGY FARM

Mid Lincs

REVESBY ESTATES

Richard Butler
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

Mid Lincs, Revesby Estates

SOIL TYPE

Clay loam

TRIALS 2023

Winter wheat (replicated)

PREVIOUS CROP

Winter wheat

DRILLING DATE

19th October 2022

SEED RATE

400 s/m^2

HARVEST DATE

16th August 2023

WRITTEN BY: JOHN MILES

SITE NOTES

Winter wheat

These trials are now in their fifth year of wheat. The site was sown on 19th October but did not get rain straight away.

There was no rain recorded in October until the 21st but a few millimeters were soon added, and the month ended with 49mm in total. The year finished with 120mm of rain in November and December.

Rainfall in the new year was similar to Boston, 25mm in January, a dry February with 9.5mm, and a comparably wet March with 73mm. The Revesby site experienced a wetter April than Boston with 20mm more totaling 58mm. May and June was moderately dry with 21mm and 16mm of rain, which was followed by 72mm in July.

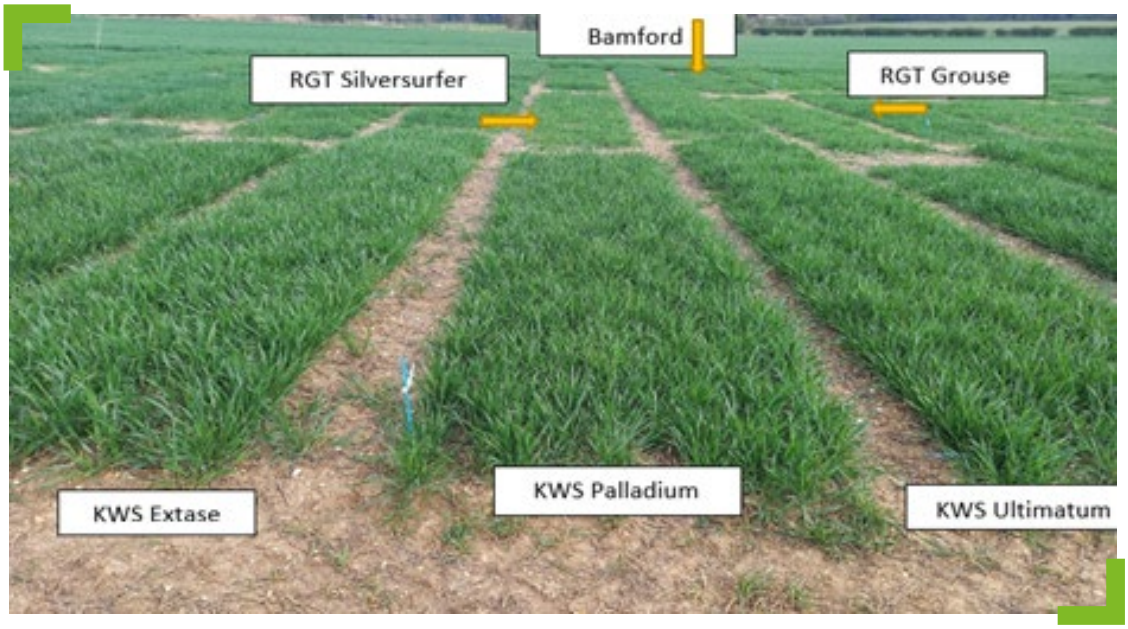
The trial established well. Early yellow rust was seen in the expected varieties and persisted at minimal levels.

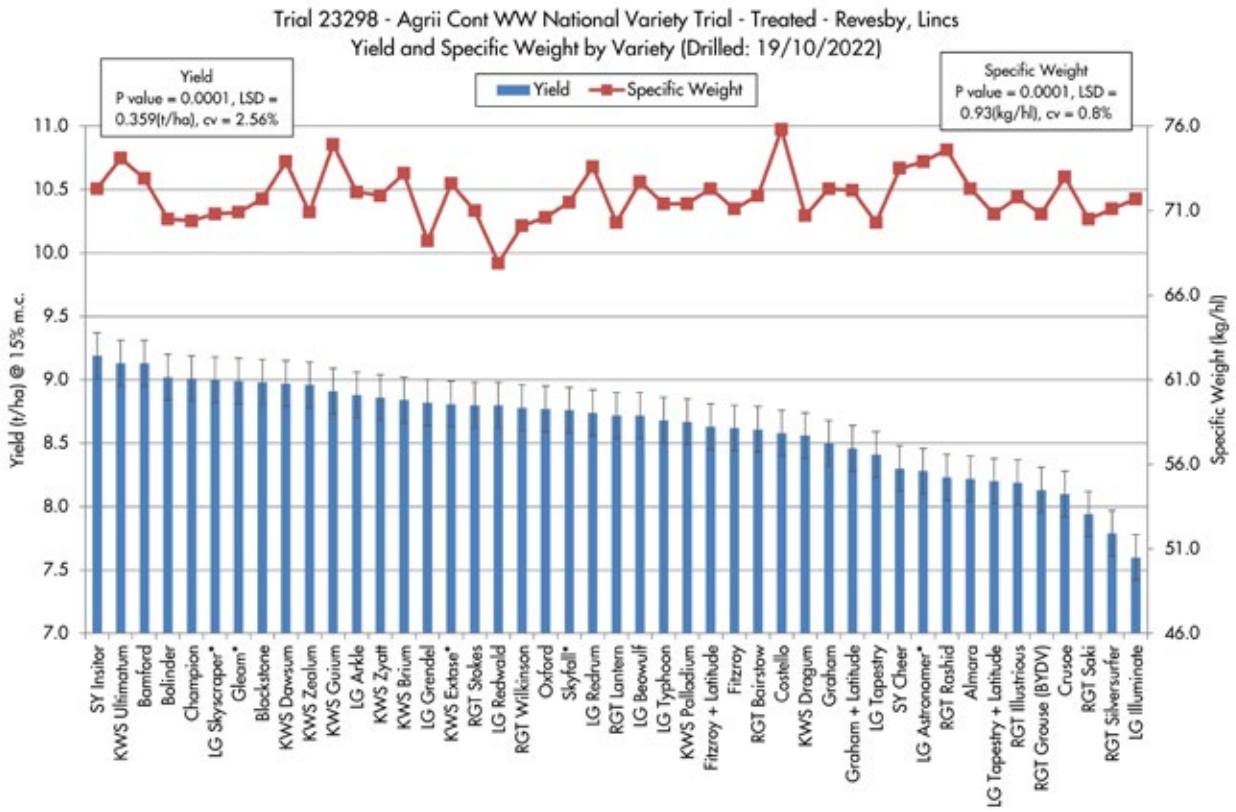
The labelled picture from the 26th April displays some great habit differences. Scores from 13th April resulted in LG Typhoon and Tapestry sharing the same score as KWS Palladium. KWS Dawsum had started to move at this trial site by this point. On this date (13th April) its growth habit was matching KWS Extase and LG Redwald. If you have a seed crop this season, be aware of this vigorous growth habit.
Like other sites in the county, yellow rust was present at reasonable levels in the LG Skyscraper, Graham, RGT Illustrious. The untreated yields in yellow rust susceptible varieties, Skyfall and KWS Zyatt were down at 2.67 t/ha and 2.8 t/ha.

The highest untreated yields were 8.18 t/ha from KWS Dawsum, Bamford, KWS Ultimatum and Fitzroy + Latitude.

The grain quality is again low but consistent with the results from other sites. LG Redwald is the only recommended variety with a 69 kg/hl bushel weight.

As expected, the top grain quality comes from Costello. Costello crosses KWS Dawsum, and KWS Ultimatum and also showed strong grain quality.





South West

CORNWALL

John Harper
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

South West, Cornwall

SOIL TYPE

Sandy loam

TRIALS 2023

Winter barley (replicated)

PREVIOUS CROP

Calabrese

DRILLING DATE

29th September 2022

SEED RATE

Conv. 350 s/m^2 - Hybrids 225 s/m^2

HARVEST DATE

2nd July 2023

WRITTEN BY: JOHN MILES

SITE NOTES

Winter barley

Drilled into excellent seedbed conditions 29th September 2022, this trial had emerged by 8th October and went on to have strong, even establishment. Despite high BYDV pressure locally, levels of the virus were well controlled in this trial thanks to timely insecticide applications. There were no visible symptoms of BYDV in this trial at any point during the season.

Apart from a drier period in February, November through to Mid-May brought drastically high rainfall amounts leaving soil conditions extremely wet during this period. Despite this, good soil structure and a relatively free-draining soil type meant the trial did not suffer any significant problems over winter, and by late spring it was growing away strongly.

The wet conditions during the early spring brought high disease pressure with brown rust, mildew, rhynchosporium and net blotch all being present at moderate to high levels in the fungicide untreated plots. By mid-flowering 16th May mildew had reached moderate levels in KWS Orwell, Memento, KWS Feeris and Valvira with reduced levels also present in Valerie, KWS Tardis, Belfry, SY Armadillo and SY Loona. These levels continued to build with KWS Orwell, Memento, SY Armadillo and SY Loona all having moderate to high levels by 1st June (GS 85).

Brown rust levels were already moderate to high in Valerie, KWS Feeris, Valvira, and SY Kingsbarn by Mid-May. The disease continued to build and spread, and by 1st June it was present in all the varieties except KWS Orwell and Lightning.

At this stage Valerie, KWS Feeris and Valvira were all effectively dead in the untreated plots with KWS Tardis, Belfry, SY Kingsbarn and SY Armadillo also having extremely prominent levels of brown rust infection.

The wet spring meant Rynchosporium and net blotch pressure was higher at this site than we have seen in winter barley for several seasons. While the majority of varieties showed total resistance to Rynchosporium it did reach moderate to high levels in Bolton, Lightning, and Bolivia, with the latter two varieties being particularly susceptible. In contrast, net blotch was more widespread, but only reached elevated levels in KWS Orwell. Where brown rust levels still allowed an accurate assessment, net blotch was present at lower, but still significant levels, in Belfry, SY Thunderbolt and SY Nephin.

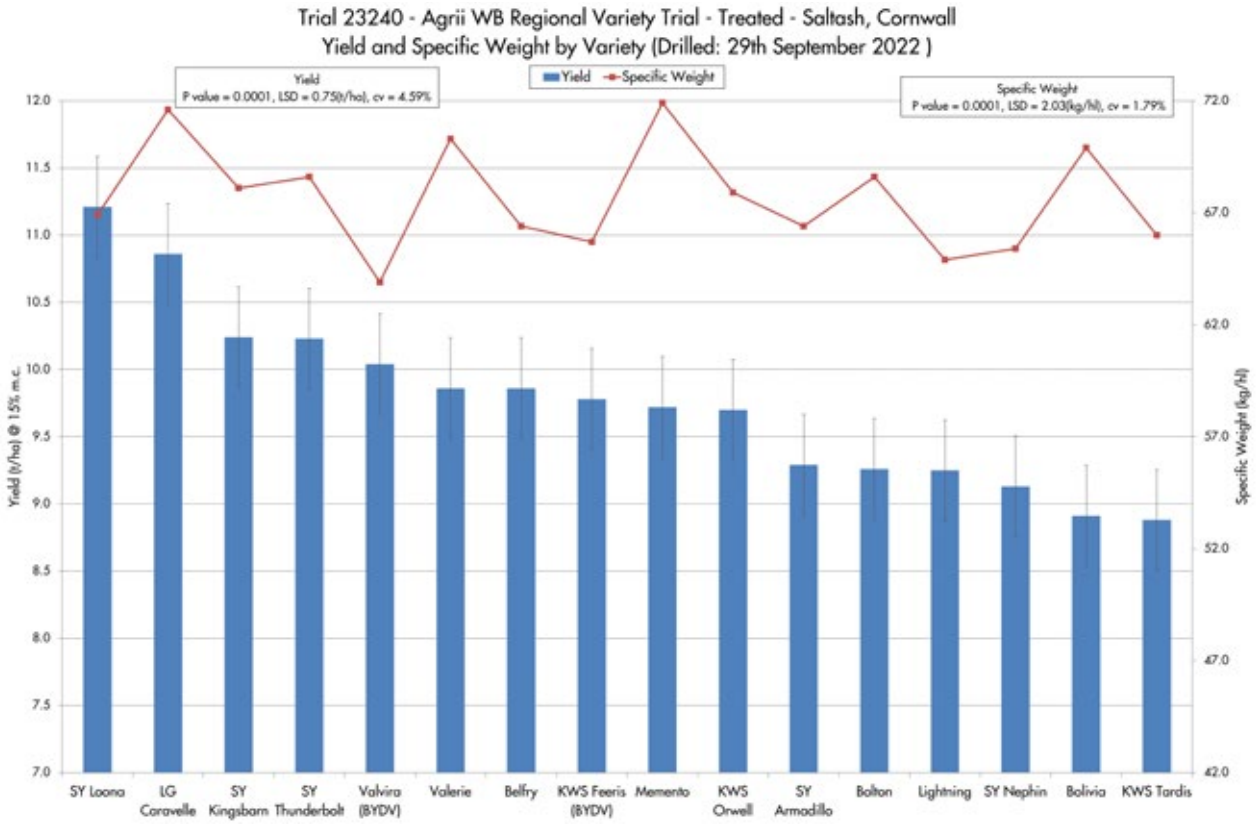
The fungicide programme applied to the treated trial controlled all disease exceptionally well for most of the summer, however, disease pressure was high and late infection prior to crop senescence may have contributed to the level of brackling seen in some varieties.

Despite the robust growth, lodging in the treated trial was well controlled with only Lightning and Valvira showing significant levels.

Brackling was much more widespread, with only Valerie and Bolton remaining free by harvest. The very highest levels occurred in SY Nephin and Valvira which were both almost completely brackled and KWS Feeris which was completely brackled in all plots. In the case of KWS Feeris the brackling had consistently occurred on one of the lower nodes, so while it could not strictly be classified as lodging, it also was not consistent with maturity related brackling. The effect may have been caused by disease weakening the lower stem, but with no visible symptoms this is difficult to confirm.

An average yield of 9.76 t/ha is particularly good and not surprising given how well the site looked all season. For comparison, the surrounding farm crop of Lightning yielded 8.4 t/ha, however, this was largely from headland.

We are very grateful to W H Bond & Sons Ltd for allowing us to conduct this demonstration



South West

CORNWALL

John Harper
iFarm Coordinator

SCAN HERE FOR CONTACT DETAILS

LOCATION

South West, Cornwall

SOIL TYPE

Sandy loam

TRIALS 2023

Winter wheat (replicated)

PREVIOUS CROP

Calabrese

DRILLING DATE

29th September 2022

SEED RATE

300 s/m^2

HARVEST DATE

8th August 2023

WRITTEN BY: JOHN MILES

SITE NOTES

Winter wheat

Emergence at this site was exceptionally good, thanks to good seedbed conditions in late September. As with much of the country, the winter turned extremely wet with 553mm of rainfall by the end of January. Despite this deluge, the final plant establishment in the spring was still reasonable but with a few small areas of slightly thinner, 'gappier' plots, due to a combination of soil effects and the prolonged wet conditions.

February was relatively dry followed by the return of wet weather in March, April, and May. The disease pressure from septoria tritici in particular was very high during this time. By mid-May (mid-boot) the disease was present in most of the entries in the fungicide untreated plots, with LG Illuminate, RGT Rashid and LG Skyscraper having the highest levels at this stage. However, only traces were visible in Mayflower and Theodore. By 1st June (early/mid flower) LG Skyscraper and LG Illuminate had lost nearly all of their green leaves to septoria with LG Astronomer, KWS Brium, RGT Bairstow and RGT Stokes also having exceedingly high levels. Again, Mayflower and Theodore showed particularly good resistance having only minimal levels of infection while KWS Ultimatum, SY Insitor, LG Typhoon and Fitzroy remained relatively clean. The arrival of drier weather in June brought a slight respite in septoria pressure, however, it remained continually active with elevated levels building in susceptible varieties, and even in the fungicide treated plots.

In the fungicide untreated plots yellow rust pressure was incredibly low at this location again this season whereas brown rust built rapidly during the drier, hotter weather in June. It first appeared in Crusoe and Theodore at the very end of May, but by late June it could be found in all varieties except Skyfall and LG Redwald.

At this point, untreated Crusoe, KWS Zyatt, Champion and Theodore had lost all of their green leaf area to brown rust with KWS Guium and RGT Grouse also showed extremely high levels. Even where fungicide was treated, the disease could be found in the utmost susceptible varieties but not at levels which would have significantly impacted yield.

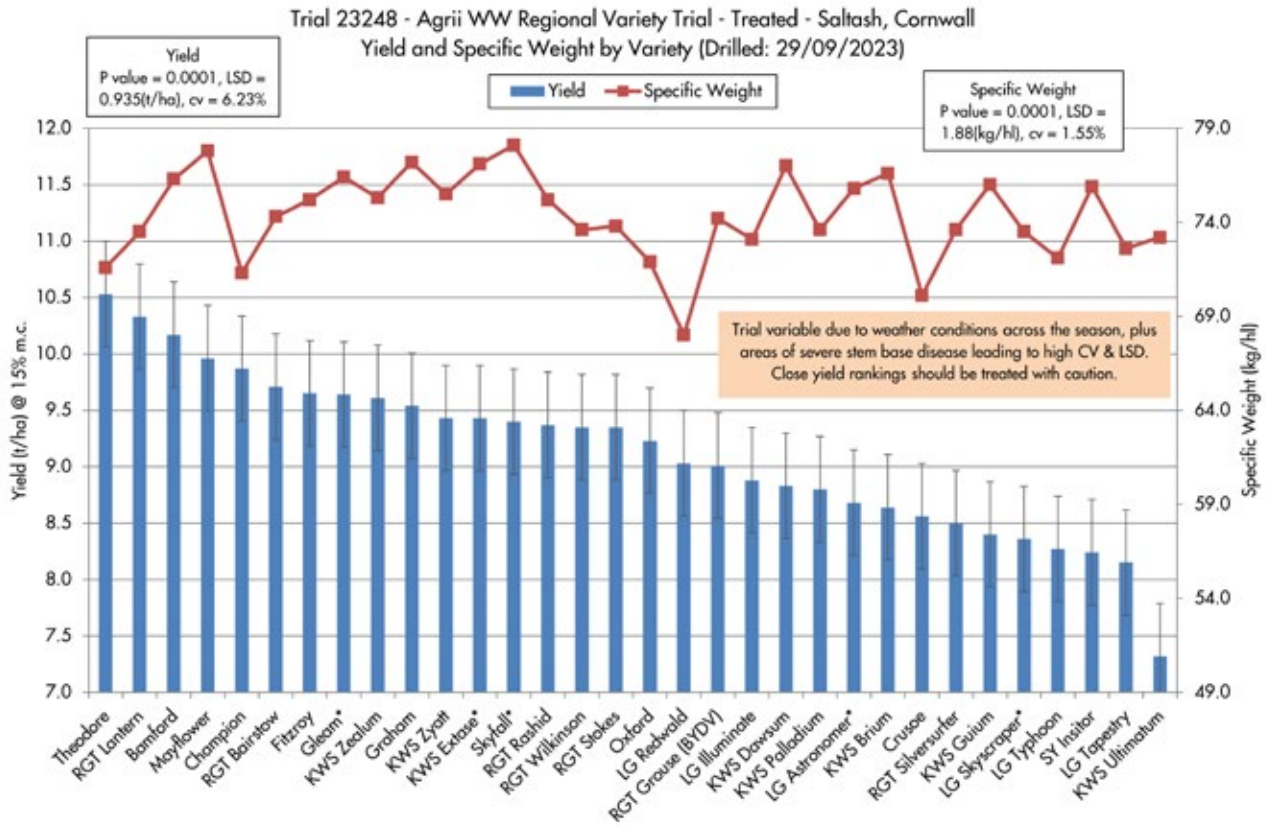
Like many sites this season, the harshly wet winter and spring conditions encouraged prominent levels of stem base disease, including true and sharp eyespot plus stem base fusarium. The levels of the disease, and the subsequent whiteheads caused, did vary across the site with the lower lying, and therefore wetter areas, being most severely infected. While the whitehead score does give a broad indication of the most susceptible varieties, it would have been impacted by the maturity stage at the time of scoring. Therefore, impact of the disease in the later maturing material may be greater than the scores indicate.

Despite the change to remarkably wet and windy weather during July, there was little true lodging in this trial. The wet conditions meant combining was severely delayed until the 4th August and by this point many of the entries were starting to brackle, however, this was much more a factor of the delayed harvest than any intrinsic weakness in the straw. Despite the brackling, all plots were harvested cleanly without any ear or grain loss.

One consequence of the wet harvest was that sprouting was evident in samples in a few of the varieties. Generally, this was at exceptionally low levels and sporadic across the trial. However, LG Redwald did have exceedingly elevated levels of severely sprouted grain in samples from all three replicates. The levels of sprouting will certainly have negatively influenced both its yield and specific weight results.

Given the very prominent level of pressure from septoria but also stem base disease, an average yield of 9.13 t/ha is surprisingly good and is certainly well above some of the average yields reported locally from commercial crops.

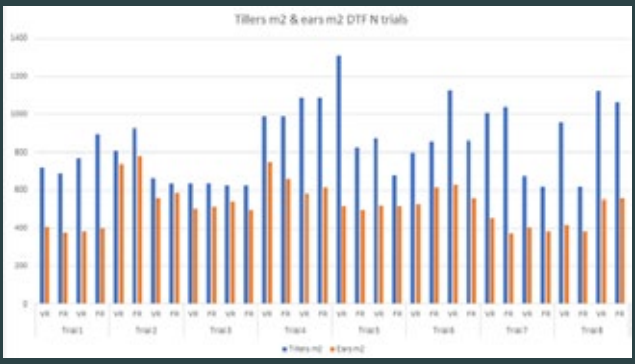
"A big thank you goes to you for all your hard work. Although hosting the site is sometimes a challenge, the data that it generates is so valuable to all of us."



RHIZA & Technology

RHIZA: TIME FOR CHANGE?

In a previous article we spoke about the idea of a change in strategy in variable nitrogen applications. Traditional approaches to VR N have promoted the use of more N applied to lower biomass areas to promote tillering in the first N timings. With all these things however, the proof is in the pudding. RHIZA conducted VR nitrogen trials as part of its Digital Technology Farms (DTF) network. In trials focusing on the N1 and N2 timings and applying more nitrogen in poorer areas to promote tillers, we did see an increase of around 50% in tillers in the variable rate tramlines verses the adjacent flat rate plots. However, that increase was not necessarily reflected in the ear count and consequently the yield. This was due to several reasons; mainly weather, soil type and the amazing ability of wheat to compensate for the conditions. Therefore, this does ask the question: 'Is the reward of adopting this strategy worth the risk?' With the current volatility in fertiliser and grain markets this may no longer be the case.



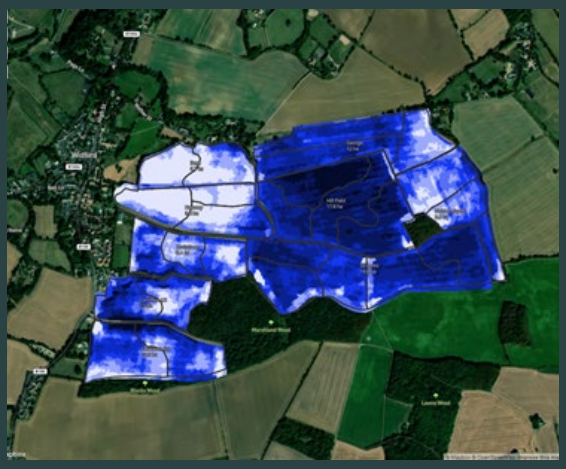
To continue reading the rest of the newsletter and the reports from the different nitrogen applications throughout the season, click here.

VR NITROGEN – FEEDING FOR YIELD

When we think of VR nitrogen we generally think about its use to promote tiller numbers at the N1 timing. Traditionally this tends to be with the view that loading up poor areas of crop with extra nitrogen will encourage smaller biomass crops to tiller more and compensate for a lower winter emergence plant stand. But where do we draw the line? At what point do we accept the crop variation we have and react accordingly? Is there an alternative nitrogen strategy that we can adopt?

Trials, such as Agrii's Digital Technology Farms (DTF's), do show a response in tiller numbers using this approach, but as with all nitrogen applications we are somewhat at the will of the gods with the weather. The past few springs have given us a mixture of drought and fluctuating soil temperatures, all making nitrogen timing difficult to predict. And once applied nitrogen usage efficiency is questionable. Infield variation is not always apparent at the early N1 timing and dependant on the weather conditions and soil type recovery of thinner crops is not always possible. Likewise good areas of a field coming out of winter can then go backwards if soils drought due to lack of rainfall in March/April.

To find out how the VR application map maps were produced using Contour click here.

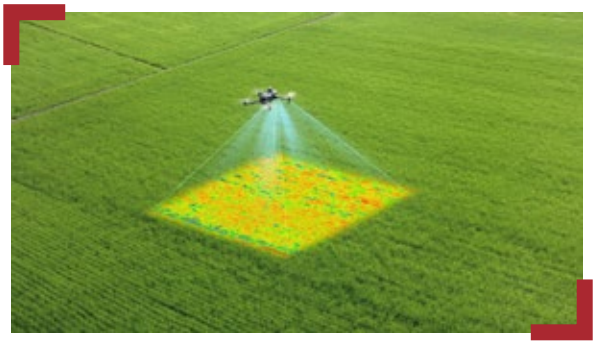


R&D: AN ELEVATED PERSPECTIVE

An essential element in Agrii's ability to provide industry leading technical and strategic advice is based on the quality and integrity of research that backs up everything we do.

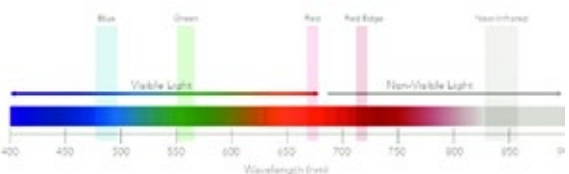
The R&D team manage approximately 400 trials across the U.K. annually. In practice this requires the management of over 40,000 individual micro plots that all require timely and accurate visual assessments to be made throughout the growing season. Insights from these trials are relied upon to influence strategic advice and stakeholder decision making. It is a huge logistical and resource heavy challenge!

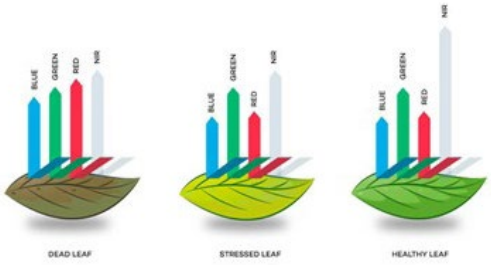
The current industry standard is to collect a range of data manually via laborious and inherently subjective visual scoring methods. Although data are collected by highly skilled and accurate team members, there is potential to increase objectivity, improve timeliness, accuracy, and efficiency of how we collect data at scale. Agrii are innovating and enhancing insights by embracing technology and automation by utilising the capabilities of UAV's and high-resolution multispectral sensors.



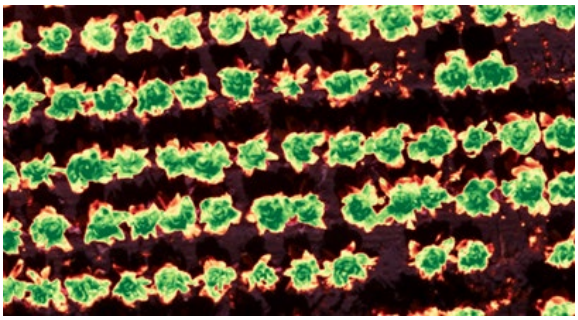
By utilising photogrammetry techniques in combination with UAV-mounted multispectral sensors we are able to stitch together highly detailed and accurate imagery and interpret objective data across a range of trials. The greatest benefit of objective assessments will be the ability to assess trials across all Digital Technology Farms and iFarms to identical standards. This means we can achieve greater consistency and resulting knowledge on the effects of all interventions in any trial countrywide.

Multispectral imagery enables us to understand how individual micro plots or even individual plants are responding to and reflecting wavelengths of light. Plants reflect and absorb visible and non-visible wavelengths differently according to how healthy or stressed they are. By collecting non-visible (to the naked eye) wavelength data such as Red Edge and Near-Infrared we can enhance our understanding on how abiotic and biotic stressors are impacting trial results, at scale.





Using this data collection technique, sensor, and processing technology we can achieve an accuracy of approximately 0.5cm/pixel. This not only allows us to determine the health of individual plants but also the number and size of certain plants in field situations, furthering our ability to derive insights from replicated trial work.



Although this is a significant step forward for data collection and interpretation and will enhance the way we assess the efficacy of trials across a range of cropping types, there is further opportunity to innovate within our data collection workflows.

The aforementioned process described is semi-automated as it still relies upon a combination of environmental, workload and geographic factors to align for a successful data collection task to be completed. As such, a fully autonomous UAV data collection solution is a future development of R&D capability and is a key part of the future data collection strategy. There are arising technologies that will enable us to collect and analyse data at consistent and regular intervals in a systematic way using automation, artificial intelligence and edge computing. From working closely with Drone Ag and using disruptive technologies such as the Skippy Nest concept, Agrii will leverage the advanced AI analytics of Skippy Scout in an R&D context and move towards an entirely autonomous pre-programmed data collection workflow.

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Technology Trials Manager

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Acknowledgements

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