

KWS UK

2023 Variety Guide

SEEDING
THE FUTURE
SINCE 1856

KWS



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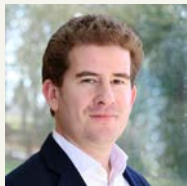
Introduction

The KWS Variety Guide is a catalogue of cereals, oilseeds, hybrid rye, peas, maize and sugar beet.

Our guide is created to provide growers and professional advisers with the information needed to guide variety choice based on market suitability, regional performances and the practical aspects of variety management that determine how a variety performs on farm.

We have some exciting new additions to our cereals portfolio and the RL list for 2023. Keep an eye out for KWS Ultimatum and KWS Zealum in our winter wheats category, KWS Harsum, KWS Alicium and KWS Lightum in our spring wheat portfolio and KWS Curtis, which is our new spring barley malting variety.

Included in our guide is lots of information to help you make specific choices, including end-user requirements of the various market groups and other factors that can influence performance like drilling date and what makes a good 'late driller'. Our Sowing For Peak Performance initiative also includes helpful information to get the best performance out of crops on farm.



Will Compson
UK Country Manager

All figures in the guide are sourced from the AHDB 2023/24 Recommended List, unless otherwise indicated.

KWS - Independent like you

Thank you

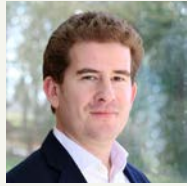
We would like to thank farmers and everyone involved in the food supply chain - thank you for your hard work ensuring we continue to have food on our tables.

www.kws-uk.com

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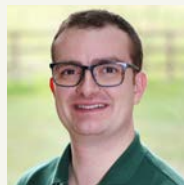
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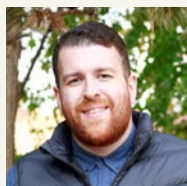
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KWS product development sites

We have two product development sites in the UK, one in the north of the country and one in the east.

'PDF east' is located in Fowlmere, Cambridgeshire, just 2 miles from our office, and 'PDF north' is located in East Heslerton, North Yorkshire.

PDF East is where we showcase our key varieties within our wheat, barley, oilseed rape, rye, oats, peas and sugar beet portfolios. It is also home to multiple agronomy trials, including our BYDV trial, winter wheat versus spring wheat drilling date trials and some quality wheat work. The site is now in its 14th year of rotation.

At PDF North, we demonstrate our key wheat, barley, hybrid rye and oilseed rape varieties in large blocks over four fields, rotating annually. The purpose of this site is to give growers an early look at our cereal varieties to help them plan their next varietal choices.

Both sites are unique in their regions, which means they are worth a visit! We hold open days from the end of May, so if you would like to see either site, please do get in touch.



myKWS: Service for your seeds

High-quality seeds are the foundation of successful farming. However, to unleash the full potential of your seeds, area-specific crop management and holistic decision-making are just as important.

With myKWS, we can now expand our services. The combination of high-quality seeds + regional advice + digital service enables us to provide a firm foundation for important decisions and future paths to successful farming.



More than 50,000 farmers are using myKWS already.

Join in and take advantage of these new opportunities at: www.kws-uk.com/mykws or scan the QR code to create your account now!

SOWING4PEAK PERFORMANCE

The future of crop production genetics, today

It's time for action!

The methods we have used to produce crops in the past will not take us to where we need to be in the future without substantial changes.

At KWS, we've always been passionate about genetics and the vital role seeds play in the production equation. We're proud of what we have achieved to date and appreciate the key role our genetics can play in responding to the demands of the future.

Working with businesses across the agri-supply chain, we've identified five critical needs that growers must address to keep their business profitable and environmentally sustainable in the years ahead. Each of these carries a commitment from KWS to ensure our genetics address them as far as possible.

5 key requirements for profitable and sustainable UK crops and how SPP can help now and in the future:

1 To maximise production/profitability from available resources

- Getting the most production from the resources you have available to you is the key to being sustainable.
- KWS provides a range of high-yielding varieties with an assortment of specific agronomic traits. Select your variety based on your soil type, growing conditions, locality to market and maximise your yields.

2 To achieve effective crop management with reduced windows of opportunity

- Climate change has become a reality for many growers over the last few years, with growing conditions not just varying dramatically between the years but also within the same season itself.
- KWS actively select for high resilience so that they can help on farm, spreading workloads at critical times and buying you time. Note that varieties outside of your usual market segments may be used to widen spray windows and harvest timings.

3 To achieve optimum crop health without a high level of agronomic interventions

- Striving to breed varieties with high levels of resistance to the most damaging diseases has been a key KWS aim for many years. Our current portfolio is strong proof of this with some of the highest scores for untreated yields and resistance to *Septoria*, mildew, and rusts on the RL.
- But if growing a less resistant type for a specific market requirement, adapt your management practices to boost disease resistance. For example, later drilling of wheats will increase *Septoria* resistance scores.

4 To reduce amount of all inputs used and associated costs

- It's not just about cutting fungicide spend; by choosing the right variety, you could save more on labour, diesel and machinery wear and tear and, ultimately replacement too.

5 To get greater productivity from soils long-term

- Less travel means less potential damage to soils, less time and money spent on correcting compaction problems associated with multiple wheelings, and carrying out operations in unsuitable conditions.
- From considering how varieties can perform in direct drilled situations through to those that are stiff-strawed, variety selection can be tailored to your farm.

WHEAT



Building resilience and profit into rotations

Grain markets in 2023 and beyond are likely to remain volatile. For growers, choosing the correct variety for your individual situation has never been more important. At KWS, we focus on providing your farm with as much genetic diversity from our wheat programmes so that you can choose the best combinations of yield, grain quality and field performance to maximise gross margins from this most profitable part of your rotation.



Kirsty Richards

Cereals Product Manager

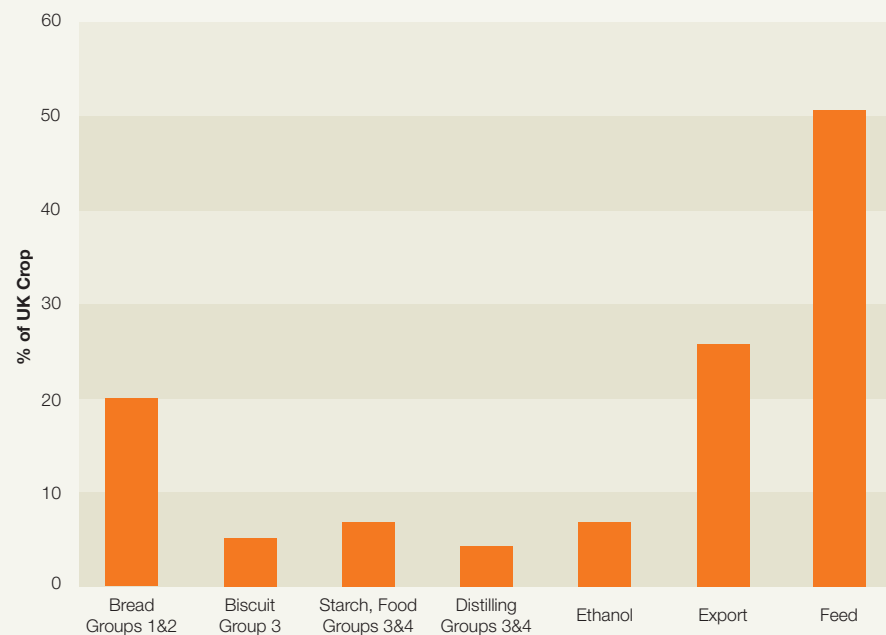
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Winter Wheat

Wheat demand

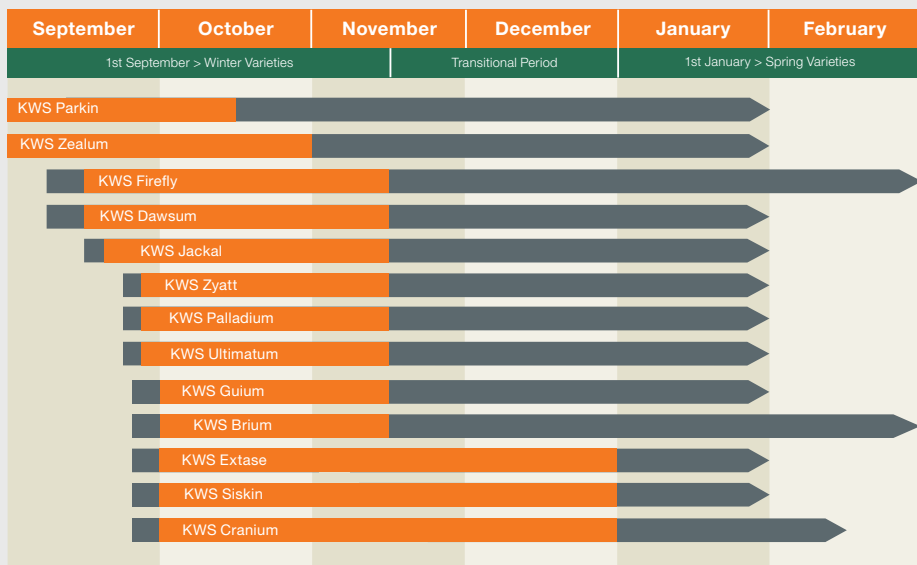
Each year in the UK, flour millers use some 5 million tonnes of wheat to produce over 4 million tonnes of flour, with approximately 60% used for bread making. Pre-packed flour, as seen on supermarket shelves, constitutes approximately 4% of the market. Approximately 5.5% of the total flour produced is exported annually. Other users of flour include the biscuit and cake industries, starch manufacturers and food ingredient companies (Data source: UK Flour Millers). Export and feed then make up the balance of the UK wheat crop destination.

UK Wheat Demand



Data Source: 5 Year average DEFRA Statistics and UK Flour Millers

Wheat optimum drilling times



Our varieties will perform well up until the official latest safe sowing date. However, from our experience, the optimum sowing windows are marked in orange and this is when you can expect them to give their peak performance.

When planning your cropping strategy, pick varieties that will provide the best performance based on your unique farm circumstances. Sowing date is one key factor, but to find out how to get the ultimate peak performance from your cropping strategy, see page 10.

Key wheat disease considerations

Arguably, the most important yield-robbing diseases in winter wheat are *Septoria* and yellow rust. With chemistry starting to drop out of the picture, genetic resistance is becoming a key element in profitable wheat production in the UK. Here we bring you up to date on the latest thinking during this transition period as wheat genetics become considered, by some, as tank-mix partners in their season management.

Septoria tritici

The most destructive disease in UK wheat, which in extreme cases has been shown to decrease yield by up to 50%. Current resistances are based mostly around plant breeders stacking partial resistant genes, which have cumulative small effects with increased durability, as opposed to using major genes. With the loss of Chlorothalonil™, many growers are focusing more than ever on highly resistant varieties such as KWS Extase.



Septoria on wheat


During the 2020/21 season, weather events, including rain in May, stretched T1 timings, putting resistance genetics under extreme pressure. As a result, we observed the breakdown of the Cougar race of resistance across the UK wheat crop, with any progeny containing Cougar genetics being adversely affected. While it is impossible to predict how the *Septoria* population will evolve, growers are advised to consult the Recommended List and study disease resistance ratings that reflect recent pathogen populations.

Disease-risk map for *septoria tritici*



Source: AHDB

Varieties like KWS Extase and KWS Palladium with resistances well above 6.0 offer opportunities to reduce fungicide costs, especially in lower risk seasons and later drillings. More importantly, they help deliver effective disease control in high-pressure seasons, when critical fungicide timings may slip.



If you want to learn more about how varieties can contribute to the successful control of *Septoria*, then use this QR code to link to our video which highlights the work KWS are involved in and shows how chemistry and genetics can work together to best control this disease.

Yellow rust

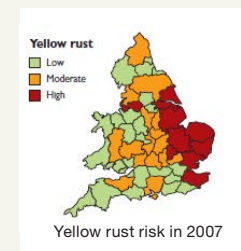
Yellow rust is one of the most important wheat diseases in the east, although in recent years, infection has become common across all regions of the UK.

Yield losses of 40-50% often occur in untreated, susceptible wheat varieties. In crops that are early sown, there is an increased risk due to exposure to a green bridge from the previous crop and the mild winter weather followed by a humid microclimate. Late sown crops are also more at risk as the plants are smaller throughout the year. While many growers have relied on well-timed, structured fungicide programmes to control the disease, the potential loss of epoxiconazole and tebuconazole based chemistry from 2024 means that genetics may be required to do more of the 'heavy-lifting' in yellow rust control.

In the past, yellow rust ratings on the RL have been based on a 5 year average dataset of adult plant resistance, providing protection from stem extension onwards, although timing is variety specific. Yellow rust races are dynamic with pathogen race variations,

causing a constant threat. Young plant resistance is effective at all growth stages – some varieties are susceptible at the young plant stage but develop a degree of plant resistance. Each year, the Cereals Pathogen Virulence Survey (UKCVPS) selects five yellow rust strains to best represent the diversity of the population. These are used to test whether varieties are resistant or susceptible to yellow rust at the young plant stage. This data is a useful addition to the 2023/24 RL.

KWS supports all these activities as we provide more information for farmers, helping them make the right variety choices for their individual growing situation and plan their crop management accordingly. We are also excited that some of our newest additions to our wheat portfolio, such as KWS Zealum and KWS Cranium, not only add yellow rust resilience with OWBM resistance, but also add high yield potential with seedling yellow rust resistance to the wheat market.



Source AHDB 2022

	UK untreated yield (%) controls	Adult yellow rust resistance (RL rating)	Young plant yellow rust resistance (r=resistant, s=susceptible)
KWS Dawsum	95	9	r
KWS Palladium	94	9	r
KWS Ultimatum	93	9	r
Theodore	93	9	r
Mayflower	93	9	r
LG Typhon	92	9	r
Oxford	89	9	r
KWS Siskin	87	9	r
KWS Zealum	86	9	r
Costello	86	9	r
RGT Saki	86	9	r
KWS Brium	83	9	r
KWS Cranium	82	9	r
KWS Guium	80	9	r
LG Astronomer	88	9	r
Crusoe	76	9	r

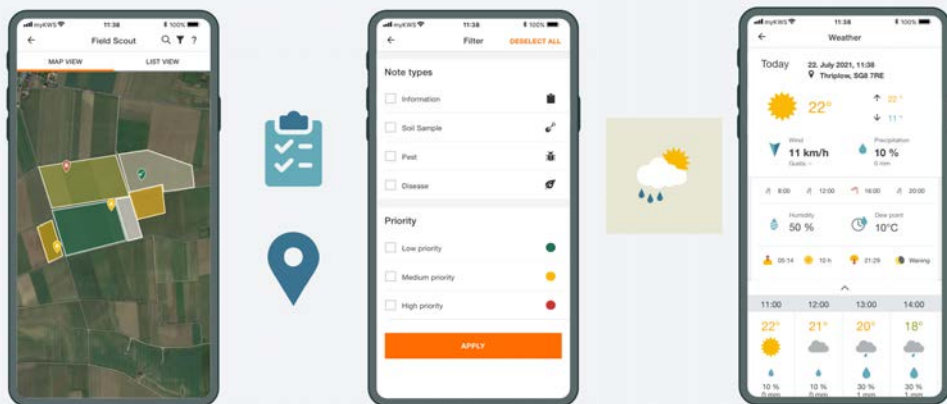
Data Source: AHDB Recommended List Winter Wheat 2023/24

Seed + Service: Increase your yield with the help of myKWS

Get even more with the myKWS app! Use of myKWS and the corresponding app is free of charge. You have free access to all basic functions such as seasonal expert information, calculators and field management. To benefit from the satellite-based digital services for your KWS varieties, all you need to do is take a photo of your delivery note and register quickly at the beginning of the season.

Create important notes about your site-specific observations on the fields; for example, the detection of pest or disease infestation can be recorded at the exact location with the myKWS app. Use the Field Scout to manage important information and have a better overview of your fields and crops.

myKWS also offers damage symptoms finders, accurate weather data and much more.



Group 1

Wheat varieties within this sector are those used by millers for breadmaking and give year-on-year consistent milling and baking performance. They will achieve a premium if they meet specified quality requirements of 13% protein, 250s Hagberg Falling Number and 76kg/hl specific weight. Premiums for lower specification Group 1s (so-called low protein low HFN contracts) may be available – it's always best to check with your local market on their precise requirements.

SPECIFICATION		UK FLOUR MILLERS
	Group 1 Specs	UKP Specs
Protein	13%	11.0% - 13.0%
HFN	250	250
Specific weight (kg/hl)	76.0	76.0
Max. moisture content (%)	15%	14%
Max. admix	2%	2%
W	-	Min. 170
P/L	-	Max. 0.9

Group 1 varieties

KWS ZYATT



Details

Group	Year Listed	UK treated yield	Parentage
1	2017	99%	Hereford x KWS Quartz

Comments

KWS Zyatt is the highest yielding Group 1 on the Recommended List. Commercial experience in the mill and bakery has shown the variety delivers excellent protein functionality, making it suitable for use in a wide range of bread applications. A specific weight of 78.4 kg/hl, a HFN of 271 seconds and a milling specification protein of 12.6%, combined with its group-leading yield across all regions and soil types and its UKP export-approved status, make it the leading Group 1 wheat.

On farm, KWS Zyatt yields are 2% ahead of the next best Group 1 wheat, and in the second wheat slot, KWS Zyatt yields 5% more than Crusoe and RGT Illustrious. It is a stiff-strawed variety with Pch1 resistance to eyespot and a good *Septoria tritici* rating of 6.1.

Download now!

Visit www.kws-uk.com/mykwsapp for more information or download directly by scanning the QR codes!

Google Play:



Apple App Store:



KWS Zyatt – use your loaf

In today's challenging times, finding the best local market and the right variety to fulfil it will be crucial for growers looking to maximise their farm's potential. To achieve this, those close to a flour mill or port should have KWS Zyatt earmarked as one of their top varieties to consider growing this autumn. Since being added to the AHDB Recommended List in 2017, it has earned a reputation as a consistent performer in the Group 1 sector.

Moreover, KWS Zyatt's excellent physical grain package is supported by its tried and tested results from the UK baking industry, where it has been shown to deliver a wide range of good quality end-use products.

Yields are 2% ahead of the next best Group 1 milling wheat and in the AHDB east and west regions, where over 80% of Group 1 plantings can be found, it delivers consistently high yields.

But there's more to KWS Zyatt than just milling performance. For those looking for a wheat that performs well in the second wheat slot or one with a good, balanced disease package, then Zyatt will be a good option.

KWS Zyatt is stiff-strawed and has solid eyespot resistance, appearing to be one of those varieties that is a naturally good second cereal. Its grain quality is strong, so its seed rates can be pushed without compromising grain quality.

"KWS Zyatt has impressed us with its consistently good baking performance and versatility across a range of applications."

Shaun Taylor
Technical Director of
Hovis Bakeries

Receive information and recommendations based on the current season and your preferred crop types
www.kws-uk.com

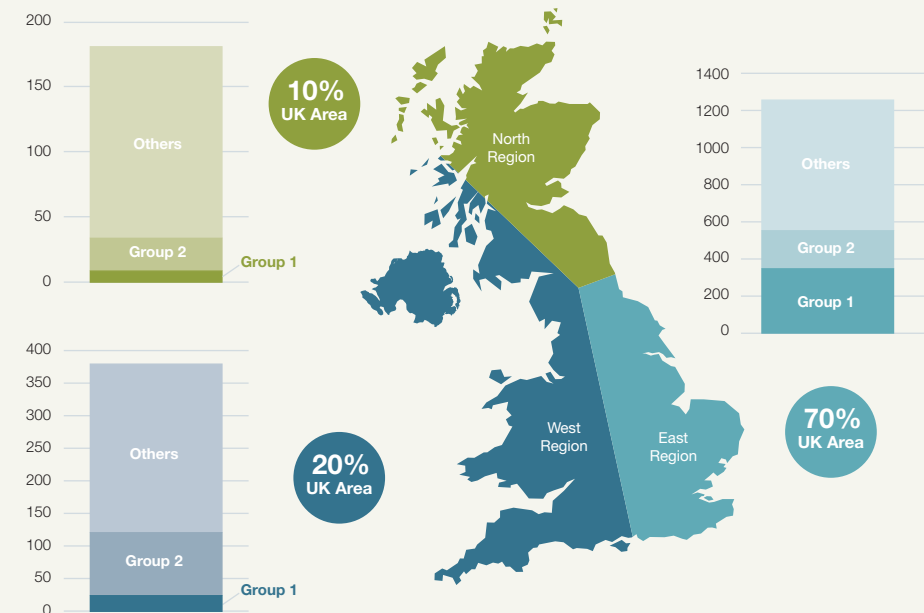


Group 2

Varieties in Group 2 are routinely used in the bakery for breadmaking but may have other bakery applications too. As a result, they could have specific end-use characteristics which are not suited to all grists. Consequently, these varieties are likely to attract varying market prices. Lower protein Group 2 wheats are also widely used by millers but will attract variable premiums, so it's always best to check with your local market on their precise requirements.

SPECIFICATION		UK FLOUR MILLERS
	Group 2 Specs	UKP Specs
Protein	12.5%	11.0% - 13.0%
HFN	250	250
Specific weight (kg/hl)	76.0	76.0
Max. moisture content (%)	15%	14%
Max. admix	2%	2%
W	-	Min. 170
P/L	-	Max. 0.9

'000 hectares planted - Harvest 2023



Data Source: AHDB Early Bird Plantings Survey Harvest 2023

Group 2 varieties

KWS EXTASE		AHDB RECOMMENDED	
Details			
Group	Year Listed	UK treated yield	Parentage
2	2019	102%	Boisseau x Solheio

Comments

Arguably the most exciting variety to come on to the Recommended List since the turn of the millennium, KWS Extase is the best example of the new generation of wheats that combine market value, high yield and outstanding disease resistance.

A specific weight of 79.4 kg/hl, a HFN of 294 seconds – one of the highest scores for both characteristics of any recommended breadmaking wheat – and a milling specification protein of 12.5% make it the outstanding choice in this market group. It is also the only Group 2 variety to be supported by a buy-back contract for full milling specification through to lower protein flours by a national miller.

Its exceptional untreated yield of 97% of treated controls is 2% ahead of the next best-performing variety and owes much to its unprecedented resistance to *Septoria tritici*. For this resistance, KWS Extase has a score of 7.8 and was the first UK variety to be awarded a score over an 8.0 when it was first recommended. It also boasts an 8 for yellow rust and a 6 for brown rust.

KWS Extase is a French-bred, quality wheat that is performing well across northern Europe. It brings new genetics to the UK, but just as with Skyfall, it fits well with the conditions we have. With stiff, strong straw and as one of the earliest maturing varieties on the RL, it will appeal strongly to those in the east and those looking for complementary varieties to spread the harvest workload. This maturity and good wet-weather disease resistance will also support its appeal to those in the west and north.

Its speed of movement through stem extension is faster than average and closer to that of varieties such as Gallant, so growers will want to prioritise it ahead of others when planning spring fertiliser schedules.

Care must be taken in planning sowing to make the biggest advantage of earliness. Sowing later maturity crops before earlier ones can nullify an advantage. We would suggest sowing KWS Extase before KWS Siskin. Early maturity is a key characteristic for any milling type, ensuring that grain quality is preserved, especially in a catchy harvest.

Since 20th May 2020, you can no longer apply Chlorothalonil™, which puts a hole in *Septoria* control for many growers. Increasingly good genetics are being realised on farm as a key part of the solution, with KWS Extase being the variety of choice for many. KWS recommend a spray programme tailored to the situation and season with at least two modes of action in each tank-mix at the two main timings. Growers are urged to protect genetics, so preserving KWS Extase as a key variety on farm today and in the future.

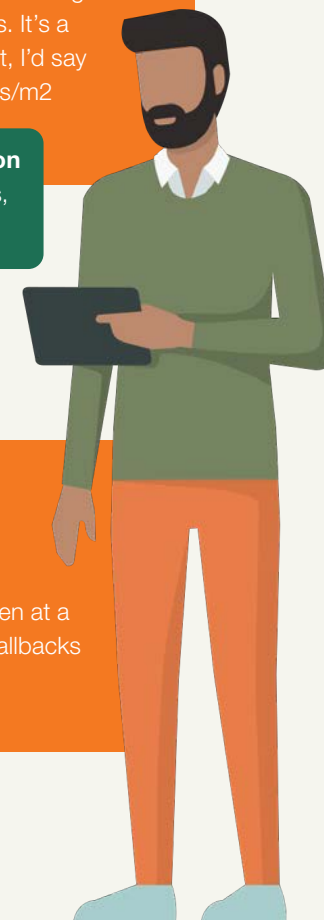
The growers experience

“ On paper, KWS Extase looked like an exciting new addition to the 2019/20 RL, and having drilled it in autumn 2018, its performance did not disappoint. This harvest yielded well, ranging from 11.9 - 12.6 t/ha with an excellent sample of great looking wheat. What's more, we sold loads into our local miller at full Group 2 specification. With the disease pressures ahead, KWS Extase is certainly a key variety we will be drilling this season and beyond.

It was spotlessly clean - the cleanest variety I've seen - although you still get a decent return from what you invest in it. I could tell it was a different variety when it emerged - we'd put it in a heavy bit of dirt and expected large losses. But, oh my God, in the spring it flew out of the blocks. It's a very vigorous variety, and drilled at the end of Sept, early Oct, I'd say no more than 350 seeds/m² is about right - around 25 seeds/m² less than you'd want for KWS Siskin.”

Andrew Robinson

Toddington Farms,
Bedfordshire



The millers experience

“ Since issuing the buy-back contracts in 2019, we've been pleased with the response from growers who have made commitments going forward. We've seen some good results in the mill and are pleased to be able to offer growers ample opportunities to make a quality premium, even at a low protein. Our contracts are for either full spec 13% with fallbacks down to 12% or min 11.5% protein with fallbacks to 11%.”

George Mason

Senior Grain Buyer
at Heygates Milling

Details

Group	Year Listed	UK treated yield	Parentage
2	2023	101%	KWS Zyatt x Costello

Comments

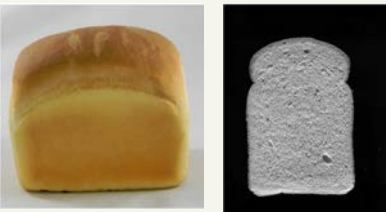
New for drilling in 2023 is KWS Ultimatum – a truly all-round wheat variety that ticks all the boxes on farm, no matter what region you are growing in.

In the north, KWS Ultimatum delivers the highest yields of all Group 2 wheats on the current RL, with a yield potential in this region akin to higher yielding feed types, being ahead of varieties like Champion and Gleam. In addition, thanks to its UKFM Group 2 rating and UKP approval, growers will be able to access additional market opportunities where available.

Sprouting resistance, while important in all regions, is especially important in the wetter west. KWS Ultimatum has the best resistance to sprouting of any breadmaking wheat on the RL, coupled with its high HFN and excellent resistance to *Fusarium* (7), giving growers in this region the opportunity to secure premiums at a competitive yield. The east is all about yield performance, market potential and disease resistance. KWS Ultimatum has the fourth highest untreated yield of all varieties in the 2023/24 RL and the second highest treated yield for a breadmaking type. Along with the good disease resistances already important in the west, KWS Ultimatum has a better combination of resistance to the rusts than other popular Group 2 varieties such as KWS Extase.

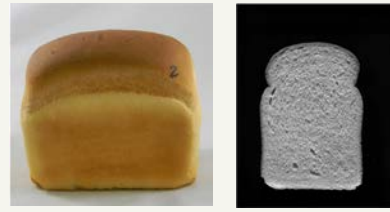
Grain Quality	Protein – milling trials (%)	HFN	Sp Wt (kg/hl)	UKP
KWS Ultimatum	12.3	287	79.6	[Y]

KWS Ultimatum



Well developed dough which produces a very good loaf of good height and oven spring with a fine and even internal texture.

KWS Zyatt

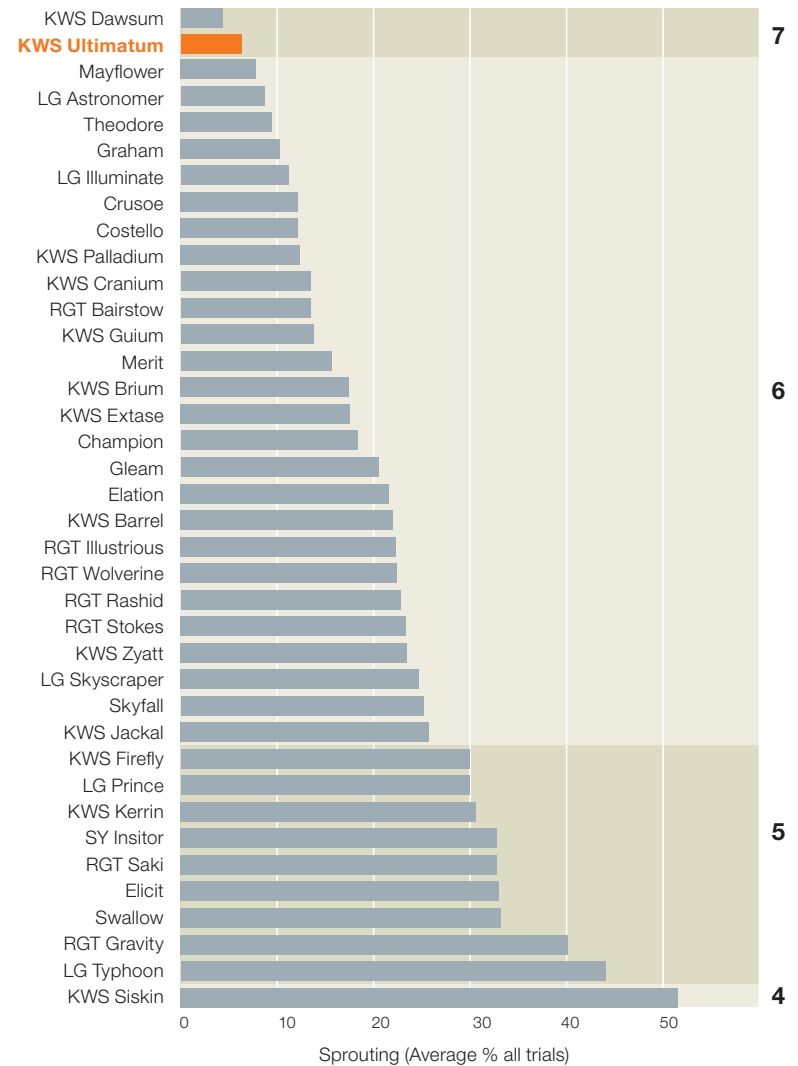


Group 1 control

Data Source: KWS Private Trials, Harvest 2020

What makes KWS Ultimatum the wheat variety for you?

KWS Ultimatum has the best sprouting resistance of all breadmaking wheats and is second only to KWS Dawsum, delivering security though to harvest.



KWS PALLADIUM			
			
Details			
Group	Year Listed	UK treated yield	Parentage
2	2022	100%	KWS Zyatt x KWS Trinity
Comments			
<p>KWS Palladium is the new and exciting addition to the UK domestic bread markets. It is a super clean variety with one of the highest untreated yields on the market today, thanks to its scores for <i>Septoria</i> (7.4), mildew (8), yellow rust (9) and eyespot ([6]). Importantly, its <i>Septoria</i> resistance has a different genetic basis than other commercialised Group 2 varieties.</p> <p>This early to mature variety (-1) is short and stiff with great resistance to sprouting, giving growers security at harvest. In addition, KWS Palladium has good yield potential across all the regions and performs well in both the first (100%) and second wheat (100%) slots.</p> <p>Suited to earlier drilling than KWS Extase, KWS Palladium and KWS Extase make good on farm partners for growers targeting the Group 2 market sector or adding quality grain to the feed heap.</p>			

KWS SISKIN			
			
Details			
Group	Year Listed	UK treated yield	Parentage
2	2016	99%	KWS Sterling x Timaru
Comments			
<p>KWS Siskin is one of the most adapted varieties for use in modern farming. With an ultra-wide sowing window, it is the ideal variety for enabling competitive winter cropping and countering black-grass. An impressively strong disease profile and a grain that is widely accepted by end-users at all protein levels, KWS Siskin is a versatile variety that fits a range of situations and fills many requirements.</p> <p>A consistent performer across the seasons, it is popular as a quality wheat and as a feed. A specific weight of 77.5 kg/hl, a HFN of 297 seconds and a milling specification protein of 12.4% make it an attractive variety for domestic and export markets where the UKP brand is recognised.</p>			

Group 3

This Group contains soft varieties for biscuit, cake and other flours where the main requirement is for soft milling characteristics. Group 3 wheats are unique to the UK, having inherently lower protein with good extraction rates and good extensibility but not too elastic gluten. At the right specification, UK Group 3s ensure that the nation's biscuits are not too chewy, stay the right shape during baking and that the right number of biscuits are produced for each packet. These varieties are uniquely grown in the UK environment and are desired by continental millers for use in biscuit and flatbread production; hence many Group 3 wheats have the UKS brand for export.

SPECIFICATION		
	Group 3 Specs	UKS Specs
Protein	11.5%	10.5% - 11.5%
HFN	220	220
Specific weight (kg/hl)	74.0	75.0
Max. moisture content (%)	15%	14%
Max. admix	2%	2%
W	-	70 - 120
P/L	-	Max. 0.55

In addition, thanks to the lower protein and higher starch ratio of these softer milling types, many Group 3s also have opportunities in the wheat distilling sector.



KWS GUIUM		AHDB RECOMMENDED		Comments	
Details					
Group	3	KWS Guium is the perfect wheat to schedule on farm this year. Suited to being drilled from October onwards, KWS Guium is later maturing (+3) which enables the spreading of the workload at harvest. The excellent sprouting resistance also adds flexibility during this time.			
Year Listed	2022	With good yellow rust resistance (9) and OWBM, the variety performs well in the east. A robust fungicide programme is recommended to get the best out of this variety.			
Treated Yield	101%	KWS Guium is one of the few varieties not to be based on Cougar, and as such, it is a useful addition on farm to increase genetic diversity in the wheat rotation.			
Parentage	KWS Rowan x Tempo				

KWS BRIUM		AHDB RECOMMENDED		Comments	
Details					
Group	Year Listed	UK treated yield	Parentage		
3	2022	100%	KWS Solo x KWS Basset		
<p>The variety performs across the rotation, delivering good yields when later sown as a 1st wheat, as a 2nd wheat and in the east and north.</p> <p>KWS Brium is an attractive Group 3 winter wheat for many end-users. With its great quality grain, high input and high output status, KWS Brium has good potential for both distillers and professional biscuit producers alike. With good, high yielding performance in the UK, KWS Brium may be the perfect choice for your farm, especially in the north and south.</p>					

KWS FIREFLY		AHDB RECOMMENDED		Comments	
Details					
Group	Year Listed	UK treated yield	Parentage		
3	2019	100%	Cougar x KWS Rowan		
<p>If you are looking for a variety to help scheduling on farm, then KWS Firefly is a great option. It's a high tillering, very stiff type with early maturity and will work well for those drilling in September to those on heavy land in both first and second wheat slots. Fully approved by the UK Flour Millers as a soft Group 3, KWS Firefly's biscuit credentials have been tried and tested by UK and export biscuit manufacturers alike. Add this to the good yield potential in the east, where over 70% of the UK's biscuit wheats are grown, and you have a wheat that will harness added value opportunities in this region. Disease resistances are generally good, but as Cougar derivative, <i>Septoria</i> control using later drillings and appropriate chemistry will be a priority for growers.</p>					

Winter Wheat Recommended List 2023/24, Groups 1, 2 & 3 Page 1

	KWS Zyatt	Skyfall	Crusee	RGT Illustrious	KWS Extase	KWS Ultimatum	KWS Paladium	KWS Sekin	Mayflower	KWS Guium	RGT Wilkinson	LG Prince	KWS Brium	Merit	KWS Firefly	RGT Rashid	LG Illuminate	LG Astronomer	Elicit	
End-use group	UKFM Group 1				UKFM Group 2					UKFM Group 3										
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	E	UK	E	UK	UK	UK
Variety status	C				NEW					*C										
Fungicide-treated grain yield (% treated control)																				
United Kingdom (10.9 t/ha)	99	97	96	96	102	101	100	99	97	101	101	101	100	100	100	100	100	99	98	
East region (10.7 t/ha)	98	97	96	95	102	101	100	99	97	102	102	101	101	101	100	101	100	99	98	
West region (11.1 t/ha)	99	97	97	97	102	102	101	99	98	100	101	100	100	98	99	97	100	99	97	
North region (11.3 t/ha)	98	96	94	95	100	[103]	99	99	96	101	[100]	98	100	100	99	98	100	97	99	
Main market options (The specific attributes of varieties are different, so, whenever possible, varieties should not be mixed in store)																				
UK bread-making	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	
UK biscuit, cake-making	-	-	-	-	-	-	-	-	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
UK distilling	-	-	-	-	-	-	-	-	-	[Y]	[Y]	[Y]	[Y]	[Y]	-	[Y]	[Y]	[Y]	Y	
ukp bread wheat for export	Y	-	Y	-	Y	[Y]	-	Y	[Y]	-	-	-	-	-	-	-	-	-	-	
uks soft wheat for export	-	-	-	-	-	-	-	-	-	-	[Y]	-	-	Y	Y	-	Y	-	Y	
Grain quality																				
Endosperm texture	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	
Protein content (%)	12.0	12.0	12.5	12.0	11.7	11.6	11.6	11.6	11.8	11.0	11.2	11.0	11.3	11.3	11.5	11.0	11.5	11.5	11.4	
Protein content (%) – milling spec	12.6	13.1	13.4	12.6	12.5	12.3	12.4	12.4	12.8	11.8	[12.0]	12.1	11.9	12.6	12.4	12.1	12.6	12.5	12.4	
Hagberg Falling Number	271	290	279	276	294	287	320	297	304	257	264	266	278	269	248	236	262	245	227	
Specific weight (kg/hl)	78.4	79.2	78.5	78.2	79.4	79.6	77.6	77.5	79.2	78.8	75.4	75.0	78.0	77.1	76.1	77.0	77.0	78.2	77.1	
Chopin Alveograph W	[180]	268	239	-	198	189	[189]	168	209	[56]	96	[74]	[74]	85	93	[72]	84	[137]	[93]	
Chopin Alveograph P/L	[0.7]	1.0	0.6	-	0.6	0.7	[0.7]	0.6	0.8	[0.3]	0.3	[0.2]	[0.3]	0.2	0.3	[0.3]	0.3	[0.4]	[0.3]	
Untreated grain yield (% treated control)																				
United Kingdom (10.9 t/ha)	75	70	76	85	97	93	94	87	93	80	87	85	83	84	80	81	87	88	82	
Agronomic features																				
Resistance to lodging without PGR (1-9)	8	8	8	7	7	[7]	7	6	6	7	[8]	7	7	6	8	8	7	7	6	
Resistance to lodging with PGR (1-9)	8	7	7	8	8	7	8	6	7	7	8	8	7	6	8	8	7	9	7	
Straw length without PGR (cm)	85	85	82	89	91	85	83	84	89	90	83	83	92	88	83	86	83	88	86	
Straw length with PGR (cm)	75	77	75	80	85	75	78	74	82	82	77	75	85	81	75	79	76	79	77	
Ripening (days +/- Skyfall)	-1	0	+1	+1	-1	+1	-1	0	-1	+3	+2	+2	+2	+1	0	+3	+1	+1	+1	
Resistance to sprouting (1-9)	6	6	6	6	6	[7]	[6]	4	[6]	[6]	[5]	[5]	[6]	[6]	5	[6]	[6]	[6]	5	
Disease resistance																				
Mildew (1-9)	7	6	7	7	7	7	8	8	7	5	8	4	7	4	5	4	5	4	6	
Yellow rust (1-9)	3	3	9	8	8	9	9	9	9	9	7	8	9	8	6	8	7	9	9	
Yellow rust (young plant)	s	s	r	s	r	r	r	r	r	r	s	r	r	r	s	r	r	r	s	
Brown rust (1-9)	7	9	3	6	6	6	5	5	6	3	5	7	5	7	5	6	6	8	6	



End-use group	UKFM Group 1				UKFM Group 2					UKFM Group 3									
Disease resistance (continued)																			
Septoria tritici (1-9)	6.1	5.4	6.2	5.7	7.8	6.4	7.4	6.8	8.9	5.1	5.5	5.9	5.6	5.4	5.1	6.4	5.8	6.2	5.0
Eyespot (1-9)	[6]@	[5]@	[5]	[7]@	[4]	[5]	[6]	[4]	[6]@	[5]	[7]@	[4]	[6]	[3]	[4]	[6]	[6]	[5]	[6]
Fusarium ear blight (1-9)	6	7	7	6	6	7	6	6	6	7	6	6	6	6	5	7	6	6	6
Orange wheat blossom midge	-	R	-	-	-	-	-	-	-	R	-	R	-	R	R	R	R	R	R
Breeder/UK contact																			
Breeder	KWS	RAGT	Lim	R2n	Mom	KWS	KWS	KWS	ElsW	KWS	R2n	LimEur	KWS	ElsW	KWS	RAGT	LimEur	LimEur	ElsW
UK contact	KWS	RAGT	Lim	RAGT	KWS	KWS	KWS	KWS	Els	KWS	RAGT	Lim	KWS	Els	KWS	RAGT	Lim	Lim	Els
Annual treated yield (% control)																			
2018 (10.7 t/ha)	98	97	95	96	101	-	-	100	-	-	-	100	-	100	100	-	100	99	98
2019 (11.6 t/ha)	96	95	98	94	100	-	100	99	98	100	-	100	100	100	101	99	101	99	99
2020 (10.3 t/ha)	97	96	94	97	100	[103]	[100]	98	[96]	[103]	[102]	102	[102]	100	99	[100]	101	99	98
2021 (10.9 t/ha)	100	97	96	95	102	101	99	97	96	100	100	99	99	98	98	99	98	98	97
2022 (11.5 t/ha)	101	97	94	96	103	102	101	100	97	101	101	98	100	102	98	98	99	97	98
Rotational position																			
First cereal (11.2 t/ha)	98	96	96	96	101	101	100	99	97	101	101	100	100	100	100	99	100	99	98
Second and more (9.7 t/ha)	99	97	94	94	102	[102]	100	98	99	101	[101]	102	101	100	100	99	100	98	98
Sowing date (most trials were sown in October)																			
Early sown (before 25 Sept) (11.3 t/ha)	[101]	96	[95]	[97]	[99]	-	[[98]]	100	[100]	[102]	-	103	100	100	100	[[100]]	103	100	99
Late sown (after 1 Nov) (9.2 t/ha)	98	97	95	95	102	[[101]]	[99]	98	[95]	[102]	[[103]]	102	[102]	102	101	[104]	98	99	97
Soil type (about 50% of trials are on medium soils)																			
Light soils (10.8 t/ha)	97	96	94	94	102	[[101]]	99	99	97	101	[102]	102	99	101	100	100	101	99	98
Heavy soils (11.1 t/ha)	99	97	96	95	101	100	99	99	96	102	101	101	99	101	100	99	100	100	98
Agronomic features																			
Lodging % without PGR	1	1	2	3	4	[4]	3	9	9	3	[2]	4	2	9	1	2	3	2	7
Lodging % with PGR	1	3	3	1	3	4	3	9	8	5	1	3	7	9	1	2	4	0	4
Latest safe-sowing date	End Jan	End Feb	End Jan	End Jan	End Jan	[[End Jan]]	[[End Jan]]	[[End Jan]]	[[Mid Feb]]	[[End Jan]]	[[End Jan]]	End Jan	[[End Feb]]	Mid Feb	End Feb	[[End Jan]]	Mid Feb	End Jan	Mid Feb
Speed of development to growth stage 31 (days +/- average)																			
Early sown (Sept)	-4	-2	-2	0	-4	-	[-2]	-3	[-4]	[+2]	-	[-2]	[+2]	[0]	-3	[+2]	[-3]	[-8]	-2
Med sown (Oct)	-4	-4	-1	+2	-6	-	-	-5	-	-	-	[0]	-	[-5]	-2	-	[-2]	[0]	+3
Late sown (Nov)	-2	-3	-2	-1	-4	-	-	-2	-	[+1]	-	[+1]	-	[-1]	-1	-	[-2]	[+1]	+2
Status in RL system																			
Year first listed	17	14	12	16	19	23	22	16	22	22	23	21	22	21	19	22	21	21	18
RL status	-	-	-	-	-	P1	P2	*	P2	P2	P1	-	P2	-	*	P2	-	-	*

Soft Group 4

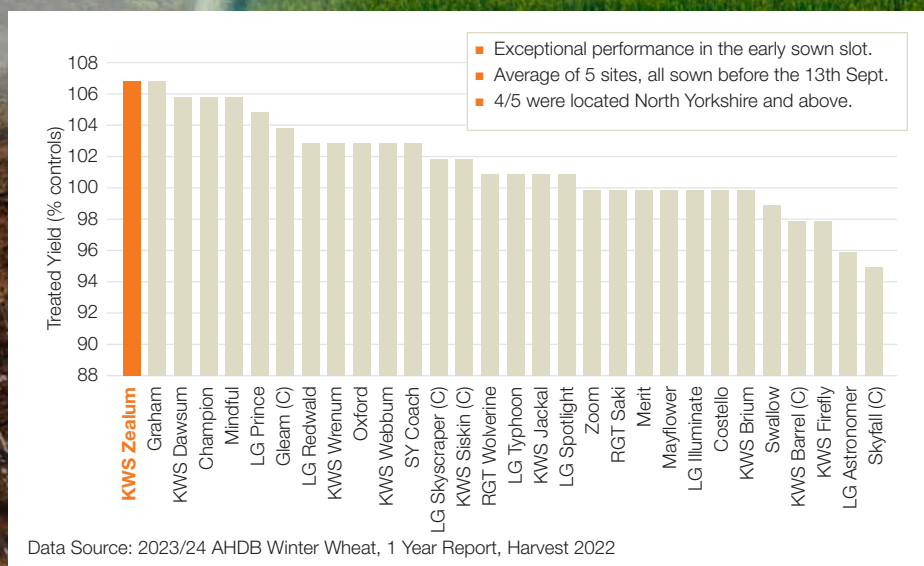
These are feed varieties that may or may not have additional soft end-use opportunities. Some have tested positive for distilling, whilst others may be suitable for soft milling applications on the continental market. It is always worth checking with your local merchant to fully understand the specification your end-user customer requires.

Soft Group 4 Varieties

KWS ZEALUM		AHDB RECOMMENDED	NEW
Details	Comments		
Group	4 Soft	New for farmers in autumn 2023 is KWS Zealum, a super stiff, super versatile, soft Group 4 wheat that has a resilient combination of characteristics that delivers performance in a range of challenging growing conditions and locations. With just under 40% of the soft Group 4 market sown in the AHDB north, KWS Zealum brings all of the key characteristics needed for a northern wheat to perform on farm. It is fully approved for distilling, giving access to the 400,000T market, and delivers the very best performance in very early and early sown trials along with a good disease package including a 7 for mildew and [6] for resistance to sprouting. In short, it is a first choice variety for growers from Yorkshire through to Scotland.	
Year Listed	2023		
UK treated yield	103%		
Parentage	KWS Basset x Reflection	But the advantages don't stop in the north; the majority of soft Group 4s are sown in the east and west, serving the UK's bioethanol and soft milling homes; KWS Zealum's good package will be of benefit to growers here too. It has good resistance to sprouting coupled with excellent resistance to <i>Fusarium</i> (7) and the best yellow rust resistance (9) complimented by OWBM resistance too. Furthermore, thanks to its stiff straw, it's a useful wheat on heavier land or more fertile soils. So if you are looking for a wheat which performs in the most challenging of conditions, then take a closer look at KWS Zealum for your farm this autumn.	

What makes KWS Zealum the wheat variety for you?

KWS Zealum is stiff-strawed, both with and without PGR, adding security right through to harvest. It is an ideal variety for the north thanks to its excellent suitability to early drilling.



Data Source: 2023/24 AHDB Winter Wheat, 1 Year Report, Harvest 2022

KWS JACKAL		AHDB RECOMMENDED	Comments
Details			
Group	4 Soft		KWS Jackal is the soft wheat of choice for those who favour early drilling. It performs impressively wherever sown, but excels in the north and east regions where it will be closest to end-user demand. Not only that, but its SWRI approval supports its appeal to those supplying distilling contacts. It performs strongly as both a first and second cereal and on light and heavy soils. Its disease resistance is average with an exceptional score for yellow rust of 9, but low scores for <i>Septoria tritici</i> of 5.0, which will need watching. KWS Jackal carries orange wheat blossom midge (OWBM) resistance.
Year Listed	2018		
UK treated yield	99%		
Parentage	KWS Santiago x KWS W177		

Unsure of which wheat variety is right for you and your farm?



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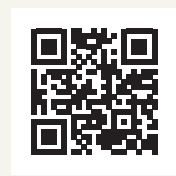
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	LG Redwald	KWS Zealium	LG Skyscraper	RGT Bairstow	RGT Stokes	RGT Saki	Elation	KWS Jackal	Swallow
End-use group	Soft Group 4								
Scope of recommendation	E&W	N	UK	UK	UK	UK	N	N	N
Variety status	NEW	NEW	C				*	*	
Fungicide-treated grain yield (% treated control)									
United Kingdom (10.9 t/ha)	107	103	103	103	102	102	100	99	98
East region (10.7 t/ha)	107	103	103	103	101	102	100	99	98
West region (11.1 t/ha)	109	103	103	103	104	101	100	97	98
North region (11.3 t/ha)	[103]	[102]	102	103	103	102	101	100	101
Main market options (The specific attributes of varieties are different, so, whenever possible, varieties should not be mixed in store)									
UK bread-making	-	-	-	-	-	-	-	-	-
UK biscuit, cake-making	-	-	-	-	-	-	-	-	-
UK distilling	[Y]	[Y]	[Y]	Y	Y	-	Y	[Y]	Y
ukp bread wheat for export	-	-	-	-	-	-	-	-	-
uks soft wheat for export	-	-	-	-	-	-	Y	-	-
Grain quality									
Endosperm texture	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft
Protein content (%)	11.1	10.9	11.2	11.1	11.1	11.2	11.3	10.9	11.1
Protein content (%) – milling spec	[11.5]	[12.0]	12.1	12.0	12.1	11.9	12.2	11.9	12.1
Hagberg Falling Number	172	218	227	239	255	231	220	193	269
Specific weight (kg/hl)	75.5	76.7	77.3	76.8	76.2	76.4	77.5	75.6	76.7
Chopin Alveograph W	-	[63]	-	[50]	[61]	-	[94]	-	-
Chopin Alveograph P/L	-	[0.4]	-	[0.3]	[0.3]	-	[0.3]	-	-
Untreated grain yield (% treated control)									
United Kingdom (10.9 t/ha)	92	86	86	87	87	86	80	78	80
Agronomic features									
Resistance to lodging without PGR (1-9)	[5]	[6]	6	6	5	6	7	7	8
Resistance to lodging with PGR (1-9)	5	8	6	6	6	7	8	6	9
Straw length without PGR (cm)	94	88	92	91	91	89	82	87	79
Straw length with PGR (cm)	89	81	83	83	82	81	75	81	73
Ripening (days +/- Skyfall)	+2	+2	0	+2	+2	+2	+1	+1	+1
Resistance to sprouting (1-9)	[6]	[6]	6	[6]	[6]	5	6	6	[5]
Disease resistance									
Mildew (1-9)	6	7	7	6	5	5	7	7	6
Yellow rust (1-9)	7	9	7	8	7	9	8	9	6
Yellow rust (young plant)	s	r	s	r	r	r	s	s	r

	LG Redwald	KWS Zealium	LG Skyscraper	RGT Bairstow	RGT Stokes	RGT Saki	Elation	KWS Jackal	Swallow
End-use group	Soft Group 4								
Disease resistance (continued)									
Brown rust (1-9)	6	5	5	6	5	6	5	5	5
Septoria tritici (1-9)	6.7	5.8	4.9	6.0	6.3	5.4	4.3	5.0	5.3
Eyespot (1-9)	[6]	[6]	[6]	[4]	[5]	[5]	[5]	[5]	[4]
Fusarium ear blight (1-9)	6	7	6	6	6	6	6	6	6
Orange wheat blossom midge	R	R	R	R	-	R	R	R	R
Breeder/UK contact									
Breeder	LimEur	KWS	LimEur	RAGT	RAGT	RAGT	ElsW	KWS	BA
UK contact	Lim	KWS	Lim	RAGT	RAGT	RAGT	Els	KWS	Sen
Annual treated yield (% control)									
2018 (10.7 t/ha)	-	-	102	-	-	102	100	100	99
2019 (11.6 t/ha)	-	-	103	103	104	102	99	99	99
2020 (10.3 t/ha)	[105]	[103]	103	[104]	[102]	104	102	100	101
2021 (10.9 t/ha)	107	102	102	102	103	102	101	97	98
2022 (11.5 t/ha)	107	103	103	103	102	100	100	99	98
Rotational position									
First cereal (11.2 t/ha)	107	103	103	103	102	102	100	99	99
Second and more (9.7 t/ha)	[109]	[104]	104	103	103	102	101	[101]	99
Sowing date (most trials were sown in October)									
Early sown (before 25 Sept) (11.3 t/ha)	[106]	[106]	103	[[104]]	[[105]]	103	100	101	100
Late sown (after 1 Nov) (9.2 t/ha)	[[108]]	[[105]]	103	[105]	[101]	103	101	100	97
Soil type (about 50% of trials are on medium soils)									
Light soils (10.8 t/ha)	[105]	[[102]]	103	105	104	103	101	99	101
Heavy soils (11.1 t/ha)	107	104	103	104	102	102	100	99	98
Agronomic features									
Lodging % without PGR	[19]	[5]	7	11	25	6	3	5	1
Lodging % with PGR	33	3	13	14	9	4	2	10	0
Latest safe-sowing date ☐	[[Mid Feb]]	[[End Jan]]	End Jan	[End Feb]	[End Jan]	End Jan	Mid Feb	End Jan	End Feb
Speed of development to growth stage 31 (days +/- average)									
Early sown (Sept)	-	-	-4	[+3]	[+2]	+7	0	+3	[+4]
Med sown (Oct)	-	-	0	-	-	[-1]	+1	+5	[+3]
Late sown (Nov)	-	-	-3	-	-	0	-1	+1	[+3]
Status in RL system									
Year first listed	23	23	19	22	22	20	18	18	21
RL status	P1	P1	-	P2	P2	-	*	*	-

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Hard Group 4

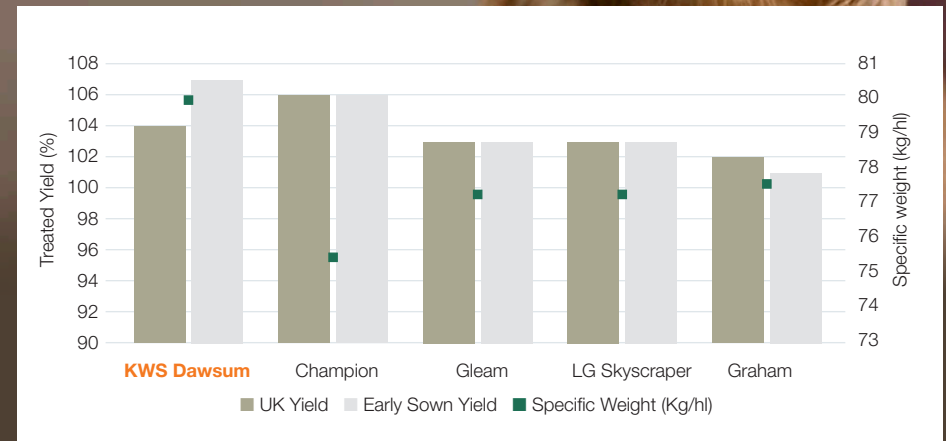
Grown mainly as feed wheats but some may be used by millers in general-purpose grists if they achieve contractual standards. Hence it's always a good idea to choose varieties with a robust grain package for protein, HFN and specific weight. It is also worth checking with your local merchant to fully understand the specification your end-user customer requires. Growers should take care to avoid mixing hard and soft types in store.

KWS DAWSUM		AHDB RECOMMENDED	
Details			
Group	Year Listed	UK treated yield	Parentage
4 Hard	2022	104%	KWS Kerrin x Costello
Comments			
<ul style="list-style-type: none"> Exceptional specific weight (80.0 kg/hl). Very high yield potential across all regions of the UK. Super flexible on farm with a wide sowing window. <p>Awesome Dawsum! The bankable barn filler – a hard feed type that offers great yields with exceptional specific weight (80.0 kg/hl). It's a really clean, nice plant type with one of the widest sowing windows available.</p> <p>New in 2022 from KWS is a hard Group 4 wheat that offers growers the ultimate flexibility on farm, delivering fantastic yields right across the rotation if you are drilling early (107%), mainstream (104%) or late sown slots (104%). These benefits, combined with the excellent disease package mean this variety delivers an untreated yield (95%) second only to KWS Extase and includes 6.4 for <i>Septoria</i> and 9 for yellow rust. Add in the exceptionally marketable grain and super stiff straw – significantly stiffer than leading feeds like Champion and SY Insitor – and you have a truly D-awsome variety that will earn itself a place on every farm this season!</p>			



Awesome KWS Dawsum in a nutshell:

A truly **special combination** of yield, grain quality and disease resistance



“Well-rounded, high specific weight wheats are a sound bet for the future, particularly if there are repeats of the 2021 growing conditions. You can't change the weather, but you can mitigate against it to a certain degree by choosing a high specific weight variety. With a feed wheat, the tolerances are lower, and while a specific weight of 69kg/hl might still be marketable, growers will take a significant financial hit. So the higher the genetic potential for specific weight, the more likely you are to end up with something that is very marketable, even in a bad year.

In addition to its high specific weight, Dawsum is a great addition to the Group 4 portfolio, with high yield and good agronomics. Grow it well, and you should get high yields alongside some potential premium marketing opportunities. It's got everything going for it.”

Stuart Rowley
 Managing Director, James Mortimer Ltd

KWS CRANIUM



Details

Group	Year Listed	UK treated yield	Parentage
4 Hard	2021	102%	KWS Crispin x KWS Kielder

Comments

KWS Cranium is a hard Group 4 wheat that offers farmers the ultimate tool in risk management thanks to its ability to perform well in all of the major situations that significantly impact yield. Suited to the mainstream sowing slots, KWS Cranium really excels in late drilling, where it tops the yield charts at 105%. Add good performance in the first and second wheat slots, and you have a variety that is really flexible for many farming situations. The variety has a good disease package with good *Septoria tritici* (5.9) which gains in value in later drillings, and decent brown rust and mildew resistance too. Critically, KWS Cranium adds seedling and adult yellow rust resistance 9 to the hard Group 4 sector. This, in combination with its high yields, OWBM resistance and substantially stiffer straw than even the best varieties on the RL, makes KWS Cranium a 'no-brainer' choice for your farm. As a later maturing type (+3), KWS Cranium can help spread the workload at harvest. The variety delivers a reliable grain package with good HFN (293) and a specific weight (75.8kg/hl).

"Last season, KWS Cranium was among the last of the winter wheats to go in. Being drilled on 9th October on heavy land, we like to establish our winter wheat by mid-October. In our experience, it is quick out of the blocks but not a quick finisher, so you have to be patient. The variety's vigorous growth habit helps it to outcompete blackgrass and keep numbers to a minimum, although each year we employ a team to hand-rogue the whole farm to ensure that our fields remain clear of this yield-sapping weed.

We have been very pleased with the consistency, reliability and performance of KWS Cranium and plan to drill the same area this autumn."

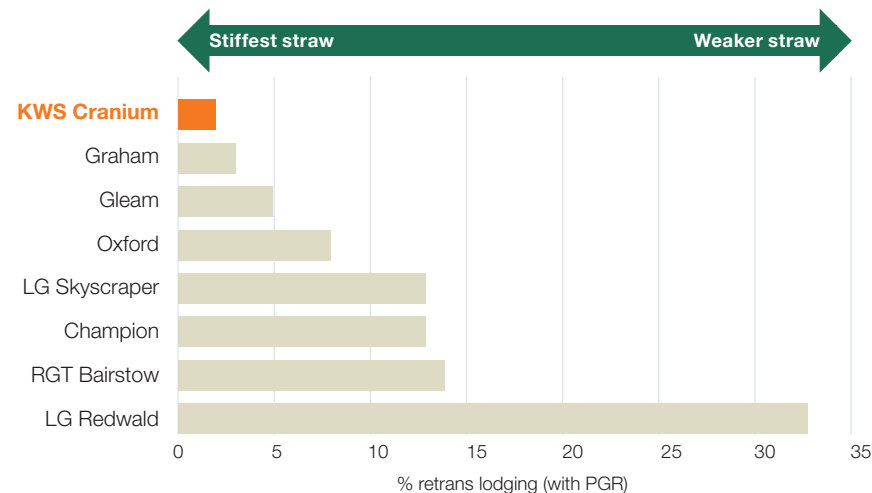
Mike Porter

Porter Farms (Walpole) Ltd, East Suffolk



What makes KWS Cranium the right wheat variety for you?

KWS Cranium is incredibly stiff-strawed compared to leading feed varieties making it a firm favourite for heavy land or on more fertile soils.



Data Source: 2023/24 AHDB Winter Wheat

	Champion	Sy Inisitor	KWS Dawsum	Oxford	Gleam	Graham	KWS Cranium	LG Typhoon	RGT Wolverine	Costello	Theodore
End-use group	Hard Group 4										
Scope of recommendation	UK	UK	UK	E&W	UK	UK	UK	UK	Sp	UK	W
Variety status				NEW	C						*
Fungicide-treated grain yield (% treated control)											
United Kingdom (10.9 t/ha)	106	104	104	104	103	102	102	101	99	99	99
East region (10.7 t/ha)	107	104	103	104	103	101	103	101	99	99	99
West region (11.1 t/ha)	106	105	105	105	104	105	101	100	100	98	101
North region (11.3 t/ha)	102	105	105	[100]	103	102	102	101	100	101	[95]
Main market options (The specific attributes of varieties are different, so, whenever possible, varieties should not be mixed in store)											
UK bread-making	-	-	-	-	-	-	-	-	-	-	-
UK biscuit, cake-making	-	-	-	-	-	-	-	-	-	-	-
UK distilling	-	-	-	-	-	-	-	-	-	-	-
ukp bread wheat for export	-	-	-	-	-	-	-	-	-	-	-
uks soft wheat for export	-	-	-	-	-	-	-	-	-	-	-
Grain quality											
Endosperm texture	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard
Protein content (%)	11.2	10.7	11.1	11.3	11.1	11.1	11.1	11.0	10.9	11.6	11.8
Protein content (%) – milling spec	12.1	11.2	11.9	[12.4]	11.8	11.9	11.9	11.9	11.7	12.4	12.5
Hagberg Falling Number	251	279	311	218	237	281	293	183	283	324	303
Specific weight (kg/hl)	75.5	78.9	80.0	76.0	77.3	77.6	75.8	77.1	76.4	81.2	74.9
Chopin Alveograph W	-	-	-	-	-	-	-	-	[152]	-	-
Chopin Alveograph P/L	-	-	-	-	-	-	-	-	[0.7]	-	-
Untreated grain yield (% treated control)											
United Kingdom (10.9 t/ha)	93	82	95	89	84	93	82	92	74	86	93
Agronomic features											
Resistance to lodging without PGR (1-9)	6	6	7	[6]	7	7	8	7	7	7	6
Resistance to lodging with PGR (1-9)	6	7	7	7	7	8	8	7	7	8	8
Straw length without PGR (cm)	88	94	84	85	87	88	89	87	87	84	84
Straw length with PGR (cm)	82	83	76	79	77	80	80	78	77	75	76
Ripening (days +/- Skyfall)	0	+1	+1	+2	0	-1	+3	+1	+2	+2	0
Resistance to sprouting (1-9)	[6]	5	[7]	[6]	6	6	[6]	[5]	[6]	6	[6]
Disease resistance											
Mildew (1-9)	7	7	8	6	7	6	6	6	6	8	7
Yellow rust (1-9)	8	5	9	9	5	8	9	9	4	9	9
Yellow rust (young plant)	r	s	r	r	s	s	r	r	s	r	r
Brown rust (1-9)	5	6	7	6	6	5	4	6	7	5	8

	Champion	Sy Inisitor	KWS Dawsum	Oxford	Gleam	Graham	KWS Cranium	LG Typhoon	RGT Wolverine	Costello	Theodore
End-use group	Hard Group 4										
Disease resistance (continued)											
Septoria tritici (1-9)	8.1	6.4	6.4	6.4	5.7	6.7	5.9	7.3	5.9	5.8	9.1
Eyespot (1-9)	[5]	[4]	[6]	[5]	[5]	[4]	[5]	[6]	[4]	[4]	[4]
Fusarium ear blight (1-9)	6	7	7	6	6	7	7	6	6	7	5
Orange wheat blossom midge	R	R	-	R	R	-	R	R	-	-	-
Breeder/UK contact											
Breeder	DSV	SyP	KWS	DSV	SyP	SyP	KWS	LimEur	R2n	KWS	DSV
UK contact	DSV	Syn	KWS	DSV	Syn	Syn	KWS	Lim	RAGT	Sen	DSV
Annual treated yield (% control)											
2018 (10.7 t/ha)	-	103	-	-	103	101	102	-	100	100	98
2019 (11.6 t/ha)	104	105	104	-	103	102	101	102	101	99	99
2020 (10.3 t/ha)	[105]	103	[105]	[104]	103	102	103	[101]	101	100	[97]
2021 (10.9 t/ha)	106	106	105	103	105	104	100	101	96	100	98
2022 (11.5 t/ha)	106	105	104	103	103	104	103	99	101	98	100
Rotational position											
First cereal (11.2 t/ha)	106	104	104	103	103	102	102	100	100	99	99
Second and more (9.7 t/ha)	107	105	105	[104]	103	102	103	103	99	99	[100]
Sowing date (most trials were sown in October)											
Early sown (before 25 Sept) (11.3 t/ha)	106	[[107]]	107	[103]	103	101	[[102]]	103	100	99	98
Late sown (after 1 Nov) (9.2 t/ha)	[107]	103	[104]	[[105]]	103	100	105	[101]	99	102	99
Soil type (about 50% of trials are on medium soils)											
Light soils (10.8 t/ha)	106	106	105	[102]	103	102	103	102	98	99	[97]
Heavy soils (11.1 t/ha)	107	104	104	104	103	102	101	100	100	99	99
Agronomic features											
Lodging % without PGR	11	8	4	[6]	4	5	2	3	4	2	6
Lodging % with PGR	13	5	5	8	5	3	2	5	5	2	2
Latest safe-sowing date ☉	[Mid Feb]	End Jan	[End Jan]	[[Mid Feb]]	Mid Feb	End Jan	Mid Feb	[End Jan]	End Jan	End Jan	End Jan
Speed of development to growth stage 31 (days +/- average)											
Early sown (Sept)	[-2]	+2	[0]	-	+6	0	[-4]	[+5]	[-3]	-3	-1
Med sown (Oct)	-	[-1]	-	-	+4	+2	[-3]	-	[0]	0	[-2]
Late sown (Nov)	[-5]	+2	[+3]	-	+2	-2	[-4]	-	[0]	-1	-1
Status in RL system											
Year first listed	22	20	22	23	18	16	21	22	21	15	20
RL status	P2	-	P2	P1	-	-	-	P2	-	-	*

KWS PARKIN

Details

Group	Year Listed	UK treated yield	Parentage
4 Hard	Not added to RL	102%	Reflection x Costello

Comments

KWS Parkin could be overlooked by some due to it not featuring on the Recommended List. However, this small and mighty variety could offer growers something truly unique this autumn.

With the wet weather in both autumn 2019 and 2020 still at the front of many minds, a variety suited to early drilling could be top of many UK farmers' wish lists. For those looking to get off the mark quickly, KWS Parkin is the ideal choice. It can be drilled across a range of soil types, although its best yield performances may come from heavier soils. From our own trials, we've seen that it is highly suitable for both first and second wheat positions.

To get the best out of KWS Parkin, growers should consider drilling this variety before the 25th September. In AHDB and KWS trials, it was in this relatively early slot that the true yield potential of KWS Parkin was realised and the variety significantly outperformed well-known barn fillers.

KWS Parkin's other stand out feature is its height. At 78.6cm, it's an impressive 15cm shorter than the tallest variety on the RL and super stiff too. Since the demise of Grafton and Cordiale, over the last 5-10 years or so we've really seen a gap in the market for this type of variety. Today, farmers are looking for agronomic tools like KWS Parkin that are short and stiff, enabling PGR applications to be simplified and introducing flexibility into spray windows, allowing them to be safely widened to when workloads or weather conditions permit. It's the obvious choice for growers in the east and Yorkshire on more fertile soils as well as those that use manures and digestate.



Harvest 2023 Winter Wheat Candidates

KWS DRAGUM (KWS W411)



Details

Group	Year Listed	UK Treated Yield	Parentage
Potential Group 2	Candidate	103%	(KWS Zyatt x KWS Podium) x Costello

Comments

A candidate wheat for the 2024 AHDB List, KWS Dragum brings yield potential and harvest security to the breadmaking sector. In trials to date, KWS Dragum has brought yield performance across the regions, especially in the breadmaking heartland of the east (104% treated controls). Its performance stood out in the 2022 season when it out-yielded KWS Extase by 3% in trials, while having shorter and stiffer straw, ensuring that it keeps standing right the way through to harvest. The variety has a good untreated yield, which is underpinned by good disease ratings across the board. Like its stagemate KWS Palladium, KWS Dragum has good resistance to mildew (8), yellow rust (9) and eyespot (6). In the mill and bakery, KWS Dragum delivers good grain with a high specific weight (78.5 kg/hl), even in the most challenging years such as harvest 2021. It is currently under evaluation by the UK Flour Millers as a potential Group 2 wheat and has export potential, with a positive rating for UKP to date.

KWS SKATEUM (KWS W422)



Details

Group	Year Listed	UK Treated Yield	Parentage
Potential Group 3	Candidate	– (to complete NL)	Freiston x KWS Firefly

Comments

New for soft wheat growers across the UK is KWS Skateum, a high-yielding wheat that boasts market opportunities in an easy-to-grow package for your farm. An AHDB candidate wheat in Harvest 2023, KWS Skateum yields particularly well in the AHDB east where over 75% of Group 3 wheats are grown. Importantly, these high yields were repeated in the very contrasting seasons of 2021 and 2022.

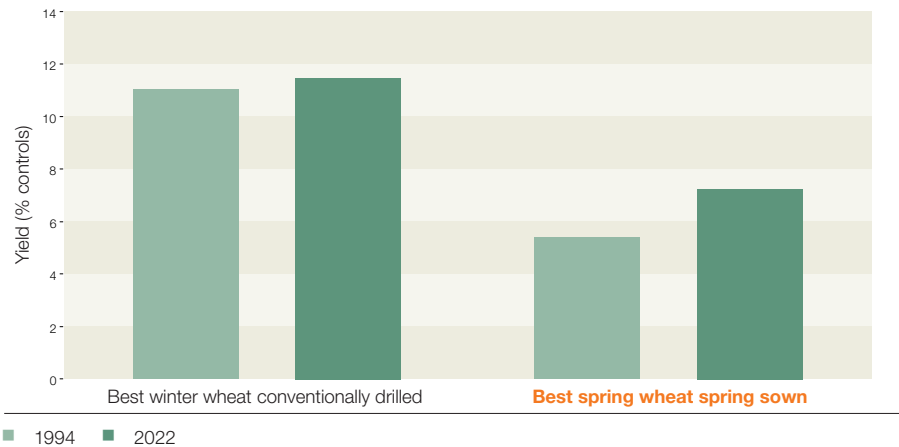
In the field, the variety has a good overall disease package, with untreated yields just behind established varieties such as KWS Dawsum and Palladium. KWS Skateum also has the benefit of OWBM resistance. KWS Skateum is a shorter type with stiff straw and, thanks to these attributes is a wheat that is sure to perform well on heavier or more fertile soils. At 0 maturity, KWS Skateum offers early mainstream maturity. The variety is currently under evaluation by the UK Flour Millers, but in 2 years of trial, it has shown consistent biscuit wheat performance with potential as UKS for export and distilling when grown close to those end-market homes.

Spring Wheat

Introducing the new era in Spring Wheats

Today, on the back of significant plant breeding progression, spring wheat is coming back on the agenda for many UK growers, thanks to its rotational benefits. New varieties are robust, flexible and profitable, with yields and physical grain qualities matching many of its late sown winter wheat rivals.

Relative yield increases in winter and spring wheat over the last 20+ years



What can KWS offer growers?

KWS UK is one of the few plant breeding companies with a dedicated spring wheat breeding programme delivering products specifically for the UK farmer. So if you are looking to spring wheats to serve a quality market, to help your rotations in terms of helping buy time to get soils back to better structures to help rescue weed burdens or to simplify your crop management, then take a closer look at what the KWS spring wheat portfolio can offer.

Today's varieties provide:

- Faster establishment
- Leafier plants with fewer tillers
- High vigour
- Better drought resistance
- Improved disease packages
- Lower lodging risks
- Strong grain fill
- Improved yields
- A range of types to suit different end markets



Learn more about our portfolio by scanning the QR code

Group 1

KWS HARSUM
AHDB
RECOMMENDED
NEW

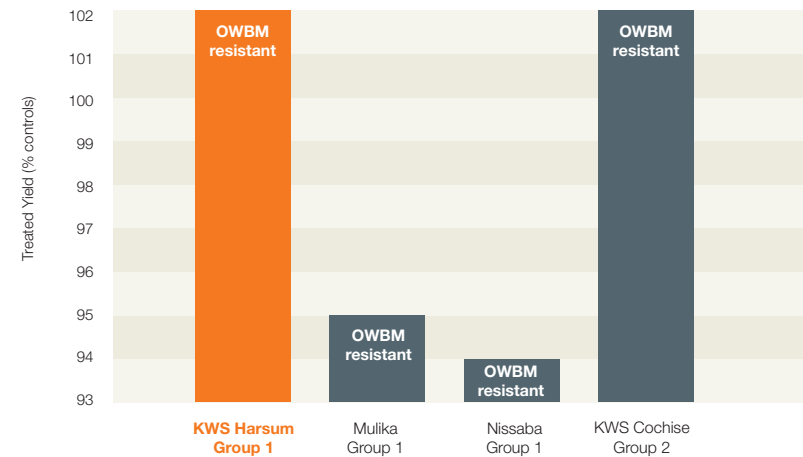
Details			
Group	Year Listed	UK Treated Yield	Parentage
Group 1	2023	102%	KWS Sywell x KWS Scirocco


Comments

New for growers this spring is KWS Harsum, the highest yielding Group 1 breadmaking wheat on the 2023/24 RL. Following on from the successful yield increase growers have experienced using new generation spring wheat from KWS, such as KWS Ladum, KWS Harsum continues the breeding progress, introducing midge resistance to a top quality, top yielding variety. Confirmed as a Group 1 wheat by the UK Flour Millers in December 2022, KWS Harsum produces similar grain to the established variety Mulika, but with the added benefit of good gluten quality and baking performance, consistent across a range of challenging seasons.

In the field, KWS Harsum has a good solid disease profile, with the advantage of OWBM resistance, which will be an advantage for many. A similar plant type to KWS Cochise, it's a short and stiff-strawed variety that ripens a day after Mulika. So if you want to take your spring wheat yields to the next level, take a closer look at KWS Harsum to find out how this new variety can add value to your rotation this season.

What makes KWS Harsum the spring wheat variety for you?




KWS LADUM			
			
Details			
Group	Year Listed	UK Treated Yield	Parentage
Group 1	2022	102%	KWS Sywell x KWS Talland
Comments			
<p>KWS Ladum is the new spring variety to get excited about this season! It's the first of the next generation spring wheat varieties for the UK market that brings top milling and baking quality with highly productive yield levels, a massive 7% ahead of the market leader Mulika when spring sown. With fantastic grain quality including high proteins (13.4%), Hagberg (337) and specific weight (78.0 kg/hl), it's a variety that is fully approved by the UK Flour Millers as the highest Group 1 quality.</p> <p>But the advantages of KWS Ladum don't stop there. It has a good all-round disease package including [7] for mildew, 6 for yellow rust, 7 for brown rust and a good [7] for <i>Septoria</i>, as well as being short, stiff-strawed and early to harvest 0.</p> <p>So if you want to take your spring wheat yields to the next level, take a closer look at KWS Ladum and find out how this new variety can add value to this important part of the rotation on your farm this season.</p> <p>KWS Ladum. It's a Group 1 but not as we know it!</p>			

KWS LADUM baking results

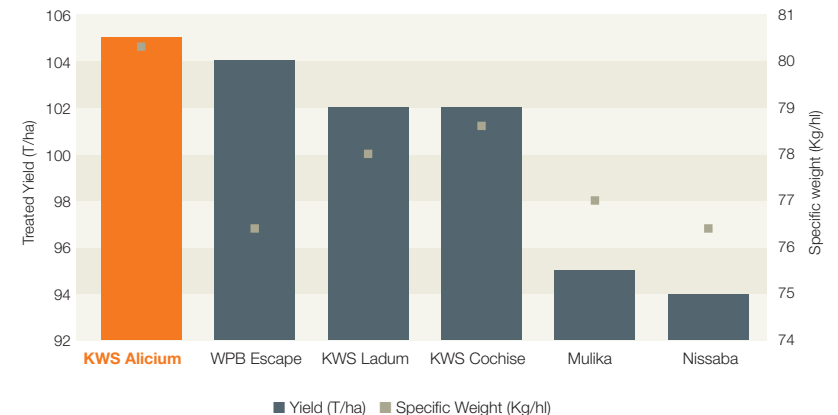


Group 2

KWS ALICIUM			
			
Details			
Group	Year Listed	UK Treated Yield	Parentage
Group 2	2023	105%	KWS 13-21 x Astrid
Comments			
<p>Taking spring wheat yield to the next level, KWS Alicium brings exciting new genetics to UK growers for the first time this spring.</p> <p>With high quality German wheat in its parentage, KWS Alicium offers something new on farm and in the mill. It produces the best combination of grain characteristics on the current RL, with high protein (13.3%), excellent HFN (346) and outstanding specific weight (80.3kg/hl). In baking evaluations, the millers noted that the variety produces good, strong gluten quality making it a useful addition to many grists in the bakery.</p> <p>In the field, KWS Alicium has exceptionally high yield performance, at 105% of controls, producing yields on a par with commercialised feed spring varieties. It also boasts an excellent disease package, including [8] for mildew and [7] for <i>Septoria</i> resistance. This is further complemented with OWBM resistance. KWS Alicium is a taller variety at 85cm height, but stiff-strawed. It offers growers the benefits of an early harvest, always an advantage when managing workloads at this busy time.</p> <p>So if you are looking for something different this spring, take a closer look at the benefits KWS Alicium can bring to your bread making part of the rotation this season.</p>			



What makes KWS Alicium the spring wheat variety for you?





KWS LIGHTUM			
RECOMMENDED			
Details			
Group	Year Listed	UK Treated Yield	Parentage
Group 2	2023	102%	(KWS Mullins x KT Proteo) x KWS Willow
Comments			
<p>A high-performing spring wheat, KWS Lightum brings a different plant type to the spring wheat sector this season, thanks to its parentage, which includes some Argentinean wheat genetics. Rated a Group 2 milling wheat by the UK Flour millers, the variety has good grain characteristics, including high protein (13.4%) with a good HFN and specific weight, coupled with good baking performance over its past season of evaluations. On farm, KWS Lightum has a good disease package, including [8] for mildew, good combination of resistance to the rusts and good solid <i>Septoria</i> resistance ([6]). In addition, like many of the new KWS spring wheat lines for 2023, OWBM resistance comes as standard. It is a medium-short strawed variety with stiff straw.</p>			

KWS COCHISE			
RECOMMENDED			
Details			
Group	Year Listed	UK Treated Yield	Parentage
Group 2	2017	102%	Ashby x Lapis
Comments			
<p>KWS Cochise is a high yielding spring breadmaking wheat on the 2023/24 Recommended List. It performs well in both spring-sown where it yields 7% ahead of Mulika and also has the performance to be late autumn-sown where it yields 5% ahead of Mulika.</p> <p>A high performing spring wheat KWS Cochise has good grain quality including an outstanding specific weight of 78.6 kg/hl and a good protein content to serve milling contracts (13.4%).</p> <p>In the field, the variety is tall but stiff strawed with a good solid disease profile including the added benefits of OWBM resistance and resistance to Soil Borne Wheat Mosaic Virus.</p>			

KWS CHILHAM			
RECOMMENDED			
Details			
Group	Year Listed	UK Treated Yield	Parentage
Group 2	2017	99%	Sparrow x Azurite
Comments			
<p>KWS Chilham was the first true dynamic spring wheat, providing growers with sound agronomics, good yield potential and added value market options as a UKFM Group 2 bread maker. It is a vigorous, high yielding variety with a competitive growth habit and will lend itself as a tool to help blackgrass control. In addition, it produces good quality grain with a high Hagberg (359) and a good specific weight (78.1 kg/hl). At a 0 for maturity, it is ideal for growers looking for an earlier harvest time too.</p>			

KWS GIRAFFE			
RECOMMENDED			
Details			
Group	Year Listed	UK Treated Yield	Parentage
Group 2	2020	102%	Recoletta x KWS Kilburn
Comments			
<p>Introduced on farm in spring 2020 is KWS Giraffe – the high yielding UK Flour Millers Group 2 wheat with excellent grain quality. A truly dynamic wheat, KWS Giraffe yields well in both spring and autumn-sown slots, delivering yields in the autumn on a par with market leader KWS Cochise and, spring-sown similar to established Group 4 feed spring types such as KWS Kilburn. It also boasts one of the best grain packages available in this market sector with very high proteins similar to Group 1 Mulika (13.5%) and a very high specific weight (79.7 kg/hl) second only to KWS Alicium. KWS Giraffe also offers growers security at harvest with a short, stiff straw and early maturity completing its attractive package.</p>			

Group 4

KWS FIXUM			
RECOMMENDED			
Details			
Group	Year Listed	UK Treated Yield	Parentage
Group 4	2022	107%	KWS Cochise x KWS Westfield
Comments			
<p>KWS Fixum, an exceptionally high-yielding spring wheat that resets the yield bar for spring wheats. At 107% of treated controls, KWS Fixum delivers yields 2% ahead of the best of the rest of the spring wheats on the 2023/4 Recommended List. Not only that, during its testing over the last very different spring seasons, KWS Fixum has delivered consistently high yields no matter the weather conditions under which it has been grown. Couple this exciting package with good grain quality, including a strong specific weight (77.6 kg/hl) and a good disease profile with [8] for mildew and 7 for brown rust resistance and you have a really attractive package to add tonnes of grain to the feed wheat heap.</p>			

	KWS Harsum	KWS Ladum	Mulika	Nissaba	KWS Alcium	KWS Lightum	KWS Cochise	KWS Giraffe	KWS Chillham	KWS Fixum	WPB Escape	Hexham	KWS Taleker
End-use group	UKFM Group 1				UKFM Group 2					Hard Group 4			
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK
Variety status	NEW		C		NEW	NEW	C	*	*			*C	*
UK yield as % control (spring sowing)													
Fungicide-treated (6.8 t/ha)	102	102	95	94	105	102	102	102	99	107	104	104	103
Grain quality (spring sowing)													
Endosperm texture	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard
Protein content (%)	12.8	13.4	13.8	13.6	13.3	13.4	13.4	13.5	13.0	12.9	12.8	12.8	12.6
Hagberg Falling Number	330	337	332	314	346	325	250	319	359	231	271	291	295
Specific weight (kg/hl)	78.3	78.0	77.0	76.4	80.3	78.4	78.6	79.7	78.1	77.6	76.4	77.1	79.0
Agronomic features (spring sowing)													
Resistance to lodging with PGR ∞	-	-	-	-	-	-	-	-	-	-	-	-	-
Straw length without PGR (cm)	78	75	79	77	85	79	78	75	74	79	73	78	80
Ripening (days +/- Mulika)	+1	0	0	+2	-1	0	+1	0	0	+1	+1	+2	+1
Disease resistance													
Mildew (1-9)	[7]	[7]	6	[5]	[8]	[8]	8	8	8	[8]	8	6	8
Yellow rust (1-9)	7	6	6	5	6	6	4	6	6	7	8	8	9
Brown rust (1-9)	5	7	9	[9]	6	7	8	7	6	7	6	9	5
Septoria tritici (1-9)	[7]	[7]	7	[6]	[7]	[6]	6	[6]	[7]	[6]	[6]	[7]	[6]
Orange wheat blossom midge	R	-	R	R	R	R	R	-	R	-	-	-	-
Annual treated yield (% control, spring sowing)													
2018 (5.5 t/ha)	-	-	[94]	-	-	-	[106]	[106]	[98]	-	[112]	[100]	[105]
2019 (7.0 t/ha)	-	103	93	92	-	-	105	100	96	108	104	103	103
2020 (6.4 t/ha)	[102]	[98]	[94]	[96]	[101]	[100]	[101]	[97]	[99]	[108]	[103]	[105]	[102]
2021 (7.6 t/ha)	105	103	96	96	106	106	100	102	103	106	[103]	105	105
2022 (7.3 t/ha)	99	102	98	93	106	100	98	104	97	105	102	105	103
Breeder/UK contact													
Breeder	KWS	KWS	BA	BA	KWS-GmbH	KWS	KWS	KWS	KWS	KWS	WPB	KWS	KWS
UK contact	KWS	KWS	Sen	BA	KWS	KWS	KWS	KWS	KWS	KWS	LSPB	Sen	KWS
Status in RL system													
Year first listed	23	22	11	22	23	23	17	20	17	22	21	19	19
RL status	P1	P2	-	P2	P1	P1	-	*	*	P2	-	*	*

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Every farm is unique, and each farm business has different goals – which makes variety choice highly personal.

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BARLEY

Flexibility for your rotation

Barley remains one of the most important parts of many growers' rotations, be it a winter feed type to provide an early entry into OSR and a home-grown source of grain and straw on livestock farms, or a spring malting type to meet the precise needs of the brewing and distilling markets in the UK and across Europe. Our breeding programmes at KWS continue to focus on delivering high yield, with the best grain quality and field performance characteristics on the market today.



Kirsty Richards

Cereals Product Manager
E kirsty.richards@kws.com

Winter Barley

Winter barley warrants greater consideration

Winter barley remains an important part of many UK growers' rotations. Better weather in the autumn, a slight increase in OSR in some rotations and better prices have encouraged more growers to drill winter barley in autumn 2022, with around 454,000 hectares expected to reach harvest in 2023. Many see the benefits of using winter barley to increase crop diversity, while others argue that it can be a more profitable option than second wheat. This is due to its higher yield potential and lower input requirements. What's more, our new product, KWS Feeris also offers growers the traditional benefits of winter barley but with added peace of mind in this post neonicotinoid era, thanks to its built-in BYDV tolerance (page 61).

Reasons to grow winter barley

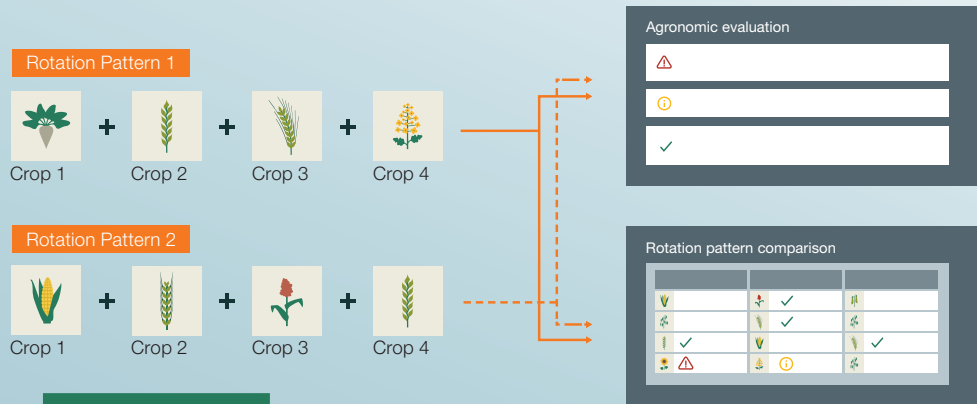
- It is often the first crop to be harvested, helping to spread the summer workload and make way for cultivations. For many, there is no better entry for oilseed rape.
- Given the same fertiliser regime as wheat (170-220 kg N/ha), it delivers similar yields and often does better in the second cereal situation.
- Variable costs are roughly 75% of wheat.
- Fungicide timings are typically a week earlier than wheat, helping to spread the sprayer workload and reduce the pressure on wheat application timings.
- Investment in breeding is bringing better disease and virus resistance. In 2018 KWS introduced Amistar, a BYDV tolerant six-row variety.
- Investment in breeding is also delivering varieties with better yield potential. The leading two-row varieties offer yields comparable with those achieved by the best six-rows.



Optimise your crop rotation!



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Future planning

New crop integration

Crisis situation



1. Helpful when making relevant decisions in a variety of situations
2. Easy and direct comparison of crop rotations
3. Agronomic evaluation of crops and rotation patterns to minimise risks



Receive information and recommendations based on the current season and your preferred crop types
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Two-Row Feed

KWS TARDIS		AHDB RECOMMENDED	
Details			
Group	Year Listed	UK Treated Yield	Parentage
Two-Row Feed	2021	103%	11-12 x KWS Orwell
Comments			
<p>A firm favourite amongst winter barley growers, KWS Tardis is an easy to grow 2-row winter feed barley that has a strong set of features making it attractive to growers, regardless of location. It's one of the UK's highest yielding 2-row winter feed barleys, with a performance that rivals many of the 6-row hybrid and conventional types. It is especially strong in the east (105%), and thanks to its super stiff straw, performs well on heavy land where it delivers its best yields of 107% controls.</p> <p>But it doesn't stop there. KWS Tardis also has an excellent disease package, boasting a score of 6 for <i>Rhynchosporium</i> and 5 for net blotch. Not only that but it has one of the best untreated yields available (85% treated controls). It's also early to mature (0) and delivers marketable grain with a very good specific weight (70.6 kg/hl) and low screenings.</p> <p>In short, KWS Tardis has it all – yields, stem stiffness, grain quality, performance across the rotation and a good disease package.</p> <p>KWS Tardis: why plant anything else?</p>			

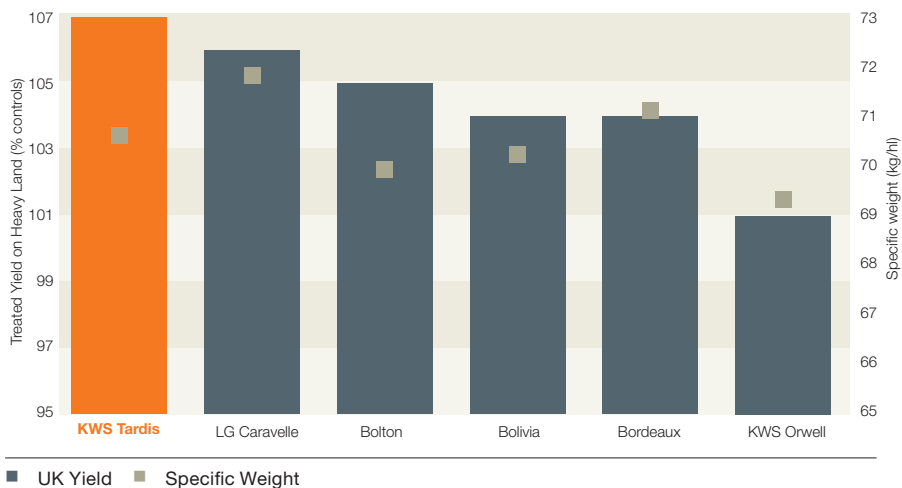
“Obviously, its headline figure is the yield, but there’s a lot more to KWS Tardis than just that. It’s got a really strong set of features that will make it appeal to all barley growers, wherever they are. In the east, that yield figure and high specific weight are really going to make it attractive to any feed barley grower, but the variety’s *Rhynchosporium* score of 6 helps make it a safe bet wherever you are. In the west of the country, for example, a strong *Rhynchosporium* score is important in potentially wetter conditions, but KWS Tardis’ long, tall straw is going to be an added bonus to livestock producers and home feeders in the region.”

Duncan Durno
 Arable Technical Manager, Openfield



What makes KWS Tardis the feed barley for you?

A stiff-strawed variety, KWS Tardis has one of the best combinations of high yield and specific weight on the market today.



Data Source: AHDB Recommended List Winter Barley 2023/24

KWS HAWKING

Group	Year Listed	UK Treated Yield	Parentage
Two-Row Feed	2020	100%	(11-12 x California) x KWS Tower

Comments

KWS Hawking has exceptional yield potential and will appeal to growers in the east (102%), where, in KWS trials, its best performances have been seen to date. It is a low-risk variety with no major weaknesses and is a natural progression from KWS Orwell for growers that are looking for a step-up in yield. It's also the ideal choice for growers looking for that same stiff straw they've come to rely upon with KWS Orwell. KWS Hawking does not require the same attention to detail on PGR applications as many commercialised 2-rows, which will be a big bonus for those looking to reduce inputs or stretch application windows.

KWS Hawking boasts a strong set of agronomic features with no major disease weaknesses and resistance to BaYMV. An added benefit is that KWS Hawking is an earlier maturing type. In KWS trials for the past few seasons, KWS Hawking has been significantly ahead of its stablemates in reaching ear emergence in May.

KWS ORWELL

Group	Year Listed	UK Treated Yield	Parentage
Two-Row Feed	2016	100%	KWS Tower x KWS Salsa

Comments

Launched in the UK seven years ago, KWS Orwell has earned itself a reputation as one of the nation's favourite winter feed barleys, and for good reason too: KWS Orwell is super consistent, no matter the site nor the season. It continues to deliver good yields and is totally dependable in all weathers.

It is a short and stiff winter barley, with good all-round disease resistance scores. KWS Orwell is a package that will be attractive to those on mixed farms and on more fertile soils. Good physical grain quality and low screenings complete the package.

KWS CASSIA		AHDB RECOMMENDED	Comments
Group	Two-Row Feed		An ever-popular, bold grained variety with the highest specific weight (72.4 kg/hl) on the current Recommended List, KWS Cassia is still grown across large swathes of the UK winter barley area. KWS Cassia is free tillering and easy to grow. Over the years, many growers have seen the benefits of the variety's ability to hold onto green leaf right through the grain-fill period and provide good solid yields of marketable grain. KWS Cassia is medium height, stiff-strawed and requires only a basic PGR regime to ensure the security of grain through to harvest. 13 years on, it's still depended upon to deliver grain for home feeding and the domestic feed market.
Year Listed	2010		
Treated Yield	97%		
Parentage	((Eden x Carat) x Saffron)		

KWS B157		Comments
Group	Two-Row Feed	Currently progressing in NL2, B157 is a winter barley that will offer exciting potential for the future. With exceptional yields to date in KWS and National List trials, the variety brings the same great combination of out and out yield, untreated yield and grain quality that you've come to expect as standard from KWS. Suited for all regions of the UK, the variety offers a secure field package thanks to its super stiff straw. In addition, its specific weight is routinely very high and its excellent untreated yield is backed by the best resistance to <i>Rhynchosporium</i> , net blotch and brown rust. One to watch for the future!
Year Listed	NL2 Harvest 2023	
Treated Yield	-	
Parentage	KWS Tardis x Paloma	



Winter Barley Recommended List 2023/24, Two-Row Feed Page 1

	LG Caravelle	Bolivia	KWS Tardis	Bolton	Lightning	Bordeaux	LG Mountain	LG Dazzle	Surge	KWS Hawking	KWS Orwell	Valerie	California	KWS Cassia
End-use group	Two-row feed													
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	W	UK
Variety status	NEW	NEW					C		*				*	*
Fungicide-treated grain yield (% treated control)														
United Kingdom (9.8 t/ha)	106	104	103	103	103	103	102	101	101	100	100	99	98	97
East region (9.5 t/ha)	109	105	105	105	104	105	102	104	102	102	100	100	100	97
West region (9.9 t/ha)	[105]	[104]	102	101	102	101	102	99	100	99	101	97	97	97
North region (10.4 t/ha)	[104]	[102]	102	102	103	102	101	101	99	98	98	100	94	95
Untreated grain yield (% treated control)														
United Kingdom (9.8 t/ha)	89	89	85	86	90	83	83	88	88	83	82	78	80	82
Main market options														
MBC malting approval for brewing use	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grain quality														
Specific weight (kg/hl)	71.8	70.2	70.6	69.9	69.4	71.1	71.1	69.5	70.6	69.8	69.3	71.2	69.1	72.4
Screenings (% through 2.25 mm)	1.5	1.1	1.7	1.5	1.9	1.2	1.9	1.9	1.7	2.0	1.8	0.8	2.2	1.5
Screenings (% through 2.5 mm)	4.3	2.6	5.2	4.7	5.5	3.5	5.8	5.8	4.9	5.9	5.5	1.9	7.1	4.1
Nitrogen content (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Status in RL system														
Year first listed	23	23	21	21	22	21	19	22	16	20	16	19	13	10
Agronomic features														
Resistance to lodging without PGR (1-9)	-	-	8	7	[6]	7	6	[7]	7	7	7	7	7	7
Resistance to lodging with PGR(1-9)	7	8	8	8	6	8	7	7	7	8	8	8	7	7
Straw length without PGR (cm)	[93]	[91]	95	94	92	93	91	93	92	95	94	93	96	95
Straw length with PGR (cm)	85	89	85	83	88	84	84	85	85	86	86	87	91	90
Ripening (days +/- KWS Orwell)	0	0	0	0	0	0	-1	+1	0	+1	0	-1	0	0



	LG Caravelle	Bolivia	KWS Tardis	Bolton	Lightning	Bordeaux	LG Mountain	LG Dazzle	Surge	KWS Hawking	KWS Orwell	Valerie	California	KWS Cassia
End-use group	Two-row feed													
Disease resistance														
Mildew (1-9)	7	7	5	6	7	6	5	6	5	6	3	7	6	5
Brown rust (1-9)	-	-	6	6	8	6	7	8	8	7	7	4	6	7
Rhynchosporium (1-9)	6	6	6	5	7	4	5	7	7	6	6	6	6	5
Net blotch (1-9)	[5]	[6]	5	5	5	5	5	5	5	5	5	5	5	5
BaYMV	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Breeder/UK contact														
Breeder	LimEur	NS	KWS	Ack	Ack	NS	LimEur	Lim	SyP	KWS	KWS	Bre	Lim	KWS
UK contact	Lim	Agr	KWS	ElsAck	ElsAck	Sen	Lim	Lim	Syn	KWS	KWS	Sen	Lim	KWS
Annual treated yield (% control)														
2018 (10.4 t/ha)	-	-	104	102	-	103	102	-	99	102	100	100	97	96
2019 (10.5 t/ha)	-	-	103	103	103	103	102	101	101	100	99	-	96	96
2020 (9.3 t/ha)	107	105	103	104	104	101	104	102	100	99	101	98	96	97
2021 (9.7 t/ha)	105	103	104	102	102	101	99	101	101	98	100	99	97	97
2022 (9.9 t/ha)	105	105	101	103	103	103	102	100	101	99	99	99	98	96
Soil type (about 50% of trials are medium soils)														
Light soils (9.7 t/ha)	103	104	102	103	102	102	102	102	100	99	99	99	96	95
Heavy soils (9.3 t/ha)	[106]	[104]	107	105	103	104	102	104	103	102	101	[100]	[99]	99
Agronomic characteristics														
Lodging without PGR (%)	-	-	2	4	[11]	3	8	[5]	3	3	3	4	3	5
Lodging with PGR (%)	2	2	1	1	9	1	5	5	2	1	2	1	3	4
Brackling (%)	7	12	6	8	11	9	22	7	7	5	8	6	7	8
Malting quality														
Hot water extract (l deg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Status in RL system														
Year first listed	23	23	21	21	22	21	19	22	16	20	16	19	13	10
RL status	P1	P1	-	-	P2	-	-	P2	*	-	-	-	*	*



BYDV

Barley Yellow Dwarf Virus (BYDV) is distributed worldwide and infects most cereals and grasses. It is transmitted persistently by more than 20 aphid species. Symptoms were first observed in 1951 on barley in California and were later characterised in oat and wheat. It has since been identified worldwide.

Barley Yellow Dwarf symptoms include stunting and leaf discoloration, though it is often misdiagnosed because they resemble plant nutrient deficiencies. The stunted plants often appear in circular patches or as randomly scattered plants within a field. Leaf discoloration varies from shades of yellow to red or purple. High light intensity and cool temperatures (15 to 18°C) have been found to favour expression of BYDV symptoms.



Symptom expression is generally dependent on the time of infection. Seedling infection may be lethal or cause a distinct yellowing of older leaves. Plots with post-seedling infections have a yellowed or reddened flag leaf. Disease symptoms usually appear in late spring at stem extension as a result of autumn infection and yield losses of up to 63% have been observed. Spring infections have delayed symptoms which are usually less severe, though yield losses of up to 41% have been recorded.

The most important aphid vectors in the UK are the bird-cherry oat aphid (*Rhopalosiphum padi*) and the grain aphid (*Sitobion avenae*). Aphids acquire BYDV by feeding on infected plants and transmit the virus in subsequent feedings. The virus survives in perennial grasses and is spread by aphids to and within crops. The virus is persistent, meaning once infected, aphids remain infected for the rest of their life.

The scale of the problem in UK Agriculture today

Traditionally, high-risk BYDV regions of the UK are coastal areas of the south, south east and south west. However, when autumn-early winters are mild, almost any part of the UK can suffer damaging infections.

2019 was the first season where barley was drilled without seed treatments to control BYDV. Rain during key drilling timings will have delayed or inhibited planting, reducing the risk of BYDV during that growing season. We may see high-pressure seasons in the future if growers push to drill as early as possible.

What can plant breeding offer?

Genetic tolerance or resistance to BYDV will offer growers a risk reduction tool for aphid prone areas as well as opportunities to continue traditional sowing timings, and will be an essential element of an effective IPM strategy. Since 2022, growers may be able to claim Sustainable Farming Incentive (SFI) payments when using BYDV tolerant and resistant varieties to reduce insecticide inputs and boost biodiversity.

Tolerance

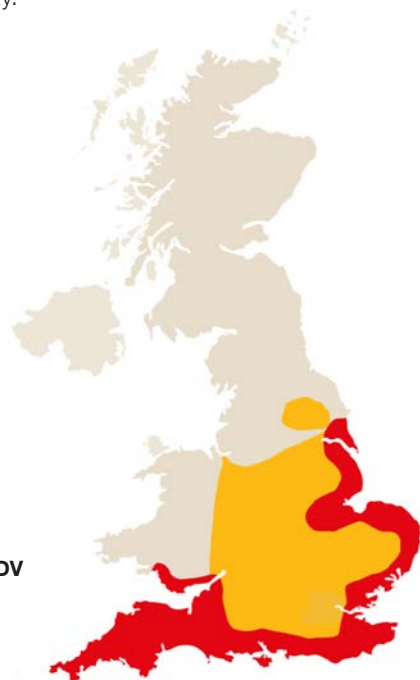
- Best characterised gene in barley is ryd2.
- Infected plants show little or no symptoms.
- No yield loss in crop in low-mid infection.
- Virus still present in crop.
- KWS Feeris offers genetic tolerance to BYDV.

Resistance

- A resistant crop can not be infected – there is no yield loss.
- Resistance can be against the aphid vector or the virus.
- No commercialised barley in the UK market has full resistance to date.

Map showing high and medium risk areas for BYDV

■ High ■ Medium



Six-Row BYDV Tolerant

KWS FEERIS		AHDB RECOMMENDED	
Details			
Group	Year Listed	UK treated yield	Parentage
Six-Row Feed BYDV Tolerance	2022	103%	Amistar x KWS Kosmos
Comments			
<p>KWS Feeris is a conventional 6-row feed barley that brings BYDV tolerance to the UK market in a good barley package. Like other 6-row barleys, KWS Feeris has excellent yield potential (103%) and really stands out in the BYDV hotspot of the west where it achieves its highest yield potential.</p> <p>The variety has a good all-round disease package, including impressive 6s for <i>Rhynchosporium</i> and net blotch, coupled with all-important BaYMV resistance and BYDV tolerance. It is a reasonably tall variety, which will aid blackgrass control, but it is stiff-strawed which will benefit growers on heavier land. KWS Feeris has a similar maturity to KWS Orwell and at harvest will deliver heaps of quality grain with a specific weight of 69.8kg/hl and very low screenings (1.2% through 2.25mm sieve).</p> <p>In short, KWS Feeris is a great variety in its own right, but coupled with the added benefit of BYDV tolerance, it makes it the only solution for those looking to grow barley in high BYDV hotspots or those looking to push drilling as early as possible.</p> <p>So, for growers looking to reduce inputs and produce a more sustainable winter barley crop this season, KWS Feeris is the only barley they need to put in the drill.</p>			

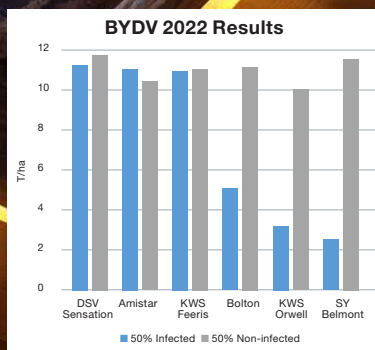
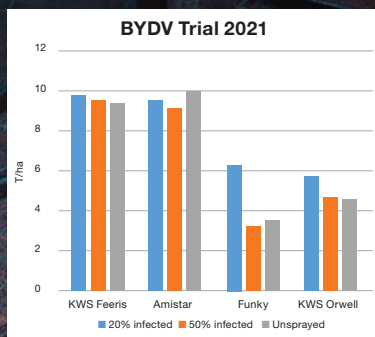
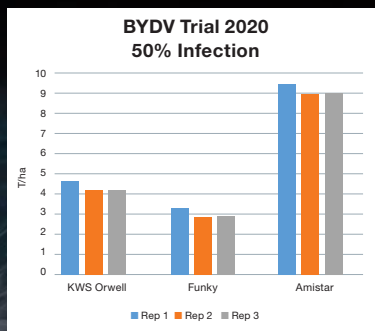
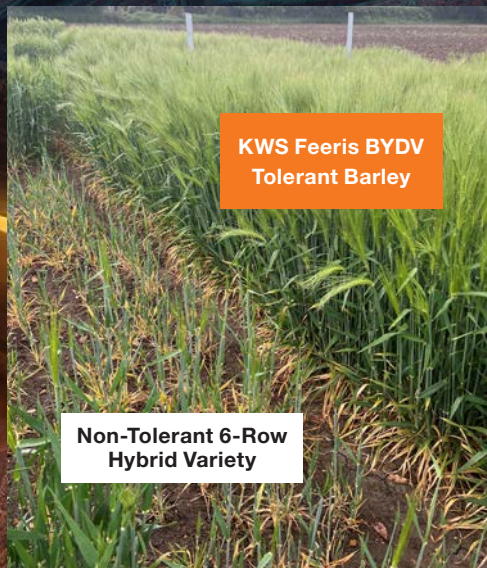
“The fall out of autumn 2020 brought home just how missed products like Deter are and how important alternative solutions are going forward. The problem in 2021 was that growers were able to get crops in early, but then the weather came in and really delayed spraying. It just highlights how much of a struggle it can be in the autumn if you do want to get crops in the ground early and then can't get on with pyrethroids. In bad spots, infection can be devastating, with up to 30-40% yield losses seen. From an IPM point of view, KWS Feeris means we can be less reliant on pyrethroids too – which will ultimately help to protect their longevity – and in all crops, I think there will be a bigger emphasis on genetics over the coming years. Genetics is going to help when chemistry no longer can.”

Phillip Simons
Partner at Prime
Agriculture

How effective is KWS Feeris in BYDV situations?

KWS Feeris and Amistar are BYDV tolerant winter barley varieties available from KWS. Both contain the YD2 gene offering season-long protection even under high pressure situations. This genetic insurance will, in most situations, offer opportunities to reduce insecticide applications whilst maintaining yields.

At our product development field in Fowlmere we infect a selection of tolerant and non tolerant winter barley varieties with aphids carrying BYDV (PAV strain) to see the effect that a high infection can have on the plots.

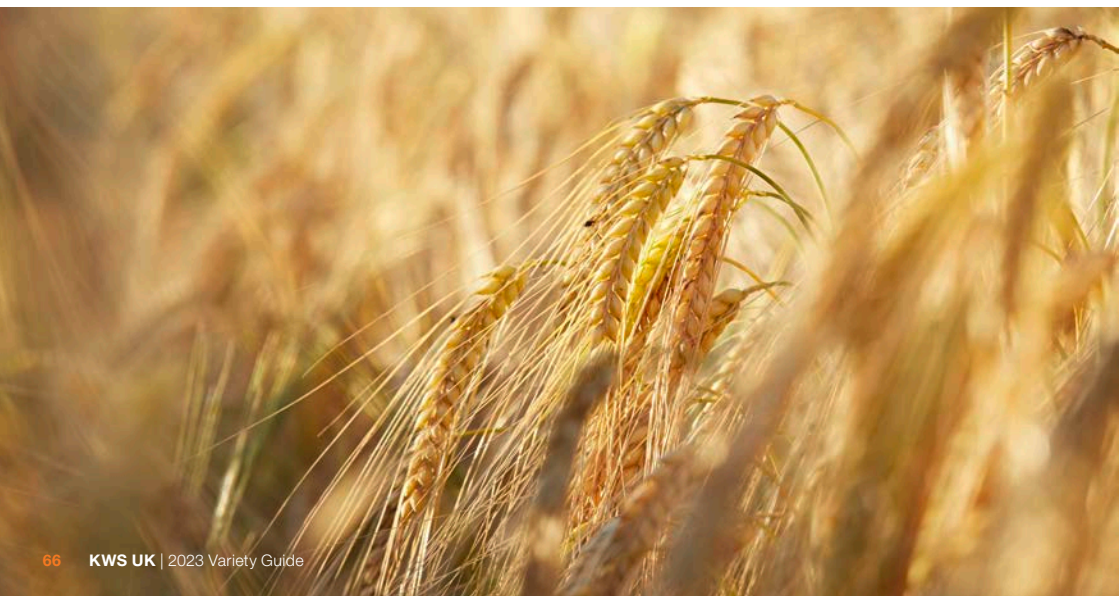


Winter Barley Recommended List 2023/24, Six-Row Feed Page 1

	SY Thunderbolt #	SY Kingsbarn #	SY Kingston #	SY Canyon #	Belmont #	SY Nephin #	Belfry #	Bazooka #	KWS Feeris	Funky
End-use group	Six-row feed									
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	Sp	UK
Variety status	C		*		NEW					*C
Fungicide-treated grain yield (% treated control)										
United Kingdom (9.8 t/ha)	106	106	106	106	105	105	104	104	103	102
East region (9.5 t/ha)	106	106	105	106	106	106	104	104	103	101
West region (9.9 t/ha)	108	106	107	107	105	[103]	104	103	103	103
North region (10.4 t/ha)	105	107	106	105	105	[105]	104	104	100	103
Untreated grain yield (% treated control)										
United Kingdom (9.8 t/ha)	89	85	88	91	78	90	88	84	85	88
Main market options										
MBC malting approval for brewing use	-	-	-	-	-	-	-	-	-	-
Grain quality										
Specific weight (kg/hl)	70.9	70.9	70.7	71.7	69.9	71.4	69.7	70.5	69.8	70.0
Screenings (% through 2.25 mm)	2.1	1.4	2.7	2.0	2.6	3.1	2.6	2.4	1.2	3.5
Screenings (% through 2.5 mm)	7.5	5.4	9.0	6.4	9.0	10.9	9.2	8.1	5.3	13.4
Nitrogen content (%)	-	-	-	-	-	-	-	-	1.76	-
Status in RL system										
Year first listed	21	19	21	22	18	23	16	16	22	17
Agronomic features										
Resistance to lodging without PGR (1-9)	5	6	6	[7]	6	-	7	6	[8]	8
Resistance to lodging with PGR (1-9)	5	7	5	5	6	6	7	6	7	7
Straw length without PGR (cm)	111	111	117	115	112	[110]	109	117	100	95
Straw length with PGR (cm)	104	104	107	107	106	102	102	108	95	91
Ripening (days +/- KWS Orwell)	-1	0	-1	0	0	0	0	0	0	-1
Disease resistance										
Mildew (1-9)	7	7	8	7	6	6	6	5	4	5
Brown rust (1-9)	6	5	6	7	5	-	6	5	6	7
Rhynchosporium (1-9)	6	6	6	6	7	8	7	7	6	6
Net blotch (1-9)	6	5	6	5	5	[5]	5	5	6	5
BaYMV	R	R	R	R	R	R	R	R	R	R
Breeder/UK contact										
Breeder	SyP	SyP	SyP	SyP	SyP	SyP	SyP	SyP	KWS	KWSMR
UK contact	Syn	Syn	Syn	Syn	Syn	Syn	Syn	Syn	KWS	KWS

SP= KWS Feeris has a specific recommendation for BYDV tolerance

End-use group	SY Thunderbolt #	SY Kingsbarn #	SY Kingston #	SY Canyon #	Belmont #	SY Naphin #	Belfry #	Bazooka #	KWS Feeris	Funky
Six-row feed										
Annual treated yield (% control)										
2018 (10.4 t/ha)	105	106	105	-	105	-	103	102	-	101
2019 (10.5 t/ha)	107	106	105	105	104	-	104	104	102	102
2020 (9.3 t/ha)	105	105	107	105	105	104	104	104	102	103
2021 (9.7 t/ha)	107	107	106	107	105	106	104	105	103	103
2022 (9.9 t/ha)	107	108	107	107	106	104	105	104	103	103
Soil type (about 50% of trials are medium soils)										
Light soils (9.7 t/ha)	104	105	106	105	104	104	103	103	101	102
Heavy soils (9.3 t/ha)	107	105	104	105	104	[104]	104	105	105	102
Agronomic characteristics										
Lodging without PGR (%)	20	11	12	[6]	12	-	5	8	[2]	1
Lodging with PGR (%)	15	5	13	15	12	7	2	6	4	2
Brackling (%)	14	13	13	9	15	16	8	10	8	12
Malting quality										
Hot water extract (l deg/kg)	-	-	-	-	-	-	-	-	295.8	-
Status in RL system										
Year first listed	21	19	21	22	18	23	16	16	22	17
RL status	-	-	-	P2	*	P1	-	-	P2	*



AMISTAR			
Details			
Group Six-Row Feed BYDV Tolerance	Year Listed EU Common Catalogue	UK treated yield 103%*	Parentage Confidential
Comments			
<p>In trials without BYDV pressure, Amistar yielded close to that of KWS Cassia and KWS Tower and had a specific weight akin to that of KWS Cassia. In situations with high BYDV pressure, Amistar demonstrated the value of tolerance in protecting yield potential. In 2017 and 2018 trials in Cambridgeshire, where virus pressure was high, Amistar suffered yield losses of between 0.4 and 0.5%, whereas the losses from non-tolerant varieties ranged from 6 to 19%. It is flexible across a wide sowing window so can be sown early as per standard practice, or drilled later where there is a desire to reduce the risk of infection to other varieties.</p>			

* Data source: KWS trials

FUNKY		AHDB RECOMMENDED	Comments	
Details				
Group	Six-Row Feed		<p>Funky has been the stalwart 6-row conventional winter feed barley on the Recommended List for many years. It performs consistently across all regions of the UK, with its best performances in the west (103%) and has very high untreated yields (88%), making it an attractive option for growers in that region. At a -1 maturity, it is one of the earliest to mature of the conventional winter barleys. Couple that with a short plant type and significantly stiffer straw compared to the 6-row hybrids, and you have an attractive 6-row option for growers to consider this autumn.</p>	
Year Listed	2017			
Treated Yield	102%			
Parentage	Gigga x KWS Meridian			

KW21-1961		
Details		Comments
Group	Six-Row Hybrid	<p>KW21-1961 is the first KWS hybrid winter feed barley in National List trials. It's super flexible and a great choice for all regions, boasting extremely high yields in both treated and untreated trials. But yield is only part of the story. KW21-1961 has great grain quality and shows good field resilience, performing exceptionally well in both the dull summer of 2021 and the drought of 2022. It has a good set of disease resistance, giving it a strong armoury against the wet weather diseases and its mildew resistance makes it useful in the north of the country. A taller-strawed variety, it is stiff and can be a useful addition to your grass weed management strategy on farm. Welcome to the "orange era" of hybrid barley!</p>
Year Listed	NL2 Harvest 2023	
Treated Yield	-	
Parentage	-	

Spring Barley

Two-Row Malting

KWS Curtis - The sustainable performer in the field, malthouse, brewery and distillery!

KWS CURTIS		AHDB RECOMMENDED	NEW
Details		Comments	
Group	Two-Row, Potential Brewing and Distilling	KWS Curtis is an exciting new addition to the Recommended List of spring malting barleys for harvest 2023. It combines good potential for both the brewing and distilling sectors in a true farmer-friendly variety that can help growers meet their increasingly sustainable demands. First and foremost, it has good potential to be a dual-purpose variety for the malting industry. Thanks to its good spirit yield, hot water extract and top grain credentials, it is currently under test by the MBC with potential for both the brewing and distilling markets. On the farm, KWS Curtis has good yields in the north (103%) and east (105%) which, coupled with its earliness and super-stiff straw, will make it a first choice variety for many growers. KWS Curtis is also ready to serve our future market requirements; its combination of high yields, good alcohol yields and strong straw makes it a step ahead of current commercialised varieties in terms of CO2 emissions. All of this ensures a more sustainable product for the entire supply chain.	
Year Listed	2023		
Treated Yield	104%		
Parentage	(KWS 13-5141 x Embrace)		



What makes KWS Curtis the spring malting barley for you this season?

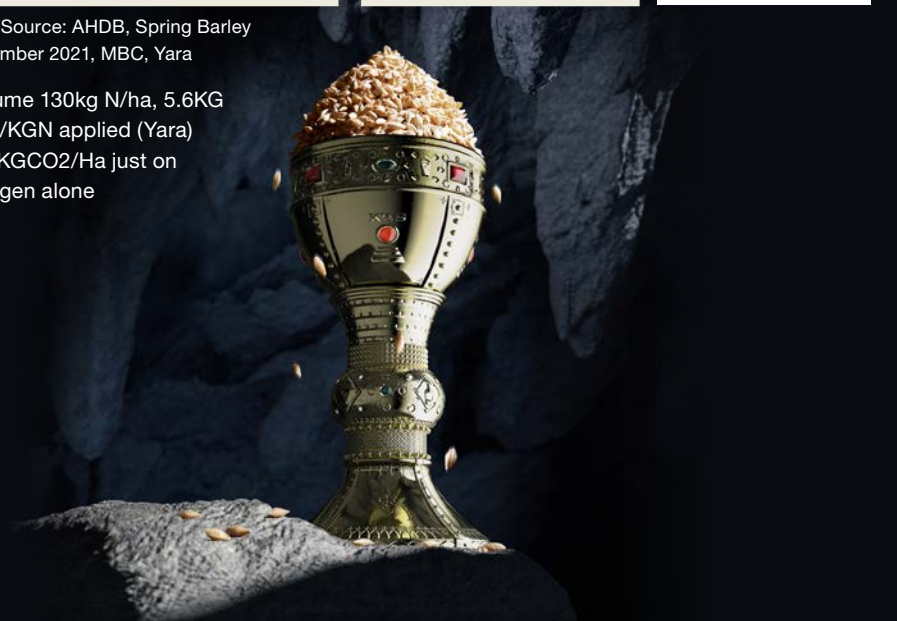
KWS Curtis has all the right credentials to produce more alcohol per hectare than current market leaders. It's also a great variety that's easy to grow across the UK, with excellent yields, standing and the best brackling resistance.

Distilling	Yield (t/ha, RL trial average 8.08 t/ha)	Spirit Yield (PSY L/t MBC)	Spirit yield (L per hectare)	CO2 production (PSY /kg CO2)	To produce 1000L alcohol in this situation KWS Curtis would produce 120kg LESS CO2 than Laureate
KWS Curtis	8.40	439	3687.6	5.07	
Laureate	8.24	437	3600.9	4.95	

Brewing	Yield (t/ha, RL trial in EAST average 7.34 t/ha)	HWE (Lo/KG MBC)	HWE (L per hectare)	CO2 production (HWE /kg CO2)	10% LESS CO2 produced by KWS Curtis to produce same HWE as RGT Planet
KWS Curtis	7.92	315	2497068	3430	
RGT Planet	7.19	314	2258665	3103	

Data Source: AHDB, Spring Barley November 2021, MBC, Yara

Assume 130kg N/ha, 5.6KG CO2/KGN applied (Yara) 728 KGCO2/Ha just on nitrogen alone



	Florence	SY Tennyson	Skyway	Sun King	Diviner	SY Signet	KWS Curtis	Firefox	Laureate	LG Diablo	RGT Planet	KWS Sassy	Fairing
End-use group	Malting varieties												
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	Sp
Variety status	NEW	NEW		NEW	NEW	NEW	NEW		C	C	C		
Fungicide-treated grain yield (% treated control)													
United Kingdom (7.5 t/ha)	105	105	105	104	104	104	104	103	103	101	98	97	93
East region (7.5 t/ha)	106	107	106	104	104	105	105	103	103	102	99	96	93
West region (7.3 t/ha)	[106]	[104]	106	[107]	[104]	[103]	[103]	104	104	101	98	98	94
North region (7.8 t/ha)	104	106	102	103	105	105	103	103	102	102	99	98	92
Main market options													
MBC malting approval for brewing use	T	T	P	T	N	T	T	-	F	F	F	N	-
MBC malting approval for malt distilling use	-	T	-	-	T	-	T	F	F	F	N	F	-
MBC malting approval for grain distilling use	-	-	-	-	-	-	-	-	-	-	N	-	F
Grain quality													
Specific weight (kg/hl)	68.2	66.6	69.4	67.7	67.7	67.4	67.5	67.1	67.2	67.8	68.8	69.1	68.9
Screenings (% through 2.25 mm)	1.0	1.3	0.9	1.1	1.6	1.4	1.9	1.4	1.2	1.3	1.2	0.9	1.0
Screenings (% through 2.5 mm)	2.7	2.6	2.4	2.5	4.0	3.1	5.2	3.6	3.0	3.2	3.2	2.2	2.6
Nitrogen content (%)	1.51	1.47	1.54	1.51	1.51	1.48	1.50	1.51	1.52	1.49	1.54	-	-
Status in RL system													
Year first listed	23	23	21	23	23	23	23	20	16	18	15	16	16
Untreated grain yield (% treated control)													
United Kingdom (7.5 t/ha)	95	92	94	96	92	95	93	92	94	92	89	89	84
Agronomic features													
Resistance to lodging without PGR (1-9)	[8]	[7]	7	[8]	[8]	[8]	[8]	7	6	7	7	6	8
Straw length without PGR (cm)	[69]	[69]	75	[72]	[67]	[71]	[69]	69	70	71	73	78	70
Ripening (days +/- RGT Planet)	0	+1	+1	+1	+1	+1	+1	0	+1	+2	0	+1	-2
Resistance to brackling (1-9)	9	7	7	9	9	8	9	8	8	8	8	6	8
Disease resistance													
Mildew (1-9)	8	9	9	9	9	9	9	9	9	9	8	9	8
Brown rust (1-9)	5	4	4	6	5	5	4	4	5	5	5	5	5
Rhynchosporium (1-9)	[6]	[3]	7	[4]	[3]	[5]	[7]	5	7	6	6	6	8

	Florence	SY Tennyson	Skyway	Sun King	Diviner	SY Signet	KWS Curtis	Firefox	Laureate	LG Diablo	RGT Planet	KWS Sassy	Fairing
End-use group	Malting varieties												
Breeder/UK contact													
Breeder	Bre	SyP	NS	Sec	Sec	SyP	KWS	Ack	SyP	LimEur	RAGT	KWS	SyP
UK contact	Sen	Syn	Agr	Agr	Agr	Syn	KWS	ElsAck	Syn	Lim	RAGT	KWS	Syn
Annual treated yield (% control)													
2018 (6.8 t/ha)	-	-	105	-	-	-	-	104	103	102	98	97	94
2019 (7.8 t/ha)	-	-	105	-	-	-	-	103	103	102	100	98	93
2020 (7.5 t/ha)	103	105	105	103	104	104	104	102	102	102	98	97	91
2021 (7.8 t/ha)	107	106	104	104	105	105	105	105	104	101	97	97	93
2022 (7.7 t/ha)	104	104	105	105	104	104	102	103	104	100	99	98	94
Malting quality													
Hot water extract (l deg/kg)	313.8	315.9	314.0	312.4	314.6	314.9	312.0	313.3	313.8	313.9	313.2	-	-
Status in RL system													
Year first listed	23	23	21	23	23	23	23	20	16	18	15	16	16
RL status	P1	P1	-	P1	P1	P1	P1	-	-	-	-	-	-



KWS SASSY		AHDB RECOMMENDED	MBC Malting Barley Committee
Details		Comments	
Group	Two-Row Distilling	<p>KWS Sassy is a non-GN producing spring malting barley that has been tried and tested by the UK distilling industry. It is fully approved by the MBC for malting and distilling and continues to deliver the highest specific weights (69.1 kg/hl) and the lowest screenings of any currently listed spring malting barley – all key attributes for the maltster and grower alike. What's more, over the seasons it has consistently delivered for growers, especially those in the north, where it delivers some of its better yields (98% controls). A taller type, KWS Sassy has a decent straw and strong agronomic package, including good resistance to <i>Rhynchosporium</i> (6) and mildew (9). At a +1 maturity, it is a similar maturing variety to many other commercialised distilling types.</p>	
Year Listed	2016		
Treated Yield	97%		
Parentage	Concerto x Publican		

KWS NELIS		AHDB CANDIDATE	NEW
Details		Comments	
Group	Two-Row, Potential Brewing and Distilling	<p>KWS Nelis is a new variety for the spring malting barley arena. It is currently under evaluation to confirm its potential for both brewing and distilling sectors by the MBC. For the grower, KWS Nelis offers good yields, especially in the east (105%) and distilling home of the north (105%). It also has a good agronomic package, including a high untreated yield ([90% treated controls) with excellent resistance to mildew. In the field, the variety has similar straw to market leader Laureate.</p>	
Year Listed	Candidate		
Treated Yield	106%		
Parentage	(LG Diablo x SY Contour)		

Up and coming spring barleys

KWS MARONIS		
Details		Comments
Group	Two-Row, Potential Brewing and Distilling	<p>KWS Maronis is a new variety for the UK spring malting barley arena. It is currently under evaluation to confirm its potential for brewing and has attracted interest from a key maltster. For the grower, KWS Maronis offers good yields, especially in the spring barley heartland of the north (105%). It also has a good agronomic package, including a high untreated yield (89% treated controls) with excellent mildew (9) and good <i>Rhynchosporium</i> ([7]) brown rust (5) resistance. In the field, the variety has similar straw to Laureate and, at a +2 maturity, is similar to LG Diablo.</p>
Year Listed	-	
Treated Yield	103%	
Parentage	LG Diablo x SY Ariella	

KWS PREMIS		AHDB CANDIDATE	NEW
Details		Comments	
Group	Two-Row, Potential Brewing	<p>KWS Premis is a new AHDB candidate spring barley suited for the malting and brewing markets. It is currently under evaluation to confirm its potential for the brewing sector by the MBC. On farm, KWS Premis offers growers a strong and durable plant type that will deliver high yields as well as good grain and a robust field performance. Performing well on a range of soil types, this spring barley has delivered its best yields in the east (103% controls) and in the northern regions (107% controls). The variety is also being trialed in Denmark, where it achieved 100% of controls (Harvest 2022).</p>	
Year Listed	Candidate		
Treated Yield	105%		
Parentage	(KWS Fantex x Cosmopolitan) RGT Planet		



OILSEED RAPE

The valuable break crop

KWS UK has long been at the cutting edge of the oilseed rape crop in the UK. In recent years, we have been well known for our line varieties. In today's difficult climate for establishing this valuable break crop, we have moved our emphasis to a fully hybrid focus, enabling us to introduce the valuable traits that farmers today need in a more timely manner.



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Breeding resilience into our new hybrid varieties

“ Breeding new and robust varieties is critical to meeting the needs of farmers trying to produce OSR sustainably. At KWS, we have always bred OSR with high gross output and excellent oil content, but increasingly we are looking for varieties with robust disease resistance, excellent standing and superb vigour. We also want varieties that have excellent tolerance of Vorticillium stem stripe and continue to explore other areas that would help farmers to produce oilseed rape in a sustainable and economically viable way to meet the challenges of the future.”

Breeding new and robust varieties is critical to meeting the needs of farmers.

Pei-Chen Wu
Assistant Breeder



Key factors for successful establishment of oilseed rape

“ In recent years, one of the key factors in establishing a successful oilseed rape crop has been the time of drilling; the earlier crops have been drilled, the better the survival and establishment has been. Soil moisture at drilling is also critically important to ensure even establishment.

Varieties differ in their ability to withstand later drilling, usually hybrid varieties are better suited to later drilling. Other key attributes a variety needs to be suitable for early drilling are:

Soil moisture at drilling is critically important to ensure even establishment.

- Strong disease resistance profile (light leaf spot, stem canker and Vorticillium stem stripe) as the crop will be in the ground for a longer period of time.
- Stiff straw.
- Autumn and spring vigour.”

Kate Cobbold
Oilseed and Special Crops Manager



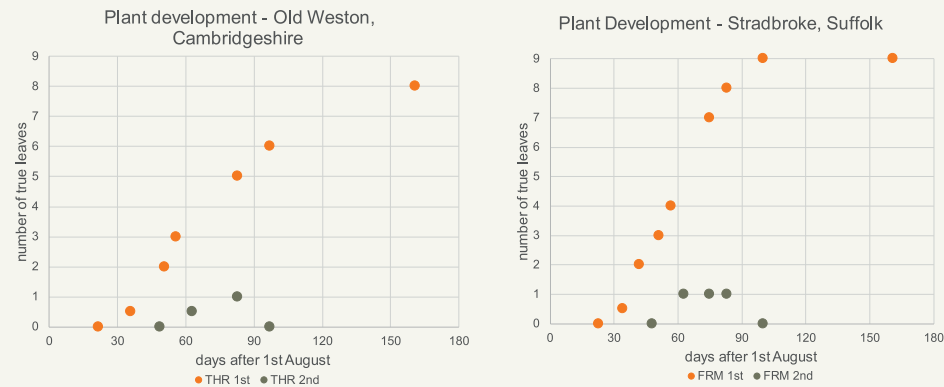
The five key steps to successful oilseed rape

Below are the five key steps to encourage the best establishment of oilseed rape.

1 Drill as early as possible	Only if you have good soil moisture
2 Ensure good soil to seed contact	Rolling the field post drilling can help with this
3 Use the correct seed rate	Drilling seed at a very high rate can result in problems later in the year
4 Use certified seed	If using FSS get it tested for seed-borne disease and germination
5 Select a variety with good autumn vigour	Also consider what other attributes you will need to fit your rotation

Early vs late drilling for best establishment

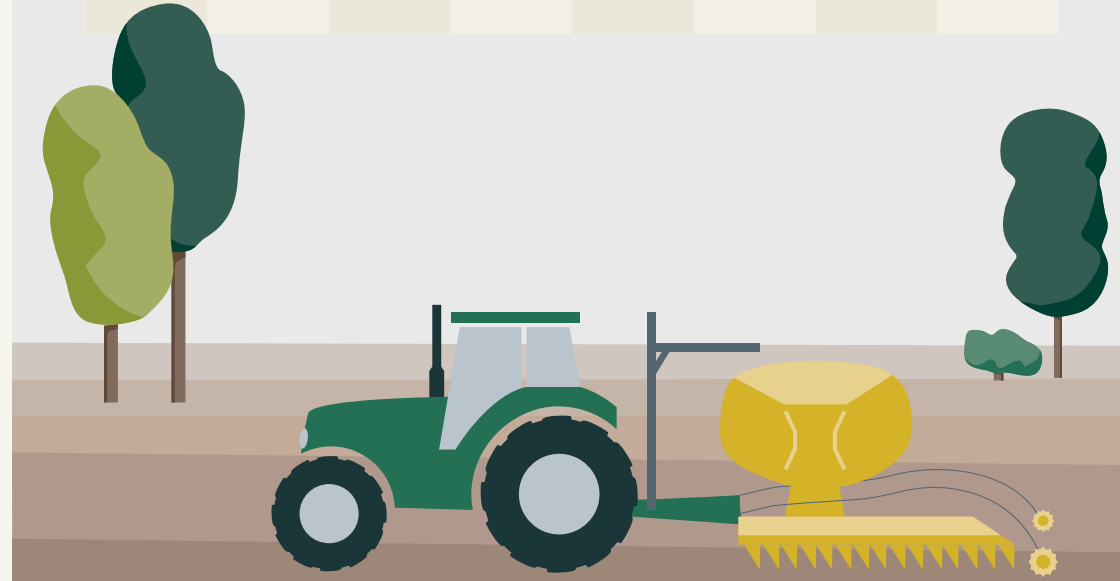
The graphs below show trial sites and date of establishment. In both instances the later-drilled sites did not survive.



Oilseed Establishment Partnership

Mitigating the risk of establishing a good oilseed rape crop is very difficult, so at KWS we have developed the Oilseed Establishment Partnership, whereby growers essentially pay for 50% of the seed cost upfront, with the remaining 50% being paid on the area that has established. Please get in touch with one of our consultants for more information.

OSR optimum drilling times

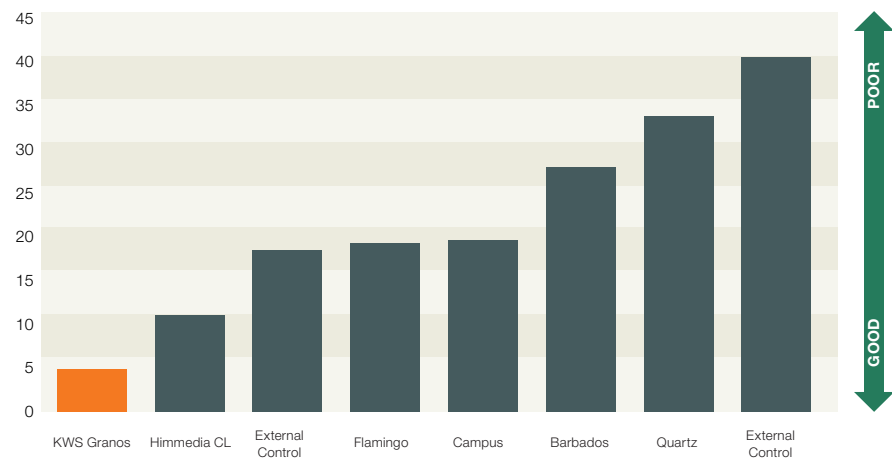


Good establishment of your oilseed rape crop is key, and varieties differ in their suitability for early or late drilling.

Important factors include getting good seed to soil contact and sufficient moisture levels.

This optimum drilling chart is designed to help you select your variety to get the best performance from our oilseed rape portfolio.

Percentage reduction in vigour with inoculated VSS



Data source: ADAS trial for KWS UK

Characteristic	Campus	Flamingo	Hanneli	KWS Granos
Autumn vigour	7	7	7	8
Spring vigour	7	8	8	8
Pod fill period	5	6	6	6
Verticillium stem stripe	6	7	7	8

Data source: KWS breeder assessment

Characteristic	Campus	Flamingo	Hanneli	KWS Granos
Light leaf spot	6	7	7	7
Stem canker	6	4	8	5
Stem stiffness	8	8	8	9
Flowering time	6	6	5	5
Maturity	5	5	6	6

Data source: AHDB Recommended List trials

Verticillium stem stripe

“Verticillium stem stripe is a soil borne pathogen that has the potential to severely impact yield in oilseed rape. The disease is widespread across the main oilseed rape growing areas in the UK. Plants that are severely affected are likely to ripen prematurely, and the crop may suffer from canopy collapse and possible seed shedding. The risk of Verticillium impacting a crop can be reduced by widening the crop rotation and selecting tolerant varieties. At KWS, we actively screen for tolerance to Verticillium stem stripe. As a soil-borne disease that has many different strains, building resistance is very difficult, but it is possible to test the tolerance of a variety against the most common strains of the pathogen.”

The risk of Verticillium impacting a crop can be reduced by widening the crop rotation and selecting tolerant varieties.

Olivia Potter
Technical Specialist



CAMPUS		
Details		Comments
Details	No longer on RL	Extremely consistent variety, both on farm and in trials. Still one of the most widely grown varieties in the UK – reflecting both its strong vigour and the consistency of its on farm performance. Good tolerance to Verticillium stem stripe and twin 6s for LLS and stem canker.
Year Listed	2015	
Treated GO	101%	

FLAMINGO		
Details		Comments
Details	No longer on RL	Flamingo is a high gross output variety with good autumn vigour. It has very good resistance to LLS with a 7 rating. Stem canker needs attention with a rating of 4. It has good spring vigour and has exhibited good recovery in severe CSFB larval situations. It has good tolerance to Verticillium stem stripe.
Year Listed	2017	
Treated GO	102%	

CODEX		
Details		Comments
Details	NL variety	Codex is a variety with a very reliable output and good standing ability. It is rated a 6 for LLS and has an outstanding 9 rating for resistance to stem canker. Codex is marketed under the KWS oilseed establishment partnership scheme.
Year Listed	2019	
Treated GO	101%	

HANNELI		
Details		Comments
Details	NL Variety	Hanneli is a high gross output variety with very strong autumn and spring vigour. It is a short-strawed variety with good resistance to lodging and standing ability. It has medium flowering and maturity and has the PoSh gene. Hanneli has an excellent disease package with a 7 for LLS and an 8 for stem canker (RLM7). It also has very good tolerance to Verticillium stem stripe and TuYV.
Year Listed	2021	
Treated GO	102%	

KWS GRANOS		
Details		Comments
Details	NL variety	KWS Granos is a new generation hybrid with all the bolt on traits growers expect. KWS Granos is a very high gross output variety with an oil content of 45.5%. It has a very vigorous autumn growth and excellent standing. It has medium flowering and maturity and has the PoSh gene. In terms of disease resistance KWS Granos has a strong package with good resistance to LLS (7) and TuYV. In our KWS Verticillium pot test KWS Granos had an outstanding performance, better than all the current standards. Stem canker resistance is medium rated at a 5.
Year Listed	2021	
Treated GO	105%	



HYBRID RYE

The versatile resilient crop

A favoured crop on-farm due to its agronomic benefits. Including high efficiency, reduced CO2 due to a low nitrogen requirement, excellent resistance to drought and multiple end use opportunities.

All KWS varieties have the PollenPlus® genetics which significantly reduces ergot contamination.



Dominic Spurrier

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Hybrid Rye: the cereal with much to offer!

KWS Group is the leading breeder of hybrid rye, with a long term hybrid breeding programme established in the mid-1980s. We offer varieties for wholecrop (as silage, or AD/biogas feedstock) or grain production (for feed grain, flour and distilling).

Today, hybrid rye is grown on over 5 million hectares worldwide in Europe, Russia, Canada and the United States.

For the UK and Ireland, KWS believes this highly productive cereal offers new perspectives for farmers and end-users alike.

Join the #ryevolution!

Top reasons to consider growing hybrid rye in 2023:

- Hybrid rye delivers consistent grain yields in the 2nd cereal slot.
- Low nitrogen input – saving around 100 kg/ha N compared to 2nd wheat.
- Low disease risk – rye typically only requires 1-2 fungicides to control brown rust.
- High straw yields – ideal for livestock or renewables.
- Growing demand – from pig finishing units, distillers and millers.
- Fit for the future – under the UK's agricultural bill, rye delivers nitrogen and agrochemical savings without compromising yields.



Hybrid Rye - a high quality feed!

In Denmark, Germany, Russia, Poland and Spain, rye is already rapidly becoming an established component of pig rations. KWS, in partnership with farmers and feed experts, are now extending hybrid rye uptake in the USA and Canada with a strong interest in what rye can offer.

Rye can boost gut health:

- Reduce feed costs: Rye is a low input, high yielding cereal. Diet inclusions (of up to 70%) give maximum return on feed costs.
- Behaviour: Rye raises satiety levels and leads to less tail biting & fighting over feed.
- (SCFA)s*: from rye boost gut microflora, reducing salmonella gut wall attachment.
- Less gut ulceration: Rye demands more active chewing & saliva uptake – this reduces feed acidity upon stomach entry.

top agrar **EXCLUSIVE**
Hybrid Rye

Hybrid Rye
Resource efficient
Valuable for gut health

KWS in partnership with CPM Magazine, Pig World, and top agrar brings you an exclusive selection of articles on Hybrid Rye!

*Short Chain Fatty Acids

Sources:

DCA - Danish Centre for Food and Agriculture - Aarhus University 2013.

Impact of physical form of animal diets - Kamphues 2018. Grone et al 2020.

Download your copy!

KWS in partnership with CPM Magazine, Pig World, and top agrar brings you an exclusive selection of articles on Hybrid Rye.



JSR looking to rye to benefit the pig and arable sides of the business



“With industry results having shown a potential for improved gut health, which in turn leads to improved health, behaviour and performance.

We were keen to test the cereal for ourselves and were pleased with the results.

Rye now features as a permanent addition to our rotation and we're excited to see how pigs at other stages of the production cycle perform on it.”

Stephen Waite
JSR's Managing Director of Pigs & Genetics

Hybrid rye successfully fed to laying hens in year long study



“I farm 104,000 free range laying hens. I was keen to look at feeding rye to my hens in conjunction with Harbro. They home mix and do the nutrition for me.

Over the year we started feeding rye at 5% and increased it to 25%. We fed 8,000 birds on this rye inclusion and had 8,000 birds on a normal ration. Each group performed remarkably similarly in terms of egg numbers, egg quality and litter.

The positives of feeding rye were definitely financial, the key challenge was storing an extra ingredient.”

Jonathan Stokes
C Stokes & Son

Winter Rye Descriptive List 2023/24

	KWS Tayo	KWS Igor	SU Baresi	KWS Serafino	SU Performer
Variety type	Hybrid				
Variety status		NEW			C
Grain yield (as % treated control)					
Fungicide-treated (10.3 t/ha)	104	103	103	101	100
Number of trials	15	10	15	17	17
Agronomic features					
Lodging (%)	[2]	[5]	[5]	[2]	[8]
Straw length (cm)	129	126	129	131	130
Ripening (days +/- SU Mephisto)	+1	+1	+1	+1	0
Grain quality					
Protein content (%)	9.1	8.9	8.7	9.1	9.2
Hagberg Falling Number	267	252	245	269	245
Specific weight (kg/hl)	77.0	76.5	78.2	77.3	77.9
Disease resistance					
Brown rust (1-9)	7	[4]	5	7	4
Breeder/UK contact					
Breeder	KWSGmbH	KWSGmbH	Hybro	KWSGmbH	Hybro
UK contact	KWS	KWS	SU	KWS	SU
Status in DL system					
Year first listed	22	23	22	21	17
DL status	P2	P1	P2	-	-



Join the #ryevolution!

- Highest grain-yielding rye on AHDB Descriptive List
- New generation PollenPlus® hybrid with excellent stem stiffness
- Multi-purpose hybrid (AD or grain; feed, flour and distilling)

No.1
harvest
index!

OATS

The versatile crop on the rise

Demand for oats and oat-based food products has seen a big increase in recent years, as consumers become more health aware. Partner this with the ongoing investment in the processing capacity of oats and the demand for this crop is likely to increase in the coming years.



Kate Cobbold

Oilseed and Special Crops Manager

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Spring Oats

Gaining further traction as the 'healthy cereal' that's a natural way to reduce cholesterol and a good source of manganese and vitamin B12, it's no surprise that consumer demand for oat-based foods is continuing to increase steadily.

With additional consumer demand driving a need for more area on farm, it positions oats as an attractive option for a partial take-all break in the rotation.

Husked

WPB ISABEL		AHDB RECOMMENDED	Comments
Details			
Type	Husked		WPB Isabel is the first choice spring oat for UK millers due to its superior agronomic package. From the Weirsum breeding programme that also bred the variety WPB Elyann. WPB Isabel will appeal to growers that are looking for a high-yielding spring oat, with a proven track record of excellent grain quality.
Year Listed	2020		
Treated Yield	101%		
Parentage	Husky Cross		



	Defin	Merfin	WFB Isabel	Canyon	Aspen	Lion	Conway	RGT Vaughan
Variety type	Husked varieties							
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK
Variety status	*		C	C	°C			NEW
UK yield (% treated control)								
Fungicide-treated (7.1 t/ha)	104	103	101	101	98	98	98	97
Untreated (% of treated control, 7.1 t/ha)	100	98	88	96	85	83	88	93
Grain quality								
Kernel content (%)	71.0	71.3	73.0	71.3	71.7	75.0	71.8	72.7
Specific weight (kg/hl)	50.5	51.2	53.5	51.4	51.1	52.0	49.6	52.2
Screenings (% through 2.0 mm)	3.3	1.8	2.2	3.0	2.7	2.3	2.4	2.4
Screenings (% through 1.8 mm)	-	-	-	-	-	-	-	-
Agronomic features								
Resistance to lodging without PGR (1-9)	7	[7]	7	7	6	[7]	7	[7]
Straw length without PGR (cm)	112	107	109	110	100	105	104	[109]
Ripening (days +/- WFB Isabel)	-1	-1	0	-1	-1	-2	-1	-1
Disease resistance								
Mildew (1-9)	8	8	5	8	4	3	6	8
Crown rust (1-9)	4	[3]	5	4	5	[5]	4	[4]
Annual treated yield (% control)								
2018 (6.0 t/ha)	[107]	[105]	[101]	[96]	[102]	[102]	[97]	-
2019 (7.3 t/ha)	[100]	[106]	[102]	[101]	[97]	[98]	[94]	[95]
2020 (6.2 t/ha)	[105]	[100]	[102]	[103]	[95]	[94]	[101]	[103]
2021 (7.8 t/ha)	[102]	[103]	[102]	[101]	[97]	[97]	[99]	[95]
2022 (7.9 t/ha)	[105]	[103]	[100]	[101]	[99]	[99]	[96]	[97]
Breeder/UK contact								
Breeder	Nord	Selg	Wier	Nord	Bau	Nord	IBERS	R2n
UK contact	SU	Cope	KWS	SU	Sen	SU	Sen	RAGT
Status in RL system								
Year first listed	18	22	20	11	15	22	14	23
RL status	*	P2	-	-	*	P2	-	P1

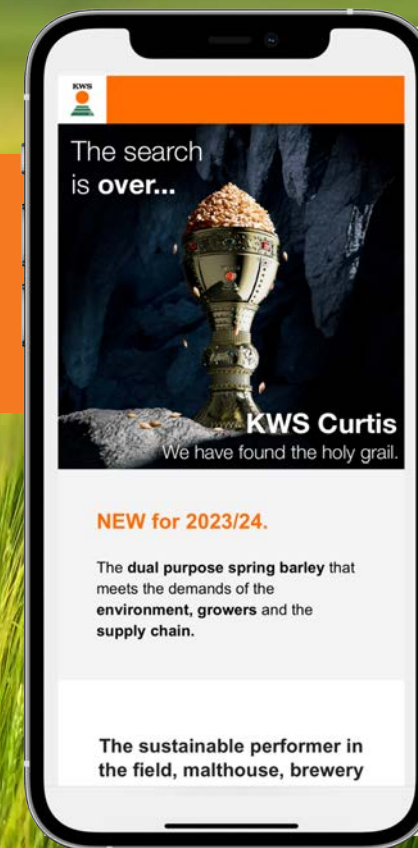
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PEAS

The economical break crop

Peas are an ideal crop to have in the farm rotation, offering growers an excellent break crop. They require low inputs and fix nitrogen in the soil, all while offering farmers an economical break when supporting the wider crop rotation.



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Oilseed and Special Crops Manager

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Peas

In recent years, there has been a steady demand in the UK for green and yellow peas as health-conscious consumers look for alternative ways to source protein and essential nutrients in their diet. This allows growers to capitalise on the emerging market for plant-based foods.

Green Pea

KWS GOTHAM		Comments
Details		
Year Listed	2023	Newly added to the PGRO Descriptive List, KWS Gotham is a high-yielding green pea. It is a later-maturing variety (3) and has an impressive thousand seed weight at 289g.
Treated Yield	107%	

Data source: KWS

MANKATO		Comments
Details		
Year Listed	2019	Mankato is a green pea with medium height and good standing to ensure a safe harvest. It is liked by end-users for its good colour retention, which helps growers attract a high premium for reducing bleaching when being sold. It offers a high protein of 22.4% dried and has a good all-round disease package, including resistance to pea wilt.
Treated Yield	96%	

Data source: PGRO descriptive list 2023

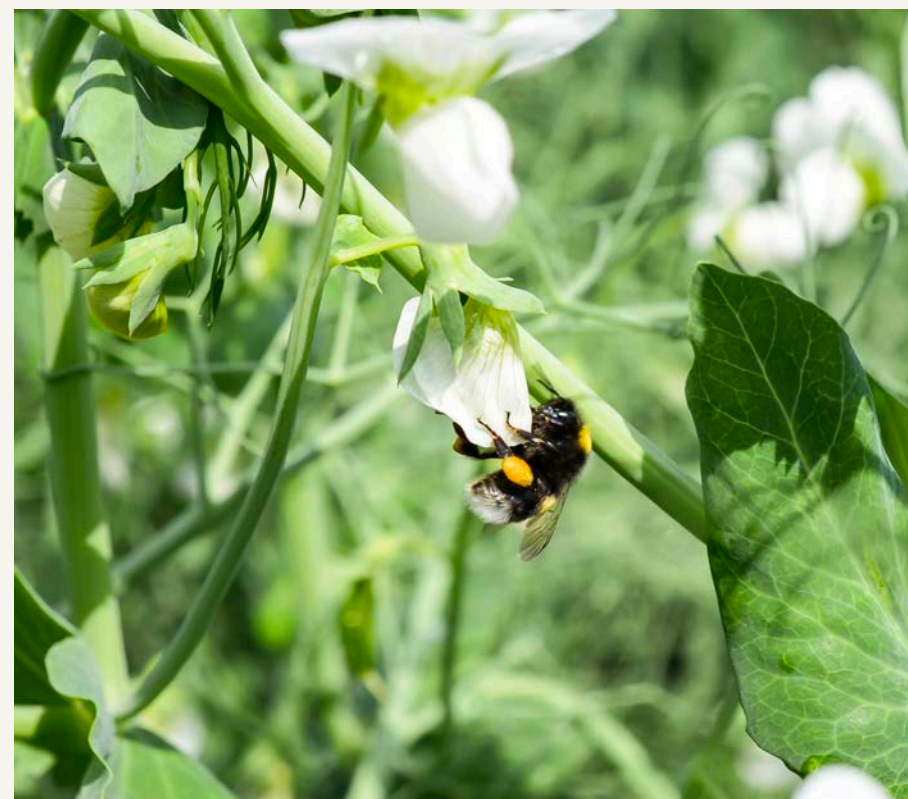
UK Agent	Yield as % of Control	Agronomic characters			Resistance to			Seed characters			No. Years in matrix	Year first listed
		Earliness of maturity (1-9)	Straw length (cm)	Standing ability at harvest (1-9)	Pea wilt (Race 1)	Downy mildew (1-9)	Powdery mildew*	Thousand seed weight (g) (@15%mc)	Protein content (% dry)			
Yellow												
Kameleon	Sen	114	6	76	7	R	5	[S]	301	21.8	5	20
Orchestra	LSPB	111	6	80	7	R	4	[S]	315	22.1	5	20
Glam	Sen	108	3	88	7	R	5	[S]	248	21.8	3	23
Manager	KWS	108	6	83	7	R	7	[MR]	282	22.8	5	18
LG Ajax	LUK	103	6	76	7	R	7	[HR]	265	22.1	3	23
Rivoli	Sen	102	5	80	7	[S]	8	[S]	281	22.1	4	22
Green												
Carrington	LSPB	115	5	86	7	R	8	[S]	244	21.4	4	22
Butterfly	LSPB	109	7	83	7	R	6	[S]	293	21.1	3	23
Greenway	IARA	107	5	88	7	R	7	[S]	301	22.1	5	21
Stroma	LSPB	107	6	81	7	R	5	[S]	319	21.6	5	21
Mikka	IARA	107	5	87	7	R	7	[S]	294	22.7	5	21
Bluetime	LSPB	107	3	90	6	R	8	[S]	284	21.8	5	18
KWS Gotham	KWS	107	3	86	6	-	4	-	289	22.1	3	23
Kactus	Sen	106	5	78	7	R	7	[S]	290	21.7	5	20
Kiravi	Sen	105	4	83	7	R	6	[S]	278	21.7	4	23
Karioka	Sen	104	5	86	7	R	7	[S]	255	22.7	5	18
LG Aviator	LUK	101	4	77	7	R	8	[HR]	284	21.8	4	20
Daytona	Agrii	98	6	78	7	R	7	[S]	271	22.1	5	10
Prophet	LUK	96	4	77	6	R	7	[S]	300	22.0	4	07
Mankato	KWS	96	4	82	7	R	6	[S]	255	22.4	5	19
Greenwood	IARA	92	8	70	6	R	6	[HR]	226	21.6	4	17
Maple												
Mantara	LUK	95	6	64	7	R	8	[S]	232	23.4	3	10
Rose	Dalt	92	8	78	6	S	9	[S]	257	24.9	3	03
Marrowfat												
Takayama	LSPB	96	4	87	6	R	6	[S]	350	21.5	3	23
Akooma	LSPB	95	4	81	5	R	5	[S]	406	22.8	5	21
Octavia	IARA	88	3	79	7	R	3	[S]	399	23.0	5	20
Sakura	Dalt	86	5	80	6	R	4	[S]	382	23.3	5	08

(1-9) A high rating indicates that the variety shows the character to a high degree. All varieties are semi-leaffless. Downy mildew: Varietal resistance may vary in different regions as race structure of the disease changes. Pea wilt (Fusarium oxysporum f. sp. pisi)(race 1)
R = Resistant; S = Susceptible. *Powdery mildew Trials & Breeders information - HR = High resistance, MR = Moderate resistance, S = Susceptible. © PGRO 2022 23.11.2022

Yellow Pea

MANAGER		
Details		Comments
Year Listed	2018	Manager is a high-yielding yellow pea that performs nationally over a range of soil types. It offers excellent downy mildew resistance and is resistant to pea wilt. It has a stiff straw, allowing for a safe harvest. Its large seed size is favoured by end-users for splitting and protein extrusion also.
Treated Yield	108%	

Data source: PGRO Descriptive List 2023



MAIZE

KWS Maize Hybrids

KWS specialises in the production of maize hybrids to suit all growing situations and which cover livestock forage and AD. Our focus is to select varieties capable of consistently achieving top on farm performance in the UK.

Getting started with
KWS Maize varieties
is easy...

Specialising in maize hybrids

Our maize portfolio consists of ultra-early, early/maincrop and biogas varieties. Take a look at some of our key offerings and learn more about our Maize360 experience and open days in 2023.



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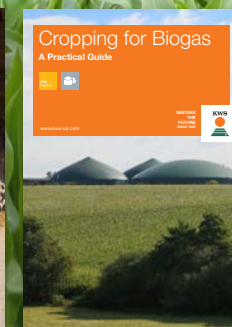
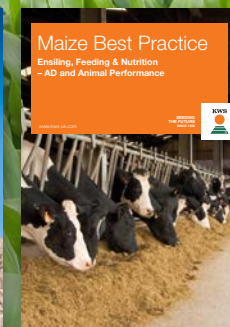


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Our comprehensive guides are packed with useful information about maximising harvest results.

We are also on hand to provide expert advice on varietal choice for individual farm situations — **please do not hesitate to contact us if you require assistance.**



With you throughout the year...



myKWS **MAIZE** is our quarterly newsletter, helping you choose the right variety and keeping you up to date on topical issues from seedbed preparation to harvesting tips. To sign up for a postal copy of the myKWS Maize newsletter, scan the QR code.

For a digital copy, sign up for myKWS at www.kws-uk.com (select the maize option).



A perfect balance of yield and quality!



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Extremely high yield potential and agronomic stability for silage or AD in favourable areas



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KWS Maize 360

A virtual experience



Fancy a tour of our maize demonstration site from the comfort of your armchair?

View the crop varieties, walk the trial fields, find out more and listen to our experts as they take you through our commercial hybrids, crop wheel and breeding demonstration.

The latest technology allows you to take the controls and 'virtually' step into each crop row at our HQ in Lydney, Gloucestershire.

We hope you find this way to view the demonstration site helpful and look forward to seeing you back at Lydney in 2023.

KWS Maize 360 can be found at maize360.com



KWS Open Days

KWS has a long tradition of opening its Gloucestershire-based Maize Demonstration Site during September, when we welcome growers and merchants to tour the variety plots.

You can learn about our latest trials results as well as benefiting from our expert knowledge and support.

To book your visit, contact your merchant or the KWS maize team. We look forward to seeing you in 2023.

SUGAR BEET

The best choice for the UK

Learn more about our range of sugar beet products and services. If you would like to know more about individual varieties, please visit our website or contact a member of our sugar beet team.



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Martin Brown

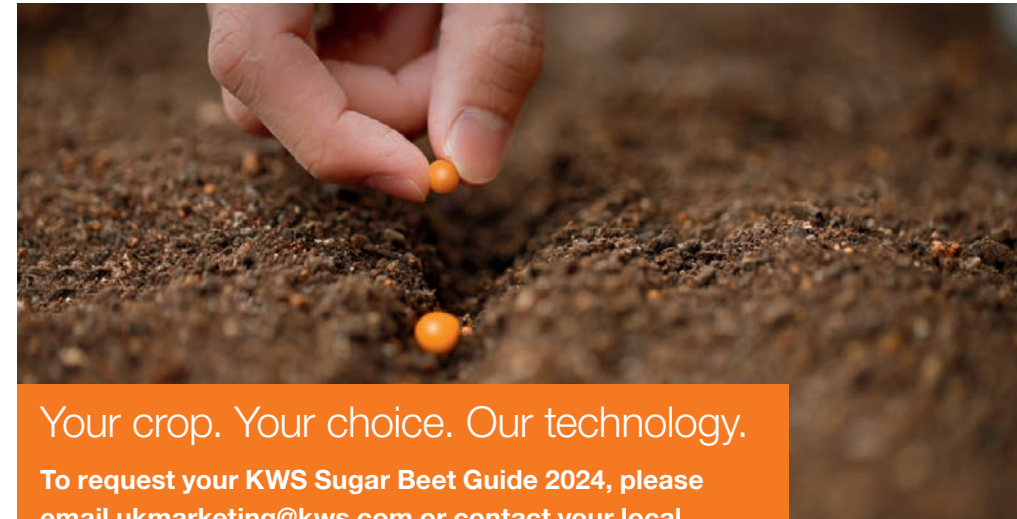
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Your crop. Your choice. Our technology.

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KWS breeding continues to provide UK growers with exceptional choice for their sugar beet crop, with new varieties added for the 2024 drilling season.

But there's more on offer than just varieties to support you and your crop through the growing season:



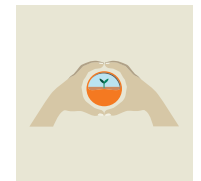
EPD 2.0 seed treatment

Giving your seed the best start



CONVISO® SMART

Innovation for excellent weed control



Beet Seed Service

Peace of mind should you need to re-sow

POWER at work

CONVISO® SMART – Innovating Weed Control in Sugar Beet

CONVISO® SMART is a revolutionary weed control system for sugar beet growers, providing a step forward in managing your crops.



SMART KWS seeds

Innovative sugar beet hybrids tolerant to a new ALS-inhibitor based herbicide



CONVISO® ONE herbicide

A new broad-spectrum herbicide in sugar beet based on ALS-inhibitors

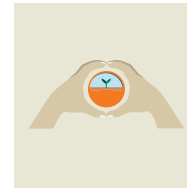
SMART CHOICE

More flexible and efficient weed control

- Broad weed spectrum, including weed beet.
- More independent from growth stage of the beet and growth conditions of the beet.
- More independent from weather conditions before and after application.



Find out more at www.kws-uk.com or scan the QR code



KWS Beet Seed Service

Your partner if you need to re-sow

The Beet Seed Service is available to all growers of KWS varieties with EPD treated seed.

The decision to re-sow sugar beet is a last resort and not a decision to be taken lightly. A wide range of issues can cause an uneconomic plant to stand within the establishing crop such as frost, wind blow and pest damage.

To complement our offer of EPD-treated seed for UK growers, we are offering the KWS Beet Seed Service to provide peace of mind if re-sowing is necessary.

The Principle of the Beet Seed Service

Should you need to re-sow your beet crop, we will offer the replacement seed at 50% of the initial sale price of the seed.

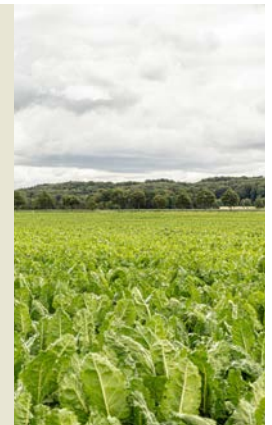
For example, if you were to spend £180 per unit on KWS EPD-treated seed and needed to re-sow, the seed cost for re-sowing would be £90 per unit.

How to use the Beet Seed Service

Register for the Beet Seed Service by signing up to myKWS at: www.kws.com/gb/en/mykws/

Make sure your fields are marked and in case of damage, we are here to help.

- Use automatic field boundary marking to mark and register your fields before or after your seed has arrived.
- If the crop fails to establish to a satisfactory level within 8 weeks of drilling, submit a damage report via the Beet Seed Service.
- Provide additional information about your failed beet crop.



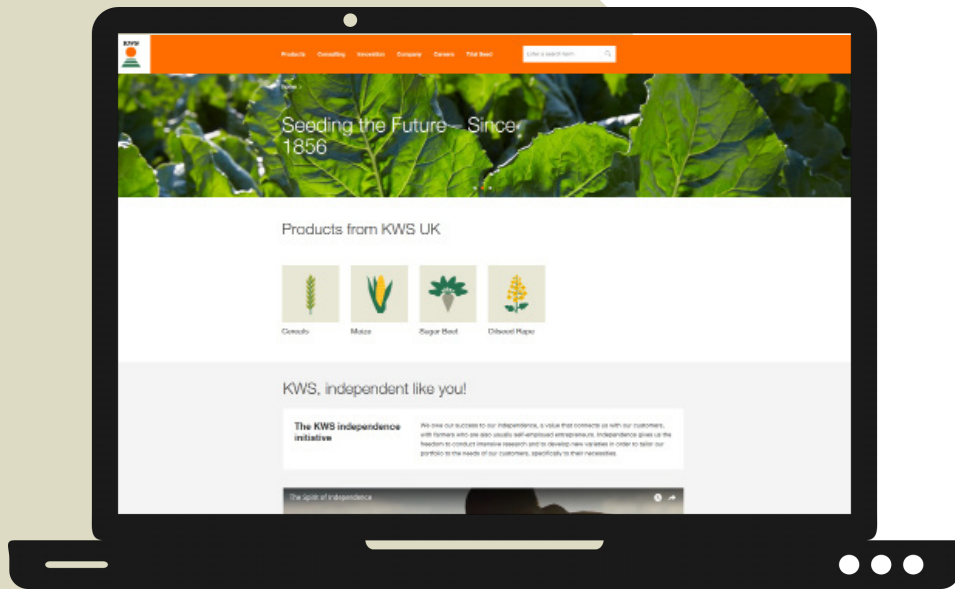
Replacement seed offered to growers through KWS Beet Seed Service must be re-sown in the year it is provided.

Terms and conditions apply. Please visit www.kws-uk.com for full details.

Want more information?

Visit our website for any additional information you may require on any of our varieties or crops.

The site is easy to navigate, mobile-friendly, nice to look at AND jam-packed with content!



www.kws-uk.com



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Here's a selection of some of the great images you have already shared with us



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