RECOMMENDEDLISTS

AHDB Recommended Lists for cereals and oilseeds 2021/22

Summer edition

Produced in partnership with:

British Society of Plant Breeders

Maltsters Association of Great Britain

UK Flour Millers

Using the AHDB Recommended Lists (RL)

This booklet contains tables for AHDB Recommended and Described varieties, and lists of candidate varieties. Use the guidance in this section to interpret the data within the tables.

For further information on the trialling and recommendation system, including the basis on which varieties are recommended and individual trial results, visit **ahdb.org.uk/rl**

Type of List

Recommended Lists (RL)

Recommended Lists present data from a large number of trials. Recommended varieties are considered to have the potential to provide a consistent economic benefit to the UK cereals or oilseeds industry.

Descriptive Lists (DL)

Descriptive Lists show trial data for spring oilseed rape, spring linseed, winter triticale and winter rye. The data available is presented for varieties for which seed is likely to be available. Data on Described varieties is more limited and care should be taken when interpreting differences between varieties. A place on the DL does not constitute a recommendation.

Candidate Lists

Candidate varieties are usually in their first or second year of RL trials, having completed at least two years of preliminary trials (e.g. National List trials). If data is sufficient, they are considered for recommendation in the autumn.

Candidate Lists containing information on yields and agronomic features can be found on the RL web page (**ahdb.org.uk/rl**) once varieties have achieved National Listing. This information is also available on the RL app. Candidate varieties are given, along with their breeder or UK contact, on pages following the main RL tables.

Regional Lists for winter oilseed rape

Winter oilseed rape varieties are presented on a single UK list. Regional recommendations are also maintained, with varieties ordered according to the scope of recommendation. Varieties that are suitable for both the East/West and North regions have a UK recommendation. When choosing a variety, consider those recommended for the UK and your region.

Status in the Lists

Scope of recommendation

This may refer to a UK or regional recommendation, or a recommendation for a specific end use or agronomic feature.

Varieties no longer listed

Varieties no longer recommended, or which the breeder has withdrawn from the RL. Before a variety is taken off the RL, it is normally removed from trials (indicated by an * in the tables).

Clubroot-resistant oilseed rape varieties

The pathogen that causes clubroot has several strains. The relative proportion of these strains varies from location to location. Clubroot-resistant varieties are resistant to common clubroot strains and are recommended for growing on infected land. Some strains of clubroot may overcome the resistance in these varieties. Growing clubroot-resistant varieties repeatedly will select for these more virulent strains, potentially causing the resistance genes to become ineffective. These varieties should only be used in line with AHDB clubroot management guidelines, to reduce risk of resistance breakdown.

Described varieties for the major crops

These varieties are usually for niche markets. Although recommendation is not appropriate, there is demand for descriptive data within the RL system.

Yield and quality

Yields

Yields are calculated as a percentage of the controls. Established varieties are selected as controls and the average yield of these varieties is set to 100%. For example, if the average yield of the control varieties is 10.2 t/ha, a variety that yields 10.4 t/ha will be shown as having a yield of 102%.

Regional yields

Regional yields are calculated for winter wheat, winter barley, spring barley and winter oilseed rape. Regional yields are based on fewer trials and should be treated more cautiously. Divisions between regions are not absolute and growers are advised to consider which region is most appropriate for their conditions.

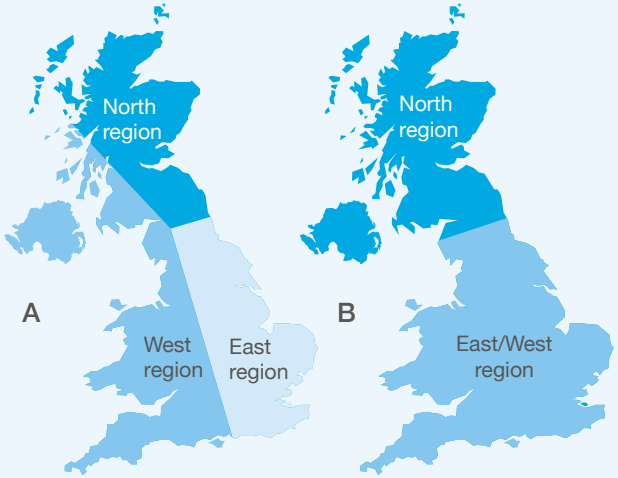


Figure 1. Regions used for calculation of regional yields
A – Winter wheat, winter barley and spring barley regions
B – Winter oilseed rape regions

Annual yields

Collectively, annual yields provide a breakdown of variety performance in different seasons. Consistent yields over several years may indicate that a variety offers a level of yield stability.

Oilseed rape gross output

Gross output is calculated from the seed yield with an adjustment to take account of the oil content.

Oat quality

Grain quality characteristics presented for oats include kernel content, specific weight and per cent screenings through a 2 mm sieve. High kernel content, high specific weight and low per cent screenings are preferred for milling.

Agronomic traits

Brackling

Brackling is folding or breaking of the stem that occurs higher up the plant than in stem lodging (which occurs close to, or below, the ground). Assessments are carried out on winter and spring barley at harvest. A high number on the 1–9 scale indicates high resistance to brackling.

Lodging

Lodging scores are calculated for varieties grown with and without plant growth regulator (PGR) application. A higher number indicates a variety is more resistant to lodging.

Ripening

Ripening is expressed as days earlier or later than a standard variety. Varieties with a negative number are earlier to mature than the standard variety. The numbers are from RL trial data, but differences can be far greater on farm, particularly where growing conditions are more marginal.

Sprouting

Sprouting resistance is based on special irrigated test plots. A higher number represents better resistance to sprouting. Data is limited, so, in the absence of a score, the Hagberg Falling Number (HFN) may provide some guidance – a variety with a low HFN may be prone to sprouting.

Basis of pest and disease resistance

Varietal resistance to pests and diseases forms the foundation of integrated pest management (IPM). Broadly speaking, there are two kinds of resistance, based on 'minor' and 'major' genes. Individually, minor genes give a low level of resistance but can be combined to give moderate to high resistance. This type of resistance is usually durable. Alone, major genes can give a high level of resistance but may be defeated by specific pathogen races relatively soon after a variety is released.

Important exceptions are the very strong *mlo* resistance to mildew in spring barley and the moderate resistance to eyespot from *Pch1* in wheat, which have been durable for many years. The durability of new sources of resistance can be difficult to predict. A new major gene may be more durable when it is combined with a background of minor genes. As pathogen populations evolve, previously defeated genes may become effective again, so varietal disease ratings can go up as well as down.

Statistical significance (LSD)

Natural variability within and between trials means that smaller differences between mean yields of varieties may just be attributed to chance. For most numerical characteristics in the tables, an average LSD (least significant difference) is reported. Differences between variety means that are larger than the LSD are likely to reflect genuine differences, as they would only occur by chance fewer than 1 in 20 times (5%). Differences smaller than the LSD are more likely to occur by chance and should be treated with caution.

Wheat end markets

The largest single market for quality wheat is for flour production. Other uses include cereals foods, distilling, starch production and biofuels. Different uses require specific quality traits and farmers should speak to merchants before committing to varieties to ensure a suitable end market.

Exports – quality wheats

There is a core market overseas for UK-grown quality wheat and growers can capitalise on this opportunity when choosing varieties to grow. However, distance to a port needs to be considered.

Overseas buyers have different requirements to domestic buyers. AHDB has developed the **uks** (soft biscuit wheat) and **ukp** (bread wheat) classifications. These help overseas buyers, who may be unfamiliar with individual varieties, to understand the qualities that the grain possesses. Overseas buyers commonly use the Chopin Alveograph test (see Table 1). North African and Middle Eastern markets prefer a lower moisture content, often less than 14%.

Varieties not added to the RL

For varieties grown in RL trials in 2020 but not added to the RL, visit **ahdb.org.uk/rl**

Table 1. Typical specifications for exports

	ukp	uks
Minimum specific weight (kg/hl)	76	75
Maximum moisture content (%)	14	14
Maximum admix (%)	2	2
Minimum Hagberg Falling Number (HFN; s)	250	220
Protein content (%)	11.0–13.0	10.5–11.5
W	170 (min)	70–120
P/L	0.9 (max)	0.55 (max)

The W and P/L values are determined by the Chopin Alveograph test, commonly used by overseas buyers. W represents a measure of the baking strength of a dough. A higher number represents a stronger flour. L represents the extensibility of the dough (time taken for a bubble to burst). P is the maximum pressure required. A low P/L measure represents a dough which is very extensible with low strength.

ukp = meets the specification for **ukp** bread wheat for export

uks = meets the specification for **uks** biscuit wheat for export

Disease resistance ratings

Scores for disease resistance are based on a combination of natural infection and inoculated trials. Information is only used where relatively high levels of disease are present. This helps prevent low disease pressure being mistaken for resistance. Varieties with ratings of 4 or less can be interpreted as susceptible. Varieties with ratings of 8 or 9 can be said to have high resistance; however, the ratings cannot determine the durability of the resistance.

With the exception of eyespot, the disease rating scales are not linear. A difference of 1 on the scale reflects a larger difference in disease susceptibility at low ratings than at high ratings.

The ratings can be read alongside the untreated yield, which provides an indication of the potential yield reduction as a consequence of a combination of all diseases.

The RL 2021/22 sees major changes to the disease-rating-calculation approach for winter wheat yellow and brown rust. This section describes the main developments, including how they affect the headline ratings.

Winter wheat rust ratings

Typically, cereal disease ratings are based on the average level of disease in trials, observed over a three-year period. In the last few years, rust ratings have failed to reflect in-season field observations for some varieties at some locations. This is partly due to the increasingly diverse and dynamic nature of the UK's rust populations and the rating-calculation method, but not the quality of disease data.

In response, two changes have been made to the way the yellow rust ratings are calculated. One of these changes has also been applied to the brown rust ratings.

Table 2. The weighting system under the previous and new approach. Variety A has a stable level of disease across the three years, whereas Variety B's starts relatively low and finishes relatively high. Under the previous approach, both variety A and B would have scored an average disease level of 8%. Under the new approach, Variety B has a higher average disease, leading to a lower rating, because of the relatively high disease levels observed in the third and final year

	Year 1	Year 2	Year 3	Average disease (%)	Yellow rust rating (1–9)
Previous rating calculation					
Weighting	**x1**	**x1**	**x1**		
Variety A disease (%)	8.0	8.0	8.0	8.0	**5**
Variety B disease (%)	6.0	8.0	10.0	8.0	**5**
New rating calculation					
Weighting	**x1**	**x2**	**x3**		
Variety A disease (%)	8.0	8.0	8.0	8.0	**5**
Variety B disease (%)	6.0	8.0	10.0	8.7	**4**

Weighted ratings: Yellow rust and brown rust

Until now, ratings were based on three-year average disease ratings, with each year of data contributing an equal amount to the rating. Where pathogen populations are relatively stable, this method provides reliable and stable ratings. As wheat yellow and brown rust populations are increasingly dynamic and diverse, a different approach to the rating calculation is necessary.

The RL 2021/22 winter wheat rust ratings are now 'weighted', so that the most recent year of data has the largest (and the oldest year of data the smallest) influence on the rating. This approach makes the rating more sensitive to changes in rust population structure in the most recent year, while still using the valuable three-year data set (see Table 2).

RL yellow rust ratings reflect adult plant resistance. For young plant resistance and susceptibility, see **ahdb.org.uk/ukcpvs**

Reset ratings slope: Yellow rust

Established susceptible and resistant varieties are used to determine ‘fixed points’. A line between these fixed points is used to calculate the disease ratings for all varieties (see Figure 2).

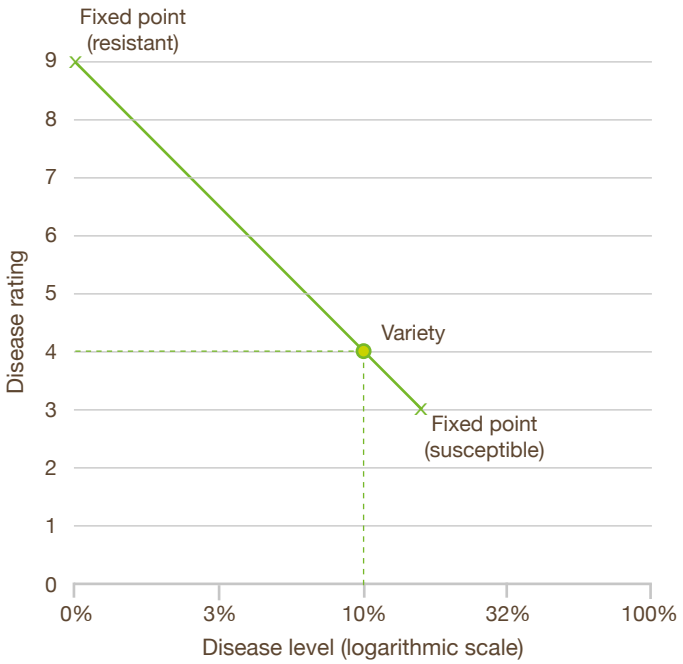


Figure 2. In the Recommended Lists (RL), a susceptible and a resistant variety are selected to create 'fixed points'. A line drawn between these fixed points is used to calculate the disease ratings for all other varieties. In this example, this variety has a disease level of 10%, which results in a wheat yellow rust disease rating of 4 in the 2021/22 edition

Report unexpected levels of rust to the UK Cereal Pathogen Virulence Survey (UKCPVS).

Over time, the position of the susceptible fixed point has moved as a result of yellow rust population changes. This has had an undesired effect – susceptible varieties were achieving a higher rating at the end of the last decade than the start of it.

For example, a variety with 10% disease would have received a rating of 4 in 2012, but 5 in 2019.

The RL 2021/22 sees the scale reset to the 2012 slope, with a lower susceptible fixed point. This means, compared with the RL 2020/21, the same amount of disease may result in a lower rating. This has reduced the yellow rust rating for many varieties; however, this does not mean that these varieties have become more susceptible since last year. Even on varieties now rated 3, sufficient yellow rust control can be achieved with a combination of chemical and cultural controls.

Additional information

AHDB has published a yellow rust ‘watch list’ online (**ahdb.org.uk/rl**). The watch list reveals varieties that performed out of line with the RL ratings at some sites in the 2019/20 trials. As it indicates potential susceptibility to uncommon rust races, the list can help focus disease-monitoring efforts. However, it is important to monitor all varieties, as rust populations can change rapidly.

Spring oat mildew ratings

The RL 2021/22 sees the spring oat mildew disease rating slope reset, using a similar approach to that described for winter wheat yellow rust. The aim is to make the ratings more representative of what is seen in the field. This has contributed to a relatively large drop in ratings for some varieties, compared with the 2020/21 RL.

Changes to ratings are not due to changes in spring oat susceptibility to mildew or changes in the virulence of mildew.

Winter triticale and winter rye rust ratings

The RL 2021/22 now features disease ratings for winter rye (brown rust) and winter triticale (yellow rust). As Described, not Recommended, varieties, less information is available to calculate the ratings. As a result, these ratings use a six-year data set. As for all ratings, statistical significance (LSD) should be taken into account when deciding if varieties have different susceptibility to disease.

UK Cereal Pathogen Virulence Survey

UKCPVS receives infected cereal leaf samples from agronomists, farmers, trials officers and researchers.

From these samples, pathogen isolates are selected and tested to check their virulence against wheat and barley varieties.

The testing can detect new races of cereal pathogens capable of causing disease on previously resistant cereal varieties.

Visit the website to discover:

- How to submit a sample
- Pathogen virulence test results
- Young-plant stage resistance to wheat yellow rust
- A selection of informative videos

ahdb.org.uk/ukcpvs

UK Flour Millers (UKFM) overview

UK Flour Millers (previously **nabim**) represents the UK milling industry. The industry uses approximately 4 million tonnes of home-grown wheat in an average year. The 2020 crop and the factors influencing flour demand have been far from typical, but the milling industry remains a stable market for the UK wheat crop. Millers regularly invest in modernising their capacity with a commitment to cost-effective and efficient milling of quality wheat. Two new inland mills are expected to come on stream in 2021.

Bread-making varieties

UK bread-making wheats comprise the majority of millers' requirements. Millers are familiar with all the Group 1 and 2 varieties on the RL and these continue to meet milling quality thresholds, as well as the agronomic needs of growers.

Crusoe, Skyfall and KWS Zyatt remain reliable milling varieties and Crusoe is particularly favoured for its good bread-making quality. As the yields of modern milling varieties remain relatively high, greater attention to nitrogen inputs is required than with 'older' varieties in order to achieve the necessary protein quality and gain the maximum premium.

Soft varieties

A number of new Group 3 wheats with excellent yield and agronomic characteristics have joined the RL for 2021/22 and millers are looking forward to experiencing the performance of commercial quantities of these varieties. Demand for the Group 3 wheats remains strong as their unique protein quality is needed to produce a range of flour types and products, for which domestic and export demand continues to grow.

Group 4 soft wheats may also have a specific use in some flours and these varieties can find a milling home. However, not all mills will be interested in these, so it is important to understand what your customers are looking for.

Table 3. Typical specifications for milling wheat

	UKFM Group 1	UKFM Group 2	UKFM Group 3
Minimum specific weight (kg/hl)	76	76	74
Maximum moisture content (%)	15	15	15
Maximum admix (%)	2	2	2
Minimum Hagberg Falling Number (HFN; s)	250	250	220
Protein content (%)	13.0	12.5	11.5

Sample and ensure food safety

Farmers growing wheat for milling must remember that they are producing for human consumption and steps should be taken to ensure that it is food safe, such as by testing for mycotoxins. Sampling the grain as it enters the store and understanding any contamination present should inform marketing options so that costly rejections can be avoided.

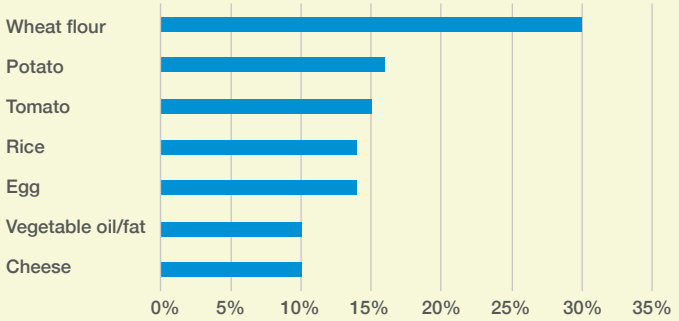
Know your market

The preference of local millers should be a significant factor affecting the choice of milling variety. Growing for a specific market should be at the forefront of a farmer's mind if incomes are to be maximised from milling wheat. The UK Flour Millers website features a tool that helps identify local mills and provides relevant contact details. This can be accessed using the following link: **ukflourmillers.org/millmap**

Other information on milling wheat quality requirements and the structure and needs of the milling industry can be found on the UK Flour Millers website at: **ukflourmillers.org**

Flour is a bedrock of the UK diet

A versatile ingredient

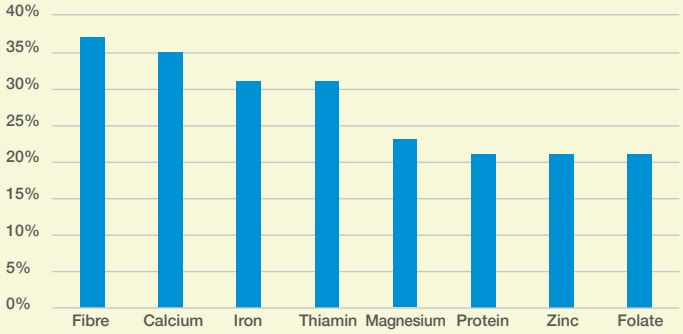


Supermarket products containing these ingredients (%)

Source: Ascential, May 2019

Nourishing the nation

Flour is a major contributor of a wide range of essential vitamins and minerals



UK adult dietary intake from flour (%)

Source: UK Flour Millers

Winter wheat 2021/22

Market options, yield and grain quality

AHDB RECOMMENDED

	KWS Zyatt	Skyfall	Crusoe	RGT Illustrious	KWS Extase	KWS Siskin	LG Detroit	LG Prince	LG Illuminate	LG Quasar	KWS Firefly	Merit	LG Astronomer	KWS Barrel	Elicit	LG Skyscraper	RGT Saki	LG Spotlight	Elation	Swallow	KWS Jackal	LG Sundance	Average LSD (5%)
End-use group	UKFM Group 1				UKFM Group 2			UKFM Group 3								Soft Group 4							
Scope of recommendation	UK	UK	UK	UK	UK	UK	E&W	UK	UK	UK	UK	E	UK	UK	UK	UK	UK	UK	N	N	N	UK	
		C				C	*	NEW	NEW	NEW		NEW	NEW	C					C	NEW		*	
Fungicide-treated grain yield (% treated control)																							
United Kingdom (10.8 t/ha)	98	97	96	96	100	100	99	103	102	102	101	101	101	100	99	105	104	103	101	100	100	100	2.2
East region (10.7 t/ha)	98	97	96	95	100	99	99	104	102	102	102	103	102	100	99	105	104	102	101	100	100	99	2.5
West region (10.9 t/ha)	99	97	97	97	101	100	99	102	101	101	101	99	100	100	99	104	104	104	101	100	100	100	2.9
North region (11.0 t/ha)	97	96	93	94	98	98	93	[100]	[102]	[101]	98	[100]	[98]	103	100	103	102	101	101	[102]	101	99	3.4
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
UK biscuit, cake-making	-	-	-	-	-	-	-	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	
UK distilling	-	-	-	-	-	-	-	[Y]	[Y]	[Y]	-	[Y]	[Y]	-	Y	[Y]	-	[Y]	Y	Y	[Y]	[Y]	
ukp bread wheat for export	Y	-	Y	-	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
uks soft wheat for export	-	-	-	-	-	-	-	-	[Y]	[Y]	Y	[Y]	-	Y	Y	-	-	-	Y	-	-	-	
Grain quality																							
Endosperm texture	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	
Protein content (%)	12.4	12.5	13.0	12.4	12.1	12.0	12.5	11.3	12.0	11.6	12.0	11.7	11.9	11.4	11.8	11.6	11.6	11.5	11.8	11.3	11.3	11.5	0.2
Protein content (%) – Milling spec	13.1	13.2	13.6	13.0	12.7	12.7	13.1	[11.3]	[12.4]	[12.0]	12.5	[12.1]	[12.4]	12.0	12.4	12.2	12.0	12.1	12.4	[11.9]	12.0	12.1	0.4
Hagberg Falling Number	267	279	274	277	299	289	283	250	251	212	243	255	238	234	213	214	227	288	210	245	185	178	27.2
Specific weight (kg/hl)	77.8	78.4	77.9	77.2	78.4	76.9	77.6	74.8	76.6	75.4	75.6	76.5	77.8	77.2	76.8	76.8	75.9	78.0	77.2	76.3	75.5	73.8	0.7
Chopin Alveograph W	177	-	220	-	191	162	218	[74]	84	87	91	87	[134]	101	90	-	-	[73]	95	-	[76]	[101]	21.5
Chopin Alveograph P/L	0.7	-	0.6	-	0.6	0.5	0.7	[0.3]	0.3	0.3	0.3	0.2	[0.4]	0.4	0.3	-	-	[0.4]	0.3	-	[0.3]	[0.3]	0.1

Varieties no longer listed: Bennington, Dunston, KWS Basset, KWS Crispin, KWS Lili, Leeds, LG Motown, Revelation, Viscount and Zulu.
Comparisons of varieties across regions are not valid. See page 3 for information on regional yields.
All yields in this table are taken from treated trials receiving a full fungicide and PGR programme.

UK = Recommended for the UK
E = Recommended for the East region
W = Recommended for the West region
N = Recommended for the North region

PGR = Plant growth regulator

C = Yield control (for current table)
* = Variety no longer under test in RL trials
[ ] = Limited data

Y = Suited to that market
[Y] = May be suited to that market

LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Winter wheat 2021/22

Market options, yield and grain quality

	SY Insitor	KWS Cranium	KWS Kinetic	Gleam	RGT Gravity	KWS Kerrin	Graham	RGT Wolverine	Shabras	Costello	Theodore	Average LSD (5%)
End-use group	Hard Group 4											
Scope of recommendation	UK	UK	UK	UK	UK	E&W	UK	Sp	UK	UK	W	
		NEW		C				NEW	*			
Fungicide-treated grain yield (% treated control)												
United Kingdom (10.8 t/ha)	104	104	103	103	103	102	102	102	101	99	99	2.2
East region (10.7 t/ha)	104	104	103	103	103	102	101	101	101	99	99	2.5
West region (10.9 t/ha)	104	104	105	103	103	102	105	102	101	100	102	2.9
North region (11.0 t/ha)	105	[102]	100	102	101	102	101	[103]	102	99	[[90]]	3.4
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 (%)	11.0	11.3	11.5	11.5	11.5	10.9	11.5	11.2	11.5	12.1	12.2	0.2
Protein content (%) – Milling spec	11.4	[11.4]	12.1	12.0	12.0	11.4	11.9	[11.8]	12.1	12.7	12.8	0.4
Hagberg Falling Number	273	277	267	217	199	148	279	274	211	326	313	27.2
Specific weight (kg/hl)	78.4	75.4	78.5	76.3	75.9	76.2	76.8	75.9	76.0	80.8	74.3	0.7
Chopin Alveograph W	-	-	-	-	-	-	-	[143]	-	-	-	21.5
Chopin Alveograph P/L	-	-	-	-	-	-	-	[0.7]	-	-	-	0.1

Varieties no longer listed: Bennington, Dunston, KWS Basset, KWS Crispin, KWS Lili, Leeds, LG Motown, Revelation, Viscount and Zulu.
Comparisons of varieties across regions are not valid. See page 3 for information on regional yields.
All yields in this table are taken from treated trials receiving a full fungicide and PGR programme.

UK = Recommended for the UK
E = Recommended for the East region
W = Recommended for the West region

Sp = Specific recommendation. RGT Wolverine has a specific recommendation for resistance to *Barley yellow dwarf virus* (BYDV). Resistance to BYDV has not been verified in Recommended List tests

PGR = Plant growth regulator
C = Yield control (for current table)
* = Variety no longer under test in RL trials
[ ] = Limited data

[[ ]] = Very limited data
LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Winter wheat 2021/22

Yield, agronomy and disease resistance

AHDB RECOMMENDED

	KWS Zyatt	Skyfall	Crusoe	RGT Illustrious	KWS Extase	KWS Siskin	LG Detroit	LG Prince	LG Illuminate	LG Quasar	KWS Firefly	Merit	LG Astronomer	KWS Barrel	Elicit	LG Skyscraper	RGT Saki	LG Spotlight	Elation	Swallow	KWS Jackal	LG Sundance	Average LSD (5%)
End-use group	UKFM Group 1				UKFM Group 2			UKFM Group 3								Soft Group 4							
Scope of recommendation	UK	UK	UK	UK	UK	UK	E&W	UK	UK	UK	UK	E	UK	UK	UK	UK	UK	UK	N	N	N	UK	
		C				C	*	NEW	NEW	NEW		NEW	NEW	C					C	NEW		*	
Fungicide-treated grain yield (% treated control)																							
United Kingdom (10.8 t/ha)	98	97	96	96	100	100	99	103	102	102	101	101	101	100	99	105	104	103	101	100	100	100	2.2
East region (10.7 t/ha)	98	97	96	95	100	99	99	104	102	102	102	103	102	100	99	105	104	102	101	100	100	99	2.5
West region (10.9 t/ha)	99	97	97	97	101	100	99	102	101	101	101	99	100	100	99	104	104	104	101	100	100	100	2.9
North region (11.0 t/ha)	97	96	93	94	98	98	93	[100]	[102]	[101]	98	[100]	[98]	103	100	103	102	101	101	[102]	101	99	3.4
Untreated grain yield (% treated control)																							
United Kingdom (10.8 t/ha)	79	74	69	80	93	80	75	83	85	82	80	80	86	71	78	81	85	78	75	79	73	83	5.7
Agronomic features																							
Resistance to lodging without PGR (1–9)	7	8	7	7	7	6	8	[7]	[7]	[7]	8	[7]	[7]	7	7	7	7	7	7	[8]	7	6	0.8
Resistance to lodging with PGR (1–9)	8	8	8	8	8	7	8	8	8	8	8	7	8	8	8	7	7	8	8	9	7	7	0.6
Height without PGR (cm)	84	83	81	89	90	84	86	83	82	89	83	88	88	84	85	92	88	93	82	79	87	87	1.9
Ripening (days +/- Skyfall, -ve = earlier)	0	0	0	+1	-1	0	+1	+2	+1	+2	+1	+1	+1	+1	0	0	+3	+1	+1	0	+1	+2	0.7
Resistance to sprouting (1–9)	5	5	6	6	[7]	5	[6]	[6]	[7]	[6]	[6]	[6]	[6]	6	[5]	[5]	[6]	[7]	[6]	[5]	[5]	4	1.0
Disease resistance																							
Mildew (1–9)	7	6	6	7	7	7	6	4	5	6	5	3	4	6	6	7	5	6	7	5	7	7	1.3
Yellow rust (1–9) – **see pages 5 and 6**	5	3	9	8	8	9	8	8	7	6	7	8	9	7	8	8	8	6	8	6	9	9	0.9
Brown rust (1–9) – **see pages 5 and 6**	6	8	3	6	7	5	5	8	8	8	5	8	9	5	6	6	7	6	5	6	5	5	1.0
Septoria tritici (1–9)	6.4	5.8	6.3	6.0	8.0	6.5	5.4	7.1	7.0	6.6	6.8	6.6	7.4	4.2	5.1	5.1	6.5	5.2	4.1	5.7	4.8	7.9	1.1
Eyespot (1–9)	7@	6@	5	6@	[4]	5	[5]	[5]	[5]	[4]	[4]	[4]	[5]	4	4	[4]	[5]	[5]	4	[3]	4	3	1.7
Fusarium ear blight (1–9)	6	7	6	6	6	5	7	6	5	6	5	6	6	6	6	7	6	6	6	5	6	6	0.5
Orange wheat blossom midge	-	R	-	-	-	-	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	

On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (e.g. high resistance).
Comparisons of varieties across regions are not valid. See page 3 for information on regional yields.

UK = Recommended for the UK
E = Recommended for the East region
W = Recommended for the West region
N = Recommended for the North region

PGR = Plant growth regulator
C = Yield control (for current table)
* = Variety no longer under test in RL trials
[ ] = Limited data

@ = Believed to carry the *Pch1* Rendezvous resistance gene to eyespot, but this has not been verified in Recommended List tests

R = Believed to be resistant to orange wheat blossom midge (OWBM), but this has not been verified in Recommended List tests

LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Winter wheat 2021/22

Yield, agronomy and disease resistance

AHDB RECOMMENDED

	SY Insitor	KWS Cranium	KWS Kinetic	Gleam	RGT Gravity	KWS Kerrin	Graham	RGT Wolverine	Shabras	Costello	Theodore	Average LSD (5%)
End-use group	Hard Group 4											
Scope of recommendation	UK	UK	UK	UK	UK	E&W	UK	Sp	UK	UK	W	
		NEW		C				NEW	*			
Fungicide-treated grain yield (% treated control)												
United Kingdom (10.8 t/ha)	104	104	103	103	103	102	102	102	101	99	99	2.2
East region (10.7 t/ha)	104	104	103	103	103	102	101	101	101	99	99	2.5
West region (10.9 t/ha)	104	104	105	103	103	102	105	102	101	100	102	2.9
North region (11.0 t/ha)	105	[102]	100	102	101	102	101	[103]	102	99	[[90]]	3.4
Untreated grain yield (% treated control)												
United Kingdom (10.8 t/ha)	78	78	74	81	77	74	87	72	77	80	88	5.7
Agronomic features												
Resistance to lodging without PGR (1–9)	6	[8]	7	7	7	7	7	[7]	7	7	7	0.8
Resistance to lodging with PGR (1–9)	7	8	8	7	7	7	8	8	7	8	8	0.6
Height without PGR (cm)	95	88	84	87	88	86	88	86	86	82	83	1.9
Ripening (days +/- Skyfall, -ve = earlier)	+1	+2	0	0	+1	+1	-1	+2	0	+2	0	0.7
Resistance to sprouting (1–9)	[5]	[6]	[6]	[5]	[4]	6	6	[6]	4	7	[7]	1.0
Disease resistance												
Mildew (1–9)	6	5	5	6	4	7	7	5	6	8	[7]	1.3
Yellow rust (1–9) – **see pages 5 and 6**	5	8	4	5	7	4	8	5	5	9	9	0.9
Brown rust (1–9) – **see pages 5 and 6**	5	5	6	6	6	7	5	8	5	5	7	1.0
Septoria tritici (1–9)	6.8	6.0	5.3	6.1	4.9	4.8	6.8	5.3	6.1	6.0	8.3	1.1
Eyespot (1–9)	[5]	[5]	[5]	4	4	5	3	[5]	4	5	[5]	1.7
Fusarium ear blight (1–9)	7	6	6	6	6	6	7	6	6	7	6	0.5
Orange wheat blossom midge	R	R	R	R	R	R	-	-	-	-	-	

On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (e.g. high resistance).
Comparisons of varieties across regions are not valid. See page 3 for information on regional yields.

UK = Recommended for the UK
E = Recommended for the East region
W = Recommended for the West region

Sp = Specific recommendation. RGT Wolverine has a specific recommendation for resistance to *Barley yellow dwarf virus* (BYDV). Resistance to BYDV has not been verified in Recommended List tests

PGR = Plant growth regulator
C = Yield control (for current table)
* = Variety no longer under test in RL trials
[ ] = Limited data

[[ ]] = Very limited data
R = Believed to be resistant to orange wheat blossom midge (OWBM), but this has not been verified in Recommended List tests

LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Winter wheat 2021/22

Supplementary data

AHDB RECOMMENDED

	KWS Zyatt	Skyfall	Crusoe	RGT Illustrious	KWS Extase	KWS Siskin	LG Detroit	LG Prince	LG Illuminate	LG Quasar	KWS Firefly	Merit	LG Astronomer	KWS Barrel	Elicit	LG Skyscraper	RGT Saki	LG Spotlight	Elation	Swallow	KWS Jackal	LG Sundance	Average LSD (5%)
End-use group	UKFM Group 1				UKFM Group 2			UKFM Group 3								Soft Group 4							
Scope of recommendation	UK	UK	UK	UK	UK	UK	E&W	UK	UK	UK	UK	E	UK	UK	UK	UK	UK	UK	N	N	N	UK	
		C				C	*	NEW	NEW	NEW		NEW	NEW	C					C	NEW		*	
Breeder/UK contact																							
Breeder	KWS	RAGT	Lim	R2n	Mom	KWS	LimEur	LimEur	LimEur	LimEur	KWS	ElsW	LimEur	KWS	ElsW	LimEur	RAGT	LimEur	ElsW	BA	KWS	LimEur	
UK contact	KWS	RAGT	Lim	RAGT	KWS	KWS	Lim	Lim	Lim	Lim	KWS	Els	Lim	KWS	Els	Lim	RAGT	Lim	Els	Sen	KWS	Lim	
Annual treated yield (% control)																							
2016 (11.0 t/ha)	98	96	95	92	99	99	99	-	-	-	100	-	-	101	102	108	-	104	101	-	102	102	2.2
2017 (11.1 t/ha)	101	98	96	97	99	99	99	-	-	-	102	-	-	101	98	105	104	104	101	-	101	98	2.4
2018 (10.5 t/ha)	98	98	96	97	101	101	98	102	102	101	101	102	101	99	98	102	102	99	100	100	100	101	2.2
2019 (11.5 t/ha)	96	96	99	95	101	100	101	103	102	101	102	101	102	101	99	104	104	102	100	100	100	99	2.3
2020 (10.0 t/ha)	97	96	94	97	99	97	96	103	102	103	100	101	100	102	98	103	105	103	102	102	101	99	2.7
Rotational position																							
First cereal (11.1 t/ha)	98	97	96	95	100	100	98	102	102	102	101	101	101	101	99	104	104	103	100	101	101	100	2.2
Second and more (9.5 t/ha)	99	97	95	95	101	98	99	104	102	100	101	102	100	100	100	104	104	101	102	100	101	100	3.8
Sowing date (most trials were sown in October)																							
Early sown (before 25 Sept) (11.0 t/ha)	[102]	97	95	98	-	101	-	[106]	[109]	-	103	-	[105]	99	100	[[103]]	[108]	101	101	[105]	102	97	6.8
Late sown (after 1 Nov) (9.5 t/ha)	97	97	95	95	101	99	98	[106]	[103]	[103]	101	[105]	[101]	101	97	103	[105]	101	101	[100]	101	98	3.7
Soil type (about 50% of trials are on medium soils)																							
Light soils (10.8 t/ha)	97	97	94	93	101	98	97	[103]	[102]	[101]	101	[101]	[99]	101	99	104	103	102	102	[101]	100	99	3.7
Heavy soils (10.9 t/ha)	99	97	97	96	100	100	101	103	103	102	103	103	103	100	99	105	103	103	100	100	101	100	2.9
Agronomic features																							
Lodging % without PGR	4	2	3	4	4	21	2	4	3	7	2	11	3	3	6	9	11	5	5	0	6	13	
Lodging % with PGR	1	2	2	1	1	7	3	4	4	3	1	4	1	2	3	10	4	2	2	0	9	12	
Latest safe-sowing date #	End Jan	End Feb	End Jan	Mid Feb	End Jan	End Jan	End Jan	[[End Jan]]	[[Mid Feb]]	[[End Feb]]	End Feb	[[Mid Feb]]	[[Mid Feb]]	End Jan	Mid Feb	End Jan	[End Jan]	End Feb	Mid Feb	[[End Feb]]	End Jan	End Jan	
Speed of development to growth stage 31 (days +/- average)																							
Early sown (Sept)	-2	-2	+1	0	-3	-7	+6	-	-	-	-2	-	-	+5	-2	-5	[+8]	-4	0	-	+5	+9	10.9
Med sown (Oct)	-4	-3	0	+2	-6	-5	+2	-	-	-	-3	-	-	-2	+2	0	[+1]	-3	-1	-	+3	+3	9.8
Late sown (Nov)	-2	-2	0	0	-3	-2	+1	-	-	-	0	-	-	+2	+2	-4	[0]	-1	-1	-	+1	+3	5.5
Status in RL system																							
Year first listed	17	14	12	16	19	16	19	21	21	21	19	21	21	16	18	19	20	19	18	21	18	17	
RL status	-	-	-	-	-	-	*	P1	P1	P1	-	P1	P1	-	-	-	P2	-	-	P1	-	*	

All yields in this table are taken from treated trials receiving a full fungicide and PGR programme.

UK = Recommended for the UK
E = Recommended for the East region
W = Recommended for the West region
N = Recommended for the North region
C = Yield control (for current table)
* = Variety no longer under test in RL trials
PGR = Plant growth regulator

[ ] = Limited data
[[ ]] = Very limited data
# = Latest safe-sowing date is the advised latest sowing time to give a sufficient cold period for flowering
P1 = First year of recommendation
P2 = Second year of recommendation

BA = Blackman Agriculture
Els = Elsoms Seeds (**elsoms.com**)
ElsW = Elsoms Wheat Ltd (**elsoms.com**)
KWS = KWS UK (**kws-uk.com**)
Lim = Limagrain UK (**lgseeds.co.uk**)

LimEur = Limagrain Europe SA (**lgseeds.co.uk**)
Mom = Momont, France (**kws-uk.com**)
R2n = RAGT, France (**ragt.co.uk**)
RAGT = RAGT Seeds (**ragt.co.uk**)
Sen = Senova (**senova.uk.com**)

LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Winter wheat 2021/22

Supplementary data

AHDB RECOMMENDED

	SY Insitor	KWS Cranium	KWS Kinetic	Gleam	RGT Gravity	KWS Kerrin	Graham	RGT Wolverine	Shabras	Costello	Theodore	Average LSD (5%)
End-use group	Hard Group 4											
Scope of recommendation	UK	UK NEW	UK	UK C	UK	E&W	UK	Sp NEW	UK *	UK	W	
Breeder/UK contact												
Breeder	SyP	KWS	KWS	SyP	R2n	KWS	SyP	R2n	SyP	KWS	DSV	
UK contact	Syn	KWS	KWS	Syn	RAGT	KWS	Syn	RAGT	Syn	Sen	DSV	
Annual treated yield (% control)												
2016 (11.0 t/ha)	-	-	-	103	106	102	102	-	102	96	-	2.2
2017 (11.1 t/ha)	104	-	105	102	103	101	101	-	100	101	99	2.4
2018 (10.5 t/ha)	103	104	102	103	100	103	100	101	101	100	99	2.2
2019 (11.5 t/ha)	106	102	104	103	102	103	103	102	102	99	101	2.3
2020 (10.0 t/ha)	103	105	101	103	103	102	102	102	101	100	[97]	2.7
Rotational position												
First cereal (11.1 t/ha)	104	104	103	103	102	102	102	102	101	100	99	2.2
Second and more (9.5 t/ha)	103	103	102	103	104	103	101	101	102	98	[99]	3.8
Sowing date (most trials were sown in October)												
Early sown (before 25 Sept) (11.0 t/ha)	-	-	99	103	100	[[102]]	100	-	[104]	98	97	6.8
Late sown (after 1 Nov) (9.5 t/ha)	[104]	[108]	[103]	103	104	103	99	[101]	98	100	[[99]]	3.7
Soil type (about 50% of trials are on medium soils)												
Light soils (10.8 t/ha)	107	[105]	104	102	103	103	102	[99]	101	98	[[99]]	3.7
Heavy soils (10.9 t/ha)	104	103	105	103	102	101	102	102	101	99	101	2.9
Agronomic features												
Lodging % without PGR	14	1	5	5	6	8	7	4	10	3	8	
Lodging % with PGR	4	3	3	4	7	9	2	3	11	1	2	
Latest safe-sowing date #	[End Jan]	[[Mid Feb]]	[End Jan]	Mid Feb	End Jan	End Jan	End Jan	[[End Jan]]	Mid Feb	End Jan	End Jan	
Speed of development to growth stage 31 (days +/- average)												
Early sown (Sept)	[0]	-	[-2]	+7	+5	0	+3	-	+2	-2	[-1]	10.9
Med sown (Oct)	[+1]	-	[+5]	+2	+2	+2	0	-	0	-1	[-3]	9.8
Late sown (Nov)	[+2]	-	[-2]	+3	-2	0	-3	-	0	-2	[-1]	5.5
Status in RL system												
Year first listed	20	21	20	18	18	17	16	21	17	15	20	
RL status	P2	P1	P2	-	-	-	-	P1	*	-	P2	

All yields in this table are taken from treated trials receiving a full fungicide and PGR programme.

UK = Recommended for the UK
E = Recommended for the East region
W = Recommended for the West region
Sp = Specific recommendation. RGT Wolverine has a specific recommendation for resistance to *Barley yellow dwarf virus* (BYDV). Resistance to BYDV has not been verified in Recommended List tests

C = Yield control (for current table)
* = Variety no longer under test in RL trials
PGR = Plant growth regulator
[ ] = Limited data
[[ ]] = Very limited data
= Latest safe-sowing date is the advised latest sowing time to give a sufficient cold period for flowering

P1 = First year of recommendation
P2 = Second year of recommendation
DSV = DSV UK (**dsv-uk.co.uk**)
KWS = KWS UK (**kws-uk.com**)

R2n = RAGT, France (**ragt.co.uk**)
RAGT = RAGT Seeds (**ragt.co.uk**)
Sen = Senova (**senova.uk.com**)
SyP = Syngenta Participations AG (**syngenta.co.uk**)
Syn = Syngenta UK Ltd (**syngenta.co.uk**)

LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Winter wheat 2021/22

Variety comments

UKFM Group 1 varieties

UK FLOUR MILLERS

Crusoe ukp

Quality: A UKFM Group 1 variety, classified as a **ukp** bread wheat for export. It has high Hagbergs and specific weights and has consistently given good proteins.

Agronomy: This short and relatively stiff-strawed variety has high resistance to yellow rust but is very susceptible to brown rust.

UKFM comment: This variety has consistently demonstrated good protein content and quality. The breadcrumb structure is notably white and of good quality. The baking performance is good and remains popular with millers.

KWS Zyatt ukp

Quality: A UKFM Group 1 variety, classified as a **ukp** bread wheat for export. KWS Zyatt has given high yields, combined with high specific weights. It has given good proteins under a regime to achieve milling specification.

Agronomy: This short and relatively stiff-strawed variety has given high treated yields in the East and West regions, as well as in first- and second-cereal situations and in trials on heavier soil. Limited data suggests it also has a high yield potential in early sowing situations. KWS Zyatt has high resistance for eyespot (*Pch1* resistance gene) and mildew. It has a tendency to sprout, so should be given priority at harvest.

UKFM comment: This variety is popular with millers. It shows good gluten strength and milling quality, alongside a good baking performance. As a high-yielding variety, nitrogen applications may have to be adjusted to achieve protein specifications.

RGT Illustrious

Quality: A UKFM Group 1 bread wheat with high Hagbergs. It has given good proteins under a regime to achieve milling specification.

Agronomy: This medium-tall and relatively stiff-strawed variety has given UK treated yields comparable to Crusoe. It has a high treated yield potential in early sowing situations. RGT Illustrious has good overall disease resistance, with high resistance to yellow rust and mildew. It carries the *Pch1* eyespot resistance gene.

UKFM comment: This variety has a higher level of water absorption (a good feature) and demonstrates good bread-making potential, even at lower protein levels.

Skyfall

Quality: A UKFM Group 1 bread wheat with high Hagbergs and specific weights that has given good proteins.

Agronomy: It is an awned wheat with short, stiff straw and is the only Group 1 variety with resistance to orange wheat blossom midge. It has high resistance to brown rust and fusarium ear blight and carries the *Pch1* eyespot resistance gene. It is highly susceptible to yellow rust. Skyfall has a tendency for rapid growth and development in the spring, but this characteristic is less marked when it is sown after the end of September. It has a tendency to sprout, so should be given priority at harvest.

UKFM comment: Large quantities of this variety continue to be seen by millers. It is popular, owing to good milling and baking qualities. Because it is high yielding, nitrogen applications may have to be adjusted to achieve protein specifications.

Export specifications

ukp = meets the specification for **ukp** bread wheat for export

uks = meets the specification for **uks** biscuit wheat for export

For more information on export specifications, please see page 4.

Please note that comments made on resistance to orange wheat blossom midge are based on advice from plant breeders. It has not been verified in RL tests.

Winter wheat 2021/22

Variety comments

UKFM Group 2 varieties

UK FLOUR MILLERS

KWS Extase ukp

Quality: A UKFM Group 2 variety, classified as a **ukp** bread wheat for export. KWS Extase has high Hagbergs and specific weights. It has given good proteins under a regime to achieve milling specification.

Agronomy: This relatively early-maturing variety has given high treated yields in both the East and West regions and has performed well across a range of soil types, rotational positions and in a late sowing situation. It is a medium-tall variety with relatively stiff straw. KWS Extase has given exceptionally high yields in untreated UK trials. It has high resistance to yellow rust, brown rust and mildew. It also has the highest rating for resistance to septoria tritici for a bread-making variety.

UKFM comment: This variety has protein levels similar to KWS Siskin and its performance is consistent with that of other Group 2 varieties. It shows some variability in its baking performance.

KWS Siskin ukp

Quality: A UKFM Group 2 variety, classified as a **ukp** bread wheat for export. It has high Hagbergs and has given good proteins under a regime to achieve milling specification.

Agronomy: This short-strawed variety has given high treated yields in the West region and has performed well in early sowing situations, a first-cereal situation and on heavier soils. It has moderate resistance to lodging but responds well to plant growth regulators. KWS Siskin has high resistance to septoria tritici, mildew and yellow rust. It has a tendency to sprout, so should be given priority at harvest.

UKFM comment: This variety has protein levels that are typical of a Group 2. However, some yellowness may be seen in the flour colour. It has shown a degree of variability in its baking performance, so may be more suited to use in blends.

LG Detroit ukp

Quality: A UKFM Group 2 variety, classified as a **ukp** bread wheat for export for the East and West regions. It has high Hagbergs and has given good proteins under a regime to achieve milling specification.

Agronomy: This stiff-strawed variety has given its best relative performance on heavier soils, where it has produced high treated yields. LG Detroit has high resistance to yellow rust and fusarium ear blight. It is the only Group 2 variety with resistance to orange wheat blossom midge. LG Detroit is no longer under test in RL trials.

UKFM comment: This variety has protein levels similar to some of the Group 1 varieties. The gluten quality and baking performance show some variability.

Winter wheat 2021/22

Variety comments

UKFM Group 3 varieties

UK FLOUR MILLERS

Elicit uks — distilling: good

Quality: A UKFM Group 3 variety. It is classified as a **uks** soft wheat for export and rated as 'good' for distilling.

Agronomy: It is a relatively stiff-strawed variety. Elicit has high resistance to yellow rust, combined with resistance to orange wheat blossom midge. Limited data suggests that this variety may have a tendency to sprout, so it should be given priority at harvest.

UKFM comment: This variety has shown slightly lower Hagberg Falling Numbers and slightly weaker gluten than other Group 3 varieties but meets the criteria for the group.

KWS Barrel uks

Quality: A UKFM Group 3 variety. It is classified as a **uks** soft wheat for export and is rated as 'poor' for distilling, due to low alcohol levels.

Agronomy: This short and relatively stiff-strawed variety has given high treated yields in the North region. KWS Barrel has high resistance to yellow rust, combined with resistance to orange wheat blossom midge. It is susceptible to septoria tritici.

UKFM comment: This variety fully meets the Group 3 criteria.

KWS Firefly uks

Quality: A UKFM Group 3 wheat, classified as a **uks** soft wheat for export. It has a low specific weight and is rated as 'poor' for distilling, due to low alcohol levels.

Agronomy: This short, stiff-strawed variety has produced high treated yields in the East region. It has a high yield potential on heavier soils and in early sowing situations. KWS Firefly has high resistance to yellow rust and septoria tritici, combined with resistance to orange wheat blossom midge.

UKFM comment: This variety fully meets the Group 3 criteria.

LG Astronomer NEW — distilling: medium

Quality: This new addition is a UKFM Group 3 wheat recommended for the UK. It has a high specific weight and is rated as 'medium' for distilling.

Agronomy: This relatively stiff-strawed variety has given high treated yields in the East region and on heavier soils. Limited data suggests that it has a very high yield potential in an early sowing situation. LG Astronomer has given high yields in untreated UK trials and has the highest rating for resistance to septoria tritici for a Group 3 variety. It has high resistance to yellow rust and brown rust, combined with resistance to orange wheat blossom midge. It is susceptible to mildew.

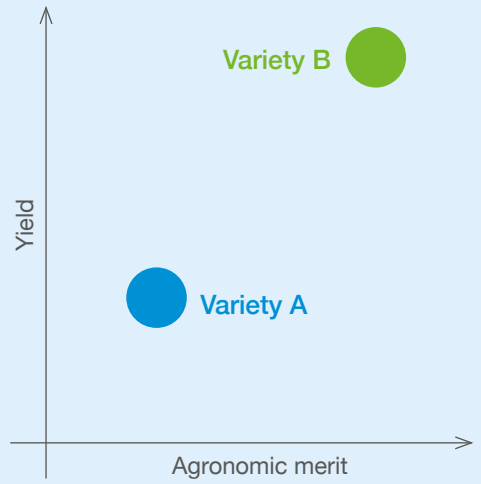
UKFM comment: Over the three years of testing, this variety met the Group 3 criteria, although it showed slight variability in gluten quality.

A different perspective on the RL

VARIETYSELECTION

- Identify the most promising varieties for your unique situation with our online variety selection tool
- Use filters to specify market requirements, account for key diseases and reflect preferred agronomic features
- Use agronomic merit scores to highlight varieties with the greatest genetic potential to resist lodging and key diseases
- Updated following the release of the RL each year

ahdb.org.uk/vst



Winter wheat 2021/22

Variety comments

UKFM Group 3 varieties

UK FLOUR MILLERS

LG Illuminate uks NEW distilling: medium

Quality: This new addition is a high-yielding UKFM Group 3 wheat recommended for the UK. It is classified as a **uks** soft wheat for export and is rated 'medium' for distilling.

Agronomy: This short and relatively stiff-strawed variety has given high treated yields in both the East and North regions (based on limited data). It has performed well across a range of soil types and rotational positions. Limited data suggests that it has a very high yield potential in an early sowing situation. LG Illuminate has given high untreated yields in UK trials and has high resistance to yellow rust, brown rust and septoria tritici, combined with resistance to orange wheat blossom midge.

UKFM comment: Over the three years of testing, this variety met the Group 3 criteria.

LG Prince NEW distilling: medium

Quality: This new addition is a high-yielding UKFM Group 3 wheat recommended for the UK. It is rated 'medium' for distilling. It tends to give a low specific weight.

Agronomy: This short and relatively stiff-strawed variety has given high treated yields in the West region and has a very high treated yield potential in the East region. It has performed well across a range of soil types and rotational positions, where it is very high yielding in a second-cereal situation and both early and late sowing situations (based on limited data). It is a relatively late-maturing variety. LG Prince has high resistance to yellow rust, brown rust and septoria tritici, combined with resistance to orange wheat blossom midge. It is susceptible to mildew.

UKFM comment: Over the three years of testing, this variety met the Group 3 criteria, although its protein level was slightly lower than other Group 3 varieties.

LG Quasar uks NEW distilling: medium

Quality: This new addition is a high-yielding UKFM Group 3 wheat recommended for the UK. It is classified as a **uks** soft wheat for export and is rated 'medium' for distilling. It tends to give a low specific weight.

Agronomy: This relatively late-maturing variety has given high treated yields in the East region. It is a medium-tall and relatively stiff-strawed variety and has performed well on heavier soils, a first-cereal position and in a late sowing situation (based on limited data). LG Quasar has high resistance to brown rust and septoria tritici, combined with resistance to orange wheat blossom midge.

UKFM comment: Over the three years of testing, this variety met the Group 3 criteria, although it showed slightly lower Hagberg Falling Numbers than other Group 3 varieties.

Merit uks NEW distilling: medium

Quality: This new addition is a UKFM Group 3 wheat recommended for the East region. It is classified as a **uks** soft wheat for export and is rated 'medium' for distilling.

Agronomy: This variety has given high treated yields in the East region. It has performed well on heavier soils, in a second-cereal situation and limited data suggests it has a high yield potential in a late sowing situation. It has high resistance to yellow rust, brown rust and septoria tritici, combined with resistance to orange wheat blossom midge. It is very susceptible to mildew.

UKFM comment: Over the three years of testing, this variety met the Group 3 criteria.

Winter wheat 2021/22

Variety comments

Soft Group 4 varieties

Elation uks — distilling: good

Quality: Recommended for the North region as a soft-milling feed variety. It is classified as a **uks** soft wheat for export and is rated as 'good' for distilling.

Agronomy: This short and relatively stiff-strawed variety has performed particularly well in a second-cereal situation and on lighter soils, where it has given high yields. Elation has high resistance to yellow rust and mildew, combined with resistance to orange wheat blossom midge. It is susceptible to septoria tritici.

KWS Jackal — distilling: medium

Quality: Recommended for the North region as a soft-milling feed variety. It has a low specific weight. It is rated as 'medium' for distilling.

Agronomy: This variety has produced high treated yields in an early sowing situation. KWS Jackal has high resistance to yellow rust and mildew, combined with resistance to orange wheat blossom midge.

LG Skyscraper — distilling: medium

Quality: Recommended for the UK as a soft-milling, very high-yielding feed variety. It is rated as 'medium' for distilling.

Agronomy: LG Skyscraper has given very high treated yields across the UK, particularly in the East and West regions and across a range of soil types and rotational positions. It also has a high yield potential in a late sowing situation. This medium-tall variety has high resistance to yellow rust, mildew and fusarium ear blight, combined with resistance to orange wheat blossom midge.

LG Spotlight — distilling: medium

Quality: Recommended for the UK as a soft-milling, high-yielding feed variety. It has high Hagbergs and a high specific weight. It is rated as 'medium' for distilling.

Agronomy: LG Spotlight has given high treated yields in the East region and a very high yield potential in the West region. This medium-tall and relatively stiff-strawed variety has performed particularly well in a first-cereal position and on both light and heavy soils. LG Spotlight has no major weaknesses in disease resistance and has resistance to orange wheat blossom midge.

LG Sundance — distilling: medium

Quality: Recommended for the UK as a soft-milling feed wheat. It has a low specific weight and is rated as 'medium' for distilling.

Agronomy: This relatively late-maturing variety has moderate resistance to lodging but responds well to plant growth regulators. LG Sundance has very high resistance to septoria tritici and high resistance to yellow rust and mildew, combined with resistance to orange wheat blossom midge. It is very susceptible to eyespot. It tends to sprout. LG Sundance is no longer under test in RL trials.

RGT Saki

Quality: A very high-yielding, soft-milling feed wheat recommended for the UK. It has a low specific weight and is rated as 'poor' for distilling, due to low alcohol levels.

Agronomy: RGT Saki has given very high treated yields in both the East and West regions and across a range of rotational positions and sowing dates (based on limited data). This late-maturing variety also has a high yield potential on both light and heavy soils. It has given high untreated yields in UK trials and has high resistance to yellow rust, brown rust and septoria tritici, combined with resistance to orange wheat blossom midge.

Swallow NEW — distilling: good

Quality: This new addition is a soft-milling feed variety recommended for the North region. It is rated as 'good' for distilling.

Agronomy: This variety has given high treated yields in the North region (based on limited data) and has a very high treated yield potential in an early sowing situation (based on limited data). Swallow is stiff-strawed and is the shortest variety on the 2021/22 Recommended List. It has resistance to orange wheat blossom midge, but limited data suggests it is very susceptible to eyespot.

Winter wheat 2021/22

Variety comments

Hard Group 4 varieties

Costello

Quality: A hard-milling feed variety for the UK. It has high Hagbergs and a high specific weight.

Agronomy: This short, relatively stiff-strawed variety gives its best relative performance in the West region. It is a relatively late-maturing variety. Costello has high resistance to mildew, yellow rust and fusarium ear blight.

Gleam

Quality: A high-yielding, hard-milling feed variety recommended for the UK.

Agronomy: This variety has given high treated yields throughout the UK and across a range of rotational positions, soil types and sowing dates. Gleam has resistance to orange wheat blossom midge.

Graham

Quality: A high-yielding, hard-milling feed variety recommended for the UK. It has high Hagbergs.

Agronomy: This relatively stiff-strawed variety has given very high treated yields in the West region. Graham has performed well in a first-cereal situation and across both light and heavier soils, where it is high yielding. It is relatively early maturing. It has given high untreated yields in UK trials and has high resistance to septoria tritici, mildew, yellow rust and fusarium ear blight. It is very susceptible to eyespot.

KWS Cranium NEW

Quality: This new addition is a hard-milling, very high-yielding feed variety recommended for the UK. It has high Hagbergs but tends to give a low specific weight.

Agronomy: This stiff-strawed and relatively late-maturing variety has given very high treated yields across the East and West regions. Limited data suggests it also has a high yield potential in the North. KWS Cranium has performed well across a range of soil types and rotational positions, where it is very high yielding in a first-cereal position, on lighter soils (based on limited data) and in a late sowing situation (based on limited data). It has high resistance to yellow rust, combined with resistance to orange wheat blossom midge.

KWS Kerrin

Quality: A high-yielding, hard-milling feed variety recommended for the East and West regions.

Agronomy: This variety has given high treated yields throughout the UK and across rotational positions, in a late sowing situation and on lighter soils. It has high resistance to mildew and brown rust, combined with resistance to orange wheat blossom midge. It is susceptible to yellow rust.

KWS Kinetic

Quality: A high-yielding, hard-milling feed variety recommended for the UK. It has a high specific weight.

Agronomy: This variety has given very high yields in the West region and across all soil types. It also has a high yield potential in the East region, across rotational positions and in a late sowing situation (based on limited data). It is a short, relatively stiff-strawed variety with resistance to orange wheat blossom midge. It is susceptible to yellow rust.

Winter wheat 2021/22

Variety comments

Hard Group 4 varieties

RGT Gravity

Quality: A high-yielding, hard-milling feed variety recommended for the UK.

Agronomy: This variety has given high treated yields in both the East and West regions, as well as across a range of soil types and in a first-cereal position. It has a very high yield potential in both a second-cereal position and in a late sowing situation. RGT Gravity has high resistance to yellow rust, combined with resistance to orange wheat blossom midge. It is susceptible to mildew.

RGT Wolverine NEW

Quality: This new addition is a high-yielding, hard-milling feed variety with a specific recommendation for resistance to *Barley yellow dwarf virus* (BYDV). It has high Hagbergs but tends to give a low specific weight.

Agronomy: This relatively late-maturing variety has given high treated yields in the both the West and North regions (based on limited data). RGT Wolverine is a relatively stiff-strawed variety and has performed well in a first-cereal position and on heavier soils, where it is high yielding. It has high resistance to brown rust.

Shabras

Quality: A hard-milling feed variety recommended for the UK. It tends to give a low specific weight.

Agronomy: This variety has given high treated yields in the West region and in a second-cereal position. Limited data suggests it has a very high yield potential in an early sowing situation. It tends to sprout. Shabras is no longer under test in RL trials.

SY Insitor

Quality: A very high-yielding, hard-milling feed variety recommended for the UK. It has high Hagbergs and specific weight.

Agronomy: SY Insitor has given very high treated yields throughout the UK, as well as across a range of soil types, rotational positions and in a late sowing situation (based on limited data). This medium-tall variety has moderate resistance to lodging but responds well to plant growth regulators. It has high resistance to septoria tritici and fusarium ear blight, combined with resistance to orange wheat blossom midge.

Theodore

Quality: A hard-milling feed variety recommended for the West region. It has high Hagbergs but a low specific weight.

Agronomy: Theodore has given high treated yields in the West region. It is a short and relatively stiff-strawed variety. It has given high untreated yields in UK trials and has high resistance to mildew (based on limited data), yellow rust, brown rust and the highest rating for resistance to septoria tritici on the 2021/22 Recommended List.

Spring wheat 2021

AHDB RECOMMENDED

	Mulika	KWS Cochise	KWS Giraffe	KWS Chilham	WPB Escape	KWS Talisker	Hexham	KWS Kilburn	Average LSD (5%)
End-use group	UKFM Group 1	UKFM Group 2			Hard Group 4				
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	
	C	C			NEW				
UK yield as % control (spring sowing)									
Fungicide-treated (6.8 t/ha)	94	106	103	100	107	105	105	103	3.6
Untreated (% treated control) (6.8 t/ha)	[82]	[84]	-	[87]	-	[92]	[96]	[82]	10.3
UK yield as % control (autumn sowing)									
Fungicide-treated (9.1 t/ha)	96	103	[104]	101	[104]	102	106	-	5.0
Grain quality (spring sowing)									
Endosperm texture	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	
Protein content (%)	13.6	13.2	13.6	13.0	12.5	12.5	12.7	13.2	0.3
Hagberg Falling Number	321	239	296	329	264	278	275	270	23.8
Specific weight (kg/hl)	77.4	79.0	79.8	78.4	77.0	79.2	77.8	76.1	0.8
Agronomic features (spring sowing)									
Resistance to lodging with PGR ∞	-	-	-	-	-	-	-	-	-
Straw height without PGR (cm)	80	81	78	77	77	83	81	82	2.1
Ripening (+/- Mulika, -ve = earlier)	0	+1	+1	0	+2	+1	+2	+3	1.4
Resistance to sprouting ∞	-	-	-	-	-	-	-	-	-
Disease resistance									
Mildew (1–9)	7	8	[8]	[7]	[8]	[8]	[6]	[7]	1.6
Yellow rust (1–9)	7	4	6	7	8	9	9	5	0.9
Brown rust (1–9) ∞	-	-	-	-	-	-	-	-	-
Septoria tritici (1–9)	6	6	5	7	[6]	6	7	6	1.2
Orange wheat blossom midge	R	R	-	R	-	-	-	-	-
Annual treated yield (% control, spring sowing)									
2016 (8.5 t/ha)	[93]	[102]	-	[99]	-	[104]	[106]	[103]	8.0
2017 (7.3 t/ha)	93	107	[103]	102	-	[105]	[103]	102	3.7
2018 (5.5 t/ha)	[95]	[107]	[107]	[99]	[113]	[105]	[100]	[100]	6.0
2019 (6.9 t/ha)	94	107	102	98	106	105	105	100	4.7
2020 (6.2 t/ha)	[98]	[105]	[101]	[103]	[107]	[106]	[109]	[107]	5.1
Breeder/UK contact									
Breeder	BA	KWS	KWS	KWS	WPB	KWS	KWS	KWS	
UK contact	Sen	KWS	KWS	KWS	LSPB	KWS	Sen	KWS	
Status in RL system									
Year first listed	11	17	20	17	21	19	19	14	
RL status	-	-	P2	-	P1	-	-	-	

Varieties no longer listed: KWS Alderon.
On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (e.g. high resistance).

UK = Recommended for the UK
C = Yield control (for the current table). For this table, KWS Alderon was also a control but is no longer listed
[ ] = Limited data
PGR = Plant growth regulator

∞ = No ratings available
R = Believed to be resistant to orange wheat blossom midge (OWBM), but this has not been verified in Recommended List tests
P1 = First year of recommendation

P2 = Second year of recommendation
BA = Blackman Agriculture
KWS = KWS UK (**kws-uk.com**)
LSPB = LS Plant Breeding (**lspb.eu**)
Sen = Senova (**senova.uk.com**)
WPB = Wiersum Plant Breeding

LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Spring wheat 2021

Variety comments

UKFM Group 1 varieties

UK FLOUR MILLERS

Mulika

Quality: A UKFM Group 1 variety for spring sowing. Mulika gives good Hagbergs and grain proteins. It remains a popular choice with growers.

Agronomy: This variety has given similar treated yields in both spring and late-autumn sowings. It has high resistance to yellow rust and mildew, combined with resistance to orange wheat blossom midge.

UKFM comment: This variety has good rheological and baking qualities and is the spring variety of choice for most millers.

UKFM Group 2 varieties

UK FLOUR MILLERS

KWS Chilham

Quality: A UKFM Group 2 variety for spring sowing. It gives good Hagbergs, grain proteins and specific weights.

Agronomy: This variety has given similar treated yields in both spring and late-autumn sowings. KWS Chilham has high resistance to yellow rust, mildew (based on limited data) and septoria tritici, combined with resistance to orange wheat blossom midge.

UKFM comment: This variety has shown lower protein levels than Mulika, but with a stronger gluten quality. The baking quality would not necessarily suit all end users.

KWS Cochise

Quality: A UKFM Group 2 variety for spring sowing. It gives good grain proteins and specific weights.

Agronomy: This variety has given high treated yields from spring sowings. KWS Cochise has high resistance to mildew, combined with resistance to orange wheat blossom midge. It is susceptible to yellow rust.

UKFM comment: This variety has shown good protein levels and specific weights, although there is a degree of variability in its baking performance.

KWS Giraffe

Quality: A UKFM Group 2 variety for spring sowing. It gives good Hagbergs, grain proteins and specific weights.

Agronomy: KWS Giraffe has given high treated yields from late-autumn sowings (based on limited data). It has high resistance to mildew (based on limited data).

UKFM comment: This variety has shown similar quality to Mulika. The gluten quality is good, although there is some variability in its baking performance.

Spring wheat trials are routinely treated with plant growth regulator and there has been little lodging in recent years. There are insufficient data to produce ratings or comments for newer varieties. Quality information is based on spring-sown wheats.

No survivors

Grass-weed glyphosate dose revised

Weed Resistance Action Group (WRAG) glyphosate guidance updated for 2021.

Includes revisions to dose to ensure there are ‘no survivors’ following an application.

Survivors help drive the evolution of herbicide resistance.

Typically, annual grasses require a minimum of:

- 540 g a.i./ha for seedlings up to 2–3 leaves
- 720 g a.i./ha when tillering
- 1,080 g a.i./ha when flowering

Spring wheat 2021

Variety comments

Group 4 feed varieties

Hexham

Quality: A hard feed variety for spring sowing.

Agronomy: Hexham has given high treated yields from both spring and late-autumn sowings. This is a later-maturing variety with high resistance to yellow rust and septoria tritici.

KWS Kilburn

Quality: A hard feed variety for spring sowing. It gives good grain proteins.

Agronomy: This is a late-maturing variety with high resistance to mildew (based on limited data).

KWS Talisker

Quality: A hard feed variety for spring sowing. It gives good Hagbergs and specific weights.

Agronomy: KWS Talisker has given high treated yields from spring sowings. It has high resistance to yellow rust and mildew (based on limited data).

WPB Escape NEW

Quality: This new addition is a hard feed variety recommended for the UK for spring sowing.

Agronomy: WPB Escape has given high treated yields from both spring and late-autumn sowings (based on limited data). This is a later-maturing variety with high resistance to yellow rust and mildew (based on limited data).

Candidate varieties – wheat trials harvest 2021

Winter wheat

AHDB CANDIDATE	Previous/proposed name	Variety ID	UK contact
Selected as potential bread-making varieties			
RGT Flintoff	RW41818	2911	RAGT Seeds
Mayflower	APB098-045	2929	Elsoms Wheat Ltd
KWS Palladium	KWSW388	2977	KWS UK
Selected as potential biscuit-making varieties			
RGT Rashid	RW41885	2920	RAGT Seeds
KWS Guium	KWSW376	2965	KWS UK
KWS Brium	KWSW380	2969	KWS UK
Selected as potential feed varieties			
Champion	DSV318117	2895	DSV UK
LG Farrier	LGWU155	2899	Limagrain UK
LG Typhoon	LGWU165	2907	Limagrain UK
RGT Stokes	RW41862	2918	RAGT Seeds
RGT Bairstow	RW41869	2919	RAGT Seeds
KWS Dawsum	KWSW383	2972	KWS UK
KWS Henum	KWSW389	2978	KWS UK

Candidate varieties will be considered for the 2022/23 AHDB Recommended List.

Spring wheat

AHDB CANDIDATE	Previous/proposed name	Variety ID	UK contact
Selected as potential bread-making varieties			
KWS Ladum	KWSW393	2985	KWS UK
Nissaba	BAW73	2986	Blackman Agriculture
Selected as potential feed varieties			
KWS Fixum	KWSW392	2984	KWS UK

Candidate varieties will be considered for the 2022 AHDB Recommended List.

After a candidate variety achieves National Listing, the data is published online (**ahdb.org.uk/rl**) and on the RL app (**ahdb.org.uk/rlapp**)

MAGB overview

The Malting Barley Committee (MBC) of the Maltsters' Association of Great Britain (MAGB) tests and approves barley varieties for brewing, malting and distilling. There is a considerable UK market for approved varieties, with approximately 1.9 million tonnes of UK malting barley purchased each year.

The local market varies considerably across the UK and should guide variety choice and management, particularly the management of nitrogen (Figure 3).

The testing of varieties for suitability in different malting markets takes several years and varieties are added to the RL while still undergoing testing.

Farmers should speak to merchants before committing to varieties that are still under test, to ensure an end market is available.

The MAGB website (**ukmalt.com/home**) offers further information on the market for malting barley. It also includes an up-to-date list of approved varieties and information on growing malting barley.

MBC Approved List – Winter barley

Brewing use

Full approval: Craft, Electrum

Malt distilling use

None approved

Grain distilling use

None approved

MBC Approved List – Spring barley

Brewing use

Full approval: Laureate, RGT Planet, LG Diablo

Provisional approval: Cosmopolitan, Iconic, SY Splendor, SY Tungsten

Malt distilling use

Full approval: Laureate, KWS Sassy, LG Diablo

Provisional approval: SY Tungsten, Firefoxx

Grain distilling use

Full approval: Fairing

Provisional approval: None approved

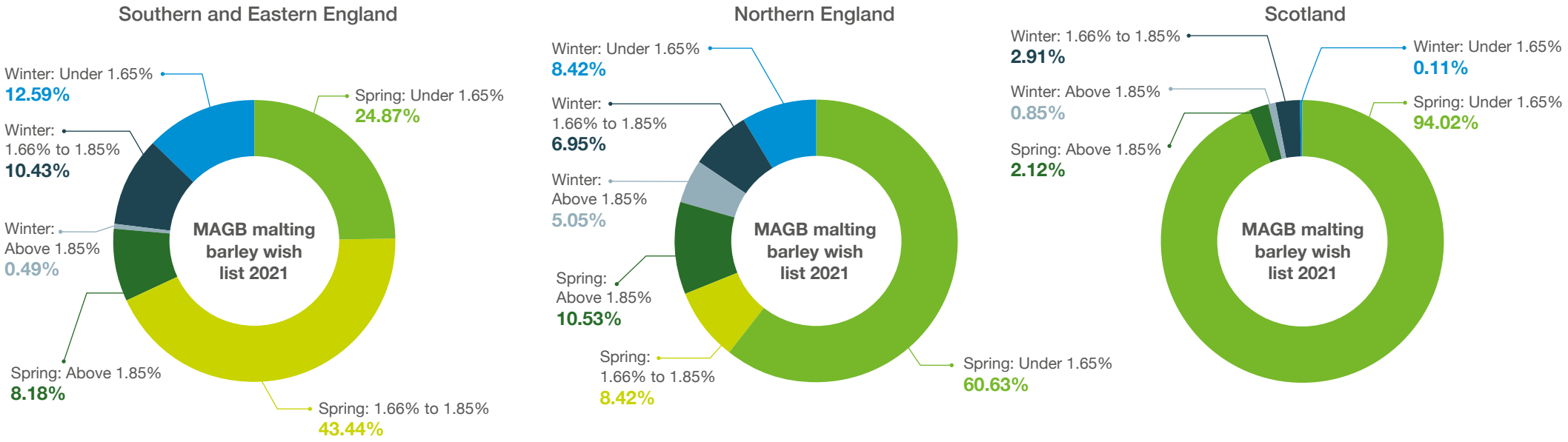


Figure 3. The chart above shows MAGB members' wish list for grain nitrogen levels in 2021 barley crop purchases from England and Scotland

Winter barley 2021/22

Market options, yield and grain quality

AHDB RECOMMENDED

	Electrum	Craft	KWS Tardis	Bolton	Bordeaux	LG Mountain	KWS Hawking	KWS Gimlet	Jordan	LG Flynn	KWS Orwell	Surge	Valerie	KWS Creswell	KWS Tower	California	KWS Cassia	Belmont $	SY Kingston $	SY Kingsbarn $	SY Thunderbolt $	SY Baracooda $	Belfry $	Bazooka $	Funky	Libra $	Average LSD (5%)
End-use group	Two-row malting		Two-row feed															Six-row feed									
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	N	UK	W	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	
		C	NEW	NEW	NEW						C				*				NEW		NEW	*		C	C	*	
Fungicide-treated grain yield (% treated control)																											
United Kingdom (9.7 t/ha)	97	96	106	106	106	104	103	103	103	102	102	101	101	100	100	99	98	107	107	107	107	107	106	106	104	103	2.6
East region (9.5 t/ha)	97	96	107	107	107	105	105	105	105	104	102	103	101	100	99	100	98	108	106	107	107	107	106	106	103	103	3.3
West region (9.8 t/ha)	96	95	[105]	[104]	[104]	102	103	101	103	101	102	101	100	100	100	99	98	107	109	107	[107]	107	107	105	105	104	4.0
North region (9.8 t/ha)	96	96	105	105	104	105	101	101	99	101	101	99	100	101	100	[98]	98	107	108	107	107	107	105	105	104	102	3.8
Untreated grain yield (% treated control)																											
United Kingdom (9.7 t/ha)	77	76	83	83	81	83	81	82	86	81	80	86	83	73	72	79	81	76	88	85	88	85	89	85	88	81	5.1
Main market options																											
MBC malting approval for brewing use	F	F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Grain quality																											
Specific weight (kg/hl)	69.2	69.5	69.1	68.6	69.9	69.4	68.7	68.5	68.9	70.3	68.1	69.3	70.0	68.4	67.6	68.2	71.4	68.7	69.7	69.7	69.6	68.7	68.6	69.2	69.0	70.8	0.8
Screenings (% through 2.25 mm)	2.3	2.1	2.2	1.9	1.7	2.2	2.3	2.4	1.9	1.7	2.1	1.9	0.9	2.1	2.2	2.0	1.7	2.8	2.6	1.8	2.3	2.1	2.4	2.5	4.4	2.3	0.7
Screenings (% through 2.5 mm)	6.8	6.6	7.2	6.8	5.5	7.5	7.3	7.5	6.1	5.4	6.3	6.0	3.1	7.4	7.3	6.5	5.1	9.6	8.9	7.0	7.9	7.4	9.4	8.7	16.1	8.4	1.8
Nitrogen content (%)	1.69	1.67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.08
Status in RL system																											
Year first listed	18	16	21	21	21	19	20	19	20	19	16	16	19	17	14	13	10	18	21	19	21	19	16	16	17	18	

Varieties no longer listed: KWS Astaire, KWS Glacier and SY Venture.
Comparisons of variety performance across regions are not valid. See page 3 for information on regional yields.

UK = Recommended for the UK
N = Recommended for the North region
W = Recommended for the West region

C = Yield control (for current table). For this table, SY Venture was also a control variety but is no longer listed
* = Variety no longer under test in RL trials

$ = Hybrid variety
[ ] = Limited data
F = Full MBC approval

LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Winter barley 2021/22

Yield, agronomy and disease resistance

AHDB RECOMMENDED

	Electrum	Craft	KWS Tardis	Bolton	Bordeaux	LG Mountain	KWS Hawking	KWS Gimlet	Jordan	LG Flynn	KWS Orwell	Surge	Valerie	KWS Creswell	KWS Tower	California	KWS Cassia	Belmont $	SY Kingston $	SY Kingsbarn $	SY Thunderbolt $	SY Baracooda $	Belfry $	Bazooka $	Funky	Libra $	Average LSD (5%)
End-use group	Two-row malting		Two-row feed															Six-row feed									
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	N	UK	W	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	
		C	NEW	NEW	NEW						C				*				NEW		NEW	*		C	C	*	
Fungicide-treated grain yield (% treated control)																											
United Kingdom (9.7 t/ha)	97	96	106	106	106	104	103	103	103	102	102	101	101	100	100	99	98	107	107	107	107	107	106	106	104	103	2.6
East region (9.5 t/ha)	97	96	107	107	107	105	105	105	105	104	102	103	101	100	99	100	98	108	106	107	107	107	106	106	103	103	3.3
West region (9.8 t/ha)	96	95	[105]	[104]	[104]	102	103	101	103	101	102	101	100	100	100	99	98	107	109	107	[107]	107	107	105	105	104	4.0
North region (9.8 t/ha)	96	96	105	105	104	105	101	101	99	101	101	99	100	101	100	[98]	98	107	108	107	107	107	105	105	104	102	3.8
Untreated grain yield (% treated control)																											
United Kingdom (9.7 t/ha)	77	76	83	83	81	83	81	82	86	81	80	86	83	73	72	79	81	76	88	85	88	85	89	85	88	81	5.1
Agronomic features																											
Resistance to lodging (1–9)	7	8	8	8	7	7	8	7	7	7	8	7	8	7	8	8	7	7	7	7	6	7	8	7	8	7	-
Straw height without PGR (cm)	95	93	[92]	[88]	[88]	87	[92]	100	[87]	96	89	89	92	90	93	95	94	112	[120]	113	[114]	121	111	117	96	110	5.0
Straw height with PGR (cm)	91	89	86	84	86	86	87	95	84	92	86	86	87	88	88	92	91	105	107	103	106	110	103	110	92	104	3.0
Ripening (+/-KWS Orwell, -ve = earlier)	-1	+1	0	+1	0	0	+1	+2	+1	+1	0	0	0	0	+1	0	+1	0	-1	0	-1	0	0	0	-1	0	1.1
Winter hardiness #	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Disease resistance																											
Mildew (1–9)	6	6	5	6	6	5	5	6	5	4	3	5	6	4	5	6	5	5	7	7	8	7	5	5	5	4	1.0
Brown rust (1–9)	7	6	6	5	5	7	6	6	8	7	7	7	6	6	7	5	7	4	6	5	7	5	6	5	7	6	1.4
Rhynchosporium (1–9)	6	6	7	5	4	5	6	6	7	6	6	7	6	6	5	6	5	7	6	6	6	6	7	6	7	6	1.1
Net blotch (1–9)	6	6	[5]	[5]	[4]	5	6	6	5	6	5	6	[6]	5	4	5	5	5	6	5	[6]	5	5	6	5	6	1.0
BaYMV	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-

On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (e.g. high resistance).
Comparisons of variety performance across regions are not valid. See page 3 for information on regional yields.

UK = Recommended for the UK
N = Recommended for the North region
W = Recommended for the West region

C = Yield control (for current table). For this table, SY Venture was also a control variety but is no longer listed
$ = Hybrid variety
* = Variety no longer under test in RL trials

PGR = Plant growth regulator
[ ] = Limited data
= The winter hardiness scores are taken from extreme tests in the Jura mountains of France but there is currently insufficient data for 1–9 ratings

R = Believed to be resistant to *Barley mild mosaic virus* (BaMMV) and to *Barley yellow mosaic virus* (BaYMV) strain 1, but this has not been verified in Recommended List tests

LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Winter barley 2021/22

Supplementary data

AHDB RECOMMENDED

End-use group	Two-row malting		Two-row feed														Six-row feed									Average LSD (5%)
	Electrum	Craft	KWS Tardis	Bolton	Bordeaux	LG Mountain	KWS Hawking	KWS Gimlet	Jordan	LG Flynn	KWS Orwell	Surge	Valerie	KWS Creswell	KWS Tower	California	KWS Cassia	Belmont $	SY Kingston $	SY Kingsbarn $	SY Thunderbolt $	SY Baracooda $	Belfry $	Bazooka $	Funky	Libra $	
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	N	UK	W	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	
		C	NEW	NEW	NEW						C				*				NEW		NEW	*		C	C	*	
Breeder/UK contact																											
Breeder	SyP	SyP	KWS	Ack	NS	LimEur	KWS	KWS	Ack	LimEur	KWS	SyP	Bre	KWS	KWS	Lim	KWS	SyP	SyP	SyP	SyP	SyP	SyP	SyP	KWSMR	SyP	
UK contact	Syn	Syn	KWS	ElsAck	Sen	Lim	KWS	KWS	ElsAck	Lim	KWS	Syn	Sen	KWS	KWS	Lim	KWS	Syn	Syn	Syn	Syn	Syn	Syn	Syn	KWS	Syn	
Annual treated yield (% control)																											
2016 (9.4 t/ha)	97	95	-	-	-	104	-	102	-	102	102	101	101	100	100	99	98	109	-	107	-	108	107	107	104	103	-
2017 (9.9 t/ha)	95	95	-	-	-	103	103	104	103	101	102	100	101	99	98	100	98	107	107	107	-	106	106	106	106	104	-
2018 (10.2 t/ha)	97	97	106	105	106	104	104	102	102	102	102	100	101	101	102	99	98	107	107	107	107	107	105	103	103	102	-
2019 (10.2 t/ha)	99	96	107	106	106	105	103	104	103	102	102	103	-	100	99	99	98	107	108	108	109	108	107	106	105	104	-
2020 (8.9 t/ha)	95	95	104	105	103	105	101	101	100	101	102	100	99	101	100	97	98	106	108	105	106	105	106	105	104	101	-
Soil type (about 50% of trials are medium soils)																											
Light soils (9.3 t/ha)	96	97	104	105	104	104	101	101	101	102	101	100	100	101	101	97	98	106	106	105	103	105	104	105	104	101	3.3
Heavy soils (9.6 t/ha)	97	94	[110]	[106]	[107]	107	107	104	104	105	103	103	[101]	99	100	[102]	98	107	107	108	[111]	106	110	107	104	105	5.0
Agronomic characteristics																											
Lodging without PGR (%)	7	3	1	2	7	12	5	14	17	7	2	4	4	7	3	3	5	13	15	13	37	10	5	7	2	11	-
Lodging with PGR (%)	4	2	2	1	3	6	2	6	6	4	2	3	1	4	3	2	3	9	10	2	14	6	2	4	2	4	-
Brackling (%)	16	13	10	11	11	28	8	11	9	7	10	11	7	17	10	9	12	17	13	16	14	12	8	11	13	23	-
Malting quality																											
Hot water extract (l deg/kg)	305.0	308.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.5
Status in RL system																											
Year first listed	18	16	21	21	21	19	20	19	20	19	16	16	19	17	14	13	10	18	21	19	21	19	16	16	17	18	
RL status	-	-	P1	P1	P1	-	P2	-	P2	-	-	-	-	-	*	-	-	-	P1	-	P1	*	-	-	-	*	

All yields on this table are taken from treated trials receiving a full fungicide and PGR programme.

UK = Recommended for the UK
N = Recommended for the North region
W = Recommended for the West region
C = Yield control (for current table). For this table, SY Venture was also a control variety but is no longer listed

* = Variety no longer under test in RL trials
$ = Hybrid variety
PGR = Plant growth regulator
[ ] = Limited data
P1 = First year of recommendation
P2 = Second year of recommendation

Ack = Ackermann Saatzucht GmbH (**sz-ackermann.de**)
Bre = Saatzucht Josef Breun, Germany
ElsAck = Elsoms Ackermann Barley
KWS = KWS UK (**kws-uk.com**)
KWSMR = KWS Momont Recherche (**kws-uk.com**)
Lim = Limagrain UK (**lgseeds.co.uk**)

LimEur = Limagrain Europe SA (**lgseeds.co.uk**)
NS = Nordic Seed, Denmark
Sen = Senova (**senova.uk.com**)
Syn = Syngenta UK Ltd (**syngenta.co.uk**)
SyP = Syngenta Participations AG (**syngenta.co.uk**)

LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Winter barley 2021/22

Variety comments

Winter barley two-row malting

Craft

Quality: Fully approved by the Malting Barley Committee (MBC) for the production of malt for brewing, with a high specific weight.

Agronomy: Craft is a stiff-strawed, two-row variety with no major weaknesses in disease resistance. It is also resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

MAGB comment: Fully approved by MBC for brewing in 2018, Craft secured 41% of the total winter malting barley purchased in 2019 and commenced 2020 with close to 50% market share.

Electrum

Quality: Fully approved by MBC for the production of malt for brewing, with a high specific weight.

Agronomy: This two-row variety has given its best relative performance in the East region and on heavier soils. It is a relatively early-maturing variety. Electrum has good overall disease resistance, including high resistance to brown rust. It is also resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

MAGB comment: Fully approved by MBC for brewing in spring 2020, for the 2021 crop.

UK winter malting barley market share is given as % of MAGB member purchases (see page 25).

Winter barley two-row feed

Bolton NEW

This new addition is a very high-yielding two-row feed variety recommended for the UK. It has performed well across all regions and soil types. It is very high yielding in the East region and on heavier soils (based on limited data). Bolton is a short-strawed variety with good lodging resistance. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

Bordeaux NEW

This new addition is a very high-yielding two-row feed variety recommended for the UK. This short variety has performed well across all regions and soil types. It is very high yielding in the East region and on heavier soils (based on limited data). It is susceptible to rhynchosporium and limited data suggests it is susceptible to net blotch. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

California

A two-row feed variety recommended for the West region. It has high resistance to lodging and is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

Jordan

A high-yielding two-row feed variety. It has performed well in both the East and West regions and on heavier soils, where it is high yielding. Jordan has given high yields in untreated UK trials and has high resistance to brown rust and rhynchosporium. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

KWS Cassia

A two-row feed variety with a very high specific weight, recommended since 2010. Despite now yielding 8% lower than the top-yielding two-row feed varieties on the 2021/22 Recommended List, this variety is still valued for producing consistently good grain quality. KWS Cassia has high resistance to brown rust. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

KWS Creswell

A two-row feed variety recommended for the North region. KWS Creswell is susceptible to mildew but is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

KWS Gimlet

A high-yielding two-row feed variety. This relatively tall and late-maturing variety has performed particularly well in the East region and on heavier soils, where it is high yielding. KWS Gimlet has shown no major weaknesses in disease resistance. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

KWS Hawking

A high-yielding two-row feed variety. This variety has given high treated yields in both the East and West regions and is very high yielding on heavier soils. KWS Hawking has good resistance to lodging. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

Winter barley 2021/22

Variety comments

Winter barley two-row feed

KWS Orwell

A two-row feed variety. This variety has high resistance to lodging and has given high treated yields on heavier soils. KWS Orwell has high resistance to brown rust, but it is very susceptible to mildew. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

KWS Tardis NEW

This new addition is a very high-yielding two-row feed variety recommended for the UK. It has performed well across all regions and soil types. It has a very high yield potential in the East region and on heavier soils (based on limited data). It has a high specific weight and good resistance to lodging. It has high resistance to rhynchosporium and is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

KWS Tower

A two-row feed variety with high resistance to lodging. It has high resistance to brown rust, but it is susceptible to net blotch. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV). KWS Tower is no longer under test in RL trials.

LG Flynn

A two-row feed variety with a very high specific weight. LG Flynn has given its best relative performance in the East region and on heavier soils, where it is high yielding. It has high resistance to brown rust, but it is susceptible to mildew. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

LG Mountain

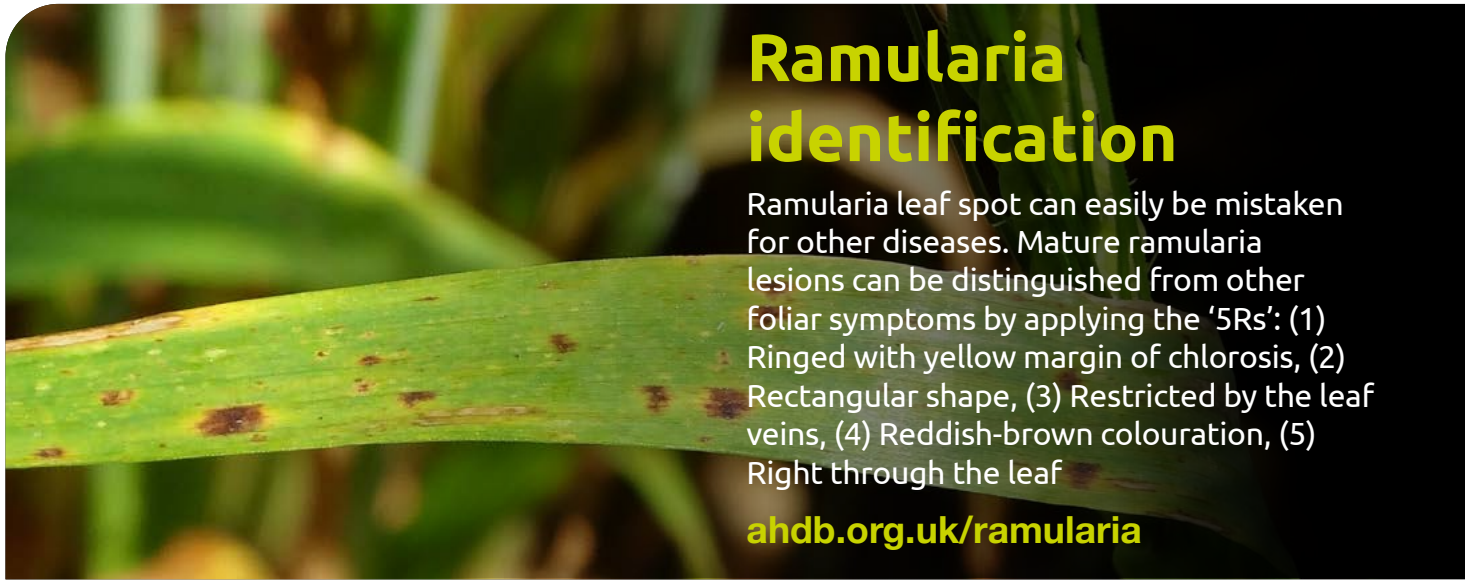
A high-yielding two-row feed variety. This short-strawed variety has given high treated yields in both the East and North regions, as well as on lighter soils. It has a very high yield potential on heavier soils. LG Mountain has high resistance to brown rust, and it is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

Surge

A two-row feed variety with a high specific weight. This variety has given its best relative performance in the East region and on heavier soils, where it is high yielding. Surge has given high yields in untreated UK trials and has high resistance to brown rust and rhynchosporium. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

Valerie

A two-row feed variety with a very high specific weight. This variety has given its best relative performance in the East region. Valerie combines good grain quality characteristics with high resistance to lodging. It has no major weaknesses in disease resistance, and it is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).



Ramularia identification

Ramularia leaf spot can easily be mistaken for other diseases. Mature ramularia lesions can be distinguished from other foliar symptoms by applying the '5Rs': (1) Ringed with yellow margin of chlorosis, (2) Rectangular shape, (3) Restricted by the leaf veins, (4) Reddish-brown colouration, (5) Right through the leaf

ahdb.org.uk/ramularia

Winter barley 2021/22

Variety comments

Winter barley six-row feed

Bazooka

A high-yielding six-row hybrid feed variety. This variety has given high yields in the East region and has a very high yield potential on heavier soils. It has resistance to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

Belfry

A high-yielding six-row hybrid feed variety. This variety has given very high yields in the West region and high yields in the East. It has good resistance to lodging and has a very high yield potential on heavier soils. Belfry has given high yields in untreated UK trials and has high resistance to rhynchosporium. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

Belmont

A very high-yielding six-row hybrid feed variety. Belmont has given very high yields throughout the UK and performs very well across all soil types. It has high resistance to rhynchosporium and it is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV). Belmont is susceptible to brown rust.

Funky

A relatively early-maturing six-row (non-hybrid) feed variety with relatively short, stiff straw. This variety tends to give a good specific weight but gives higher screening levels. It gives its best relative performance in the West region. Funky has given high yields in untreated UK trials and has high resistance to rhynchosporium and brown rust. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

Libra

A six-row hybrid feed variety with a very high specific weight. Libra has given specific weights that are comparable to KWS Cassia. This variety is susceptible to mildew. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV). Libra is no longer under test in RL trials.

SY Baracooda

A very high-yielding six-row hybrid feed variety. This variety has given very high yields throughout the UK and has a high yield potential on heavier soils. It is a relatively tall variety but responds well to plant growth regulators. SY Baracooda has high resistance to mildew and it is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV). SY Baracooda is no longer under test in RL trials.

SY Kingsbarn

A very high-yielding six-row hybrid feed variety with a high specific weight. This variety has given very high yields throughout the UK and on heavier soils. SY Kingsbarn responds well to plant growth regulators. It has high resistance to mildew and it is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

SY Kingston NEW

This new addition is a very high-yielding six-row hybrid feed variety recommended for the UK. It has a high specific weight. This relatively early-maturing variety has given very high treated yields in both the West and North regions. It has also performed well in the East, on both light and heavier soils, and across a range of years. It is a relatively tall variety but responds well to plant growth regulators. SY Kingston has given high yields in untreated UK trials and has no major weaknesses in disease resistance. It has high resistance to mildew and it is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

SY Thunderbolt NEW

This new addition is a very high-yielding six-row feed hybrid variety recommended for the UK. It has a high specific weight. This relatively early-maturing variety has given very high treated yields throughout the UK and on heavier soils (based on limited data). It has moderate straw strength. SY Thunderbolt has given high yields in untreated UK trials and has no major weaknesses in disease resistance. It has high resistance to mildew and brown rust and it is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

Spring barley 2021

Market options, yield and grain quality

AHDB RECOMMENDED

	Skyway	SY Splendor	SY Tungsten	Firefoxx	Cosmopolitan	LG Diablo	Laureate	RGT Planet	Iconic	Sienna	KWS Sassy	Propino	Fairing	Cadiz	Fairway	Prospect	Average LSD (5%)
End-use group	Malting varieties													Feed varieties			
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	W	UK	UK	UK	Sp	E&W	UK	UK	
	NEW				C	C	C	C		*		*C		NEW			
Fungicide-treated grain yield (% treated control)																	
United Kingdom (7.5 t/ha)	106	103	103	103	102	102	101	100	99	98	98	95	93	103	103	102	1.9
East region (7.5 t/ha)	106	103	101	102	102	103	102	99	98	96	96	94	92	105	103	104	3.1
West region (7.1 t/ha)	[108]	103	102	102	102	100	102	100	101	98	98	96	95	[106]	102	102	3.5
North region (7.7 t/ha)	103	103	103	103	102	103	100	99	99	99	99	95	92	100	103	102	2.6
Main market options																	
MBC malting approval for brewing use	T	P	P	-	P	F	F	F	P	-	N	O	-	-	-	-	-
MBC malting approval for malt distilling use	-	-	P	P	-	F	F	N	-	O	F	N	-	-	-	-	-
MBC malting approval for grain distilling use	-	-	-	-	-	-	-	N	-	N	-	N	F	-	-	-	-
Grain quality																	
Specific weight (kg/hl)	68.7	67.9	67.4	66.4	66.2	66.9	66.3	67.8	67.1	70.2	68.4	68.1	68.2	67.4	65.6	67.7	0.6
Screenings (% through 2.25 mm)	1.3	1.7	1.9	1.7	1.6	1.6	1.6	1.4	1.8	1.8	1.2	1.0	1.1	1.0	1.5	2.0	0.3
Screenings (% through 2.5 mm)	3.3	4.5	5.0	4.2	3.7	3.9	3.8	3.8	4.6	4.2	2.9	2.2	2.8	2.3	3.8	4.8	0.7
Nitrogen content (%)	1.52	1.51	1.46	1.50	1.48	1.48	1.51	1.51	1.51	-	[1.51]	1.60	-	1.56	-	1.55	0.06
Status in RL system																	
Year first listed	21	20	20	20	19	18	16	15	20	15	16	10	16	21	20	20	

Varieties no longer listed: Concerto and RGT Asteroid.
Growers are strongly advised to check with their buyer before committing to a malting variety without full MBC approval.
Comparisons of variety performance across regions are not valid. See page 3 for information on regional yields.
All yields on this table are taken from treated trials receiving a full fungicide programme.

UK = Recommended for the UK
E = Recommended for the East region
W = Recommended for the West region
Sp = Specific recommendation. Fairing is suitable for the production of malt for grain distilling

C = Yield control (for current table)
* = Variety no longer under test in RL trials
[ ] = Limited data

F = Full MBC approval in this segment
N = Not approved by MBC in this segment
O = No longer approved by MBC in this segment
P = Provisional MBC approval in this segment
T = Under test for MBC approval in this segment

LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Spring barley 2021

Yield, agronomy and disease resistance

AHDB RECOMMENDED

	Skyway	SY Splendor	SY Tungsten	Firefoxx	Cosmopolitan	LG Diablo	Laureate	RGT Planet	Iconic	Sienna	KWS Sassy	Propino	Fairing	Cadiz	Fairway	Prospect	Average LSD (5%)
End-use group	Malting varieties													Feed varieties			
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	W	UK	UK	UK	Sp	E&W	UK	UK	
	NEW				C	C	C	C		*		*C		NEW			
Fungicide-treated grain yield (% treated control)																	
United Kingdom (7.5 t/ha)	106	103	103	103	102	102	101	100	99	98	98	95	93	103	103	102	1.9
East region (7.5 t/ha)	106	103	101	102	102	103	102	99	98	96	96	94	92	105	103	104	3.1
West region (7.1 t/ha)	[108]	103	102	102	102	100	102	100	101	98	98	96	95	[106]	102	102	3.5
North region (7.7 t/ha)	103	103	103	103	102	103	100	99	99	99	99	95	92	100	103	102	2.6
Untreated grain yield (% treated control)																	
United Kingdom (7.5 t/ha)	96	91	91	92	93	94	93	91	93	90	91	82	84	94	91	94	3.0
Agronomic features																	
Resistance to lodging (no PGR) (1–9)	7	7	7	7	7	7	7	7	7	7	6	7	7	7	7	7	0.5
Straw height (cm)	75	73	73	71	70	72	70	73	76	77	78	75	72	75	71	71	1.6
Ripening (+/-Concerto, -ve = earlier)	+1	+2	+1	+1	+1	+2	+1	0	0	+1	+1	0	-1	+1	0	+1	0.9
Resistance to brackling (1–9)	8	8	8	8	7	8	8	8	8	7	6	8	8	8	8	9	0.9
Disease resistance																	
Mildew (1–9)	9	9	9	9	9	9	9	9	9	9	9	6	8	9	9	9	0.4
Brown rust (1–9)	-	3	4	4	4	5	5	5	5	5	5	5	4	-	-	5	1.3
Rhynchosporium (1–9)	-	[4]	[4]	[5]	6	5	6	5	[6]	5	6	5	6	-	[3]	[6]	3.0

On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (e.g. high resistance).
Comparisons of variety performance across regions are not valid. See page 3 for information on regional yields.

UK = Recommended for the UK
E = Recommended for the East region
W = Recommended for the West region
Sp = Specific recommendation. Fairing is suitable for the production of malt for grain distilling

C = Yield control (for current table)
* = Variety no longer under test in RL trials
PGR = Plant growth regulator
[ ] = Limited data

LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Spring barley 2021

Supplementary data

AHDB RECOMMENDED

	Skyway	SY Splendor	SY Tungsten	Firefoxx	Cosmopolitan	LG Diablo	Laureate	RGT Planet	Iconic	Sienna	KWS Sassy	Propino	Fairing	Cadiz	Fairway	Prospect	Average LSD (5%)
End-use group	Malting varieties													Feed varieties			
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	W	UK	UK	UK	Sp	E&W	UK	UK	
	NEW				C	C	C	C		*		*C		NEW			
Breeder/UK contact																	
Breeder	NS	SyP	SyP	Ack	Sej	LimEur	SyP	RAGT	Sec	LimEur	KWS	SyP	SyP	NS	NS	Sej	
UK contact	Agr	Syn	Syn	ElsAck	Sen	Lim	Syn	RAGT	Agr	Lim	KWS	Syn	Syn	Sen	Sen	Sen	
Annual treated yield (% control)																	
2016 (7.8 t/ha)	-	-	-	-	102	102	100	101	-	98	98	96	94	-	-	-	-
2017 (7.4 t/ha)	-	103	102	103	103	103	100	100	100	98	97	95	92	-	102	103	-
2018 (6.8 t/ha)	106	103	103	103	103	102	102	98	100	97	97	95	94	104	103	102	-
2019 (7.8 t/ha)	106	104	102	103	102	102	102	100	98	98	98	94	93	104	103	103	-
2020 (7.4 t/ha)	105	103	103	102	102	102	102	99	99	98	97	95	92	103	102	102	-
Malting quality																	
Hot water extract (l deg/kg)	314.5	314.0	314.7	313.8	313.2	314.1	314.2	313.9	315.5	-	314.8	311.1	[308.2]	312.8	[312.8]	312.8	2.1
Status in RL system																	
Year first listed	21	20	20	20	19	18	16	15	20	15	16	10	16	21	20	20	
RL Status	P1	P2	P2	P2	-	-	-	-	P2	*	-	*	-	P1	P2	P2	

All yields on this table are taken from treated trials receiving a full fungicide programme.

UK = Recommended for the UK
E = Recommended for the East region
W = Recommended for the West region
Sp = Specific recommendation. Fairing is suitable for the production of malt for grain distilling
C = Yield control (for current table)
[ ] = Limited data
P1 = First year of recommendation
P2 = Second year of recommendation
* = Variety no longer under test in RL trials

Ack = Ackermann Saatzucht GmbH (**sz-ackermann.de**)
Agr = Agrii (**agrii.co.uk**)
ElsAck = Elsoms Ackermann Barley
KWS = KWS UK (**kws-uk.com**)
Lim = Limagrain UK (**lgseeds.co.uk**)
LimEur = Limagrain Europe SA (**lgseeds.co.uk**)
NS = Nordic Seed, Denmark

RAGT = RAGT Seeds (**ragt.co.uk**)
Sec = Secobra, France (**secobra.com**)
Sej = Sejet, Denmark (**sejet.com**)
Sen = Senova (**senova.uk.com**)
Syn = Syngenta UK Ltd (**syngenta.co.uk**)
SyP = Syngenta Participations AG (**syngenta.co.uk**)

LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Spring barley 2021

Variety comments

Malting varieties

Cosmopolitan

Quality: A high-yielding variety with potential for brewing. It has a low specific weight.

Agronomy: Cosmopolitan has given high treated yields throughout the UK. This relatively stiff, short-strawed variety has very high resistance to mildew. It is susceptible to brown rust.

MAGB comment: Under test by MBC for brewing, with completion expected spring 2021. Growers are advised to speak to merchants before committing to this or other varieties in this position.

Fairing

Quality: Fully approved by MBC for grain distilling use.

Agronomy: This variety is early maturing, with relatively stiff straw and high resistance to brackling. It has high resistance to mildew, but it is susceptible to brown rust.

MAGB comment: Fully approved by MBC for grain distilling use in 2018. Growers are advised to speak to their merchants about markets.

UK spring malting barley market share is given as a % of MAGB member purchases (see page 25).

Mildew resistance

The *mlo* resistance gene in barley confers almost complete resistance to barley powdery mildew. All spring barley varieties on the current Recommended List, with the exception of Propino, carry this gene and can, therefore, be assumed to be resistant to powdery mildew.

Firefoxx

Quality: A high-yielding variety with potential for malt distilling. It has a similar specific weight to Laureate.

Agronomy: This variety has given high treated yields throughout the UK. It has relatively stiff straw with high resistance to brackling. Firefoxx has very high resistance to mildew, but it is susceptible to brown rust.

MAGB comment: Under test by MBC for malt distilling, with completion expected spring 2021. Growers are advised to speak to merchants before committing to this or other varieties in this position.

Iconic

Quality: Recommended for the West region with potential for brewing.

Agronomy: It has relatively stiff straw with high resistance to brackling. Iconic has very high resistance to mildew.

MAGB comment: Under test by MBC for brewing, with completion expected spring 2021. Growers are advised to speak to merchants before committing to this or other varieties in this position.

KWS Sassy

Quality: Fully approved by MBC for malt distilling use.

Agronomy: This variety has given its best relative performance in the North region. It has moderate resistance to both lodging and brackling. KWS Sassy has very high resistance to mildew.

MAGB comment: Fully approved for malt distilling use since 2017, KWS Sassy continues to grow its share of the UK spring barley market. Growers are advised to speak to their merchants about markets.

Laureate

Quality: Fully approved by MBC for both brewing and malt distilling use. It tends to give a low specific weight.

Agronomy: This variety has given high treated yields in both the East and West regions. This relatively stiff, short-strawed variety has high resistance to brackling. It has very high resistance to mildew.

MAGB comment: Fully approved by the MBC for brewing and malt distilling since 2017, Laureate continues to hold more than 50% of the UK spring barley market.

LG Diablo

Quality: A high-yielding variety, fully approved by MBC for both brewing and malt distilling use.

Agronomy: This variety has given high treated yields in both the North and East regions. It is a late-maturing variety, with relatively stiff straw and high resistance to brackling. LG Diablo has given high yields in untreated UK trials and has very high resistance to mildew.

MAGB comment: Fully approved by MBC for malt distilling use in 2019 and for brewing use in 2020. LG Diablo continues to grow its share of the UK spring barley market.

Propino

Quality: No longer approved by MBC for brewing use, may be suited to European markets.

Agronomy: This variety has relatively stiff straw with high resistance to brackling. It does not carry the *mlo* mildew resistance gene. Propino is no longer under test in RL trials.

MAGB comment: Removed from the MBC Approved List for brewing use in autumn 2020. Growers are advised to speak to their merchants about markets.

Spring barley 2021

Variety comments

Malting varieties

RGT Planet

Quality: Fully approved by MBC for brewing.

Agronomy: It has relatively stiff straw with high resistance to brackling. RGT Planet has very high resistance to mildew.

MAGB comment: Fully approved by MBC for brewing since 2016, RGT Planet continues to hold its share of the spring barley market.

Sienna

Quality: No longer approved by MBC for malt distilling use. It tends to give a high specific weight.

Agronomy: This relatively stiff-strawed variety has given its best relative performance in the North region. It has very high resistance to mildew. Sienna is no longer under test in RL trials.

MAGB comment: Removed from the MBC Approved List for malt distilling use in autumn 2020. Growers are advised to speak to their merchants about markets.

Skyway NEW

Quality: This new addition is a very high-yielding variety recommended for the UK, with potential for brewing.

Agronomy: This variety has given very high treated yields, particularly in the West (based on limited data) and East region, and is the highest yielding variety on the 2021 Recommended List. It is a relatively stiff-strawed variety with high resistance to brackling. Skyway has given high yields in untreated UK trials and has very high resistance to mildew.

MAGB comment: Under test by MBC for brewing, with completion expected spring 2022. Growers are advised to speak to merchants before committing to this or other varieties in this position.

SY Splendor

Quality: A high-yielding variety with potential for brewing.

Agronomy: This late-maturing variety has given high treated yields throughout the UK. SY Splendor has relatively stiff straw with high resistance to brackling. It has very high resistance to mildew, but it is very susceptible to brown rust. Limited data suggests it is susceptible to rhynchosporium.

MAGB comment: Under test by MBC for brewing, with completion expected spring 2021. Growers are advised to speak to merchants before committing to this or other varieties in this position.

SY Tungsten

Quality: A high-yielding variety with potential for both brewing and malt distilling use.

Agronomy: This variety has given high treated yields in both the West and North regions. It has relatively stiff straw with high resistance to brackling. It has very high resistance to mildew, but it is susceptible to brown rust. Limited data suggests it is susceptible to rhynchosporium.

MAGB comment: Under test by MBC for brewing and malt distilling, with completion expected spring 2021. Growers are advised to speak to merchants before committing to this or other varieties in this position.

Feed varieties

Cadiz NEW

This new addition is a high-yielding feed variety recommended for the East and West regions. It has given very high yields in both the East region and West region (based on limited data). It is a relatively stiff-strawed variety with high resistance to brackling. Cadiz has given high yields in untreated UK trials and has very high resistance to mildew.

Fairway

A high-yielding feed variety, with a low specific weight. This variety has given high treated yields throughout the UK. It has relatively stiff straw with high resistance to brackling. Fairway has very high resistance to mildew. Limited data suggests it is very susceptible to rhynchosporium.

Prospect

A high-yielding feed variety. This variety has given high treated yields throughout the UK and has given its best relative performance in the East region. It has relatively stiff straw with high resistance to brackling. Prospect has given high yields in untreated UK trials and has very high resistance to mildew.

Candidate varieties – barley trials harvest 2021

Winter barley

AHDB CANDIDATE	Previous/proposed name	Variety ID	UK contact
Selected as potential malting varieties			
SY Goblet	SY618002	3213	Syngenta UK Ltd
KWS Feeris	KM13CO24	3222	KWS UK
Selected as potential feed varieties			
SY Javelin	SY218740	3208	Syngenta UK Ltd
SY Canyon	SY217543	3212	Syngenta UK Ltd
LG Dazzle	LGBU18-6511	3215	Limagrain UK
LG Prodigy	LGBU18-6510	3216	Limagrain UK
LG Caiman	LGBU16-7071-A	3217	Limagrain UK
LG Dracula	LGBU16-6889	3218	Limagrain UK
SU Aila	NORD15059/56	3232	Saaten Union UK
Lightning	AC13/378/37	3239	Elsoms Ackermann Barley
Endurance	AC14/152/16	3240	Elsoms Ackermann Barley

Candidate varieties will be considered for the 2022/23 AHDB Recommended List.

Spring barley

AHDB CANDIDATE	Previous/proposed name	Variety ID	UK contact
Selected as potential malting varieties			
Portia	SJ188119	3251	Senova
SY Bronte	SY418250	3267	Syngenta UK Ltd
SY Lowry	SY418314	3272	Syngenta UK Ltd
Spinner	SC92295U	3282	Agrii
SJ176158	Jensen	3283	Limagrain UK
Winston	AC14/800/39	3284	Elsoms Ackermann Barley
Selected as potential feed varieties			
NOS113.163-17	Malvern	3257	Agrovista UK Ltd
SY Titanium	SY418336	3274	Syngenta UK Ltd

Candidate varieties will be considered for the 2022 AHDB Recommended List.

After a candidate variety achieves National Listing, the data is published online (**ahdb.org.uk/rl**) and on the RL app (**ahdb.org.uk/rlapp**)

Winter oats 2021/22

AHDB RECOMMENDED

Variety type	RGT Southwark	RGT Lineout	Dalguise	Mascani	Gerald	Peloton	Fusion $	Grafton	Average LSD (5%)
	Husked varieties					Naked varieties			
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	
	C		**C**	**C**					
UK yield (% treated control)									
Fungicide-treated (8.7 t/ha)	104	100	99	97	96	76	72	72	3.6
Grain quality									
Kernel content (%)	73.3	73.6	73.3	76.6	71.1	-	-	-	1.5
Specific weight (kg/hl)	53.7	51.9	54.0	53.1	52.3	62.2	60.9	63.4	1.4
Screenings (% through 2.0 mm)	6.0	6.7	3.9	1.8	4.8	27.8	32.0	12.9	3.0
Agronomic features									
Resistance to lodging (1–9)	5	6	4	6	6	6	8	7	1.3
Straw length (cm)	122	114	121	117	119	114	79	120	4.5
Ripening (days +/- Mascani, -ve = earlier)	-1	-1	-1	0	+2	+1	+3	-1	1.2
Disease resistance									
Mildew (1–9)	3	3	4	6	4	7	4	3	1.3
Crown rust (1–9)	8	5	4	5	4	6	3	4	1.1
Treated yields with and without PGR (% treated control)									
With PGR (8.7 t/ha)	104	100	100	97	96	76	72	71	3.9
Without PGR (8.7 t/ha)	104	99	99	97	95	77	73	73	4.6
Annual treated yield (% control)									
2016 (8.6 t/ha)	106	100	97	97	94	73	68	70	4.8
2017 (8.0 t/ha)	102	100	98	100	93	78	69	69	5.6
2018 (9.3 t/ha)	101	100	102	97	99	76	76	74	3.9
2019 (9.3 t/ha)	105	100	99	96	98	78	76	77	7.0
2020 (8.3 t/ha)	105	99	101	95	94	75	73	70	5.1
Breeder/UK contact									
Breeder	R2n	R2n	Sen	IBERS	IBERS	IBERS	IBERS	IBERS	
UK contact	RAGT	RAGT	Sen	Sen	Sen	Sen	Sen	Sen	
Status in RL system									
Year first listed	18	16	03	04	93	17	10	00	
RL status	-	-	-	-	-	-	-	-	

On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (e.g. disease resistance).

C = Yield control (for current table)
$ = Dwarf variety
PGR = Plant growth regulator

IBERS = Institute of Biological, Environ. & Rural Sciences (**aber.ac.uk**)
R2n = RAGT, France (**ragt.co.uk**)
RAGT = RAGT Seeds (**ragt.co.uk**)
Sen = Senova (**senova.uk.com**)

LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Winter oats 2021/22

Variety comments

Husked varieties

Dalguise

A husked variety with a high specific weight. Dalguise has relatively long straw with low lodging resistance. It is relatively early maturing and is susceptible to both mildew and crown rust.

Gerald

A late-maturing husked variety with a low kernel content and moderate straw strength. It is susceptible to both mildew and crown rust.

Mascani

A husked variety with moderate straw strength. Mascani remains by far the most popular variety with oat millers and growers, valued for its grain quality characteristics. It is less susceptible to mildew than most varieties.

RGT Lineout

A relatively early-maturing husked variety, with moderate straw strength. It tends to give a low specific weight. It is very susceptible to mildew.

RGT Southwark

A very high-yielding husked variety, with relatively long straw. It is relatively early maturing. RGT Southwark has very high resistance to the common strains of crown rust, but it is very susceptible to mildew.

Naked varieties

Fusion

A huskless (naked), late-maturing oat variety with short, stiff straw. Fusion is susceptible to mildew and very susceptible to crown rust.

Grafton

A huskless (naked) variety, with relatively long straw and moderate resistance to lodging. Grafton is a relatively early-maturing variety. It is susceptible to crown rust and very susceptible to mildew.

Peloton

A huskless (naked) oat variety with a higher yield potential than older varieties. It has moderate resistance to lodging. Peloton has high resistance to mildew and moderate resistance to crown rust.

Spring oats 2021

AHDB RECOMMENDED

	Delfin	WPB Isabel	Elison	Yukon	Canyon	Aspen	WPB Elyann	Conway	Firth	Average LSD (5%)	Oliver	Madison	Kamil
											Described varieties		
Variety type	Husked varieties										Naked varieties		
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK		UK	UK	UK
					C	C	C		*				
UK yield (% treated control)													
Fungicide-treated (6.9 t/ha)	106	105	105	104	102	100	98	98	94	5.4	75	70	64
Untreated (% of treated control)	101	88	97	99	96	86	88	88	79	6.5	62	59	57
Grain quality													
Kernel content (%)	73.0	75.9	72.5	73.2	73.2	73.8	77.0	74.4	74.3	1.1	-	-	-
Specific weight (kg/hl)	50.9	54.5	51.0	50.3	51.7	51.7	50.9	50.5	49.3	1.1	62.2	57.0	64.6
Screenings (% through 2.0 mm)	2.8	2.0	2.7	2.8	2.4	2.1	2.5	2.5	2.9	1.6	[5.7]	[10.3]	[3.0]
Agronomic features													
Resistance to lodging (1–9)	8	[9]	8	8	7	7	7	9	7	1.0	8	[7]	9
Straw length (cm)	111	[109]	110	106	110	98	100	105	98	2.5	104	[101]	106
Ripening (days +/- Firth, -ve = earlier)	0	0	0	0	0	0	-1	-1	0	1.3	0	-1	+1
Disease resistance													
Mildew (1–9) – **see page 6**	8	5	8	7	8	4	4	5	4	1.0	3	3	4
Crown rust (1–9)	4	5	3	5	4	5	5	4	5	1.1	4	4	5
Annual treated yield (% control)													
2016 (8.3 t/ha)	[104]	[103]	[104]	[102]	[101]	[100]	[99]	[97]	[95]	4.7	[72]	[72]	[61]
2017 (7.2 t/ha)	[112]	[111]	[102]	[106]	[103]	[101]	[96]	[98]	[101]	6.7	[77]	[70]	[62]
2018 (6.0 t/ha)	[106]	[101]	[103]	[100]	[96]	[102]	[102]	[96]	[95]	8.5	[70]	[69]	[65]
2019 (7.1 t/ha)	[104]	[106]	[110]	[106]	[105]	[100]	[95]	[98]	[86]	11.4	[78]	[64]	[70]
2020 (6.1 t/ha)	[106]	[103]	[104]	[105]	[104]	[96]	[100]	[102]	[90]	7.6	[76]	[72]	[65]
Breeder/UK contact													
Breeder	Nord	Wier	SE	Nord	Nord	Bau	Wier	IBERS	KWS		Selg	IBERS	Selg
UK contact	SU	KWS	Sen	SU	SU	Sen	KWS	Sen	KWS		Cope	Sen	Cope
Status in RL system													
Year first listed	18	20	19	17	11	15	17	14	00		18	20	18
RL status	-	P2	-	-	-	-	-	-	*		-	P2	-

Naked spring oat varieties are described. Data are provided for information only and do not constitute a recommendation.
On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (e.g. high resistance).

C = Yield control (for current table)
* = Variety no longer under test in RL trials
[ ] = Limited data
P2 = Second year of recommendation

Bau = Bauer, Germany
Cope = Cope Seeds & Grain (**copeseeds.co.uk**)
IBERS = Institute of Biological, Environ. & Rural Sciences (**aber.ac.uk**)

KWS = KWS UK (**kws-uk.com**)
Nord = Nordsaat, Germany (**nordsaat.de**)
SE = Saatzucht Edelhof, Austria (**saatzucht.edelhof.at**)
Selg = Selgen, Czech Republic
Sen = Senova (**senova.uk.com**)

SU = Saaten Union UK (**saaten-union.co.uk**)
Wier = Wiersum BV, Netherlands

LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Spring oats 2021

Variety comments

Husked varieties

Aspen
A relatively short, husked variety. It is susceptible to mildew.

Canyon
A husked variety. Canyon has high resistance to mildew and has given high yields in untreated UK trials. It is susceptible to crown rust.

Conway
A husked variety with high resistance to lodging. It is early maturing. Conway is susceptible to crown rust.

Delfin
A very high-yielding husked variety with high resistance to lodging. Delfin has high resistance to mildew and has given high yields in untreated UK trials. It is susceptible to crown rust.

Elison
A high-yielding husked variety with high resistance to lodging. It tends to give a low kernel content. Elison has high resistance to mildew and has given high yields in untreated UK trials. It is very susceptible to crown rust.

Firth
A relatively short, husked variety. It is susceptible to crown rust. Firth is no longer under test in RL trials.

WPB Elyann
An early-maturing variety, with a high kernel content. It is susceptible to mildew.

WPB Isabel
A high-yielding husked variety with a high kernel content and specific weight. Limited data suggests that this variety has very high resistance to lodging.

Yukon
A high-yielding husked variety with high resistance to lodging. Yukon has high resistance to mildew and has given high yields in untreated UK trials.

Described naked varieties

Kamil
A huskless (naked) oat variety with a good specific weight and very high resistance to lodging. It is susceptible to mildew.

Madison
A huskless (naked) oat variety with a good specific weight. It is susceptible to crown rust and very susceptible to mildew.

Oliver
A huskless (naked) oat variety with a good specific weight and high resistance to lodging. It is susceptible to crown rust and very susceptible to mildew.

Candidate varieties – oat trials harvest 2021

Winter oats

AHDB CANDIDATE	Previous/proposed name	Variety ID	UK contact
Husked varieties			
RGT Silver	RVR10017A	426	RAGT seeds

Candidate varieties will be considered for the 2022/23 AHDB Recommended List.

After a candidate variety achieves National Listing, the data is published online (**ahdb.org.uk/rl**) and on the RL app (**ahdb.org.uk/rlapp**)

Spring oats

AHDB CANDIDATE	Previous/proposed name	Variety ID	UK contact
Husked varieties			
Merlin	SG-K16369	428	Cope Seeds & Grain
Lion	NORD15/137	432	Saaten Union UK
Naked varieties			
Lennon	14149 Cn	324	Senova

Candidate varieties will be considered for the 2022 AHDB Recommended List.

Winter oilseed rape 2021/22 – regional rankings (East/West and North)

Ranked according to gross output for each region Note: varieties are tested in UK trials but some may only achieve recommendation for one region

East/West region

		Scope of recommendation	Gross Output (%C) (5.2 t/ha)	Seed Yield (%C) (4.8 t/ha)
Ambassador		UK	109	109
LG Aviron	NEW	UK	109	110
LG Antigua	NEW	E/W	109	108
DK Expectation	NEW	E/W	107	107
Aurelia		UK	107	107
Acacia		UK	107	107
Artemis		UK	107	106
Respect	NEW	E/W	106	107
Aspire		UK	104	103
Aardvark		UK	104	104
Darling		E/W	103	103
Temptation	*	UK (Sp)	103	102
George	*	E/W	103	103
Crocodile $		E/W Sp	103	104
Dazzler		E/W	102	101
PT275	*	E/W	102	102
DK Expansion	*C	UK	102	102
Crome $		UK Sp	101	100
Croozer $		E/W Sp	101	102
Ballad	*	UK	100	100
V 316 OL ~		UK Sp	99	99
PT279CL &		E/W Sp	96	97
DK Imprint CL &	NEW	UK Sp	95	97
Nizza CL &		E/W Sp	94	94
Average LSD (5%)			5.0	4.6

North region

		Scope of recommendation	Gross Output (%C) (5.9 t/ha)	Seed Yield (%C) (5.4 t/ha)
Aurelia		UK	106	107
LG Aviron	NEW	UK	105	107
Acacia		UK	104	104
Aardvark		UK	103	102
Aspire		UK	103	102
Ambassador		UK	102	103
Blazen		N	102	104
Crome $		UK Sp	102	101
DK Expansion	*C	UK	102	102
Artemis		UK	102	102
Ballad	*	UK	102	101
Barbados	*	N	101	101
DK Exsteel	*	N	100	100
Temptation	*	UK (Sp)	98	97
V 316 OL ~		UK Sp	96	96
DK Imprint CL &	NEW	UK Sp	91	93
Average LSD (5%)			5.7	5.3

This table should be read in conjunction with the AHDB Recommended List of winter oilseed rape varieties for 2021/22.

Sp = Specific recommendation
(Sp) = Resistance to *Turnip yellows virus* (TuYV) is no longer a specialist category. Temptation has a specific recommendation for this trait

$ = Specific recommendation for growing on land infected with common strains of clubroot. These varieties should only be used in line with AHDB clubroot management guidelines, to reduce the risk of resistance breakdown

& = Herbicide-tolerant variety. DK Imprint CL, Nizza CL and PT279CL have a specific recommendation for tolerance to specific imidazolinone herbicides (a Clearfield® variety)

~ = HOLL (High Oleic, Low Linolenic) variety
C = Yield control
* = Variety no longer under test in RL trials in region

LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Winter oilseed rape 2021/22

Yield, agronomy and disease resistance

	Recommended for the UK (both East/West and North regions)												Recommended for use on clubroot-infected land only				Described varieties	
AHDB RECOMMENDED	Ambassador	LG Aviron	Aurelia	Acacia	Artemis	Aspire	Aardvark	Temptation	DK Expansion	Ballad	V 316 OL ~	DK Imprint CL &	Crome $	Crocodile $	Croozer $	Average LSD (5%)	PX131	Resort †
Variety type	Hybrid	Hybrid	Hybrid	Conv	Hybrid	Conv	Conv	Hybrid	Hybrid	Conv	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid		Hybrid	Hybrid
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	(Sp)	UK	UK	Sp	Sp	UK Sp	E/W Sp	E/W Sp		UK SD	UK HEAR
		NEW						*	*C	*		NEW						
Gross output, yield adjusted for oil content (% treated control)																		
United Kingdom (5.3 t/ha)	**108**	**108**	**107**	**107**	**106**	**104**	**104**	**103**	**102**	**100**	**98**	**95**	**101**	102	100	4.6	**95**	**92**
East/West region (5.2 t/ha)	**109**	**109**	**107**	**107**	**107**	**104**	**104**	**103**	**102**	**100**	**99**	**95**	**101**	**103**	**101**	5.0	**95**	**92**
North region (5.9 t/ha)	**102**	**105**	**106**	**104**	**102**	**103**	**103**	**98**	**102**	**102**	**96**	**91**	**102**	96	96	5.7	**96**	**90**
Seed yield (% treated control)																		
United Kingdom (4.9 t/ha)	**108**	**110**	**107**	**106**	**106**	**103**	**103**	**102**	**102**	**100**	**98**	**97**	**100**	103	101	4.2	**94**	**92**
East/West region (4.8 t/ha)	**109**	**110**	**107**	**107**	**106**	**103**	**104**	**102**	**102**	**100**	**99**	**97**	**100**	**104**	**102**	4.6	**94**	**92**
North region (5.4 t/ha)	**103**	**107**	**107**	**104**	**102**	**102**	**102**	**97**	**102**	**101**	**96**	**93**	**101**	97	97	5.3	**94**	**90**
Untreated gross output, yield adjusted for oil content (% untreated control) ¤																		
United Kingdom (5.4 t/ha)	110	-	109	105	105	103	103	103	101	98	98	-	101	97	98	6.6	92	92
Untreated seed yield (% untreated control) ¤																		
United Kingdom (5.0 t/ha)	110	-	109	105	105	103	102	102	101	98	98	-	100	98	98	6.3	92	92
Agronomic features																		
Resistance to lodging (1–9)	[8]	[7]	8	8	[8]	8	8	8	8	8	8	[8]	8	[8]	[8]	0.3	8	8
Stem stiffness (1–9)	8	6	8	9	8	9	8	7	8	8	8	6	8	8	8	0.5	9	8
Shortness of stem (1–9)	6	6	6	7	5	7	6	6	5	7	6	6	6	6	6	0.2	9	6
Plant height (cm)	159	161	155	150	164	146	153	154	165	150	157	163	154	153	151	2.9	120	154
Earliness of flowering (1–9)	7	8	7	6	6	7	8	6	6	7	6	5	7	6	8	0.3	6	7
Earliness of maturity (1–9)	6	6	5	5	6	4	5	5	5	5	5	5	5	5	6	0.4	4	5
Pod shatter	R	R	R	-	R	-	-	-	R	-	-	R	-	-	-		R	-
Disease resistance																		
Light leaf spot (1–9)	7	7	7	6	6	7	7	6	6	6	6	6	6	6	6	0.7	7	6
Stem canker (1–9)	7	7	7	5	6	5	6	5	7	5	5	8	4	4	8	0.8	6	5
TuYV	R	R	R	-	R	R	-	R	-	-	-	-	-	-	-		-	-

Varieties no longer listed in the UK (both East/West and North regions): Architect and Nikita. **HEAR (High Erucuc Acid) and semi-dwarf varieties are described. Data is provided for information only and does not constitute a recommendation.** On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (e.g. high resistance). The target (spring) plant population is 40 plants/m² for RL trials. Maximum seed rate is 70 seeds/m² and may be lower if conditions permit. Glucosinolate contents are taken from the National List trials data.

UK = Recommended for both the East/West and North regions
E/W = Recommended for the East/West region
Sp = Specific recommendation
(Sp) = Resistance to *Turnip yellows virus* (TuYV) is no longer a specialist category. Temptation has a specific recommendation for this trait

Conv = Conventional open-pollinated variety
SD = Semi-dwarf
C = Yield control (for current table). For this table, Alizze, Campus, Elgar and Nikita were also control varieties but are no longer listed
* = Variety no longer under test in RL trials in region
~ = HOLL (High Oleic, Low Linolenic) variety

& = Herbicide-tolerant variety. DK Imprint CL, Nizza CL and PT279CL have a specific recommendation for tolerance to specific imidazolinone herbicides (a Clearfield® variety)

$ = Specific recommendation for growing on land infected with common strains of clubroot. These varieties should only be used in line with AHDB clubroot management guidelines, to reduce the risk of resistance breakdown
† = HEAR (High Erucic Acid) variety
[ ] = Limited data

¤ = Untreated trials are treated for sclerotinia at flowering
TuYV = *Turnip yellows virus*
R = Believed to be resistant to the trait (TuYV or pod shatter), but this has not been verified in Recommended List tests
LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Winter oilseed rape 2021/22

Yield, agronomy and disease resistance

AHDB RECOMMENDED

	Recommended for the East/West region only									Recommended for the North region only			
	LG Antigua	DK Expectation	Respect	Darling	George	Dazzler	PT275	PT279CL &	Nizza CL &	Blazen	Barbados	DK Exsteel	Average LSD (5%)
Variety type	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Conv	Conv	Hybrid	
Scope of recommendation	E/W	E/W	E/W	E/W	E/W	E/W	E/W	Sp	Sp	N	N	N	
	NEW	NEW	NEW		*		*				*	*	
Gross output, yield adjusted for oil content (% treated control)													
United Kingdom (5.3 t/ha)	108	106	106	103	103	102	102	96	93	101	97	101	4.6
East/West region (5.2 t/ha)	**109**	**107**	**106**	**103**	**103**	**102**	**102**	**96**	**94**	101	96	101	5.0
North region (5.9 t/ha)	102	96	101	100	100	98	97	91	88	**102**	**101**	**100**	5.7
Seed yield (% treated control)													
United Kingdom (4.9 t/ha)	108	106	106	102	103	101	102	96	94	102	97	101	4.2
East/West region (4.8 t/ha)	**108**	**107**	**107**	**103**	**103**	**101**	**102**	**97**	**94**	102	97	101	4.6
North region (5.4 t/ha)	102	96	102	99	100	97	97	92	89	**104**	**101**	**100**	5.3
Untreated gross output, yield adjusted for oil content (% untreated control) ¤													
United Kingdom (5.4 t/ha)	-	-	-	102	99	102	101	94	87	98	97	104	6.6
Untreated seed yield (% untreated control) ¤													
United Kingdom (5.0 t/ha)	-	-	-	101	98	101	101	95	88	99	97	104	6.3
Agronomic features													
Resistance to lodging (1–9)	[8]	[8]	[8]	[8]	8	[8]	8	8	[8]	[8]	8	8	0.3
Stem stiffness (1–9)	8	7	8	8	7	9	8	8	8	9	8	8	0.5
Shortness of stem (1–9)	6	6	6	6	7	6	6	6	6	6	6	5	0.2
Plant height (cm)	162	156	162	159	151	153	156	156	152	152	155	166	2.9
Earliness of flowering (1–9)	7	8	7	7	7	8	5	6	7	6	6	6	0.3
Earliness of maturity (1–9)	6	6	5	5	5	6	5	6	5	5	4	5	0.4
Pod shatter	R	R	-	R	-	R	R	-	-	-	-	R	
Disease resistance													
Light leaf spot (1–9)	6	7	6	6	6	6	6	5	5	6	7	7	0.7
Stem canker (1–9)	7	8	8	8	9	8	5	5	6	6	7	8	0.8
TuYV	R	R	-	R	-	R	-	-	-	-	-	-	

Varieties no longer listed in the East/West region: Windozz and Elgar. **Varieties no longer listed in the North region:** Anastasia, Broadway, Butterfly, Elevation and Kielder.
On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (e.g. high resistance). The target (spring) plant population is 40 plants/m² for RL trials. Maximum seed rate is 70 seeds/m² and may be lower if conditions permit. Glucosinolate contents are taken from the National List trials data.

E/W = Recommended for the East/West region
N = Recommended for the North region
Sp = Specific recommendation
Conv = Conventional open-pollinated variety

* = Variety no longer under test in RL trials in region
& = Herbicide-tolerant variety. DK Imprint CL, Nizza CL and PT279CL have a specific recommendation for tolerance to specific imidazolinone herbicides (a Clearfield® variety)

[ ] = Limited data
¤ = Untreated trials are treated for sclerotinia at flowering
TuYV = *Turnip yellows virus*
R = Believed to be resistant to the trait (TuYV or pod shatter), but this has not been verified in Recommended List tests

LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Winter oilseed rape 2021/22

Supplementary data

	Recommended for the UK (both East/West and North regions)												Recommended for use on clubroot-infected land only				Described varieties	
AHDB RECOMMENDED	Ambassador	LG Aviron	Aurelia	Acacia	Artemis	Aspire	Aardvark	Temptation	DK Expansion	Ballad	V 316 OL ~	DK Imprint CL &	Crome $	Crocodile $	Croozer $	Average LSD (5%)	PX131	Resort †
Variety type	Hybrid	Hybrid	Hybrid	Conv	Hybrid	Conv	Conv	Hybrid	Hybrid	Conv	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid		Hybrid	Hybrid
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	(Sp)	UK	UK	Sp	Sp	UK Sp	E/W Sp	E/W Sp		UK SD	UK HEAR
		NEW						*	*C	*		NEW						
Breeder/UK contact																		
Breeder	LimEur	LimEur	LimEur	LimEur	LimEur	LimEur	LimEur	DSV	MonTec	KWSMR	MonTec	MonTec	NPZ	Lemb	Lemb		PionOS	Lemb
UK contact	Lim	Lim	Lim	Lim	Lim	Lim	Lim	DSV	Bay	KWS	Bay	Bay	LSPB	DSV	LSPB		Cor	LSPB
Annual treated gross output, yield adjusted for oil content (% control) – UK																		
2017 (5.7 t/ha)	105	-	107	107	104	105	105	99	101	102	96	-	103	100	99	-	97	92
2018 (5.6 t/ha)	104	105	105	106	103	104	104	101	100	101	97	92	102	99	96	-	98	92
2019 (5.5 t/ha)	106	106	107	107	106	104	103	101	103	102	96	91	102	99	100	-	94	91
2020 (5.6 t/ha)	107	109	107	103	104	100	102	100	103	99	99	95	100	98	98	-	94	89
Seed quality (at 9% moisture)																		
Oil content, fungicide-treated (%)	45.2	44.5	45.3	45.7	45.6	45.7	45.7	46.1	45.5	45.6	45.3	43.8	46.3	45.0	44.8	0.3	46.6	45.7
Glucosinolate (µmoles/g)	10.9	11.2	10.2	8.1	12.3	9.9	10.0	12.0	10.1	10.8	12.3	14.3	10.8	12.8	12.2	-	9.4	14.0
Status in RL system																		
Year first listed	20	21	20	20	20	19	20	19	19	19	15	21	19	20	20		20	20
RL status	P2	P1	P2	P2	P2	-	P2	*	*	*	-	P1	-	P2	P2		P2	P2

UK = Recommended for both the East/West and North regions
E/W = Recommended for the East/West region
Sp = Specific recommendation
(Sp) = Resistance to *Turnip yellows virus* (TuYV) is no longer a specialist category. Temptation has a specific recommendation for this trait
Conv = Conventional open-pollinated variety
SD = Semi-dwarf

C = Yield control (for current table). For this table, Alizze, Campus, Elgar and Nikita were also control varieties but are no longer listed
* = Variety no longer under test in RL trials in region
~ = HOLL (High Oleic, Low Linolenic) variety
& = Herbicide-tolerant variety. DK Imprint CL, Nizza CL and PT279CL have a specific recommendation for tolerance to specific imidazolinone herbicides (a Clearfield® variety)

$ = Specific recommendation for growing on land infected with common strains of clubroot. These varieties should only be used in line with AHDB clubroot management guidelines, to reduce the risk of resistance breakdown
† = HEAR (High Erucic Acid) variety
P1 = First year of recommendation
P2 = Second year of recommendation
Bay = Bayer CropScience (**bayercropscience.co.uk**)
Cor = Corteva Agriscience™ (**corteva.co.uk/pioneer**)

DSV = DSV UK (**dsv-uk.co.uk**)
KWSMR = KWS Momont Recherche (**kws-uk.com**)
KWS = KWS UK (**kws-uk.com**)
Lemb = Lembke, Germany
Lim = Limagrain UK (**lgseeds.co.uk**)
LimEur = Limagrain Europe SA (**lgseeds.co.uk**)
LSPB = LS Plant Breeding (**lspb.eu**)
MonTec = Monsanto Technology LLC (**monsanto.com**)
NPZ = NPZ-Lembke, Germany (**npz.de**)

PionOS = Pioneer Overseas Corporation (**corteva.co.uk/pioneer**)
LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Winter oilseed rape 2021/22

Supplementary data

	Recommended for the East/West region only									Recommended for the North region only			
AHDB RECOMMENDED	LG Antigua	DK Expectation	Respect	Darling	George	Dazzler	PT275	PT279CL &	Nizza CL &	Blazen	Barbados	DK Exsteel	Average LSD (5%)
Variety type	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Conv	Conv	Hybrid	
Scope of recommendation	E/W	E/W	E/W	E/W	E/W	E/W	E/W	Sp	Sp	N	N	N	
	NEW	NEW	NEW		*		*				*	*	
Breeder/UK contact													
Breeder	LimEur	MonTec	NPZ	DSV	SyP	DSV	PionOS	PionOS	R2n	KWSMR	KWSMR	MonTec	
UK contact	Lim	Bay	LSPB	DSV	Els	DSV	Cor	Cor	RAGT	KWS	KWS	Bay	
Annual treated gross output, yield adjusted for oil content (% control) – UK													
2017 (5.7 t/ha)	-	-	-	102	102	100	100	93	91	104	100	101	-
2018 (5.6 t/ha)	105	101	103	100	101	99	101	94	91	102	98	100	-
2019 (5.5 t/ha)	105	102	103	103	101	103	98	93	93	101	99	101	-
2020 (5.6 t/ha)	105	101	103	102	102	99	99	94	87	100	97	101	-
Seed quality (at 9% moisture)													
Oil content, fungicide-treated (%)	45.6	45.4	45.0	46.1	45.5	46.2	45.4	45.0	44.8	44.7	45.0	45.5	0.3
Glucosinolate (µmoles/g)	11.5	12.2	11.8	12.2	9.6	11.1	8.4	10.9	14.9	10.7	11.1	11.9	-
Status in RL system													
Year first listed	21	21	21	20	19	20	19	19	20	20	16	19	
RL status	P1	P1	P1	P2	*	P2	*	-	P2	P2	*	*	

E/W = Recommended for the East/West region
N = Recommended for the North region
Sp = Specific recommendation
Conv = Conventional open-pollinated variety
* = Variety no longer under test in RL trials in region

& = Herbicide-tolerant variety. DK Imprint CL, Nizza CL and PT279CL have a specific recommendation for tolerance to specific imidazolinone herbicides (a Clearfield® variety)
P1 = First year of recommendation
P2 = Second year of recommendation
Bay = Bayer CropScience (**bayercropscience.co.uk**)

Cor = Corteva Agriscience™ (**corteva.co.uk/pioneer**)
Els = Elsoms Seeds (**elsoms.com**)
DSV = DSV UK (**dsv-uk.co.uk**)
KWSMR = KWS Momont Recherche (**kws-uk.com**)
KWS = KWS UK (**kws-uk.com**)
Lim = Limagrain UK (**lgseeds.co.uk**)
LimEur = Limagrain Europe SA (**lgseeds.co.uk**)

LSPB = LS Plant Breeding (**lspb.eu**)
MonTec = Monsanto Technology LLC (**monsanto.com**)
NPZ = NPZ-Lembke, Germany (**npz.de**)
PionOS = Pioneer Overseas Corporation (**corteva.co.uk/pioneer**)
R2n = RAGT, France (**ragt.co.uk**)
RAGT = RAGT Seeds (**ragt.co.uk**)
SyP = Syngenta Participations AG (**syngenta.co.uk**)

LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Winter oilseed rape 2021/22

Variety comments

Varieties

Aardvark

A conventional, open-pollinated variety recommended for the UK. Aardvark has given a high treated gross output in both the East/West and North regions. This variety has high resistance to lodging, with good stem stiffness at maturity. It is a relatively early-flowering variety. Aardvark has high resistance to light leaf spot.

Acacia

A conventional, open-pollinated variety recommended for the UK. Acacia has given a very high treated gross output in the East/West region and has a high treated gross output in the North. It has high resistance to lodging and is very stiff-stemmed at maturity.

Ambassador

A hybrid variety recommended for the UK. This variety has given a very high treated gross output in the East/West region. It has high resistance to lodging (based on limited data), with good stem stiffness at maturity. It is relatively early maturing, with resistance to pod shatter. Ambassador has high resistance to both light leaf spot and stem canker and is resistant to *Turnip yellows virus* (TuYV).

Artemis

A hybrid variety recommended for the UK. This variety has given a very high treated gross output in the East/West region. It is a relatively tall variety and has high resistance to lodging (based on limited data), with good stem stiffness at maturity. It is relatively early maturing, with resistance to pod shatter. Artemis is resistant to *Turnip yellows virus* (TuYV).

Aspire

A conventional, open-pollinated variety recommended for the UK. Aspire has given a high treated gross output in both the East/West and North regions. It has high resistance to lodging and is very stiff-stemmed at maturity. It is a relatively late-maturing variety. Aspire has high resistance to light leaf spot and is resistant to *Turnip yellows virus* (TuYV).

Aurelia

A hybrid variety recommended for the UK. This variety has given a very high treated gross output in the East/West region and has a high treated gross output in the North. It has high resistance to lodging, with good stem stiffness at maturity. Aurelia has resistance to pod shatter. It has high resistance to light leaf spot and stem canker and is resistant to *Turnip yellows virus* (TuYV).

Ballad

A conventional, open-pollinated variety recommended for the UK. This variety has high resistance to lodging, with good stem stiffness at maturity. Ballad is no longer under test in RL trials.

Barbados

A conventional, open-pollinated variety recommended for the North region. This variety has high resistance to lodging, with good stem stiffness at maturity. Barbados is a relatively late-maturing variety. It has high resistance to both light leaf spot and stem canker. Barbados is no longer under test in RL trials.

Blazen

A conventional, open-pollinated variety recommended for the North region. It has high resistance to lodging (based on limited data) and is very stiff-stemmed at maturity.

Crocodile

A hybrid variety with a specific recommendation for the East/West region for its resistance to the common strains of clubroot, though it may be susceptible to strains found in some fields. Crocodile has given a high treated gross output in the East/West. It has high resistance to lodging (based on limited data), with good stem stiffness at maturity. It is susceptible to stem canker.

Crome

A hybrid variety with a specific recommendation for the UK for its resistance to the common strains of clubroot, though it may be susceptible to strains found in some fields. This variety has high resistance to lodging, with good stem stiffness at maturity. It is susceptible to stem canker.

Winter oilseed rape 2021/22

Variety comments

Varieties

Croozer

A hybrid variety with a specific recommendation for the East/West region for its resistance to the common strains of clubroot, though it may be susceptible to strains found in some fields. This relatively early-flowering variety has high resistance to lodging (based on limited data), with good stem stiffness at maturity. It is a relatively early-maturing variety. Croozer has high resistance to stem canker.

Darling

A hybrid variety recommended for the East/West region. This variety has given a high treated gross output for the East/West. It has high resistance to lodging (based on limited data), with good stem stiffness at maturity. Darling has resistance to pod shatter. It has high resistance to stem canker and is resistant to *Turnip yellows virus* (TuYV).

Dazzler

A hybrid variety recommended for the East/West region. This relatively early-flowering variety has high resistance to lodging (based on limited data) and is very stiff-stemmed at maturity. It is a relatively early-maturing variety, with resistance to pod shatter. Dazzler has high resistance to stem canker and is resistant to *Turnip yellows virus* (TuYV).

DK Expansion

A hybrid variety recommended for the UK.
DK Expansion is a relatively tall variety but has high resistance to lodging, with good stem stiffness at maturity. It has resistance to pod shatter and high resistance to stem canker. DK Expansion is no longer under test in RL trials.

DK Expectation NEW

This new addition is a hybrid variety recommended for the East/West region and has given a very high treated gross output for the East/West. It is a relatively early-flowering variety and has high resistance to lodging (based on limited data). It is relatively early maturing, with resistance to pod shatter. DK Expectation has high resistance to light leaf spot and stem canker and is resistant to *Turnip yellows virus* (TuYV).

DK Exsteel

A hybrid variety for the North region. It is a relatively tall variety but has high resistance to lodging, with good stem stiffness at maturity. This variety has resistance to pod shatter. It has high resistance to both light leaf spot and stem canker. DK Exsteel is no longer under test in RL trials.

DK Imprint CL NEW

This new addition is a Clearfield® hybrid variety for the UK, with a specific recommendation for its tolerance to specific imidazolinone herbicides. It has high resistance to lodging (based on limited data) and has resistance to pod shatter. It has high resistance to stem canker. Growers are advised to see the BASF website (**agricentre.basf.co.uk**) for more information about Clearfield® management and husbandry.

George

A hybrid variety recommended for the East/West region. This variety has given a high treated gross output in the East/West. It has high resistance to lodging. It has very high resistance to stem canker. George is no longer under test in RL trials.

LG Antigua NEW

This new addition is a hybrid variety recommended for the East/West region. This variety has given a very high treated gross output in the East/West. It has high resistance to lodging (based on limited data), with good stem stiffness at maturity. It is a relatively early-maturing variety, with resistance to pod shatter. It has high resistance to stem canker and is resistant to *Turnip yellows virus* (TuYV).

Winter oilseed rape 2021/22

Variety comments

Varieties

LG Aviron NEW

This new addition is a hybrid variety recommended for the UK. This variety has given a high treated gross output in the North region and a very high treated gross output in the East/West region. LG Aviron is a relatively early-flowering variety. It is relatively early maturing, with resistance to pod shatter. It has high resistance to both light leaf spot and stem canker and is resistant to *Turnip yellows virus* (TuYV).

Nizza CL

A Clearfield® hybrid variety for the East/West region, with a specific recommendation for its tolerance to specific imidazolinone herbicides. Nizza CL has high resistance to lodging (based on limited data), with good stem stiffness at maturity. Growers are advised to see the BASF website (**agricentre.basf.co.uk**) for more information about Clearfield® management and husbandry.

PT275

A hybrid variety recommended for the East/West region. It has high resistance to lodging, with good stem stiffness at maturity. This variety has resistance to pod shatter. PT275 is no longer under test in RL trials.

PT279CL

A Clearfield® hybrid variety for the East/West region, with a specific recommendation for its tolerance to specific imidazolinone herbicides. PT279CL has high resistance to lodging, with good stem stiffness at maturity, and is relatively early maturing. Growers are advised to see the BASF website (**agricentre.basf.co.uk**) for more information about Clearfield® management and husbandry.

Respect NEW

This new addition is a hybrid variety recommended for the East/West region. This variety has given a high treated gross output in the East/West. It has high resistance to lodging (based on limited data), with good stem stiffness at maturity. It has high resistance to stem canker.

Temptation

A hybrid variety for the UK, with a specific recommendation for its resistance to *Turnip yellows virus* (TuYV). Temptation has given a high treated gross output in the East/West region. It has high resistance to lodging. Temptation is no longer under test in RL trials.

V 316 OL

A hybrid variety with a specific recommendation for the UK for its high oleic, low linolenic (HOLL) oil type. It has high resistance to lodging, with good stem stiffness at maturity.

Described varieties

PX131

PX131 is a semi-dwarf hybrid (it is believed to carry the Ogu-INRA dwarfing gene in the heterozygous state), described for the UK. It is very short, has high resistance to lodging and is very stiff-stemmed at maturity. It is a relatively late-maturing variety, with resistance to pod shatter. It has high resistance to light leaf spot. PX131 has a high oil content.

Resort

A high erucic acid (HEAR) variety, described for the UK. HEAR varieties have a different oil profile (having around 50% erucic acid, compared with less than 2% for '00' varieties). They are used for a variety of industrial uses, such as specialist lubricants, inks, cosmetics and slip agents. Growers should take action to prevent high erucic volunteers (which can lead to deductions or rejections) from appearing in subsequent '00' oilseed rape crops. It has high resistance to lodging and is stiff-stemmed at maturity.

Candidate varieties – winter oilseed rape trials harvest 2021

AHDB CANDIDATE	Previous/proposed name	Variety ID	UK contact
Candidate varieties – UK			
DK Imove CL	CWH468	3185	Bayer CropScience
Marvin	CBI 18-4	3188	Frontier Agriculture Ltd
PT303	X17WT440C	3202	Corteva Agriscience™
Erikson	NPZ18219W12	3231	LS Plant Breeding
V 382 CL	MDS 62	3239	Bayer CropScience
Matrix CL	WRH 569	3244	DSV UK
LG Adonis	LE18/405	3251	Limagrain UK
Amarone	LEL18/416	3254	Limagrain UK
LG Constructor CL	LE18/359	3256	Limagrain UK

Candidate varieties will be considered for the 2022/23 AHDB Recommended List.

After a candidate variety achieves National Listing, the data is published online (**ahdb.org.uk/rl**) and on the RL app (**ahdb.org.uk/rlapp**)

AHDB CANDIDATE	Previous/proposed name	Variety ID	UK contact
Candidate varieties – East/West			
CWH391	DK Extremus	3175	Bayer CropScience
DK Expat	CWH398	3176	Bayer CropScience
Crossfit	DMH473	3178	DSV UK
RGT Clozzer	HRC699	3193	RAGT Seeds
PT299	X17WT099C	3195	Corteva Agriscience™
PT301	X17WT222C	3198	Corteva Agriscience™
PT302	X17WT286C	3200	Corteva Agriscience™
PT304	X17WT447C	3203	Corteva Agriscience™
PX138	X17WX602C	3208	Corteva Agriscience™
MH 16JD243	Haya	3224	KWS UK
Flemming	NPZ18215W11	3226	LS Plant Breeding
Reset	NPZ17167W11	3227	LS Plant Breeding
Javelin	NPZ18217W11	3230	LS Plant Breeding
Tennyson	RNX3853	3233	Elsoms Seeds
RNX3860	-	3234	Elsoms Seeds
Byron	RNX3861	3235	Elsoms Seeds
Dinosaur	RAP 579	3241	DSV UK
Dart	RAP 583	3243	DSV UK
Duplo	DMH 433	3247	DSV UK
LG Areti	LE17/334	3248	Limagrain UK
LG Auckland	LE18/350	3250	Limagrain UK
LE18/413	-	3252	Limagrain UK
Annika	LEL18/415	3255	Limagrain UK
Candidate varieties – North			
MH 16AU241	Heliott	3220	KWS UK

Candidate varieties will be considered for the 2022/23 AHDB Recommended List.

Spring oilseed rape Descriptive List 2021

AHDB DESCRIBED

	Performer	Lagonda	Lakritz	Lumen	Lexus	Builder	Menthal $	Sunder	Contra CL	Mirakel	INV110 CL	Cebra CL	Average LSD (5%)
Variety type	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	
			NEW				NEW	C	NEW	*C	NEW	NEW	
Gross output, yield adjusted for oil content (% control)													
UK without fungicide (3.1 t/ha)	[113]	[111]	[109]	[105]	[105]	[105]	[105]	[103]	[99]	[97]	[95]	[94]	11.6
Number of trials	6	8	4	9	8	10	4	10	4	10	4	4	
Seed yield (% control)													
UK without fungicide (2.9 t/ha)	[111]	[112]	[110]	[105]	[105]	[104]	[105]	[102]	[101]	[98]	[97]	[96]	11.7
Seed quality (at 9% moisture)													
Oil content (%)	[45.6]	[44.0]	[44.1]	[44.6]	[44.4]	[45.1]	[43.8]	[45.2]	[43.5]	[44.2]	[43.0]	[42.9]	0.9
Glucosinolate content (µmoles/g)	13.6	11.0	10.6	11.0	13.1	14.4	10.5	12.9	12.4	10.5	15.7	12.5	-
Agronomic features													
Shortness of stem (1–9)	6	7	[7]	7	7	6	[6]	7	[6]	7	[6]	[6]	0.7
Earliness of flowering (1–9)	7	7	[7]	7	7	7	[7]	7	[7]	7	[7]	[7]	0.4
Earliness of maturity (1–9)	[5]	5	[5]	6	5	5	[6]	5	[5]	6	[5]	[6]	0.7
Annual gross output, yield adjusted for oil content (% control)													
2016 (3.0 t/ha)	-	[106]	-	[102]	[112]	[106]	-	[104]	-	[97]	-	-	24.7
2017 (3.1 t/ha)	[120]	[129]	-	[104]	[102]	[104]	-	[104]	-	[96]	-	-	19.3
2018 (3.2 t/ha)	[[119]]	[[115]]	[[108]]	[[109]]	[[107]]	[[108]]	[[107]]	[[103]]	[[99]]	[[97]]	[[100]]	[[100]]	-
2019 (3.6 t/ha)	[[100]]	[[102]]	[[107]]	[[107]]	[[98]]	[[104]]	[[101]]	[[107]]	[[102]]	[[93]]	[[97]]	[[95]]	-
2020 (2.9 t/ha)	[108]	[102]	[108]	[106]	[104]	[103]	[102]	[99]	[94]	[102]	[88]	[88]	14.3
Breeder/UK contact													
Breeder	BASF	NPZ	NPZ	NPZ	NPZ	BASF	NPZ	BASF	NPZ	NPZ	BASF	NPZ	
UK contact	BASF	DSV	DSV	DSV	DSV	BASF	DSV	BASF	DSV	DSV	BASF	DSV	
Status in DL system													
Year first listed	20	19	21	18	19	15	21	17	21	15	21	21	
DL status	P2	-	P1	-	-	-	P1	-	P1	*	P1	P1	

The data in this table are provided for information only and do not constitute a recommendation.
On the 1–9 scale, high figures indicate that a variety shows the character to a high degree (e.g. early maturity).
Glucosinolate contents are taken from the National List trials data.

C = Yield control (for current table)
* = Variety no longer under test in RL trials
[ ] = Limited data
[[ ]] = 1 trial only
P1 = First year of listing
P2 = Second year of listing

$ = Believed to be resistant to common strains of clubroot, but this has not been verified in Recommended List tests. This variety should only be used in line with AHDB clubroot management guidelines, to reduce the risk of resistance breakdown

BASF = BASF Agricultural Solutions Seed US LLC (**agricentre.basf.co.uk**)
DSV = DSV UK (**dsv-uk.co.uk**)
NPZ = NPZ-Lembke, Germany (**npz.de**)

LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Spring linseed Descriptive List 2021

	Juliet	Bliss	Buffalo	Bingo	Ineke	Bowler	Octal	Batsman	Aquarius	Lion	Daniel	Abacus	Galaad	Average LSD (5%)
Seed colour	B			B		B	B	B	B	B		B		
			NEW					C	C			C	*	
Seed yield as % control														
UK without fungicide (2.2 t/ha)	114	111	[109]	109	107	106	104	103	101	100	100	97	93	8.2
Number of trials	16	12	9	16	16	16	16	16	16	12	16	16	16	
Seed quality (at 9% moisture)														
Oil content (%)	41.5	40.0	[42.3]	39.8	39.6	40.7	40.7	40.1	42.6	42.6	39.5	39.8	40.2	0.4
Agronomic features														
Plant height (cm)	57	53	53	53	61	53	53	56	54	52	55	53	45	2.3
Earliness of flowering (1–9)	4	6	3	5	2	4	4	6	6	5	5	5	8	0.9
Earliness of maturity (1–9)	4	6	6	5	4	6	5	6	6	6	5	7	8	0.7
Annual seed yield (% control)														
2016 (2.2 t/ha)	[102]	-	-	[107]	[100]	[102]	[101]	[96]	[105]	[104]	[103]	[99]	[100]	8.7
2017 (1.7 t/ha)	[114]	[118]	-	[104]	[107]	[110]	[109]	[101]	[102]	[100]	[103]	[98]	[98]	13.3
2018 (2.5 t/ha)	[126]	[103]	[103]	[119]	[100]	[100]	[103]	[106]	[99]	[94]	[103]	[95]	[99]	14.8
2019 (2.1 t/ha)	[108]	[118]	[110]	[109]	[113]	[111]	[111]	[107]	[97]	[103]	[97]	[95]	[86]	12.1
2020 (2.6 t/ha)	[121]	[109]	[110]	[107]	[112]	[108]	[100]	[103]	[100]	-	[96]	[97]	[86]	10.6
Breeder/UK contact														
Breeder	GKI	Bilt	Bilt	Bilt	JTSD	Bilt	LaS	Bilt	LimEur	LimEur	Med	JTSD	LaS	
UK contact	Agr	Els	Els	Els	JTSD	Els	Dalt	Els	Bost	Sat	Agr	JTSD	PC	
Status in DL system														
Year first listed	01	20	21	17	18	13	17	12	17	18	18	06	17	
DL status	-	P2	P1	-	-	-	-	-	-	-	-	-	*	

Varieties no longer listed: Empress, Faser, Festival, Marquise and Omegalin.
The data in this table is provided for information only and does not constitute a recommendation.
On the 1–9 scale, high figures indicate that a variety shows the character to a high degree (e.g. early maturity).

B = Brown
C = Yield control (for current table)
* = Variety no longer under test in RL trials
[ ] = Limited data
P1 = First year of listing
P2 = Second year of listing

Agr = Agrii (**agrii.co.uk**)
Bilt = van de Bilt, Netherlands
Bost = Boston Seeds Ltd (**bostonseeds.com**)
Dalt = Dalton Seeds (**dalmark.co.uk**)
Els = Elsoms Seeds (**elsoms.com**)
GKI = GK Kht, Hungary

JTSD = JTSD Ltd (**jtsd.co.uk**)
LaS = Laboulet Semences, France
LimEur = Limagrain Europe SA (**lgseeds.co.uk**)
Med = Medovarsky
PC = Premium Crops (**premiumcrops.com**)
Sat = Saturn Seeds (**saturnseeds.com**)

LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Winter triticale Descriptive List 2021/22

AHDB DESCRIBED

	Kasyno	KWS Fido	Temuco	SU Liborious	Tribeca	Belcanto	Cyrkon	Toro	Tender PZO	Agostino	Average LSD (5%)
	C	C	NEW	NEW		NEW					
Grain yield (as % treated control)											
Fungicide-treated (10.7 t/ha)	101	99	[99]	[98]	97	[96]	95	94	94	91	8.5
Number of trials	10	10	6	6	10	6	10	8	8	10	
Agronomic features											
Lodging (%)	[0]	[0]	-	-	[9]	-	[0]	[0]	[16]	[0]	4.7
Straw length (cm)	101	111	[107]	[104]	118	[112]	98	[98]	[124]	101	6.8
Ripening (days +/- Agostino, -ve = earlier)	[+1]	[0]	[0]	[-1]	[-1]	[+3]	[0]	[0]	[0]	[0]	2.6
Grain quality											
Specific weight (kg/hl)	74.6	77.0	[73.1]	[73.6]	73.8	[79.1]	74.4	73.0	75.8	75.4	1.6
Protein content (%)	12.2	11.8	[12.0]	[12.3]	12.1	[12.8]	12.3	12.7	12.7	12.2	0.6
Disease resistance											
Yellow rust (1–9) – **see page 6**	8	6	[7]	[8]	7	[7]	4	5	6	7	1.5
Breeder/UK contact											
Breeder	Dank	Lant	Lant	Nord	Desp	Dank	Hod	Hod	IGP	Lant	
UK contact	Sen	Sen	Sen	SU	Els	Sen	Dalt	Dalt	Sen	Sen	
Status in DL system											
Year first listed	18	14	21	21	12	21	16	20	20	11	
DL status	-	-	P1	P1	-	P1	-	P2	P2	-	

Trivalan (Elsoms Seeds) was also added to the Descriptive List but data cannot be published as this variety has not completed National List testing. For latest information, visit ahdb.org.uk/rl
Varieties no longer listed: Securo.
The data in this table is provided for information only and does not constitute a recommendation.

C = Yield control (for current table)
* = Variety no longer under test in RL trials
[ ] = Limited data
P1 = First year of listing
P2 = Second year of listing

Dalt = Dalton Seeds (**dalmark.co.uk**)
Dank = Danko Hodowla Roslin, Poland (**danko.pl**)
Desp = Maison Florimond Desprez, France (**florimond-desprez.com**)
Els = Elsoms Seeds (**elsoms.com**)

Hod = Hodowla Roslin Strzelce, Poland (**hr-strzelce.pl**)
IGP = I.G. Pflanzenzucht, Germany
Lant = Lantmannen SW Seed BV
Nord = Nordsaat, Germany (**nordsaat.de**)
Sen = Senova (**senova.uk.com**)
SU = Saaten Union UK (**saaten-union.co.uk**)

LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Winter rye Descriptive List 2021/22

	KWS Serafino	SU Performer	SU Arvid	Poseidon	SU Cossani	SU Mephisto	SU Nasri	Inspector	Dukato	Average LSD (5%)
Variety type	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Conv	Conv	
	NEW		NEW	NEW		C	NEW			
Grain yield (as % treated control)										
Fungicide-treated (9.4 t/ha)	111	106	104	103	101	100	99	90	89	5.2
Number of trials	8	13	8	8	13	13	8	13	13	
Agronomic features										
Lodging (%)	-	[5]	-	-	[16]	[20]	-	[23]	[17]	1.7
Straw length (cm)	128	127	134	129	127	128	126	139	138	6.3
Ripening (days +/- SU Mephisto, -ve = earlier)	+1	+1	+1	0	0	0	+1	0	0	1.4
Grain quality										
Protein content (%)	9.7	9.7	9.5	10.6	9.8	9.8	10.0	10.5	10.2	0.4
Hagberg Falling Number	250	258	209	193	240	223	220	217	208	18.2
Specific weight (kg/hl)	77.2	78.4	77.7	76.6	77.5	77.3	77.0	78.9	78.8	0.8
Disease resistance										
Brown rust (1–9) – **see page 6**	7	4	4	4	4	3	3	4	4	1.0
Breeder/UK contact										
Breeder	KWSGmbh	Hybro	Hybro	NS	SU	Hybro	Hybro	PHP	Hybro	
UK contact	KWS	SU	SU	Dalt	SU	SU	SU	SU	SU	
Status in DL system										
Year first listed	21	17	21	21	18	15	21	16	17	
DL status	P1	-	P1	P1	-	-	P1	-	-	

Varieties no longer listed: SU Promoter.
The data in this table is provided for information only and does not constitute a recommendation.

Conv = Conventional variety
C = Yield control (for current table)
[ ] = Limited data
P1 = First year of listing

Dalt = Dalton Seeds (**dalmark.co.uk**)
Hybro = Hybro, Germany
KWS = KWS UK (**kws-uk.com**)
KWSGmbh = KWS Lochow GmbH (**kws-uk.com**)

NS = Nordic Seed, Denmark
PHP = P.H. Petersen, Germany (**phpetersen.com**)
SU = Saaten Union UK (**saaten-union.co.uk**)

LSD = Least significant difference
Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Descriptive List candidate varieties – trials harvest 2021

AHDB CANDIDATE	Previous/ proposed name	Variety ID	UK contact
Spring oilseed rape			
Caramino CL	DLE18815S21	3270	LS Plant Breeding
Lavina	DLE18814S11	3271	LS Plant Breeding
Markus	-	14852	Senova
Fergus	-	17280	Senova
Spring linseed			
JT/WS-1/3A	-	253	JTSD Ltd

Candidate varieties will be considered for the 2022 AHDB Descriptive Lists.

After a candidate variety achieves National Listing, the data is published online (**ahdb.org.uk/rl**) and on the RL app (**ahdb.org.uk/rlapp**)

AHDB CANDIDATE	Previous/ proposed name	Variety ID	UK contact
Winter triticale			
Presley	LD 17/710	120	Senova
Winter rye			
KWS Tayo	KWS-H176	55	KWS UK
SU Pluralis	HYH299	56	Saaten Union
SU Baresi	HYH 311	57	Saaten Union
SU Elrond	HYH 315	58	Saaten Union
SU Bendix	HYH 263	11495	Saaten Union

Candidate varieties will be considered for the 2022/23 AHDB Descriptive Lists.

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Notes

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The AHDB Recommended Lists 2021/22 are managed by a project consortium of AHDB Cereals & Oilseeds, BSPB, MAGB and UKFM.

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Preliminary data

The selection of new varieties to promote into AHDB Recommended List trials is made on the basis of preliminary data collected during National List and other trials and tests and these data also make a major contribution to the variety means presented in the Recommended List tables. Acknowledgement is made to Defra and the devolved governments as well as BSPB for the use of these data.

Processors

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Test and trials contractors

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Committee members and growers

AHDB wishes to thank all those who give freely of their time to serve on our committees and to the numerous growers across the country who host Recommended Lists trials.

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