RECOMMENDEDLISTS

AHDB Recommended Lists for cereals and oilseeds 2019/20

Summer edition

CEREALS & OILSEEDS

Produced in partnership with:

BSPB promoting innovation
British Society of Plant Breeders

magb
Maltsters Association of Great Britain

nabim
National Association of British and Irish Millers

Using the AHDB Recommended Lists (RL)

Compare varieties for your intended market

Information on markets for wheat, barley, oilseed rape and oats is given on pages 4–6.

Varieties are presented in the Recommended List tables, ranked by their UK-treated yield within end-use groups, or by region for winter oilseed rape. The tables provide full details of quality data and information on acceptable markets for each variety.

Assess the likely management inputs

For barley and winter wheat, separate tables are provided with agronomy information. For the other crops, this information is incorporated into a single table with the yield and quality information.

Use the information provided on the susceptibility of varieties to major diseases, pests and lodging in combination with regional information on page 7 to assess the likely management inputs.

Get more detail

Supplementary tables include annual yield data, which can indicate a variety's consistency of performance in different seasons. Other information in these tables includes yield data for different sowing dates, soil types and rotations.

Read a summary

Use the variety comments pages as a summary of the key features of each variety to help you decide if the variety is appropriate for your region and end markets.

Look at the trials data

Tools to visualise trials data from your region can be accessed via **ahdb.org.uk/tools**

Variety information will also be available at events throughout the year. For more information, visit **ahdb.org.uk/events**

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Glossary

Status in the Recommended Lists

Scope of recommendation
Scope of recommendation may refer to a UK, regional or specific recommendation. Further details for specific recommendations are given in the table footnotes.

Varieties no longer listed
Varieties no longer listed include those that are no longer recommended or that have been withdrawn from the Recommended List (RL) by the breeder. Before a variety is taken off the List, it is removed from trials (indicated by an * in the tables).

Regional recommendations for winter oilseed rape
Winter oilseed rape varieties are presented on a single UK list. Varieties have regional recommendations (see Figure 1) and are ordered by treated gross output. Varieties that are suitable for both the East/West (up to Teesside) and North regions have a UK recommendation. When choosing a variety, consider those that have been recommended for the UK and for your region. For the first time, an extra table has been added to show varieties ordered by treated gross output for the East/West and North regions (containing varieties with both a regional or UK recommendation).

Candidate varieties
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. They are considered for recommendation in the autumn if sufficient data are available.

Varieties grown in RL trials but not added to the AHDB Recommended List
These are varieties that were grown in RL trials but not added to the Recommended List, having failed to meet the criteria for a recommendation. Data are included for information, because seed may be available for some of these varieties.

Descriptive List (DL) varieties
Descriptive Lists show trial data for spring oilseed rape, spring linseed, winter rye and winter triticale, where data are more limited than for other crops. The data available are presented for varieties for which seed is likely to be available. Although DL varieties have to meet basic yield guidelines to maintain a place on the DL, this does not constitute a recommendation.

Yield and quality

Yields
Yields are calculated as a percentage of the control. Several established varieties are selected as controls and the average UK 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 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, thus these data should be treated more cautiously. Divisions between regions are not absolute and growers are advised to consider the region that is most appropriate for their conditions.

Annual yields
Annual yields provide a breakdown of variety performance in different seasons over the years in which the variety has been tested. Consistent high 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 2.0 mm sieve. High kernel content, high specific weight and low per cent screenings are preferred for milling.

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

Agronomic traits

Disease resistance
Scores for disease resistance are based on natural infection and inoculated trials. Information is only used where relatively high levels of disease are present to 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.

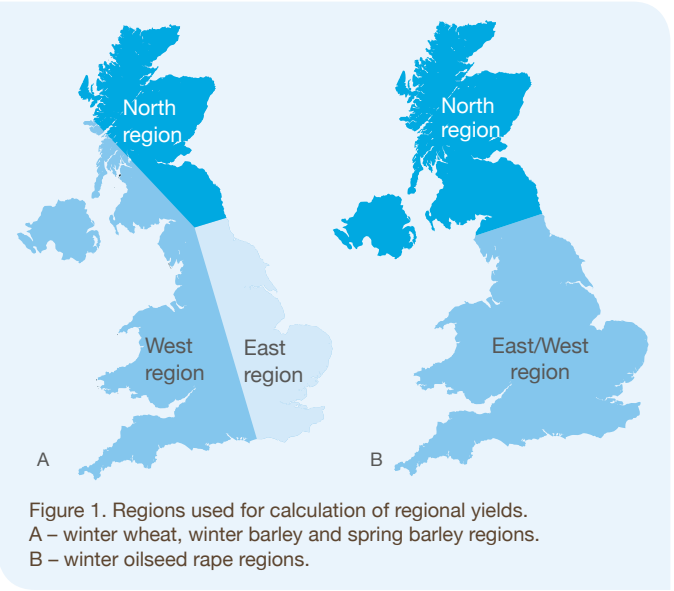


Figure 1. Regions used for calculation of regional yields.
A – winter wheat, winter barley and spring barley regions.
B – winter oilseed rape regions.

If a variety relies on a single major resistance gene, a breakdown in resistance can see a variety with a score of 9 become very susceptible.

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

A combination of good disease resistance, and a high untreated yield, when compared with current varieties, is of high importance when selecting new varieties for the RL. Ratings are typically based on 3–5 years of data.

Brackling
Brackling is when the stems fold or break higher up the plant than in stem lodging, where the damage occurs close to, or below, the ground. Assessments are carried out on 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.

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 given have been collated from RL trials, but it has been noted that differences can be far greater on farm, particularly where growing conditions are more marginal.

Market information – wheat

Flour milling

The largest single market for quality wheat is for flour production, with around seven million tonnes of wheat being used by UK flour millers. Such is the importance of milling quality that wheat varieties are classified using four categories, which have been defined by the National Association of British and Irish Millers (**nabim**).

Group 1 wheat varieties are used for bread-making and give consistent milling and baking performance. Provided they achieve the specified quality requirements, millers will offer a premium above base prices. Lower protein Group 1 wheat will also be of value but may attract a lower premium. Group 1 varieties are not interchangeable and some are better suited to specific uses than others.

Group 2 varieties are also mainly used for bread-making but, because of either their inherent inconsistency or specific characteristics, are not suited to all grists.

These varieties are likely to attract varying market prices. Lower protein Group 2 wheats are also widely used by millers but will attract variable premiums.

Group 3 contains soft varieties for biscuit, cake and other flours, where the main requirement is for soft-milling characteristics, low protein, good extraction rates and an extensible, but not elastic, gluten.

Group 4 varieties are grown mainly as feed wheats. Some may be used by millers in certain 'general purpose' grists if they achieve the contractual standards, but are unlikely to attract a premium. Some varieties may be suitable for export. Group 4 varieties are subdivided into hard endosperm and soft endosperm types and care should be taken to avoid mixing them.

Animal feed

Feed varieties currently comprise most varieties grown. Typical industry standards for feed wheat are a specific weight of 72 kg/hl and have a maximum moisture content of 15%. To reflect this, there is a minimum standard of 74 kg/hl for feed wheat varieties for recommendation.

Cereal foods

Although most cereal food requirement is focused on maize and oats, a notable amount of wheat and barley (often malted) is also needed. Much of the wheat used consists of Group 3 and 4 varieties. Quality requirements vary and premiums may be available, depending on markets and usage.

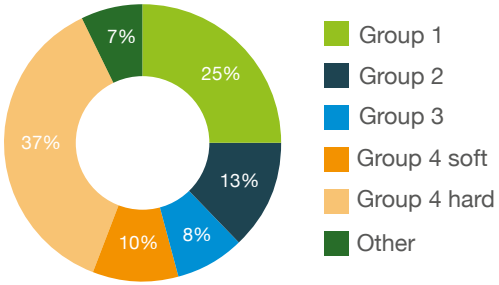
Distilling

Varieties most suitable for this market produce a high alcohol yield and have low viscosity. They are found in Group 3 and Group 4 soft categories.

Biofuels

Wheat is now an established UK biofuel crop, although the volumes required vary markedly from season to season. Processing requires grain with good alcohol yields and high processing efficiency, but preferred varieties are not currently specified.

2018 GB wheat area by end-use category



Source: AHDB Variety Survey 2018

Starch production

Starch production requires similar characteristics to varieties for distilling, but the industry currently does not have a preferred variety.

Exports

Exports are important and provide some support to wheat prices, in some parts of the UK and in higher production years, by preventing oversupply. The UK produces good quality milling wheat, which is highly sought after in several countries, such as Algeria, Morocco, Portugal and Spain.

There is a core market overseas and growers can capitalise on these opportunities when choosing varieties to grow. If you farm within an 80 mile radius of a port, your local market could be anywhere in the world.

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

Typical specifications

	nabim Group 1	nabim Group 2	nabim Group 3	ukp	uks
Minimum specific weight (kg/hl)	76	76	74	76	75
Maximum moisture content (%)	15	15	15	14	14
Maximum admix (%)	2	2	2	2	2
Minimum Hagberg Falling Number (HFN; s)	250	250	220	250	220
Protein (%)	13.0	12.5	11.5	11.0–13.0	10.5–11.5
W	N/A	N/A	N/A	170 (min)	70–120
P/L	N/A	N/A	N/A	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 that is very extensible with low strength.

Barley

Barley is currently enjoying a resurgence within the UK, with the crop area increasing year-on-year for the past few harvests. Spring barley, in particular, has benefited from the general trend towards spring-planted crops, due, in part, to interest in cultural control measures for agronomic challenges, such as black-grass and better relative economic returns. The main markets are malting, brewing and distilling, as well as animal feed.

The Maltsters' Association of Great Britain (MAGB) is the trade association of the UK malting industry and represents over 98% of UK malt production. MAGB anticipates barley crop purchases at 1.9 million tonnes from England and Scotland from the 2019 crop.

Grain nitrogen band

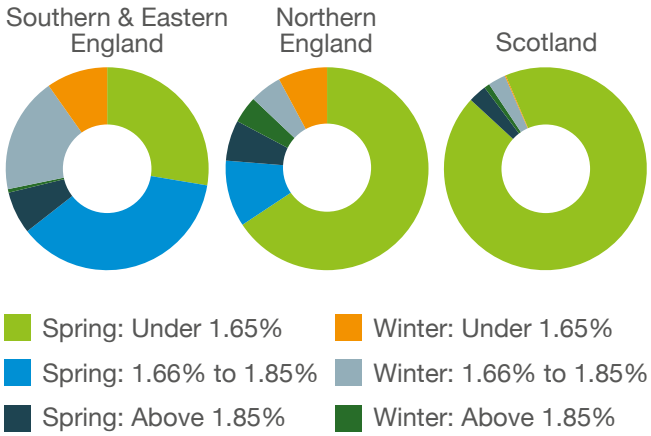


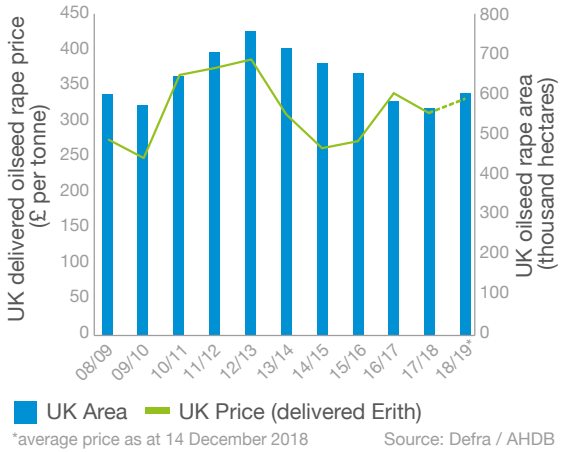
Figure 2. The chart above shows MAGB members' wish list for grain nitrogen levels in 2019 barley crop purchases from England and Scotland

Exports

Exports of both malting and feed barley are important to the UK market. At the time of writing, it is not clear what sort of deal the United Kingdom will have on exiting the EU. However, global markets are likely to be of increased importance in the future.

Oilseed rape

Oilseed rape remains an important part of many rotations. In 2018, the UK area recovered partially, following a more favourable autumn establishment period. However, it remained well below the record 0.76 million hectares planted in 2012 because of concerns over the loss of key inputs and lower prices.



*average price as at 14 December 2018 Source: Defra / AHDB

The markets for oilseed rape include:

- Edible oil
- High oleic, low linolenic (HOLL) oilseed rape
- High erucic acid rapeseed (HEAR)
- Biodiesel

HOLL oilseed rape oil meets the food industry's needs because it is a low trans-fatty acid and low saturated fat vegetable oil that is stable and performs well for high temperature uses. All HOLL rapeseed is currently grown under contract to ensure quality of supply and traceability. A rotation gap of three years is recommended between standard and HOLL crops.

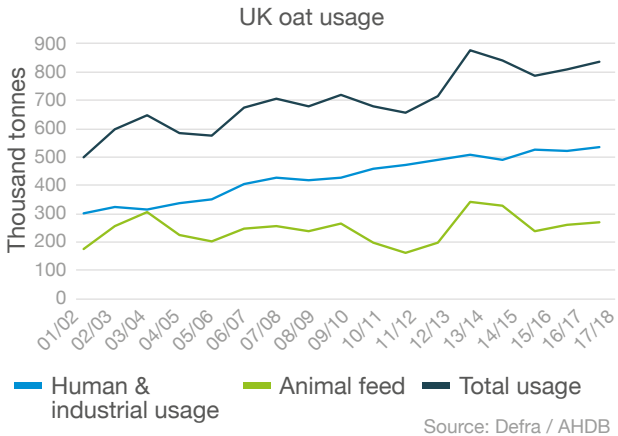
HOLL should not be grown on land previously used for HEAR. HOLL oil profile is also suitable for the general commodity crush if the contract specification is not achieved.

HEAR varieties are used in the relatively small industrial processing market. Care should be taken to keep HEAR varieties separate from others.

Oats

The main markets for oats are milling and feed. Human and industrial usage has been increasing in recent years, driven by higher demand for oat products, both within the UK and for export. All varieties should be acceptable for both uses.

Varieties may be either husked or huskless (naked). The 2018 UK oat area is estimated at 173,000 ha, 8% larger than 2017 and the largest since 2013.



Source: Defra / AHDB

Regional information

Regional markets

Information from the AHDB Variety Survey can be used to give an indication of the relative importance of different end-use markets in each region of the UK.

For wheat, bread-making varieties tend to be more popular in the East, while distilling varieties are of greater importance further north.

For barley, spring malt varieties for brewing will be in greater demand in the South, while further north, malt distilling varieties will be more appropriate.

Regional trials data

Tools to visualise trials data from your region can be accessed via **ahdb.org.uk/tools**

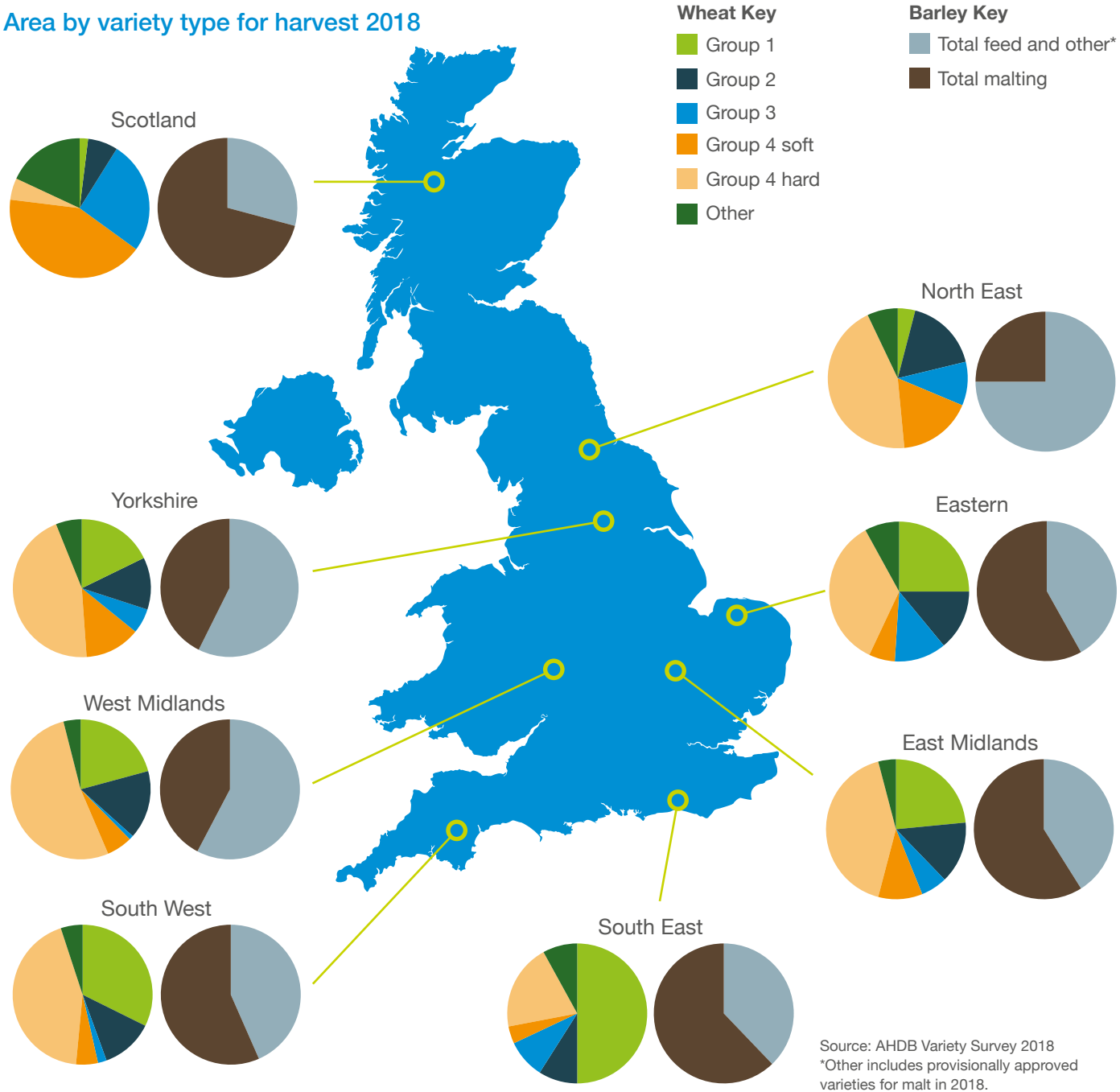
The Variety Selection Tool allows users to navigate the latest variety trials data and make comparisons – based on location-specific information – to help identify the most promising winter wheat and winter barley varieties for their unique situations.

By selecting geographical location, rotational position, soil type or sowing date, the tool visualises trials data in chart format for easy comparison of varieties.

By selecting a 'district' (based on regional climates defined by the Met Office), trial data from other areas are excluded, potentially making the results more regionally relevant.

Variety information will also be available at events throughout the year. For more information, visit **ahdb.org.uk/events**

Area by variety type for harvest 2018



Source: AHDB Variety Survey 2018
*Other includes provisionally approved varieties for malt in 2018.

Regional disease risk

Variety treated yields are presented based on trials in which the varieties received a full fungicide and plant growth regulator programme. Look at the untreated yield row for guidance on how the variety may perform under high disease pressure where crop protection may have been delayed.

Some diseases are economically important in all regions; for example, septoria tritici in wheat. Others, however, may be more common in specific regions. Yellow rust in wheat, for example, is of greater importance in the East and rhynchosporium in barley is of greater importance in the West and North.

Recommended Lists' disease ratings are based on a 1–9 scale, where high numbers indicate high resistance. See page 3 for more information.

Emerging disease threats

The disease ratings on the Recommended Lists are an indicator of variety performance in previous years. The fungi that cause disease are continually changing and varieties with a high rating may change within a season if new fungal races occur. Monitoring activities can help to give an early warning of such changes.

New races of yellow rust and brown rust have been identified in the UK Cereal Pathogen Virulence Survey (UKCPVS). In 2016, major changes were seen in the susceptibility of some wheat varieties to yellow rust.

Wheat disease risk

Isolates collected in 2016 revealed the presence of at least two new races that were widespread in the UK: Red 24 and Blue 7. Between them, these two races were shown to be behind some of the changes in variety resistance ratings.

Further information and sampling guidelines can be found at **ahdb.org.uk/ukcpvs**

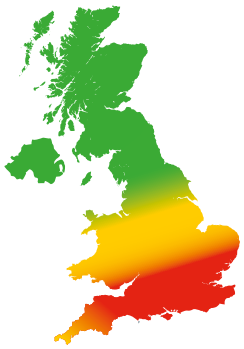
Wheat disease risk

Septoria tritici

Septoria nodorum

Yellow rust

Brown rust

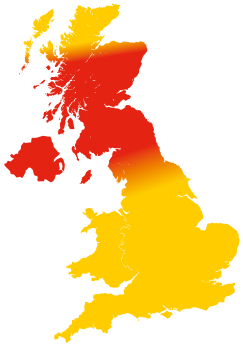


Powdery mildew

Barley disease risk

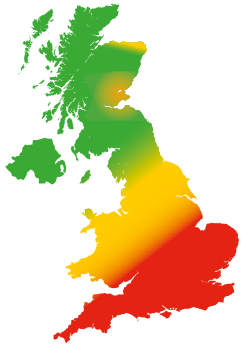
Rhynchosporium

Ramularia



Net blotch

Brown rust

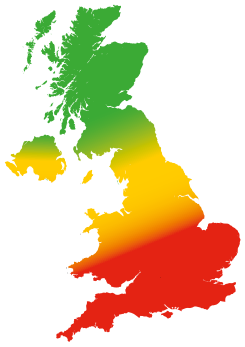


Powdery mildew

Oilseed rape disease risk

Light leaf spot

Phoma



Disease risk

- High
- Moderate
- Low

Winter wheat 2019/20

Market options, yield and grain quality

AHDB RECOMMENDED

	KWS Zyatt	Skyfall	KWS Trinity	RGT Illustrious	Crusoe	KWS Siskin	KWS Extase	KWS Lili	LG Detroit	KWS Firefly	KWS Barrel	Elicit	KWS Basset	Zulu	LG Skyscraper	LG Spotlight	KWS Jackal	Elation	Bennington	LG Sundance	LG Motown	Leeds	Myriad	Revelation	Viscount	Average LSD (5%)
End-use group	nabim Group 1					nabim Group 2				nabim Group 3					Soft Group 4											
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	E&W	UK	UK	UK	UK	UK	UK	UK	N	UK	E&W	UK	UK	N	N	UK	N	
		C	*			C	NEW		NEW	NEW				C	NEW	NEW							*			
Fungicide-treated grain yield (% treated control)																										
United Kingdom (11.2 t/ha)	101	99	98	97	97	102	101	100	100	102	101	101	99	98	106	104	102	102	102	101	100	99	98	97	97	2.0
East region (11.2 t/ha)	100	99	98	97	96	102	101	100	100	103	101	101	99	98	106	103	103	103	102	101	100	100	98	98	97	2.3
West region (11.3 t/ha)	101	99	97	98	97	102	102	100	102	103	100	100	99	97	106	105	101	102	103	101	100	98	97	96	96	2.6
North region (11.2 t/ha)	99	98	98	94	93	100	[102]	103	[95]	[99]	105	102	99	100	[104]	[101]	104	103	99	102	100	101	100	98	101	3.1
Main market options (The specific attributes of varieties are different, so, whenever possible, varieties should not be mixed in store)																										
UK bread-making	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UK biscuit, cake-making	-	-	-	-	-	-	-	-	-	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-
UK distilling	-	-	-	-	-	-	-	-	-	-	-	Y	-	[Y]	[Y]	[Y]	[Y]	Y	-	[Y]	[Y]	[Y]	[Y]	Y	Y	
ukp bread wheat for export	Y	-	-	-	Y	Y	[Y]	Y	[Y]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
uks soft wheat for export	-	-	-	-	-	-	-	-	-	[Y]	Y	[Y]	Y	Y	-	-	-	[Y]	Y	-	-	Y	Y	Y	Y	
Grain quality																										
Endosperm texture	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	
Protein content (%)	12.1	12.1	11.8	12.0	12.7	11.7	11.7	11.4	12.2	11.7	11.2	11.5	11.4	11.5	11.2	11.1	10.9	11.4	11.4	11.2	11.3	11.3	11.4	11.5	11.2	0.2
Protein content (%) - Milling spec	13.2	13.3	12.8	13.1	13.6	12.8	12.6	12.4	13.2	12.8	12.2	12.5	12.5	12.6	12.0	12.1	12.2	12.5	12.3	12.3	12.2	12.4	12.6	12.6	12.2	0.3
Hagberg Falling Number	283	293	343	278	281	300	307	303	280	248	227	222	238	237	221	290	177	209	245	187	226	221	244	257	202	25
Specific weight (kg/hl)	78.3	78.6	77.8	77.5	78.3	77.5	78.6	77.5	77.8	75.9	77.3	77.3	77.9	76.4	77.2	78.3	76.1	77.8	77.6	74.4	76.0	78.1	76.8	76.5	76.2	0.7
Chopin alveograph W	183	-	[241]	-	212	174	186	185	214	88	88	88	89	100	-	[67]	[72]	91	88	72	57	[78]	[98]	[75]	-	21
Chopin alveograph P/L	0.6	-	[1.0]	-	0.6	0.6	0.6	0.7	0.7	0.3	0.4	0.3	0.3	0.3	-	[0.3]	[0.3]	0.3	0.4	0.3	0.3	[0.2]	[0.3]	[0.4]	-	0.1

Varieties no longer listed: Cordiale, Dickens, Freiston, Grafton, Hardwicke, KWS Santiago, KWS Silverstone, Moulton, Reflection, Savello and Spyder.
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&W = Recommended for the East and West regions
N = Recommended for the North region

C = Yield control (for current table). For this table KWS Santiago was also a yield control but is no longer listed.
* = Variety no longer in 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 2019/20

Market options, yield and grain quality

AHDB RECOMMENDED

	RGT Gravity	Gleam	KWS Kerrin	Shabras	Graham	KWS Crispin	Dunston	Evolution	Costello	JB Diego	Average LSD (5%)
End-use group	Hard Group 4										
Scope of recommendation	UK	UK	E&W	UK	UK	UK	UK	UK	UK	UK	
								*		*C	
Fungicide-treated grain yield (% treated control)											
United Kingdom (11.2 t/ha)	104	104	104	103	102	102	101	101	100	100	2.0
East region (11.2 t/ha)	104	104	104	103	101	102	102	101	100	99	2.3
West region (11.3 t/ha)	104	103	103	103	105	102	100	99	100	100	2.6
North region (11.2 t/ha)	105	104	105	104	100	98	102	103	100	100	3.1
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	
Protein content (%)	11.3	11.1	10.7	11.2	11.3	11.5	11.4	11.1	11.8	11.4	0.2
Protein content (%) – Milling spec	12.2	12.0	11.6	12.1	12.1	12.6	12.4	12.2	12.7	12.4	0.3
Hagberg Falling Number	211	223	150	219	283	285	236	214	330	315	25
Specific weight (kg/hl)	76.4	76.6	76.5	76.4	76.9	77.1	77.2	75.2	80.9	78.1	0.7
Chopin alveograph W	-	-	-	-	125	-	[72]	-	[198]	-	21
Chopin alveograph P/L	-	-	-	-	0.5	-	[0.6]	-	[0.9]	-	0.1

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UK = Recommended for the UK
E&W = Recommended for the East and West regions

C = Yield control (for current table). For this table KWS Santiago was also a yield control but is no longer listed.

* = Variety no longer in trials
[ ] = 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 2019/20

Yield, agronomy and disease resistance

AHDB RECOMMENDED

End-use group	nabim Group 1					nabim Group 2				nabim Group 3					Soft Group 4									
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	E&W	UK	UK	UK	UK	UK	UK	UK	N	UK	E&W	UK	UK	N	N	UK	N	
		C	*			C	NEW		NEW	NEW				C	NEW	NEW							*			
Fungicide-treated grain yield (% treated control)																										
United Kingdom (11.2 t/ha)	101	99	98	97	97	102	101	100	100	102	101	101	99	98	106	104	102	102	102	101	100	99	98	97	97	2.0
East region (11.2 t/ha)	100	99	98	97	96	102	101	100	100	103	101	101	99	98	106	103	103	103	102	101	100	100	98	98	97	2.3
West region (11.3 t/ha)	101	99	97	98	97	102	102	100	102	103	100	100	99	97	106	105	101	102	103	101	100	98	97	96	96	2.6
North region (11.2 t/ha)	99	98	98	94	93	100	[102]	103	[95]	[99]	105	102	99	100	[104]	[101]	104	103	99	102	100	101	100	98	101	3.1
Untreated grain yield (% treated control)																										
United Kingdom (11.2 t/ha)	86	81	76	83	74	85	95	72	77	86	72	82	74	72	84	82	77	79	84	86	84	68	63	80	73	5.3
Agronomic features																										
Resistance to lodging without PGR (1–9)	7	8	8	7	7	6	7	7	8	8	7	7	7	6	7	7	7	7	7	6	6	7	7	7	7	0.5
Resistance to lodging with PGR (1–9)	8	8	8	8	8	7	8	8	7	8	8	8	8	7	7	8	7	8	8	7	6	8	7	8	8	0.5
Height without PGR (cm)	83	82	81	88	81	83	89	81	84	81	82	84	84	88	90	91	85	81	90	86	83	85	88	85	80	1.7
Ripening (days +/- JB Diego, -ve = earlier)	0	0	+1	+1	+1	+1	0	+2	+1	+1	+1	+1	+2	+1	0	+1	+1	+1	+2	+2	0	+2	+2	+3	+1	0.6
Resistance to sprouting (1–9)	[5]	5	6	[6]	6	[5]	-	7	-	-	[6]	[5]	[6]	5	-	-	[5]	[6]	[5]	[4]	[6]	6	6	5	5	1.1
Disease resistance																										
Mildew (1–9)	7	5	8	6	6	8	6	8	5	5	6	6	5	7	7	6	7	7	7	7	7	3	5	6	6	1.1
Yellow rust (1–9)	8	5	9	9	9	9	9	7	9	9	9	9	8	5	8	8	9	9	6	9	9	6	4	9	7	0.7
Brown rust (1–9)	6	8	7	6	3	5	7	4	5	8	5	7	5	7	5	6	5	6	7	6	7	7	6	8	9	0.9
Septoria nodorum (1–9)	[6]	[6]	[6]	[6]	6	[7]	-	[6]	-	-	[5]	[6]	[6]	[6]	-	-	[5]	[6]	[7]	[7]	[6]	[6]	[5]	[6]	[6]	0.7
Septoria tritici (1–9)	6.4	5.9	5.5	6.1	6.5	6.7	8.1	5.9	5.7	7.0	4.5	6.0	5.1	5.2	5.2	5.2	4.9	4.3	6.3	7.9	5.7	4.6	5.6	6.3	4.8	0.7
Eyespot (1–9)	7@	6@	5	6@	5	4	[4]	5	[5]	[4]	4	4	5	4	[4]	[5]	4	4	4	3	4	4	4	8@	4	1.1
Fusarium ear blight (1–9)	6	7	6	6	6	5	6	6	7	5	6	7	6	6	6	7	6	6	6	7	6	7	6	7	6	0.5
Orange wheat blossom midge	-	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&W = Recommended for the East and West regions
N = Recommended for the North region

C = Yield control (for current table). For this table KWS Santiago was also a yield control but is no longer listed.
* = Variety no longer in trials
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@ = 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 2019/20

Yield, agronomy and disease resistance

AHDB RECOMMENDED

	RGT Gravity	Gleam	KWS Kerrin	Shabras	Graham	KWS Crispin	Dunston	Evolution	Costello	JB Diego	Average LSD (5%)
End-use group	Hard Group 4										
Scope of recommendation	UK	UK	E&W	UK	UK	UK	UK	UK	UK	UK	
								*		*C	
Fungicide-treated grain yield (% treated control)											
United Kingdom (11.2 t/ha)	104	104	104	103	102	102	101	101	100	100	2.0
East region (11.2 t/ha)	104	104	104	103	101	102	102	101	100	99	2.3
West region (11.3 t/ha)	104	103	103	103	105	102	100	99	100	100	2.6
North region (11.2 t/ha)	105	104	105	104	100	98	102	103	100	100	3.1
Untreated grain yield (% treated control)											
United Kingdom (11.2 t/ha)	80	85	81	82	88	84	86	80	82	71	5.3
Agronomic features											
Resistance to lodging without PGR (1–9)	7	7	7	6	7	6	7	7	7	7	0.5
Resistance to lodging with PGR (1–9)	7	7	7	7	8	7	8	7	8	8	0.5
Height without PGR (cm)	86	85	84	85	86	85	92	89	82	87	1.7
Ripening (days +/- JB Diego, -ve = earlier)	+1	0	+1	0	0	+1	+1	+2	+2	0	0.6
Resistance to sprouting (1–9)	[4]	[5]	[5]	[4]	[7]	[5]	[5]	6	7	7	1.1
Disease resistance											
Mildew (1–9)	4	6	7	6	7	6	5	7	8	6	1.1
Yellow rust (1–9)	8	7	7	7	8	9	7	8	9	4	0.7
Brown rust (1–9)	6	6	7	5	6	5	6	7	5	6	0.9
Septoria nodorum (1–9)	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	5	0.7
Septoria tritici (1–9)	5.0	6.4	5.0	6.2	6.9	5.8	6.7	5.4	6.1	5.2	0.7
Eyespot (1–9)	4	4	5	4	4	4	6@	4	4	5	1.1
Fusarium ear blight (1–9)	6	6	6	6	6	6	6	6	7	6	0.5
Orange wheat blossom midge	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
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C = Yield control (for current table). For this table KWS Santiago was also a yield control but is no longer listed.

* = Variety no longer in 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 2019/20

Supplementary data

AHDB RECOMMENDED

	KWS Zyatt	Skyfall	KWS Trinity	RGT Illustrious	Crusoe	KWS Siskin	KWS Extase	KWS Lili	LG Detroit	KWS Firefly	KWS Barrel	Elicit	KWS Basset	Zulu	LG Skyscraper	LG Spotlight	KWS Jackal	Elation	Bennington	LG Sundance	LG Motown	Leeds	Myriad	Revelation	Viscount	Average LSD (5%)
End-use group	nabim Group 1					nabim Group 2				nabim Group 3					Soft Group 4											
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	E&W	UK	UK	UK	UK	UK	UK	UK	N	UK	E&W	UK	UK	N	N	UK	N	
		C	*			C	NEW		NEW	NEW				C	NEW	NEW							*			
Breeder/UK contact																										
Breeder	KWS	RAGT	KWS	R2n	Lim	KWS	Mom	KWS	LimEur	KWS	KWS	ElsW	KWS	Lim	LimEur	LimEur	KWS	ElsW	ElsW	LimEur	LimEur	Mom	Lim	Lim	KWS	
UK contact	KWS	RAGT	KWS	RAGT	Lim	KWS	KWS	KWS	Lim	KWS	KWS	Els	KWS	Lim	Lim	Lim	KWS	Els	Els	Lim	Lim	KWS	Lim	Lim	KWS	
Annual treated yield (% control)																										
2014 (11.8 t/ha)	102	99	98	97	98	102	-	101	-	-	101	-	101	98	-	-	-	-	103	103	102	101	99	99	97	2.6
2015 (11.9 t/ha)	101	98	98	96	94	103	-	101	-	-	102	101	100	98	-	-	103	103	101	100	101	99	99	98	99	2.5
2016 (10.8 t/ha)	99	97	97	93	96	101	100	101	100	101	102	103	96	99	109	105	103	102	103	104	102	101	100	96	99	2.2
2017 (11.0 t/ha)	102	99	98	98	97	101	101	100	101	103	102	100	98	97	106	106	102	102	101	99	98	99	97	97	98	2.2
2018 (10.6 t/ha)	99	99	97	98	97	102	103	99	100	103	100	99	100	98	104	101	102	102	103	102	99	97	96	98	98	1.8
Rotational position																										
First cereal (11.6 t/ha)	100	99	98	97	97	102	101	101	100	102	102	101	99	98	106	103	102	102	102	101	100	100	98	98	98	2.0
Second and more (9.9 t/ha)	101	99	98	97	95	102	101	99	100	101	101	101	99	97	105	102	103	104	102	103	101	99	101	97	[99]	3.0
Sowing date (most trials were sown in October)																										
Early sown (before 15 Sep) (11.2 t/ha)	-	98	98	[97]	96	[[104]]	-	[[103]]	-	-	98	[102]	101	99	-	[[103]]	[102]	[101]	102	[[97]]	[[97]]	[100]	-	97	[95]	3.8
Late sown (mid-Nov to end-Jan) (10.2 t/ha)	98	97	97	96	94	101	[[102]]	101	[[98]]	[[101]]	102	[98]	98	100	[[103]]	[[100]]	[103]	[101]	100	[101]	99	102	[105]	[[98]]	[[100]]	3.5
Soil type (about 50% of trials are on medium soils)																										
Light soils (11.1 t/ha)	99	98	97	94	95	100	[103]	102	[98]	[102]	103	101	99	100	[105]	[100]	103	104	99	101	101	101	101	98	100	3.7
Heavy soils (11.5 t/ha)	101	99	98	98	97	102	101	101	101	103	101	100	99	98	106	104	102	102	104	101	100	99	98	97	[97]	2.6
Agronomic features																										
Lodging % without PGR	3	1	1	3	2	12	3	2	2	1	2	5	2	9	6	3	4	4	4	8	14	3	6	2	5	
Lodging % with PGR	1	1	1	1	2	6	1	2	4	1	2	3	1	7	10	2	6	2	2	11	15	2	5	2	3	
Latest safe sowing date #	Mid Feb	End Feb	Mid Feb	Mid Feb	End Jan	End Jan	[[End Jan]]	Mid Feb	[[End Jan]]	[[Mid Feb]]	End Jan	[End Jan]	End Jan	End Feb	[[End Jan]]	[[Mid Feb]]	[End Jan]	[End Jan]	End Jan	End Jan	End Jan	End Feb	Mid Feb	End Jan	Mid Feb	
Speed of development to growth stage 31 (days +/- average)																										
Early sown (Sep)	-2	-2	-5	0	0	-9	[-7]	-1	[+3]	[-5]	+3	[-2]	-4	-1	[-5]	[-9]	[+5]	[+2]	-8	+9	-4	-3	+6	+3	+1	9.1
Med sown (Oct)	-2	-3	+3	+3	+1	-5	[-7]	0	[+5]	[-2]	+3	[+6]	0	+4	[+3]	[-5]	[+4]	[-1]	-1	+4	-5	0	+6	+3	+1	6.3
Late sown (Nov)	[-2]	-1	+1	-1	-1	-3	[-1]	+3	[+1]	[0]	+3	[+1]	-3	0	[-2]	[-1]	[+1]	[-3]	[0]	[+4]	[-1]	-1	+4	+3	+1	5.0
Status in RL system																										
Year first listed	17	14	15	16	12	16	19	15	19	19	16	18	16	14	19	19	18	18	17	17	17	13	13	13	09	
RL status	-	-	*	-	-	-	P1	-	P1	P1	-	P2	-	-	P1	P1	P2	P2	-	-	-	-	*	-	-	

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

UK = Recommended for the UK
E&W = Recommended for the East and West regions
N = Recommended for the North region
* = Variety no longer in trials

C = Yield control (for current table). For this table KWS Santiago was also a yield control but is no longer listed.
[ ] = 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

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 2019/20

Supplementary data

AHDB RECOMMENDED

	RGT Gravity	Gleam	KWS Kerrin	Shabras	Graham	KWS Crispin	Dunston	Evolution	Costello	JB Diego	Average LSD (5%)
End-use group	Hard Group 4										
Scope of recommendation	UK	UK	E&W	UK	UK	UK	UK	UK	UK	UK	
								*		*C	
Breeder/UK contact											
Breeder	R2n	SyP	KWS	SyP	SyP	KWS	ElsW	Sej	KWS	Bre	
UK contact	RAGT	Syn	KWS	Syn	Syn	KWS	Els	Lim	Sen	Sen	
Annual treated yield (% control)											
2014 (11.8 t/ha)	-	-	107	105	103	103	104	101	99	100	2.6
2015 (11.9 t/ha)	104	104	104	103	99	100	104	101	100	99	2.5
2016 (10.8 t/ha)	108	104	104	104	104	102	101	102	98	100	2.2
2017 (11.0 t/ha)	104	103	102	102	103	101	98	100	102	101	2.2
2018 (10.6 t/ha)	101	104	104	102	102	102	102	100	102	99	1.8
Rotational position											
First cereal (11.6 t/ha)	104	104	104	103	103	102	101	101	101	100	2.0
Second and more (9.9 t/ha)	105	105	105	104	100	100	103	101	99	100	3.0
Sowing date (most trials were sown in October)											
Early sown (before 15 Sep) (11.2 t/ha)	[[101]]	[104]	-	-	103	-	101	-	99	99	3.8
Late sown (mid-Nov to end-Jan) (10.2 t/ha)	[104]	[103]	105	[99]	[100]	102	100	101	99	100	3.5
Soil type (about 50% of trials are on medium soils)											
Light soils (11.1 t/ha)	104	103	104	103	101	101	101	103	100	100	3.7
Heavy soils (11.5 t/ha)	104	104	103	102	103	102	101	100	101	99	2.6
Agronomic features											
Lodging % without PGR	6	3	5	9	5	9	3	6	3	4	
Lodging % with PGR	7	4	8	8	2	5	2	5	1	3	
Latest safe sowing date #	[End Jan]	[End Jan]	End Jan	End Jan	End Jan	Mid Feb	Mid Feb	Mid Feb	End Jan	End Jan	
Speed of development to growth stage 31 (days +/- average)											
Early sown (Sep)	[+3]	[+9]	-2	+4	+3	-5	+5	0	-1	-1	9.1
Med sown (Oct)	[+4]	[+4]	+2	+1	+1	-4	+2	+1	0	0	6.3
Late sown (Nov)	[-3]	[+4]	[-1]	[-1]	-4	-5	[+1]	+1	-3	-2	5.0
Status in RL system											
Year first listed	18	18	17	17	16	16	17	14	15	08	
RL status	P2	P2	-	-	-	-	-	*	-	*	

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

Bre = Saatzucht Josef Breun, Germany
Els = Elsoms Seeds Ltd (www.elsoms.com)
ElsW = Elsoms Wheat Ltd (www.elsoms.com)
KWS = KWS UK (www.kws-uk.com)
Lim = Limagrain UK (www.lgseeds.co.uk)
LimEur = Limagrain Europe SA (www.lgseeds.co.uk)
Mom = Momont, France
RAGT = RAGT Seeds, UK (www.ragt.co.uk)
R2n = RAGT, France (www.ragt.co.uk)
Sej = Sejet, Denmark (www.sejet.com)
Sen = Senova (www.senova.uk.com)
Syn = Syngenta UK Ltd (www.syngenta.co.uk)
SyP = Syngenta Participations AG (www.syngenta.co.uk)

UK = Recommended for the UK
E&W = Recommended for the East and West regions
* = Variety no longer in trials
[ ] = Limited data
[[ ]] = Very limited data

C = Yield control (for current table). For this table KWS Santiago was also a yield control but is no longer listed.

# = 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

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 trials harvest 2019

Candidate varieties

AHDB CANDIDATE

Previous/proposed name	Variety ID	Yield treated (T)	Yield untreated (UT) (as % treated controls)	Lodging % (UT)	Lodging % (T)	Height (cm) (UT)	Maturity (days +/- JB Diego)	Mildew (1–9)	Yellow rust (1–9)	Brown rust (1–9)	Septoria tritici (1–9)	Eyespot (1–9)	OWBM resistance	Endosperm texture	Protein content %	Hagberg Falling Number	Specific weight (kg/hl)	UK contact
Control varieties																		
KWS Siskin	KWS W243	2315	101	87	14	5	84	0	8	9	5	7	4	-	Hard	12.5	284	77.3	KWS UK
Zulu	LGW54	2155	97	71	15	3	89	+1	7	5	7	5	4	R	Soft	12.2	225	75.8	Limagrain UK
Skyfall	SJ3326	2138	100	84	2	2	83	0	5	5	8	6	6@	R	Hard	12.9	266	78.7	RAGT Seeds
KWS Santiago	CPBT W165	1916	102	74	7	2	87	+1	6	7	5	4	4	R	Hard	12.1	223	75.8	KWS UK
JB Diego	BR5251D35	1737	101	72	5	1	87	0	6	4	6	5	5	-	Hard	12.2	330	79.0	Senova
Selected as potential bread-making varieties																		
RGT Blossom	RW41615	2699	100	73	11	4	88	0	5	9	5	6	-	-	Hard	12.6	327	77.7	RAGT Seeds
Selected as potential feed varieties																		
LG Graduate	LGWU133	2731	105	81	8	3	89	+3	4	6	8	6	-	R	Soft	11.6	237	77.4	Limagrain UK
RGT Saki	RW41640	2702	Data cannot be published as variety has not completed National List testing															RAGT Seeds
Elysium	EW4033	2718	103	89	1	2	91	+1	6	8	8	6	-	-	Soft	12.3	293	76.4	Elsoms Wheat Ltd
KWS Kinetic	KWSW346	2770	105	86	6	2	83	0	6	6	6	6	-	R	Hard	11.8	279	78.8	KWS UK
SY Insitor	SY116157	2745	Data cannot be published as variety has not completed National List testing															Syngenta UK Ltd
RGT Lantern	RW41646	2704	104	82	6	2	82	+1	5	7	7	6	-	R	Hard	11.6	273	75.9	RAGT Seeds
RGT Wasabi	RW41642	2703	Data cannot be published as variety has not completed National List testing															RAGT Seeds
KWS Parkin	KWSW345	2769	103	84	1	1	78	-1	7	9	5	6	-	-	Hard	11.8	277	76.4	KWS UK
Theodore	DSV316126	2711	101	92	9	2	83	0	7	9	7	7	-	-	Hard	12.7	329	73.9	DSV UK
Mean of controls (t/ha)			10.4	10.4	-	-	-	299	-	-	-	-	-			-	-	-	
Overall mean			-	-	8	3	86.6	-	-	-	-	-	-			12.3	266	77.3	
LSD 5%			3.8	5.2	1.0	0.6	2.7	1.6	-	-	-	-	-			0.3	31.1	1.0	
Number of trials			30	10	7	17	11	9	-	-	-	-	-			10	10	10	

On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (e.g. high resistance). The 1–9 ratings are not comparable to those used on the Recommended List table.
See the AHDB Recommended List for full data on control varieties.
Candidate varieties will be considered for the 2020/21 AHDB Recommended List.
To allow direct comparisons, the data presented for control varieties are taken from trials in which the candidates were grown.
These summaries are derived from National List and BSPB trials. Acknowledgement is made to APHA and BSPB for the use of the data.

T = Data from trials treated with fungicide and PGR
UT = Data from trials without fungicide or PGR

R = Believed to be resistant to orange wheat blossom midge (OWBM).

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

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

Winter wheat varieties grown in RL trials in 2018 but not added to the AHDB Recommended List

	Control varieties					Other varieties				
	Skyfall	KWS Siskin	Zulu	KWS Santiago	JB Diego	LG Rhythm	LG Sabertooth	SY Loki	LG Jigsaw	Average LSD (5%)
Fungicide-treated grain yield (% treated control)										
United Kingdom (11.2 t/ha)	99	102	98	102	100	101	104	102	102	2.0
East region (11.2 t/ha)	99	102	98	102	99	102	104	102	102	2.3
West region (11.3 t/ha)	99	102	97	101	100	99	103	103	102	2.6
North region (11.2 t/ha)	98	100	100	102	100	[101]	[102]	[102]	[102]	3.1
Untreated grain yield (% treated control)										
United Kingdom (11.2 t/ha)	81	85	72	67	71	75	77	80	82	5.3
Grain quality										
Endosperm texture	Hard	Hard	Soft	Hard	Hard	Soft	Soft	Soft	Hard	
Protein content (%)	12.1	11.7	11.5	11.4	11.4	11.2	10.9	11.2	11.1	0.2
Protein content (%) - Milling spec	13.3	12.8	12.6	12.5	12.4	12.1	12.1	12.1	12.1	0.3
Hagberg Falling Number	293	300	237	183	315	207	243	264	210	25
Specific weight (kg/hl)	78.6	77.5	76.4	75.8	78.1	75.2	75.4	75.1	76.4	0.7
Chopin alveograph W	-	174	100	-	-	75	[69]	75	-	21
Chopin alveograph P/L	-	0.6	0.3	-	-	0.3	[0.4]	0.4	-	0.1
Agronomic features										
Resistance to lodging without PGR (1–9)	8	6	6	7	7	7	7	6	7	0.5
Resistance to lodging with PGR (1–9)	8	7	7	8	8	7	8	7	8	0.5
Height without PGR (cm)	82	83	88	85	87	82	95	85	88	1.7
Ripening (days +/- JB Diego, -ve = earlier)	0	+1	+1	+1	0	+1	+2	0	+2	0.6
Resistance to sprouting (1–9)	5	[5]	5	5	7	-	-	-	-	1.1
Disease resistance										
Mildew (1–9)	5	8	7	6	6	5	6	7	4	1.1
Yellow rust (1–9)	5	9	5	7	4	7	8	8	8	0.7
Brown rust (1–9)	8	5	7	5	6	6	7	6	7	0.9
Septoria nodorum (1–9)	[6]	[7]	[6]	5	5	-	-	-	-	0.7
Septoria tritici (1–9)	5.9	6.7	5.2	4.4	5.2	5.2	4.7	4.6	5.5	0.7
Eyespot (1–9)	6@	4	4	4	5	[4]	[5]	[5]	[6]@	1.1
Fusarium ear blight (1–9)	7	5	6	6	6	6	6	5	7	0.5
Orange wheat blossom midge	R	-	R	R	-	R	R	R	R	

This table should be read in conjunction with the AHDB Recommended List of winter wheat varieties for 2019/20.
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.

[ ] = 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 2019/20

Variety comments

nabim Group 1 varieties

Crusoe ukp

Quality: A **nabim** 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 and septoria tritici. It is very susceptible to brown rust.

nabim comment: Crusoe has consistently demonstrated good protein content and quality. The breadcrumb structure is notably white and of good quality. Large volumes of this variety continue to be seen and its baking performance remains good; consequently, it remains popular with millers.

KWS Trinity

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

Agronomy: This short and stiff-strawed variety has a treated UK yield of around 1% below that of Skyfall. It has high resistance to mildew, yellow rust and brown rust. KWS Trinity is no longer in RL trials.

nabim comment: This variety exhibits good gluten quality even at lower protein levels and has shown good baking performance. This variety has not achieved a significant market share and millers have seen relatively small quantities.

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.

KWS Zyatt ukp

Quality: A **nabim** Group 1 bread wheat, classified as a **ukp** bread wheat for export. KWS Zyatt has given high yields, combined with high specific weights and Hagbergs. 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 West region, as well as in second cereal situations and in trials on heavy soil. KWS Zyatt has good overall disease resistance, especially for eyespot (*Pch1*) and yellow rust and has given high untreated UK yields in trials. It is a relatively early-maturing variety and limited data suggest it may have a tendency to sprout, so should be given priority at harvest.

nabim comment: This variety shows good gluten strength and milling quality, alongside a good baking performance. As a high-yielding variety, nitrogen applications may need to be adjusted to achieve protein specifications.

RGT Illustrious

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

Agronomy: This relatively stiff-strawed variety has given UK yields comparable to those of Crusoe. It has good overall disease resistance, especially to yellow rust. RGT Illustrious carries the *Pch1* eyespot resistance gene.

nabim 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 **nabim** Group 1 bread wheat with high Hagbergs and specific weights that has given good proteins under a regime to achieve milling specification.

Agronomy: Its UK treated yield is 2% higher than that of Crusoe. It is an awned wheat with short, stiff straw and is the only Group 1 variety with resistance to orange wheat blossom midge. This variety has good overall disease resistance, especially to brown rust and fusarium ear blight and carries the *Pch1* eyespot resistance gene. 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 is also relatively early-maturing and has a tendency to sprout, so should be given priority at harvest.

nabim comment: This variety is very popular with millers because it shows good milling and baking qualities. Because it is high yielding, nitrogen applications may need be adjusted to achieve protein specifications.

Winter wheat 2019/20

Variety comments

nabim Group 2 varieties

KWS Extase ukp NEW

Quality: This new addition to **nabim** Group 2 has been 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 variety has produced high treated yields in the West region. Limited data suggest this variety has a high treated yield potential in the North region. 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 and the highest rating for resistance to septoria tritici on the 2019/20 Recommended List.

nabim comment: Over three years of testing, this variety showed protein levels similar to KWS Siskin and its performance was consistent with that of other Group 2 varieties. It showed some variability in its baking performance.

KWS Lili ukp

Quality: A **nabim** Group 2 wheat, classified as a **ukp** bread wheat for export. It has a high Hagberg Falling Number in trials, but careful management is required to attain the required protein level for milling specification.

Agronomy: This variety has given high treated yields in the North region and has performed particularly well on lighter soils. It is a later-maturing variety with short and relatively stiff straw. KWS Lili has high resistance to mildew and yellow rust, but is susceptible to brown rust.

nabim comment: This variety has lower protein levels than the other Group 2 varieties. There are some concerns about the breadcrumb structure of loaves made solely with this variety, but it will usually be used in grists.

KWS Siskin ukp

Quality: A high-yielding **nabim** Group 2 wheat, 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 produced high treated yields in the East and West regions and has also given high untreated UK yields in trials. 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. Limited data suggest that this variety may have a tendency to sprout, so should be given priority at harvest.

nabim comment: This variety has protein levels and specific weights that are slightly higher than those of KWS Lili. 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 NEW

Quality: This new addition to **nabim** Group 2 wheat has been 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 in the West region, where it has produced high treated yields. LG Detroit has high resistance to yellow rust and above-average resistance to fusarium ear blight and is the only Group 2 variety with resistance to orange wheat blossom midge.

nabim comment: Over three years of testing, this variety showed protein levels similar to the Group 1 varieties. Gluten quality and baking performance showed some variability.

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 about the different end-use groups, see page 4.

Winter wheat 2019/20

Variety comments

nabim Group 3 varieties

Elicit uks — distilling: good

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

Agronomy: This relatively stiff-strawed variety has produced high treated yields in the North region. It has high resistance to yellow rust and brown rust, combined with resistance to orange wheat blossom midge and above-average resistance to fusarium ear blight. Limited data suggest that this variety may have a tendency to sprout, so should be given priority at harvest.

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

KWS Barrel uks

Quality: A **nabim** Group 3 wheat. 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 produced very high yields in the North region. It has performed particularly well on lighter soils and in a late-drilling situation. KWS Barrel has high resistance to yellow rust and resistance to orange wheat blossom midge.

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

KWS Basset uks

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

Agronomy: This relatively stiff-strawed variety has high resistance to yellow rust and resistance to orange wheat blossom midge. It is a later-maturing variety.

nabim comment: Although this variety has shown some variation in dough extensibility, it fully meets the criteria for a Group 3 variety.

KWS Firefly uks NEW

Quality: This new addition to **nabim** Group 3 is relatively high-yielding. It is 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. KWS Firefly has improved Hagbergs over established Group 3 varieties.

Agronomy: This short, stiff-strawed variety has produced high treated yields in both the East and West regions and has performed well on heavier soils. KWS Firefly has the highest rating for resistance to septoria tritici for a Group 3 variety and has given high untreated UK yields in trial. It has high resistance to yellow rust and brown rust, as well as resistance to orange wheat blossom midge.

nabim comment: Over the three years of testing, this variety showed similar quality to the Group 3 control and fully met the Group 3 criteria.

Zulu uks — distilling: medium

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

Agronomy: This variety has given its best relative performance in the North region. It has moderate resistance to lodging, but responds well to plant growth regulators. Zulu has high resistance to mildew and brown rust, as well as resistance to orange wheat blossom midge. It has a tendency to sprout, so should be given priority at harvest.

nabim comment: This variety has consistently met the requirements for a Group 3 wheat.

HARVEST RESULTS

Access the latest information from AHDB Recommended List trials, including sowing lists and Harvest Result data, or sign up to Harvest Results – an e-newsletter sent out regularly during harvest.

ahdb.org.uk/harvestresults

Winter wheat 2019/20

Variety comments

Soft Group 4 varieties

Bennington uks

Quality: Recommended for the East and West regions as a soft-milling, high-yielding feed variety. It is classified as a **uks** soft wheat for export, but is rated as 'poor' for distilling due to low alcohol levels.

Agronomy: Bennington is a high-yielding, medium–tall and relatively stiff-strawed variety. It has performed well across rotational positions, in early drilling situations and on heavier soils. It has high resistance to brown rust and mildew. It is a relatively late-maturing variety.

Elation uks — distilling: good

Quality: Recommended for the UK as a soft-milling, high-yielding 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 given high treated yields across the UK. It has performed particularly well on lighter soils and in a second cereal rotation. Elation has high resistance to yellow rust and mildew and is resistant 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, high-yielding variety. It is rated as 'medium' for distilling.

Agronomy: This variety has produced very high treated yields in the North region. It has performed well across a range of rotational positions and soil types. KWS Jackal has high resistance to yellow rust and mildew, as well as resistance to orange wheat blossom midge.

Leeds uks — distilling: medium

Quality: Recommended for the North region as a soft-milling feed wheat with a high specific weight. It is classified as a **uks** soft wheat for export and is rated as 'medium' for distilling.

Agronomy: Leeds is a relatively stiff-strawed variety, but is rather late-maturing. It has high resistance to brown rust, resistance to orange wheat blossom midge and above-average resistance to fusarium ear blight. It is very susceptible to mildew.

LG Motown — distilling: medium

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

Agronomy: LG Motown gives its best relative performance on light soils and in a second cereal situation. This short-strawed variety has moderate resistance to lodging, which requires careful management. LG Motown has high resistance to yellow rust, mildew and brown rust, as well as resistance to orange wheat blossom midge.

LG Skyscraper NEW — distilling: medium

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

Agronomy: LG Skyscraper has given very high treated yields across the UK; the highest on the 2019/20 Recommended List. It has performed well across a range of soil types (based on limited data for light soils) and rotational positions. This medium–tall variety has high resistance to yellow rust and mildew, as well as resistance to orange wheat blossom midge.

LG Spotlight NEW — distilling: medium

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

Agronomy: LG Spotlight has given very high UK yields in treated trials and has a very high yield potential in the West region. This relatively stiff-strawed variety has performed particularly well on heavier soils. It has high resistance to yellow rust, above-average resistance to fusarium ear blight and resistance to orange wheat blossom midge.

Winter wheat 2019/20

Variety comments

Soft Group 4 varieties

LG Sundance — distilling: medium

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

Agronomy: This relatively late-maturing variety has given high treated yields in the North region. It has performed particularly well in second cereal situations. It has moderate resistance to lodging, but responds well to plant growth regulators. It has given high untreated yields in trials and has the second highest rating for resistance to septoria tritici on the 2019/20 Recommended List. It has high resistance to yellow rust and mildew, above-average resistance to fusarium ear blight and resistance to orange wheat blossom midge. LG Sundance is very susceptible to eyespot.

Myriad uks — distilling: medium

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

Agronomy: Myriad is a relatively late-maturing variety and limited data suggest it performs well in a late-drilling situation. It is resistant to orange wheat blossom midge and susceptible to yellow rust. It is no longer in RL trials.

Revelation uks — distilling: good

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

Agronomy: Revelation is a late-maturing variety with relatively stiff straw. It has a good overall disease package with high resistance to yellow rust, brown rust and eyespot (*Pch1*) and above-average resistance to fusarium ear blight. Revelation has slow primordial development and several other characteristics that could make it a useful candidate for very early drilling.

Viscount uks — distilling: good

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

Agronomy: This short and relatively stiff-strawed variety has high resistance to brown rust and yellow rust, as well as resistance to orange wheat blossom midge.

Winter wheat 2019/20

Variety comments

Hard Group 4 varieties

Costello

Quality: A hard-milling feed variety with high Hagbergs and specific weights.

Agronomy: This short and relatively stiff-strawed variety has high resistance to mildew and yellow rust, as well as above-average resistance to fusarium ear blight. It is a relatively late-maturing variety and has good sprouting resistance.

Dunston

Quality: A hard-milling feed variety.

Agronomy: This medium–tall and relatively stiff-strawed variety has given high treated yields in the East and North regions and performs well in second cereal situations. Dunston has produced high untreated yields in UK trials. It has high resistance to yellow rust and septoria tritici. It also carries the *Pch1* gene for eyespot resistance.

Evolution

Quality: A hard-milling feed wheat that tends to give low specific weights.

Agronomy: This medium–tall and relatively late-maturing variety has given high treated yields in the North region and has performed particularly well on lighter soils. Evolution has high resistance to mildew, yellow rust and brown rust. It is no longer in RL trials.

Gleam

Quality: A very high-yielding, hard-milling feed variety.

Agronomy: This high-yielding variety has performed well throughout the UK, as well as in various soil types and rotational positions. Gleam has given high untreated UK yields in trials and has high resistance to yellow rust and resistance to orange wheat blossom midge.

Graham

Quality: A high-yielding, hard-milling feed variety with high Hagbergs.

Agronomy: This relatively stiff-strawed variety has given very high treated yields in the West region. It performs best in a first cereal situation. Graham has performed particularly well in trials on heavier soils and in an early drilling situation. It has given high untreated UK yields in trials and has high resistance to septoria tritici, mildew and yellow rust.

JB Diego

Quality: A hard-milling feed variety with high Hagbergs and specific weights.

Agronomy: Although JB Diego gives yields that are 4% lower than the highest-yielding Group 4 feed variety, growers value its consistency. It is still a popular variety, with a relatively stiff straw and good sprouting resistance. It is susceptible to yellow rust. JB Diego is no longer in RL trials.

KWS Crispin

Quality: A high-yielding, hard-milling feed variety with high Hagbergs.

Agronomy: This variety has produced high treated yields in the East and West regions. It performs best in a first cereal situation. KWS Crispin has performed well on heavier soils and is suited to later drilling. It has moderate resistance to lodging, but responds well to plant growth regulators. It has high resistance to yellow rust and resistance to orange wheat blossom midge.

KWS Kerrin

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

Agronomy: This very high-yielding variety performs well in various soil types, rotational positions and in a late drilling situation. It has high resistance to mildew, yellow rust and brown rust, as well as resistance to orange wheat blossom midge.

RGT Gravity

Quality: A very high-yielding, hard-milling feed variety.

Agronomy: This variety has given very high treated yields throughout the UK, as well as across a range of soil types and rotational positions. RGT Gravity has high resistance to yellow rust and resistance to orange wheat blossom midge. It is susceptible to mildew.

Shabras

Quality: A high-yielding, hard-milling feed variety.

Agronomy: This high-yielding variety performs well across a range of soil types. It has given very high treated yields in the North region and in second cereal situations. Shabras has moderate resistance to lodging, but responds well to plant growth regulators. It has high resistance to yellow rust.

Spring wheat (for spring sowing) 2019

AHDB RECOMMENDED

	Mulika	KWS Cochise	KWS Chilham	KWS Willow	KWS Talisker	Hexham	KWS Kilburn	KWS Alderon	Average LSD (5%)
End-use group	nabim Group 1	nabim Group 2			Hard Group 4				
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	
	C			C	NEW	NEW		C	
UK yield as % control (spring sowing)									
Fungicide-treated (7.2 t/ha)	95	107	103	101	[106]	[105]	104	104	3.5
Untreated (% treated control) (7.2 t/ha)	[81]	[83]	[86]	[82]	[90]	[94]	[82]	[84]	7.5
UK yield as % control (autumn sowing)									
Fungicide-treated (9.7 t/ha)	96	103	102	104	102	107	[104]	101	4.5
Grain quality (spring sowing)									
Endosperm texture	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	
Protein content (%)	13.0	12.7	12.4	12.4	12.0	12.3	12.6	12.4	0.3
Hagberg Falling Number	300	225	303	282	263	275	265	295	28
Specific weight (kg/hl)	77.6	79.6	79.0	78.3	79.7	78.7	77.0	78.2	0.9
Agronomic features (spring sowing)									
Resistance to lodging with PGR ∞	-	-	-	-	-	-	-	-	-
Straw height without PGR (cm)	81	83	79	80	84	83	85	77	2.1
Ripening (+/- Mulika, -ve = earlier)	0	+1	+1	+1	[+1]	[+3]	+3	+2	2.5
Resistance to sprouting ∞	-	-	-	-	-	-	-	-	-
Disease resistance									
Mildew (1–9)	6	[8]	[7]	6	[8]	[7]	[7]	8	2.5
Yellow rust (1–9)	7	5	7	6	9	9	5	6	1.0
Brown rust (1–9)	5	7	4	6	3	5	9	6	2.1
Septoria tritici (1–9)	6	6	7	6	7	7	6	6	1.0
Orange wheat blossom midge	R	R	R	-	-	-	-	-	-
Annual treated yield (% control, spring sowing)									
2014 (7.2 t/ha)	[95]	[[115]]	[[117]]	[100]	-	-	[[109]]	[105]	8.4
2015 (8.0 t/ha)	[97]	[104]	[99]	[99]	-	-	[101]	[104]	6.3
2016 (8.5 t/ha)	[93]	[103]	[100]	[100]	[105]	[107]	[104]	[106]	8.0
2017 (7.2 t/ha)	94	109	104	104	[106]	[105]	104	102	4.0
2018 (5.3 t/ha)	[97]	[110]	[102]	[102]	[108]	[103]	[103]	[101]	5.7
Breeder/UK contact									
Breeder	BA	KWS	KWS	KWS	KWS	Sen	KWS	KWS	
UK contact	Sen	KWS	KWS	KWS	KWS	Sen	KWS	KWS	
Status in RL system									
Year first listed	11	17	17	11	19	19	14	12	
RL status	-	-	-	-	P1	P1	-	-	

Varieties no longer listed: Granary. 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 current table).
[ ] = Limited data
[[ ]] = 1 trial only

∞ = No data 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
BA = Blackman Agriculture
KWS = KWS UK (www.kws-uk.com)
Sen = Senova (www.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.

Spring wheat (for spring sowing) trials harvest 2019

Candidate varieties

AHDB CANDIDATE

	Previous/proposed name	Variety ID	Yield (spring sown) treated (T)	Yield (spring sown) untreated (UT) (as % treated controls)	Height (cm)	Mildew (1–9)	Yellow rust (1–9)	Brown rust (1–9)	Septoria tritici (1–9)	OWBM resistance	Endosperm texture	Protein content %	Hagberg Falling Number	Specific weight (kg/hl)	UK contact
Control varieties															
KWS Alderon	KWS-W185	2024	102	[85]	77	8	6	6	6	-	Hard	12.6	280	77.8	KWS UK
KWS Willow	CPBT W166	1964	103	[73]	73	6	6	6	6	-	Hard	12.7	302	77.2	KWS UK
Mulika	BA W4	1960	95	[79]	77	6	7	5	6	R	Hard	13.2	296	77.2	Senova
Selected as potential bread-making varieties															
KWS Giraffe	KWSW352	2787	[107]	[91]	76	8	7	6	6	-	Hard	[13.0]	253	[79.4]	KWS UK
Shackleton	SEWC137	2783	[105]	[85]	72	8	8	9	7	-	Hard	[12.8]	276	[76.2]	Senova
Mean of controls (t/ha)			6.3	6.3	-	-	-	-	-	-		-	-	-	
Overall mean			-	-	77	-	-	-	-	-		12.7	292	77.9	
LSD 5%			3.4	7.1	2.8	-	-	-	-	-		0.5	38.7	1.1	
Number of trials (for candidate varieties)			6	2	7	-	-	-	-	-		6	6	6	

On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (e.g. high resistance). The 1–9 ratings are not comparable to those used on the Recommended List table.
See the AHDB Recommended List for full data on control varieties.
Candidate varieties will be considered for the 2020 AHDB Recommended List.
These summaries are derived from National List and BSPB trials. Acknowledgement is made to APHA and BSPB for the use of the data.

T = Data from trials treated with fungicide and PGR
UT = Data from trials without fungicide or PGR
[ ] = Limited data

R = Believed to be resistant to orange wheat blossom midge (OWBM).

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

Spring wheat 2019

Variety comments

nabim Group 1 varieties

Mulika

Quality: A **nabim** 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 is resistant to orange wheat blossom midge.

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

nabim Group 2 varieties

KWS Chilham

Quality: A **nabim** Group 2 variety for spring sowing. It gives good Hagbergs and specific weights.

Agronomy: This variety has high treated yield potential in spring sowings. KWS Chilham has high resistance to yellow rust and septoria tritici and is resistant to orange wheat blossom midge. Limited data suggest it also has high resistance to mildew. It is susceptible to brown rust.

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

KWS Cochise

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

Agronomy: This variety has high treated yield potential in both spring and late-autumn sowings. KWS Cochise has a good overall disease package, with high resistance to brown rust and orange wheat blossom midge resistance. Limited data suggest it also has high resistance to mildew.

nabim comment: This variety has shown good protein levels and specific weights, although there was a degree of variability in performance.

KWS Willow

Quality: A **nabim** Group 2 variety for spring sowing. It gives good specific weights.

Agronomy: Treated yields from spring sowings are 2% below those of KWS Chilham. KWS Willow has shown no major weaknesses in disease resistance. This variety has given high treated yields from late-autumn sowings.

nabim comment: This variety has a tendency to produce low Hagberg Falling Numbers and, overall, has shown some variability, especially with baking performance. As a result, it is more likely to be suited to uses in blends.

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.

WeatherHub

The AHDB WeatherHub brings together sources of weather and related data. It includes information on air temperatures, rainfall, relative humidity, sunshine duration, wind speed, soil moisture, soil temperature and solar radiation. WeatherHub dashboards can be used to assist with pest, disease and soil management decisions.

ahdb.org.uk/weatherhub

Supplementary information on wheat sown mid-November to late January available at **ahdb.org.uk/rl**

Spring wheat 2019

Variety comments

Hard Group 4 varieties

Hexham NEW

Quality: This new addition is a hard feed variety for spring sowing. It gives good specific weights.

Agronomy: Limited data suggest that Hexham has given high treated yields from spring sowings. It has also given high treated yields from late-autumn sowings. This is a later-maturing variety (based on limited data). It has very high resistance to yellow rust and high resistance to septoria tritici.

KWS Alderon

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

Agronomy: This short-strawed variety has given high treated yields from spring sowings. It has a good overall disease package, with high resistance to mildew.

KWS Kilburn

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

Agronomy: KWS Kilburn has given high treated yields from spring sowings. Limited data suggest that it also has the potential to give high treated yields from late-autumn sowings. This is a later-maturing variety with high resistance to brown rust. Limited data suggest it also has high resistance to mildew.

KWS Talisker NEW

Quality: This new addition is a hard feed variety for spring sowing. It gives good specific weights.

Agronomy: Limited data suggest that KWS Talisker has given high treated yields from spring sowings. It has very high resistance to yellow rust and high resistance to septoria tritici. Limited data suggest that it also has high resistance to mildew. It is susceptible to brown rust.

nabim *overview*

nabim members mill more than 4.2 million tonnes of UK wheat each year and represent a well-established market. The nation's demand for flour-based foods will remain, regardless of Brexit, and the UK milling industry will continue to require large quantities of domestic wheat. The popularity of milling varieties and the quality of recent harvests has led to an increase in domestic usage by flour millers, now at one of its highest recorded levels.

Group 1 and 2 varieties

UK bread-making wheats comprise the majority of millers' requirements and the Recommended Lists (RL) continue to offer a range of competitive Group 1 and 2 varieties that meet the agronomic needs of growers and the quality specifications of millers.

Crusoe and Skyfall remain reliable milling varieties. Crusoe is particularly favoured for its good bread-making quality. Increasing volumes of KWS Zyatt have been seen and this variety has shown good bread-making performance. KWS Extase and LG Detroit are two new Group 2 varieties on the 2019/20 Recommended List. As new varieties tend to be higher yielding, greater attention to nitrogen inputs is required, compared with 'older' varieties, in order to achieve the necessary protein quality and therefore gain the maximum premium.

Group 3 biscuit wheat

The UK biscuit (Group 3) wheat area has fallen to a low level in recent years. This has resulted in reduced supplies to the reliable domestic and export markets. Strong demand for these wheats, as well as the introduction of KWS Elicit, has halted the decline. It is hoped that the new Group 3 variety, KWS Firefly, will expand the Group 3 segment of the market further.

Nitrogen and sulphur

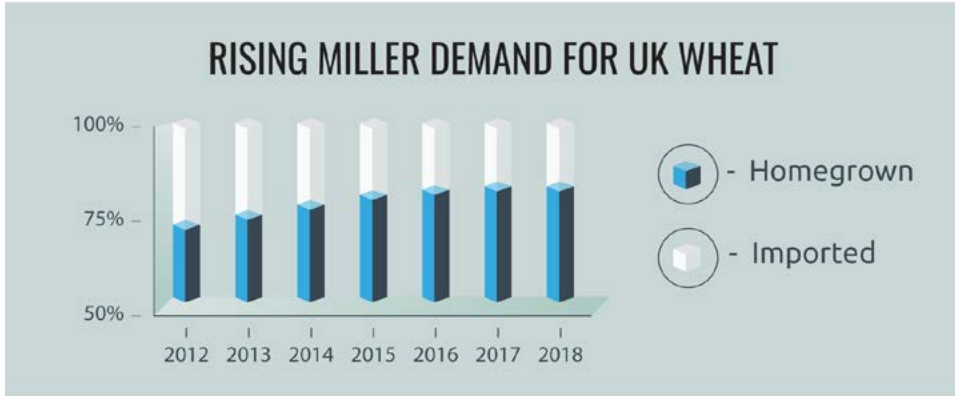
Application of nitrogen at the correct rate and time is critically important to achieving both good yield and optimal grain quality. As part of AHDB's commitment to the Nutrient Management Guide (RB209), it invests in research to improve nitrogen fertiliser recommendations. This is particularly important, given the welcome addition of high-yielding milling wheat varieties to the Recommended List.

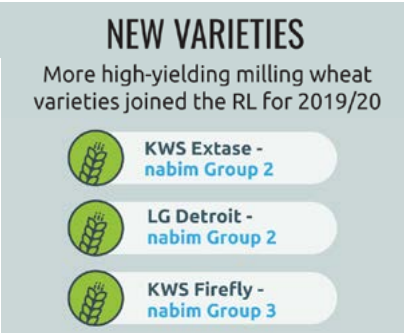
AHDB research is also looking at sulphur recommendations – another key nutrient for protein quality. Importantly, there is evidence that sulphur management can be used to help control the development of acrylamide in bakery products. The research will explore how this can best be achieved through agronomy. More information can be found at **nabim.org.uk/acrylamide**

Know your market

The expertise of UK plant breeders, and the work of AHDB and millers to assess new wheats, means farmers have the choice of a broad range of milling and feed varieties from across the Groups. Many considerations will affect the choice of variety, but the preferences of local millers should always be a significant factor. To maximise income from milling wheat, farmers should look to grow for a specific market. The **nabim** website features a tool that can be used to identify local mills: **nabim.org.uk/mill-map**

Other information on milling-wheat quality requirements, and the structure and needs of the milling industry, can be found on the **nabim** website at **nabim.org.uk**





Winter barley 2019/20

Market options, yield and grain quality

AHDB RECOMMENDED

	Electrum	Craft	SY Venture	KWS Gimlet	LG Mountain	LG Flynn	KWS Orwell	Valerie	Surge	KWS Infinity	KWS Creswell	KWS Tower	KWS Glacier	California	KWS Cassia	Belmont $	SY Baracooda $	SY Kingsbarn $	Bazooka $	Sunningdale $	Belfry $	KWS Astaire	Funky	Libra $	Average LSD (5%)	Sobell	Mackie
End-use group	Two-row malting			Two-row feed													Six-row feed									Not added to Recommended List	
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	N	UK	UK	W	UK	UK	UK	UK	N	UK	UK	UK	UK		Two-row feed	
			C	NEW	NEW	NEW		NEW			*			C				NEW	NEW	C				C		Not added to RL	
																									-	-
Fungicide-treated grain yield (% treated control)																										
United Kingdom (9.9 t/ha)	97	97	94	104	104	104	103	102	101	101	101	101	100	99	98	109	109	108	107	107	107	106	105	104	2.6	103	102
East region (9.9 t/ha)	98	97	94	106	105	104	102	103	102	101	100	99	99	99	98	108	108	109	108	105	106	104	105	104	3.1	103	100
West region (9.9 t/ha)	97	96	94	[102]	[101]	[104]	103	[101]	102	101	102	101	100	101	98	110	[111]	[109]	108	107	108	110	106	105	4.0	[103]	[102]
North region (9.8 t/ha)	95	97	94	100	105	[101]	102	[101]	98	102	103	102	101	97	98	108	106	106	106	109	105	103	104	103	3.7	103	104
Untreated grain yield (% treated control)																										
United Kingdom (9.9 t/ha)	80	77	69	84	83	82	81	87	86	79	74	75	77	80	81	78	91	89	89	88	90	90	90	85	3.4	88	78
Main market options																										
MBC malting approval for brewing use	P	F	F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-
Grain quality																										
Specific weight (kg/hl)	69.5	69.3	70.0	68.1	68.9	69.8	67.8	70.2	69.3	68.0	67.9	67.4	69.0	68.2	71.0	68.5	68.7	69.9	68.8	67.8	68.2	65.8	69.0	70.8	0.9	66.8	68.0
Screenings (% through 2.25 mm)	2.4	2.1	3.7	2.5	2.8	1.8	2.1	1.0	2.1	2.7	2.4	2.3	3.0	2.1	1.8	2.9	2.3	1.9	2.7	2.6	2.9	2.5	4.7	2.4	1.0	2.6	2.2
Screenings (% through 2.5 mm)	6.6	6.8	12.2	7.7	9.2	5.5	6.0	2.5	6.4	8.2	8.6	7.5	10.1	6.6	5.7	10.3	8.0	6.9	9.6	10.3	10.7	8.3	17.3	8.8	2.9	9.3	7.3
Nitrogen content (%)	1.66	1.63	1.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	[1.55]	-	0.06	-	-
Status in RL system																										
Year first listed	18	16	12	19	19	19	16	19	16	15	17	14	13	13	10	18	19	19	16	17	16	18	17	18		-	-

Varieties no longer listed: Coref and Talisman.
Comparisons of varieties across regions are not valid. See page 3 for information on regional yields.

UK = Recommended for the UK
W = Recommended for the West region
N = Recommended for the North region
* = Variety no longer in trials

C = Yield control (for current table). For this table Talisman was also a yield control but is no longer listed.
$ = Hybrid variety

[ ] = Limited data
F = Full MBC approval
P = Provisionally approved by MBC

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 2019/20

Yield, agronomy and disease resistance

AHDB RECOMMENDED

	Electrum	Craft	SY Venture	KWS Gimlet	LG Mountain	LG Flynn	KWS Orwell	Valerie	Surge	KWS Infinity	KWS Creswell	KWS Tower	KWS Glacier	California	KWS Cassia	Belmont $	SY Baracooda $	SY Kingsbarn $	Bazooka $	Sunningdale $	Belfry $	KWS Astaire	Funky	Libra $	Average LSD (5%)	Not added to Recommended List: Sobell	Not added to Recommended List: Mackie
End-use group	Two-row malting			Two-row feed													Six-row feed									Two-row feed	
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	N	UK	UK	W	UK	UK	UK	UK	UK	N	UK	UK	UK	UK		Not added to RL	
			C	NEW	NEW	NEW		NEW			*			C				NEW	NEW	C				C			-	-
Fungicide-treated grain yield (% treated control)																											
United Kingdom (9.9 t/ha)	97	97	94	104	104	104	103	102	101	101	101	101	100	99	98	109	109	108	107	107	107	106	105	104	2.6	103	102
East region (9.9 t/ha)	98	97	94	106	105	104	102	103	102	101	100	99	99	99	98	108	108	109	108	105	106	104	105	104	3.1	103	100
West region (9.9 t/ha)	97	96	94	[102]	[101]	[104]	103	[101]	102	101	102	101	100	101	98	110	[111]	[109]	108	107	108	110	106	105	4.0	[103]	[102]
North region (9.8 t/ha)	95	97	94	100	105	[101]	102	[101]	98	102	103	102	101	97	98	108	106	106	106	109	105	103	104	103	3.7	103	104
Untreated grain yield (% treated control)																											
United Kingdom (9.9 t/ha)	80	77	69	84	83	82	81	87	86	79	74	75	77	80	81	78	91	89	89	88	90	90	90	85	3.4	88	78
Agronomic features																											
Resistance to lodging (1–9)	7	8	7	7	7	7	8	8	7	7	7	8	6	8	8	7	7	8	7	7	8	8	8	7	-	6	7
Straw height without PGR (cm)	93	90	87	99	85	95	87	90	88	91	88	92	85	93	91	110	119	112	115	110	109	105	95	108	3.4	88	91
Straw height with PGR (cm)	90	88	84	95	87	91	85	87	85	88	87	88	82	90	89	107	110	103	109	105	102	100	93	105	2.4	86	87
Ripening (+/-KWS Orwell, -ve = earlier)	-1	0	0	+1	-1	+1	0	-1	0	0	0	0	0	0	+1	0	0	0	0	0	0	0	-1	-1	0.7	0	0
Winter hardiness #	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Disease resistance																											
Mildew (1–9)	6	6	6	6	5	4	3	6	6	4	4	5	4	6	4	6	8	6	4	5	5	7	5	4	1.5	6	5
Yellow rust (1–9)	[8]	[8]	8	-	-	-	[7]	-	[7]	[7]	[8]	[8]	[9]	[8]	6	[8]	-	-	[9]	[7]	[8]	[8]	[9]	[8]	3.4	-	-
Brown rust (1–9)	6	6	6	6	7	7	7	9	7	6	6	6	7	5	7	4	6	6	6	6	7	7	8	6	1.2	8	5
Rhynchosporium (1–9)	6	6	5	6	5	6	6	6	7	6	6	6	4	6	5	6	7	7	7	7	7	7	7	7	1.2	7	5
Net blotch (1–9)	5	6	5	5	5	6	5	6	7	6	4	4	6	6	5	6	5	6	6	6	6	6	5	6	3.2	6	4
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	-

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
W = Recommended for the West region
N = Recommended for the North region
C = Yield control (for current table). For this table Talisman was also a yield control but is no longer listed.

* = Variety no longer in trials
$ = Hybrid variety
[ ] = Limited data

\# = The winter hardiness scores are taken from extreme tests in the Jura mountains of France but currently insufficient data for 1–9 ratings.
R = Resistant to barley mild mosaic virus (BaMMV) and to barley yellow mosaic virus (BaYMV) strain 1.

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 2019/20

Supplementary data

AHDB RECOMMENDED

	Electrum	Craft	SY Venture	KWS Gimlet	LG Mountain	LG Flynn	KWS Orwell	Valerie	Surge	KWS Infinity	KWS Creswell	KWS Tower	KWS Glacier	California	KWS Cassia	Belmont $	SY Baracooda $	SY Kingsbarn $	Bazooka $	Sunningdale $	Belfry $	KWS Astaire	Funky	Libra $	Average LSD (5%)	Sobell	Mackie
End-use group	Two-row malting			Two-row feed												Six-row feed									Not added to Recommended List	Two-row feed	
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	N	UK	UK	W	UK	UK	UK	UK	UK	N	UK	UK	UK	UK		Not added to RL	
			C	NEW	NEW	NEW		NEW		*			C				NEW	NEW	C				C			-	-
Breeder/UK contact																											
Breeder	SyP	SyP	SyP	KWS	LimEur	LimEur	KWS	Bre	SyP	KWS	KWS	KWS	KWS	Lim	KWS	SyP	SyP	SyP	SyP	SyP	SyP	KWS	KWSMR	SyP		Sej	Ack
UK contact	Syn	Syn	Syn	KWS	Lim	Lim	KWS	Sen	Syn	KWS	KWS	KWS	KWS	Lim	KWS	Syn	Syn	Syn	Syn	Syn	Syn	KWS	KWS	Syn		Sen	SU
Annual treated yield (% control)																											
2014 (9.9 t/ha)	-	97	94	-	-	-	102	-	101	101	102	100	100	98	97	-	-	-	107	108	106	-	104	-	-	-	-
2015 (10.5 t/ha)	96	96	93	-	-	-	101	-	99	100	101	101	100	96	96	107	-	-	107	106	105	104	105	103	-	-	-
2016 (9.3 t/ha)	98	96	93	103	105	104	104	102	102	102	101	101	100	100	99	111	110	109	108	108	108	107	106	104	-	103	103
2017 (9.7 t/ha)	96	97	93	105	104	103	103	103	101	102	101	100	99	102	99	109	109	109	108	107	108	107	107	106	-	104	102
2018 (10.0 t/ha)	97	98	96	102	104	103	103	102	101	102	102	103	101	99	98	109	108	108	105	107	105	105	104	103	-	103	103
Soil type (about 50% of trials are medium soils)																											
Light soils (10.0 t/ha)	96	97	95	102	105	102	102	102	100	102	102	101	100	97	97	107	106	106	106	107	105	104	105	103	3.0	103	104
Heavy soils (10.0 t/ha)	98	95	94	[105]	[107]	[106]	102	[101]	102	100	99	100	100	101	98	109	[107]	[108]	109	105	109	105	105	105	4.5	[100]	[99]
Agronomic characteristics																											
Lodging without PGR (%)	6	3	4	9	11	5	2	3	5	5	7	3	10	3	3	9	4	4	5	8	3	2	1	5	-	21	4
Lodging with PGR (%)	3	1	2	3	4	2	1	1	3	2	3	2	7	1	2	7	3	1	2	5	1	2	1	2	-	4	2
Malting quality																											
Hot water extract (l deg/kg)	305.7	307.8	305.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	[294.7]	-	2.6	-	-
Status in RL system																											
Year first listed	18	16	12	19	19	19	16	19	16	15	17	14	13	13	10	18	19	19	16	17	16	18	17	18		-	-
RL status	P2	-	-	P1	P1	P1	-	P1	-	*	-	-	-	-	-	P2	P1	P1	-	-	-	P2	-	P2		-	-

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

UK = Recommended for the UK
W = Recommended for the West region
N = Recommended for the North region
C = Yield control (for current table). For this table Talisman was also a yield control but is no longer listed.
* = Variety no longer in trials

$ = Hybrid variety
[ ] = Limited data
P1 = First year of recommendation
P2 = Second year of recommendation
Ack = Ackermann Saatzucht GmbH
Bre = Saatzucht Josef Breun, Germany
KWS = KWS UK (www.kws-uk.com)

KWSMR = KWS Momont Recherche (www.kws-uk.com)
Lim = Limagrain UK (www.lgseeds.co.uk)
LimEur = Limagrain Europe SA (www.lgseeds.co.uk)
Sej = Sejet, Denmark (www.sejet.com)
Sen = Senova (www.senova.uk.com)
SU = Saaten Union UK (www.saaten-union.co.uk)

Syn = Syngenta UK Ltd (www.syngenta.co.uk)
SyP = Syngenta Participations AG (www.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 trials harvest 2019

Candidate varieties

AHDB CANDIDATE

	Previous/proposed name	Variety ID	Yield treated (T)	Yield untreated (UT) (% treated controls)	Lodging % (UT)	Lodging % (T)	Height (cm)	Maturity (days +/- KWS Orwell)	Mildew (1–9)	Yellow rust (1–9)	Brown rust (1–9)	Rhynchosporium (1–9)	Net blotch (1–9)	BaYMV	Variety type	Specific weight (kg/hl)	UK contact
Control varieties																	
Funky	MH08KU37	2807	106	89	1	2	95	-1	5	[9]	8	7	5	R	6-row	70.7	KWS UK
Bazooka	SY212-118	2737	106	87	3	2	112	0	4	[9]	6	7	6	R	6-row hybrid	70.3	Syngenta UK Ltd
KWS Glacier	KWS B100	2523	100	76	5	5	84	0	4	[9]	7	4	6	R	2-row	70.4	KWS UK
Talisman	SJ063643	2517	94	75	8	6	96	-1	6	[9]	7	6	5	R	2-row	69.5	Senova
SY Venture	SYN 208-57	2443	95	67	3	2	87	0	6	8	6	5	5	R	2-row	71.9	Syngenta UK Ltd
Selected as potential malting varieties																	
Fay	BR11585Y4	3034	98	[81]	3	3	[85]	-2	6	-	7	5	4	R	2-row	69.9	Senova
Zophia	SJ116261	3033	98	[80]	4	2	[91]	0	5	-	7	7	6	R	2-row	71.2	Senova
Selected as potential feed varieties																	
KWS Hawking	KWSB129	3050	107	[84]	4	2	[89]	0	5	-	6	6	6	R	2-row	70.2	KWS UK
KWS Patriot	KWSB130	3051	106	[82]	2	2	[92]	0	4	-	6	6	4	R	2-row	69.7	KWS UK
Jordan	AC11/325/32	3041	105	[86]	5	3	[86]	0	5	-	8	7	5	-	2-row	70.0	Saaten Union UK
Dalham	SEBC09	3053	Data cannot be published as variety has not completed National List testing														Senova
SY Melbourne	SY216439	3029	109	[91]	3	4	[118]	0	7	-	6	7	7	R	6-row hybrid	68.5	Syngenta UK Ltd
SY Kingston	SY215359	3030	108	[91]	4	3	[116]	-1	7	-	7	6	5	R	6-row hybrid	70.9	Syngenta UK Ltd
Mean of controls (t/ha)			9.9	9.9	-	-	-	285	-	-	-	-	-			-	
Overall mean			-	-	2.9	2.5	96	-	-	-	-	-	-			70.1	
LSD 5%			4.1	4.8	1.3	0.8	5.9	1.3	-	-	-	-	-			1.0	
Number of trials (for candidate varieties)			18	7	8	14	3	7	-	-	-	-	-			10	

On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (e.g. high resistance).
The 1–9 ratings are not comparable to those used on the Recommended List table.
See the AHDB Recommended List for full data on control varieties.
Candidate varieties will be considered for the 2020/21 AHDB Recommended List.
These summaries are derived from National List and BSPB trials. Acknowledgement is made to APHA and BSPB for the use of the data.

T = Data from trials treated with fungicide and PGR
UT = Data from trials without fungicide or PGR
[ ] = Limited data
R = Resistant to barley mild mosaic virus (BaMMV) and to barley yellow mosaic virus (BaYMV) strain 1
LSD = Least significant difference
LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level.

Winter barley 2019/20

Variety comments

Winter barley two-row malting

Craft

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

Agronomy: Craft is a stiff-strawed variety with good overall 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 over 20% of the winter barley market during its first year.

Electrum

Quality: A potential malting variety with a high specific weight, provisionally approved by MBC for brewing use.

Agronomy: This two-row variety has given its best relative performance in the East and West regions and on heavier soils. It is a relatively early-maturing variety, resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

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

UK winter malting barley market share is given as % of MAGB member purchases (see page 5).

SY Venture

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

Agronomy: SY Venture has relatively short straw for a malting variety and is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

MAGB comment: Widely accepted by the malting industry, SY Venture has shown a reduction in market share because of the rise of Craft.

MBC Approved List

Brewing use

Full approval: SY Venture, Craft

Provisional approval: Electrum

Malt distilling use

None approved

Grain distilling use

None approved

MBC
Malting Barley Committee

Winter barley 2019/20

Variety comments

Winter barley two-row feed

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).

KWS Cassia

A two-row feed variety with a very high specific weight, recommended since 2010. Despite now yielding 6% lower than the top-yielding two-row feed varieties on the 2019/20 Recommended List, this variety is still valued for producing consistently good grain quality. KWS Cassia has good lodging resistance and high resistance to brown rust, but is susceptible to mildew. 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. This variety has given high yields in the North region and has relatively short straw. KWS Creswell is susceptible to mildew and net blotch. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

KWS Gimlet NEW

This new addition is a high-yielding two-row feed variety for the UK. This relatively tall variety is the highest yielding two-row feed variety on the 2019/20 Recommended List and has performed particularly well in the East region. Over three years of testing, 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 Glacier

A two-row feed variety with a high specific weight. It has very short straw but only moderate straw strength. KWS Glacier has high resistance to brown rust, but it is susceptible to rhynchosporium and mildew. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

KWS Infinity

A two-row feed variety that has given its best relative performance in the North region. This variety is susceptible to mildew, but is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV). KWS Infinity is no longer in RL trials.

KWS Orwell

A high-yielding two-row feed variety, combining short straw with high resistance to lodging. This variety has high resistance to brown rust, but is very susceptible to mildew. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

KWS Tower

A two-row feed variety with good lodging resistance. It is susceptible to net blotch, but is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

LG Flynn NEW

This new addition is a high-yielding two-row feed variety for the UK with a high specific weight. It has performed particularly well in the East and West regions. Over three years of testing, LG Flynn has shown 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 NEW

This new addition is a high-yielding two-row feed variety for the UK. This short-strawed variety has performed particularly well in the East and North regions. It is relatively early to mature and has given the highest yields of all two-row feed varieties on both light and heavy soils (based on limited data). Over three years of testing, LG Mountain has shown high resistance to brown rust and no major weaknesses in other diseases. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

Surge

A two-row feed variety with short straw and a high specific weight. This variety has given its best relative performance in the East and West regions. Surge has good overall disease resistance, including high resistance to brown rust and rhynchosporium. It also has the highest rating for resistance to net blotch on the 2019/20 RL. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

Valerie NEW

This new addition is a two-row feed variety for the UK with a high specific weight. It has performed particularly well in the East region. Valerie combines good grain quality characteristics with high resistance to lodging and is relatively early to mature. Over three years of testing, this variety has given good yields in untreated UK trials. It has good overall disease resistance, including the highest rating for resistance to brown rust on the 2019/20 Recommended List. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

Winter barley 2019/20

Variety comments

Winter barley six-row feed

Bazooka

A high-yielding six-row hybrid feed variety. This variety has given very high yields in the East and West regions and has performed particularly well on heavier soils. Bazooka has also given good yields in untreated UK trials and has high resistance to rhynchosporium, but is susceptible to mildew. 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 good resistance to lodging and has performed particularly well on heavier soils. This variety has given good 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).

Belmont

A six-row hybrid feed variety that has given very high yields in all regions and has performed well in various soil types. In all four years of testing, Belmont has given the highest UK yields of all varieties currently listed. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV). Belmont is susceptible to brown rust.

Funky

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

KWS Astaire

A high-yielding six-row (non-hybrid) feed variety with a low specific weight. This stiff-strawed variety has performed particularly well in the West region, where it has given very high yields. KWS Astaire has good overall disease resistance, including high resistance to mildew, brown rust and rhynchosporium. 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 both comparable to KWS Cassia and significantly higher than the currently recommended six- and two-row varieties. This variety has high resistance to rhynchosporium, but is susceptible to mildew.
It is a relatively early-maturing variety, resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

Sunningdale

A high-yielding six-row hybrid feed variety recommended for the North region. It is the highest yielding feed variety in the North region and has performed particularly well on lighter soils. Sunningdale has given good yields in untreated UK trials and has high resistance to rhynchosporium. It has resistance to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

SY Baracooda NEW

This new addition is a very high-yielding six-row hybrid feed variety for the UK. This variety has performed particularly well in the East and West regions, where it is very high yielding. It is a relatively tall variety, but responds well to plant growth regulators. Over three years of testing, SY Baracooda has given good yields in untreated UK trials. It has high resistance to rhynchosporium and the highest rating for resistance to mildew on the 2019/20 Recommended List. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

SY Kingsbarn NEW

This new addition is a very high-yielding six-row hybrid feed variety for the UK with a high specific weight. It is the highest yielding feed variety in the East region on the 2019/20 Recommended List. This variety has good lodging resistance and responds well to plant growth regulators. Over three years of testing, SY Kingsbarn has given good yields in untreated UK trials and has good overall disease resistance, including high resistance to rhynchosporium. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

Spring barley 2019

Market options, yield and grain quality

Not added to Recommended List

AHDB RECOMMENDED

	Cosmopolitan	LG Diablo	RGT Planet	Laureate	RGT Asteroid	Chanson ~	KWS Irina	Olympus	KWS Sassy	Sienna	Propino	Fairing	Concerto	LG Tomahawk	Scholar	Ovation	Hacker	Average LSD (5%)	LG Goddess	SY Contour	SY Kailash	Embrace
End-use group	Malting varieties													Feed varieties					Malting varieties		Feed varieties	
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	Sp	UK	UK	Nr	UK	W		Not added to RL		Not added to RL	
	NEW		C	C			*C				C		C	*	*	*	*		-	-	-	-
Fungicide-treated grain yield (% treated control)																						
United Kingdom (7.6 t/ha)	106	105	103	103	102	102	102	102	101	100	98	96	94	104	103	102	99	2.3	104	104	105	104
East region (7.8 t/ha)	106	106	104	104	103	102	102	100	99	98	96	96	93	105	103	104	[96]	3.3	102	106	104	105
West region (7.6 t/ha)	[105]	103	104	103	102	100	100	101	99	100	98	97	95	102	101	101	101	3.4	[104]	[101]	[104]	[105]
North region (7.5 t/ha)	106	107	103	104	102	104	102	103	103	102	99	95	92	105	104	102	99	2.9	105	104	105	104
Main market options																						
MBC malting approval for brewing use	T	P	F	F	P	P	O	-	N	-	F	-	F	-	-	-	-		T	T	-	-
MBC malting approval for malt distilling use	-	P	N	F	P	-	N	-	F	F	N	-	F	N	-	-	-		T	-	-	-
MBC malting approval for grain distilling use	-	-	N	-	P	-	N	F	-	N	N	F	N	-	-	-	-		-	-	-	-
Grain quality																						
Specific weight (kg/hl)	66.8	67.6	68.3	66.8	68.7	66.3	66.4	67.1	68.8	70.9	68.7	68.8	69.3	66.4	69.0	66.8	70.0	0.7	67.2	65.4	66.2	67.5
Screenings (% through 2.25 mm)	1.2	1.2	1.1	1.3	0.9	1.0	1.6	1.8	0.9	1.4	0.8	0.8	1.1	1.5	1.8	1.6	1.1	0.3	1.6	[1.8]	1.4	1.5
Screenings (% through 2.5 mm)	3.0	2.8	3.1	3.0	2.4	2.7	4.0	4.7	2.1	3.2	1.7	2.2	2.6	3.5	5.2	4.3	3.0	0.8	4.9	[4.3]	3.3	3.5
Nitrogen content (%)	1.43	1.43	1.45	1.47	1.47	1.44	-	1.51	1.49	1.49	1.54	1.58	1.51	1.42	-	1.45	-	0.05	1.41	1.41	[1.43]	[1.46]
Status in RL system																						
Year first listed	19	18	15	16	18	17	14	15	16	15	10	16	09	18	15	16	14		-	-	-	-

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
Nr = Recommended for the North region
W = Recommended for the West region
Sp = Fairing is suitable for the production of malt for grain distilling

C = Yield control (for current table)
* = Variety no longer in trials
~ = Variety lacking a gene for lipoxygenase production
[ ] = Limited data

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

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 2019

Yield, agronomy and disease resistance

Not added to Recommended List

AHDB RECOMMENDED

	Cosmopolitan	LG Diablo	RGT Planet	Laureate	RGT Asteroid	Chanson ~	KWS Irina	Olympus	KWS Sassy	Sienna	Propino	Fairing	Concerto	LG Tomahawk	Scholar	Ovation	Hacker	Average LSD (5%)	LG Goddess	SY Contour	SY Kailash	Embrace
End-use group	Malting varieties													Feed varieties					Malting varieties		Feed varieties	
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	Sp	UK	UK	Nr	UK	W		Not added to RL		Not added to RL	
	NEW		C	C			*C				C		C	*	*	*	*		-	-	-	-
Fungicide-treated grain yield (% treated control)																						
United Kingdom (7.6 t/ha)	106	105	103	103	102	102	102	102	101	100	98	96	94	104	103	102	99	2.3	104	104	105	104
East region (7.8 t/ha)	106	106	104	104	103	102	102	100	99	98	96	96	93	105	103	104	[96]	3.3	102	106	104	105
West region (7.6 t/ha)	[105]	103	104	103	102	100	100	101	99	100	98	97	95	102	101	101	101	3.4	[104]	[101]	[104]	[105]
North region (7.5 t/ha)	106	107	103	104	102	104	102	103	103	102	99	95	92	105	104	102	99	2.9	105	104	105	104
Untreated grain yield (% treated control)																						
United Kingdom (7.6 t/ha)	94	94	93	94	93	90	89	89	91	91	84	86	84	92	92	87	88	3.0	93	94	94	95
Agronomic features																						
Resistance to lodging (no PGR) (1–9)	[7]	7	7	7	7	6	8	7	6	7	7	7	7	7	7	7	7	0.5	[7]	[7]	[7]	[7]
Straw height (cm)	69	73	73	71	74	74	69	73	79	77	75	73	78	70	68	72	73	1.3	70	70	71	71
Ripening (+/-Concerto, -ve = earlier)	+1	+2	0	+1	+1	0	0	+1	+1	+1	0	-1	0	+1	+1	+1	0	0.7	+1	+2	+2	+1
Resistance to brackling (1–9)	7	8	8	8	8	7	9	7	7	7	8	7	8	7	9	7	9	0.7	7	8	9	8
Disease resistance																						
Mildew (1–9)	-	[9]	[9]	[8]	[9]	[8]	[9]	[9]	[8]	[9]	6	[8]	8	[9]	[9]	[9]	[9]	1.5	-	-	-	-
Yellow rust (1–9)	-	[5]	[5]	[6]	[8]	[6]	[6]	[7]	[5]	[6]	[3]	[8]	[8]	[8]	[8]	[6]	[6]	2.3	-	-	-	-
Brown rust (1–9)	[5]	5	4	5	6	4	5	4	5	6	4	4	5	4	5	4	5	1.7	[5]	[5]	[4]	[5]
Rhynchosporium (1–9)	[6]	5	5	6	5	5	5	6	6	6	5	6	4	6	5	6	[5]	1.8	[6]	[6]	[5]	[5]

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
Nr = Recommended for the North region
W = Recommended for the West region

Sp = Fairing is suitable for the production of malt for grain distilling
C = Yield control (for current table)
* = Variety no longer in trials

~ = Variety lacking a gene for lipoxygenase production
[ ] = 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 2019

Supplementary data

Not added to Recommended List

AHDB RECOMMENDED

	Cosmopolitan	LG Diablo	RGT Planet	Laureate	RGT Asteroid	Chanson ~	KWS Irina	Olympus	KWS Sassy	Sienna	Propino	Fairing	Concerto	LG Tomahawk	Scholar	Ovation	Hacker	Average LSD (5%)	LG Goddess	SY Contour	SY Kailash	Embrace
End-use group	Malting varieties													Feed varieties					Malting varieties		Feed varieties	
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	Sp	UK	UK	Nr	UK	W		Not added to RL		Not added to RL	
	NEW		C	C			*C				C		C	*	*	*	*		-	-	-	-
Breeder/UK contact																						
Breeder	Sej	LimEur	RAGT	SyP	R2n	SU	KWS	LimEur	KWS	LimEur	SyP	SyP	Lim	LimEur	SyP	LimEur	Sec		LimEur	SyP	SyP	Sej
UK contact	Sen	Lim	RAGT	Syn	RAGT	SU	KWS	Lim	KWS	Lim	Syn	Syn	Lim	Lim	Syn	Lim	Agr		Lim	Syn	Syn	Sen
Annual treated yield (% control)																						
2014 (8.2 t/ha)	-	-	104	103	-	102	103	103	100	100	98	97	92	-	103	103	98	-	-	-	-	-
2015 (8.6 t/ha)	-	[105]	103	104	[101]	[103]	102	101	101	99	97	95	94	[104]	102	104	98	-	-	-	-	-
2016 (7.6 t/ha)	105	104	104	103	103	100	102	100	101	100	99	97	93	104	102	100	99	-	103	102	105	104
2017 (7.2 t/ha)	106	106	103	103	103	102	101	101	100	101	98	95	95	103	102	101	99	-	103	105	104	104
2018 (6.5 t/ha)	107	106	102	105	103	102	100	102	100	99	97	97	95	105	105	103	98	-	105	105	105	106
Malting quality																						
Hot water extract (l deg/kg)	313.9	315.2	314.9	315.1	314.7	313.1	[313.9]	311.8	315.6	315.6	312.3	310.7	315.6	312.8	-	312.6	[313.9]	1.7	313.9	315.3	313.1	312.5
Status in RL system																						
Year first listed	19	18	15	16	18	17	14	15	16	15	10	16	09	18	15	16	14		-	-	-	-
RL Status	P1	P2	-	-	P2	-	*	-	-	-	-	-	-	*	*	*	*		-	-	-	-

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

UK = Recommended for the UK
Nr = Recommended for the North region
W = Recommended for the West region
Sp = Fairing is suitable for the production of malt for grain distilling
C = Yield control (for current table)
* = Variety no longer in trials

~ = Variety lacking a gene for lipoxygenase production
[ ] = Limited data
P1 = First year of recommendation
P2 = Second year of recommendation
Agr = Agrii (www.agrii.co.uk)
KWS = KWS UK (www.kws-uk.com)
Lim = Limagrain UK (www.lgseeds.co.uk)

LimEur = Limagrain Europe SA (www.lgseeds.co.uk)
R2n = RAGT, France (www.ragt.co.uk)
RAGT = RAGT Seeds (www.ragt.co.uk)
Sec = Secobra, France (www.secobra.com)
Sej = Sejet, Denmark (www.sejet.com)
Sen = Senova (www.senova.uk.com)
SU = Saaten Union UK (www.saaten-union.co.uk)

Syn = Syngenta UK Ltd (www.syngenta.co.uk)
SyP = Syngenta Participations AG (www.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 trials harvest 2019

Candidate varieties

AHDB CANDIDATE

	Previous/proposed name	Variety ID	Yield treated (T)	Yield untreated (UT) (% treated controls)	Lodging % (UT)	Lodging % (T)	Height (cm)	Maturity (T) (days +/- Concerto)	Brackling % (T)	Mildew (1–9)	Yellow rust (1–9)	Brown rust (1–9)	Rhynchosporium (1–9)	Specific weight (kg/hl) (T)	UK contact
Control varieties															
Laureate	SY412-328	2780	104	97	[4]	2	66	+1	21	[8]	[6]	5	6	66.6	Syngenta UK Ltd
RGT Planet	LSB0769-3306	2691	102	95	[2]	2	69	0	19	[8]	[5]	4	5	68.2	RAGT Seeds
KWS Irina	KWS-09/320	2613	100	90	[1]	0	65	0	12	[8]	[6]	5	5	66.2	KWS UK
Propino	NFC 406-119	2336	98	84	[2]	1	70	-1	20	[6]	[3]	4	5	68.4	Syngenta UK Ltd
Concerto	NSL 03-5262	2288	96	88	[3]	2	73	0	21	[8]	[8]	5	4	68.5	Limagrain UK
Selected as potential malting varieties															
SY Tungsten	SY416728	3068	107	96	[6]	[0]	68	[+1]	25	-	-	6	-	68.0	Syngenta UK Ltd
Firefoxx	AC16/03	3085	Data cannot be published as variety has not completed National List testing												Elsoms Ackermann Barley
SY Splendor	SY416756	3073	107	96	[3]	[2]	68	[0]	20	-	-	5	-	68.3	Syngenta UK Ltd
LG Furlong	LGBU15-4572-C	3097	107	97	[3]	[4]	66	[+1]	21	-	-	5	-	66.4	Limagrain UK
LG Serengeti	LGBU15-4834-C	3100	Data cannot be published as variety has not completed National List testing												Limagrain UK
Player	SC32753P4	3089	106	95	[1]	[0]	63	[0]	16	-	-	6	-	66.0	Agrii
Prospect	SJ148527	3078	106	97	[3]	[1]	67	[-1]	14	-	-	6	-	67.6	Senova
Barbarella	AC16/02	3084	Data cannot be published as variety has not completed National List testing												Elsoms Ackermann Barley
RGT Slipstream	RP16033	3062	105	92	[2]	[0]	63	[0]	18	-	-	4	-	65.6	RAGT Seeds
Iconic	SC38192R2	3090	105	98	[3]	[2]	71	[0]	26	-	-	6	-	67.2	Agrii
Selected as potential feed varieties															
Flyer	SC38271Q4	3091	Data cannot be published as variety has not completed National List testing												Agrii
Fairway	NOS111.390-52	3079	Data cannot be published as variety has not completed National List testing												Senova
Jaspa	NORD16/2622	3082	Data cannot be published as variety has not completed National List testing												Saaten Union UK
Mean of controls (t/ha)			6.9	6.9	-	-	-	135	-	-	-	-	-	-	
Overall mean			-	-	-	-	67.3	-	20.5	-	-	-	-	67.2	
LSD 5%			2.6	4.5	-	-	1.9	1.2	8.5	-	-	-	-	0.8	
Number of trials (for candidate varieties)			21	11	2	5	11	5	10	-	-	-	-	9	

On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (e.g. high resistance). The 1–9 ratings are not comparable to those used on the Recommended List table.
See the AHDB Recommended List for full data on control varieties.
Candidate varieties will be considered for the 2020 AHDB Recommended List.
Mildew, yellow rust and rhynchosporium (1–9) ratings not presented as there were no ratings for the candidate varieties.
These summaries are derived from National List and BSPB trials. Acknowledgement is made to APHA and BSPB for the use of the data.

T = Data from trials treated with fungicide
UT = Data from trials without fungicide or PGR
[ ] = Limited data
LSD = Least significant difference
LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level.

Spring barley 2019

Variety comments

Malting varieties

Chanson

Quality: Provisionally approved by MBC for brewing use (Provisional Approval 2). This is the first recommended variety that lacks a gene for lipoxygenase production, which may have potential added benefits to the end user. It tends to give a low specific weight.

Agronomy: This variety has given high yields in the North region. It has relatively stiff straw and is susceptible to brown rust. Limited data suggest it has high resistance to mildew.

MAGB comment: Under test by MBC for brewing use, with completion expected in spring 2019. Growers are advised to speak to merchants before committing to this or other varieties in this position.

Concerto

Quality: Fully approved by MBC for brewing and malt distilling use, with a high specific weight. May be suited to European markets.

Agronomy: Despite now yielding about 12% less than the highest yielding malting varieties on the Recommended List, this variety is still widely grown. It has moderate lodging resistance but high resistance to brackling. It has high resistance to mildew and yellow rust (based on limited data) but is susceptible to rhynchosporium.

MAGB comment: Fully approved for both brewing and malt distilling, Concerto now holds more than a quarter of the total spring barley market.

Cosmopolitan NEW

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

Agronomy: This variety is the highest yielding spring barley on the 2019 Recommended List. It has performed well in all regions and given good yields in untreated UK trials. Limited data suggest that this variety has relatively stiff, short straw. Over three years of testing, Cosmopolitan has shown no major weaknesses in disease resistance. Cosmopolitan has *mlo* resistance to mildew; however, there is currently insufficient data to produce a robust disease rating.

MAGB comment: Under test by MBC for brewing use, with completion expected in spring 2020. 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 relatively early-maturing and has high resistance to mildew and yellow rust (based on limited data). It is susceptible to brown rust.

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

KWS Irina

Quality: No longer approved by MBC for brewing use, but may be suited to European markets. It tends to give a low specific weight. KWS Irina is no longer in RL trials.

Agronomy: This variety has short, stiff straw with very high brackling resistance. It has high resistance to mildew (based on limited data).

MAGB comment: Removed from the MBC Approved List in 2018. Growers are advised to speak to their merchants about end markets.

KWS Sassy

Quality: Fully approved by MBC for malt distilling use.

Agronomy: This variety has given high yields in the North region. It has moderate resistance to lodging and has high resistance to mildew (based on limited data).

MAGB comment: Fully approved for malt distilling use since 2017. Growers are advised to speak to their merchants about end markets.

Laureate

Quality: A high-yielding variety with full MBC approval for brewing and malt distilling use.

Agronomy: This variety has given high yields in both fungicide-treated and untreated UK trials. Laureate has relatively stiff straw with high resistance to brackling. It has high resistance to mildew (based on limited data).

MAGB comment: Fully approved by MBC for brewing and malt distilling. Laureate holds the largest share of the UK spring barley market at around 35%.

LG Diablo

Quality: A very high-yielding variety with malting potential, provisionally approved by MBC for brewing and malt distilling use (Provisional Approval 1).

Agronomy: This variety has given very high yields, particularly in the North and East regions. It is a later-maturing variety, with relatively stiff straw and high resistance to brackling. LG Diablo has given high yields in untreated UK trials and limited data suggest it has high resistance to mildew.

MAGB comment: Under test by MBC for brewing and malt distilling uses, with completion expected in spring 2019. Growers are advised to speak to merchants before committing to this or other varieties in this position.

Spring barley 2019

Variety comments

Olympus

Quality: Fully approved by MBC for grain distilling use.

Agronomy: This variety has given high yields in the North region. Olympus has high resistance to mildew and yellow rust (based on limited data) but is susceptible to brown rust.

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

Propino

Quality: Fully approved by MBC for brewing use and suited to European markets.

Agronomy: Propino has relatively stiff straw with high resistance to brackling. It is susceptible to brown and yellow rust.

MAGB comment: Fully approved for brewing, Propino continues to hold its share of the spring barley market at around 16%.

RGT Asteroid

Quality: A potential malting variety, provisionally approved by MBC for brewing, malt distilling and grain distilling (Provisional Approval 1).

Agronomy: This variety has given consistent yields across regions and years and is high-yielding in the East region. It has relatively stiff straw with high resistance to brackling. RGT Asteroid has given good yields in untreated UK trials. Limited data suggest it has high resistance to mildew and yellow rust.

MAGB comment: Under test by MBC for brewing, malt and grain distilling uses, with completion expected in spring 2019. Growers are advised to speak to merchants before committing to this or other varieties in this position.

RGT Planet

Quality: A high-yielding variety with full MBC approval for brewing.

Agronomy: This variety has performed well across the UK in both fungicide-treated and untreated trials. It is the highest yielding, fully recommended spring barley in the West region. It has relatively stiff straw with high resistance to brackling. RGT Planet has high resistance to mildew (based on limited data), but is susceptible to brown rust.

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

Sienna

Quality: Fully approved by MBC for malt distilling use. It tends to give a high specific weight.

Agronomy: This variety has good overall disease resistance, with high resistance to mildew (based on limited data).

MAGB comment: Fully approved for malt distilling use since 2017. Growers are advised to speak to their merchants about end markets.

UK spring malting barley market share is given as % of MAGB member purchases (see page 5).

MBC Approved List

Brewing use

Full approval: Concerto, Laureate, RGT Planet, Propino

Provisional approval: Chanson, LG Diablo, RGT Asteroid

Malt distilling use

Full approval: Concerto, Laureate, KWS Sassy, Sienna

Provisional approval: LG Diablo, RGT Asteroid

Grain distilling use

Full approval: Fairing, Olympus

Provisional approval: RGT Asteroid

MBC
Malting Barley Committee

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.

Spring barley 2019

Variety comments

Feed varieties

Hacker

A feed variety recommended for the West region with a high specific weight. It has relatively stiff straw and very high resistance to brackling. Limited data suggest it has high resistance to mildew. Hacker is no longer in RL trials.

LG Tomahawk

A high-yielding feed variety with a low specific weight. This variety has given very high yields in the East and North regions. It has relatively stiff straw. Limited data suggest that LG Tomahawk has high resistance to mildew and yellow rust. It is susceptible to brown rust. LG Tomahawk is no longer in RL trials.

Ovation

A feed variety that has given high yields in the East region. Ovation has high resistance to mildew (based on limited data), but is susceptible to brown rust. Ovation is no longer in RL trials.

Scholar

A high-yielding feed variety with a good specific weight. Scholar has relatively stiff, short straw, with very high resistance to brackling. This variety has high resistance to mildew and yellow rust (based on limited data). Scholar is no longer in RL trials.

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

Image credit: SRUC

Winter oats 2019/20

Year 4 candidates

AHDB RECOMMENDED

	RGT Southwark	Griffin	RGT Lineout	Dalguise	Mascani	Gerald	Peloton	Fusion $	Grafton	Average LSD (5%)	Galloway	Penrose
Variety type	Husked varieties						Naked varieties				Husked varieties	
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK		-	-
			C	C	C							
UK yield (% treated control)												
Fungicide-treated (8.8 t/ha)	105	103	101	100	99	98	78	73	72	3.5	104	103
Grain quality												
Kernel content (%)	74.7	74.8	74.6	74.9	77.2	72.5	-	-	-	1.1	72.8	75.0
Specific weight (kg/hl)	54.9	49.9	52.8	54.8	54.3	53.5	64.6	62.5	64.6	1.2	51.1	52.2
Screenings (% through 2.0 mm)	5.9	4.0	6.1	3.6	1.5	4.2	26.6	35.0	14.9	2.7	2.1	1.5
Agronomic features												
Resistance to lodging (1–9)	4	3	6	3	6	6	6	8	6	1.6	[7]	[6]
Straw length (cm)	119	122	112	120	117	117	113	80	118	2.8	117	116
Ripening (days +/- Mascani, -ve = earlier)	-1	+1	-2	-1	0	+2	0	+3	-1	0.9	+1	+3
Disease resistance												
Mildew (1–9)	3	[5]	4	4	5	[4]	[7]	[4]	[4]	1.2	[8]	[4]
Crown rust (1–9)	8	5	5	4	6	5	6	3	4	0.8	[4]	[5]
Treated yields with and without PGR (% treated control)												
With PGR (8.8 t/ha)	104	103	101	100	98	98	77	72	70	3.5	104	103
Without PGR (8.7 t/ha)	105	103	101	100	99	98	79	74	73	3.4	104	102
Annual treated yield (% control)												
2014 (8.9 t/ha)	[106]	[110]	102	100	99	102	[81]	77	68	5.4	-	-
2015 (9.4 t/ha)	[105]	106	101	102	97	99	79	72	76	4.9	-	-
2016 (8.4 t/ha)	109	101	102	99	99	96	75	70	71	4.8	[101]	[103]
2017 (7.9 t/ha)	103	100	101	99	101	94	79	70	69	5.8	[109]	[103]
2018 (9.2 t/ha)	101	101	101	103	97	99	76	76	74	2.6	103	102
Breeder/UK contact												
Breeder	R2n	IBERS	R2n	Sen	IBERS	IBERS	IBERS	IBERS	IBERS		IBERS	IBERS
UK contact	RAGT	Sen	RAGT	Sen	Sen	Sen	Sen	Sen	Sen		Sen	Sen
Status in RL system												
Year first listed	18	17	16	03	04	93	17	10	00		-	-
RL status	P2	-	-	-	-	-	-	-	-		-	-

Varieties no longer listed: Beacon, Maestro and RGT Victorious. 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
[ ] = Limited data
P2 = Second year of recommendation

IBERS = Institute of Biological, Environ. & Rural Sciences (www.aber.ac.uk)
R2n = RAGT, France (www.ragt.co.uk)
RAGT = RAGT Seeds (www.ragt.co.uk)
Sen = Senova (www.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 2019/20

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. Limited data suggest that it is susceptible to mildew.

Griffin

A high-yielding, later-maturing husked variety. It has relatively long straw, low lodging resistance and tends to give a low specific weight.

Mascani

A popular husked variety with moderate straw strength. Although it gives moderate yields, this is compensated for by its combination of high kernel content and specific weight. Mascani is less susceptible to mildew than most recommended varieties and has moderate resistance to crown rust, although a race exists to which it could be susceptible. Mascani remains by far the most popular variety with oat millers and growers.

RGT Lineout

An early-maturing husked variety with moderate straw strength. It is susceptible to mildew.

RGT Southwark

A very high-yielding husked variety with a good specific weight. RGT Southwark has high resistance to the common strains of crown rust, but is very susceptible to mildew. It is relatively early-maturing, with low lodging resistance.

Naked varieties

Fusion

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

Grafton

A huskless (naked) variety with a yield potential 6% below that of Peloton. It is a relatively early-maturing variety. It is susceptible to both mildew (based on limited data) and crown rust.

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 (based on limited data) and moderate resistance to crown rust.

Spring oats 2019

Year 4 candidate | Described varieties | Year 4 Described candidate

AHDB RECOMMENDED

	Delfin	Yukon	Elison	Aspen	Canyon	WPB Elyann	Firth	Conway	Average LSD (5%)	WPB Isabel	Oliver	Kamil	Madison
Variety type	Husked varieties									Husked variety	Naked varieties		Naked variety
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK		-	UK	UK	-
			NEW	C	C	C							
UK yield (% treated control)													
Fungicide-treated (7.9 t/ha)	105	102	102	101	100	99	96	95	4.2	103	74	63	72
Untreated (% of treated control)	96	95	93	85	92	87	81	84	4.9	[88]	60	56	[59]
Grain quality													
Kernel content (%)	74.8	75.1	74.6	76.1	75.0	79.1	77.3	76.9	0.9	[77.2]	-	-	-
Specific weight (kg/hl)	53.6	53.4	54.4	54.2	54.5	53.6	52.8	53.6	0.8	[57.1]	64.6	67.4	[60.0]
Screenings (% through 2.0 mm)	2.6	3.1	2.5	2.0	1.9	2.6	2.8	2.6	2.3	[1.5]	[13.5]	[8.0]	[7.8]
Agronomic features													
Resistance to lodging (1–9)	8	8	[9]	7	7	6	7	8	1.3	-	7	8	-
Straw length (cm)	118	114	[115]	105	116	108	108	113	2.8	[117]	113	116	[110]
Ripening (days +/- Firth, -ve = earlier)	0	-1	0	-1	0	-1	0	-1	1.0	0	0	0	-1
Disease resistance													
Mildew (1–9)	9	8	8	6	8	7	6	7	1.0	7	4	5	5
Crown rust (1–9)	[4]	[5]	[4]	4	4	[5]	4	4	1.2	-	[3]	[4]	-
Annual treated yield (% control)													
2014 (8.9 t/ha)	[102]	[102]	-	[99]	[101]	[99]	[96]	[95]	7.0	-	[72]	[64]	-
2015 (8.7 t/ha)	[101]	[101]	[103]	[104]	[98]	[97]	[94]	[89]	6.5	-	[74]	[64]	-
2016 (8.3 t/ha)	[104]	[102]	[104]	[100]	[101]	[99]	[95]	[97]	5.9	[102]	[72]	[61]	[72]
2017 (7.2 t/ha)	[112]	[106]	[102]	[101]	[103]	[96]	[101]	[98]	6.6	[111]	[77]	[62]	[70]
2018 (6.3 t/ha)	[105]	[100]	[102]	[102]	[96]	[103]	[95]	[96]	7.9	[100]	[71]	[67]	[71]
Breeder/UK contact													
Breeder	Nord	Nord	SE	Bau	Nord	Wier	KWS	IBERS		-	Selg	Selg	-
UK contact	SU	SU	Sen	Sen	SU	KWS	KWS	Sen		KWS	Cope	Cope	Sen
Status in RL system													
Year first listed	18	17	19	15	11	17	00	14		-	18	18	-
RL status	P2	-	P1	-	-	-	-	-		-	P2	P2	-

Varieties no longer listed: Montrose and Rozmar. **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)
[ ] = Limited data
P1 = First year of recommendation
P2 = Second year of recommendation
Bau = Bauer, Germany

Cope = Trevor Cope Seeds (www.trevorcopeseeds.co.uk)
IBERS = Institute of Biological, Environ. & Rural Sciences (www.aber.ac.uk)
KWS = KWS UK (www.kws-uk.com)
Nord = Nordsaat, Germany (www.nordsaat.de)

SE = Saatzucht Edelhof, Austria (www.saatzucht.edelhof.at)
Selg = Selgen, Czech Republic
Sen = Senova (www.senova.uk.com)
SU = Saaten Union UK (www.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 2019

Variety comments

Husked varieties

Aspen
An early-maturing husked variety with a high specific weight. It is susceptible to crown rust.

Canyon
A husked variety with a high specific weight and high resistance to mildew. It is susceptible to crown rust, but has given relatively high yields in untreated UK trials.

Conway
A husked variety with a high kernel content. It is early-maturing and has high resistance to lodging. Conway has good resistance to mildew, but it is susceptible to crown rust.

Delfin
A very high yielding variety with high resistance to lodging. Delfin has excellent resistance to mildew and has given high yields in untreated UK trials. Limited data suggest that it is susceptible to crown rust.

Elison NEW
This new addition is a high-yielding variety with high specific weight. Limited data suggest that this variety has very high resistance to lodging. It has high resistance to mildew but limited data suggest that it is susceptible to crown rust.

Firth
A husked variety with a high kernel content. It is susceptible to crown rust.

WPB Elyann
WPB Elyann has replaced Canyon as the most popular spring oat variety. It is early-maturing, with a high kernel content. It has good resistance to mildew.

Yukon
An early-maturing, high-yielding husked variety. It has 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 high resistance to lodging. Limited data suggest that it is susceptible to crown rust.

Oliver
A huskless (naked) oat variety with a good specific weight. It is susceptible to mildew and limited data suggest that it is also susceptible to crown rust.

Winter oilseed rape 2019/20 – 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)	Seed Yield (%C)
		(5.3 t/ha)	(4.9 t/ha)
Aspire ¥	UK	104	104
Windozz	East/West	104	105
PT275	East/West	104	104
Ballad	UK	104	103
Elgar	East/West	103	104
Flamingo	East/West	102	102
DK Expansion	UK	102	102
George	East/West	102	102
Alizze	UK	102	102
Wembley	East/West	102	102
Temptation ¥	UK (Sp)	102	101
Crome $	UK (Sp)	102	100
Architect ¥	UK (Sp)	101	102
Aquila	East/West	101	101
Campus	UK	101	101
Nikita	UK	101	100
V 316 OL ~	UK	100	101
PT279CL &	UK (Sp)	96	97
Mentor $	UK (Sp)	96	96
Average LSD (5%)		4.9	4.5

	North Region		
	Scope of Recommendation	Gross Output (%C)	Seed Yield (%C)
		(5.8 t/ha)	(5.3 t/ha)
Aspire ¥	UK	106	106
Elevation	North	104	104
DK Exsteel	North	104	104
Crome $	UK (Sp)	103	102
DK Expansion	UK	103	103
Ballad	UK	103	103
Nikita	UK	102	102
Campus	UK	102	102
Barbados	North	102	103
Butterfly	North	102	102
Kielder	North	102	101
Anastasia	North	101	102
Broadway	North	101	101
Alizze	UK	100	100
Temptation ¥	UK (Sp)	98	98
V 316 OL ~	UK	98	98
Architect ¥	UK (Sp)	97	98
Mentor $	UK (Sp)	96	95
PT279CL &	UK (Sp)	93	94
Average LSD (5%)		5.7	5.3

For the full data set for these varieties see RL tables.

Sp = Specific recommendation
¥ = Resistant to Turnip Yellows Virus (TuYV). Architect and Temptation have specific recommendations for this trait.

$ = Crome and Mentor are recommended for growing on land infected with common strains of clubroot.

& = Herbicide tolerant variety. PT279CL has a specific recommendation for tolerance to specific imidazolinone herbicides (a Clearfield® variety).
~ = HOLL (High Oleic, Low Linolenic) variety

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 2019/20

Yield, quality, agronomy and disease resistance

AHDB RECOMMENDED

	Recommended for the UK (both East/West and North regions)												Recommended for the East/West region only							Recommended for the North region only								Described variety
	Aspire ¥	Ballad	DK Expansion	Alizze	Crome $	Temptation ¥	Campus	Nikita	Architect ¥	V 316 OL ~	Mentor $	PT279CL &	Windozz	PT275	Elgar	Flamingo	George	Wembley	Aquila	Elevation	DK Exsteel	Barbados	Butterfly	Kielder	Anastasia	Broadway	Average LSD (5%)	Ergo †
Variety type	Conv	Conv	RH	RH	RH	RH	Conv	Conv	RH	RH	RH	RH	RH	RH	Conv	Conv	RH	RH	RH	Conv	RH	Conv	Conv	Conv	Conv	Conv		RH
Scope of recommendation	UK	UK	UK	UK	Sp	Sp	UK	UK	Sp	UK	Sp	Sp	E/W	E/W	E/W	E/W	E/W	E/W	E/W	N	N	N	N	N	N	N		E/W
	NEW	NEW	NEW	*C	NEW	NEW	*C	C		*C	*	NEW		NEW		*	NEW	*	*		NEW							
Gross output, yield adjusted for oil content (% treated control)																												
United Kingdom (5.3 t/ha)	**104**	**104**	**102**	**102**	**102**	**101**	**101**	**101**	**101**	**100**	**96**	**96**	104	103	103	102	102	102	101	101	101	99	101	98	98	97	4.5	91
East/West region (5.3 t/ha)	**104**	**104**	**102**	**102**	**102**	**102**	**101**	**101**	**101**	**100**	**96**	**96**	**104**	**104**	**103**	**102**	**102**	**102**	**101**	100	100	[99]	100	98	[98]	96	4.9	**91**
North region (5.8 t/ha)	**106**	**103**	**103**	**100**	**103**	**98**	**102**	**102**	**97**	**98**	**96**	**93**	[100]	98	[98]	101	99	[101]	98	**104**	**104**	**102**	**102**	**102**	**101**	**101**	5.7	94
Seed yield (% treated control)																												
United Kingdom (5.0 t/ha)	**104**	**103**	**103**	**102**	**101**	**101**	**101**	**100**	**101**	**100**	**96**	**97**	105	103	103	101	102	102	101	101	101	100	100	98	100	97	4.2	91
East/West region (4.9 t/ha)	**104**	**103**	**102**	**102**	**100**	**101**	**101**	**100**	**102**	**101**	**96**	**97**	**105**	**104**	**104**	**102**	**102**	**102**	**101**	101	100	[99]	100	97	[99]	97	4.5	**91**
North region (5.3 t/ha)	**106**	**103**	**103**	**100**	**102**	**98**	**102**	**102**	**98**	**98**	**95**	**94**	[102]	98	[98]	100	99	[102]	99	**104**	**104**	**103**	**102**	**101**	**102**	**101**	5.3	94
Untreated gross output, yield adjusted for oil content (% untreated control) ¤																												
United Kingdom (5.4 t/ha)	-	-	-	101	-	-	100	101	100	101	97	-	101	-	99	100	-	104	99	101	-	98	99	98	97	96	5.6	91
Untreated seed yield (% untreated control) ¤																												
United Kingdom (5.1 t/ha)	-	-	-	100	-	-	100	101	101	101	95	-	102	-	100	100	-	104	99	101	-	98	99	98	98	96	5.3	92
Agronomic features																												
Resistance to lodging (1–9)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	0.2	8
Stem stiffness (1–9)	9	9	8	8	8	7	8	8	8	8	9	8	8	8	8	8	8	8	8	8	8	8	8	9	8	8	0.4	8
Shortness of stem (1–9)	7	7	5	6	6	6	6	7	6	6	7	6	7	6	6	6	7	6	6	7	5	6	7	6	7	6	0.2	6
Earliness of flowering (1–9)	7	7	6	8	7	6	6	7	6	7	7	6	8	6	6	6	7	8	7	5	6	5	6	7	6	6	0.3	6
Earliness of maturity (1–9)	5	5	5	5	5	5	5	5	6	5	5	6	5	5	6	5	5	6	5	5	5	4	4	4	5	4	0.4	5
Seed quality (at 9% moisture)																												
Oil content, fungicide-treated (%)	45.8	45.8	45.4	45.8	46.5	46.0	45.5	46.0	45.0	45.4	46.0	45.0	44.6	45.6	45.1	46.1	45.5	45.2	45.5	45.6	45.5	45.2	45.6	46.0	44.7	45.4	0.2	45.3
Glucosinolate (µmoles/g)	9.9	10.8	10.1	12.1	10.8	12.0	10.6	8.6	14.4	12.3	10.2	10.9	9.6	8.4	9.6	12.0	9.6	11.4	12.0	10.6	11.9	11.1	10.2	13.3	11.1	8.2	-	12.3
Disease resistance																												
Light leaf spot (1–9)	7	6	6	7	6	6	6	7	6	6	6	6	5	6	7	7	6	7	6	6	7	8	7	7	7	7	0.8	5
Stem canker (1–9)	6	[5]	7	5	[4]	5	6	4	5	5	3	5	5	5	6	4	[8]	5	8	5	8	7	6	3	6	4	1.0	4

Varieties no longer listed in the UK (both East/West and North regions): DK Secret. **Varieties no longer listed in the North region:** DK Imagis CL, SY Harnas and V 324 OL. See page 3 for information on regional yield.
HEAR (High Erucic Acid) 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). 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
N = Recommended for the North region
Sp = Specific recommendation
Conv = Conventional open-pollinated variety
RH = Restored hybrid

C = Yield control (for current table). For this table Trinity was also a yield control but is no longer listed.
* = Variety no longer in trial in region
¥ = Resistant to Turnip Yellows Virus (TuYV). Architect and Temptation have specific recommendations for this trait.
† = HEAR (High Erucic Acid) variety

$ = Crome and Mentor are recommended for growing on land infected with common strains of clubroot.
& = Herbicide tolerant variety. PT279CL has a specific recommendation for tolerance to specific imidazolinone herbicides (a Clearfield® variety).
~ = HOLL (High Oleic, Low Linolenic) variety

¤ = Untreated yield data available for 2017 and 2018 only. Untreated trials are treated for sclerotinia at flowering.
[ ] = 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 oilseed rape 2019/20

Supplementary data

AHDB RECOMMENDED

	Recommended for the UK (both East/West and North regions)												Recommended for the East/West region only							Recommended for the North region only								Described variety
	Aspire ¥	Ballad	DK Expansion	Alizze	Crome $	Temptation ¥	Campus	Nikita	Architect ¥	V 316 OL ~	Mentor $	PT279CL &	Windozz	PT275	Elgar	Flamingo	George	Wembley	Aquila	Elevation	DK Exsteel	Barbados	Butterfly	Kielder	Anastasia	Broadway	Average LSD (5%)	Ergo †
Variety type	Conv	Conv	RH	RH	RH	RH	Conv	Conv	RH	RH	RH	RH	RH	RH	Conv	Conv	RH	RH	RH	Conv	RH	Conv	Conv	Conv	Conv	Conv		RH
Scope of recommendation	UK	UK	UK	UK	Sp	Sp	UK	UK	Sp	UK	Sp	Sp	E/W	E/W	E/W	E/W	E/W	E/W	E/W	N	N	N	N	N	N	N		E/W
	NEW	NEW	NEW	*C	NEW	NEW	*C	C		*C	*	NEW		NEW		*	NEW	*	*		NEW							
Breeder/UK contact																												
Breeder	Lim Eur	KWS MR	Mon Tec	R2n	NPZ	DSV	KWS MR	Lim Eur	Lim Eur	Mon Tec	NPZ	Pion OS	R2n	Pion OS	Els	KWS MR	SyP	NPZ	Lim Eur	Pick	Mon Tec	KWS MR	KWS MR	Pars	Lim	Pick		NPZ
UK contact	Lim	KWS	Bay	RAGT	LSPB	DSV	KWS	Lim	Lim	Bay	LSPB	Cor	RAGT	Cor	Els	KWS	Syn	LSPB	Lim	DLF	Bay	KWS	KWS	Els	Lim	DLF		LSPB
Annual treated gross output, yield adjusted for oil content (% control) - UK																												
2015 (6.1 t/ha)	-	-	-	102	-	-	101	101	100	100	97	-	103	-	103	102	-	102	99	103	-	[100]	103	100	[100]	99	-	94
2016 (5.0 t/ha)	103	104	104	100	100	97	102	103	96	100	92	92	101	99	99	102	98	99	100	101	102	[99]	99	100	[100]	100	-	90
2017 (5.7 t/ha)	106	104	102	101	104	100	102	102	99	97	97	94	102	101	99	102	102	102	100	103	102	102	101	101	99	99	-	92
2018 (5.4 t/ha)	106	102	102	101	103	102	102	101	100	99	98	96	102	102	99	101	101	102	99	103	102	100	101	97	100	97	-	93
Agronomy																												
Plant height (cm)	147	150	166	153	156	154	159	148	162	159	150	156	150	157	155	153	152	153	157	151	167	155	149	159	149	153	2.8	154
Status in RL system																												
Year first listed	19	19	19	16	19	19	15	16	18	15	15	19	16	19	16	17	19	16	17	18	19	16	18	18	13	18		-
RL status	P1	P1	P1	*	P1	P1	*	P2	P2	*	*	P1	-	P1	-	*	P1	*	*	P2	P1	-	P2	P2	-	P2		-

UK = Recommended for both the East/West and North regions
E/W = Recommended for the East/West region
N = Recommended for the North region
Sp = Specific recommendation
Conv = Conventional open-pollinated variety
RH = Restored hybrid
C = Yield control (for current table). For this table Trinity was also a yield control but is no longer listed.
* = Variety no longer in trial in region
¥ = Resistant to Turnip Yellows Virus (TuYV). Architect and Temptation have specific recommendations for this trait.

$ = Crome and Mentor are recommended for growing on land infected with common strains of clubroot.
& = Herbicide tolerant variety. PT279CL has a specific recommendation for tolerance to specific imidazolinone herbicides (a Clearfield® variety).
~ = HOLL (High Oleic, Low Linolenic) variety
† = HEAR (High Erucic Acid) variety
[ ] = Limited data
P1 = First year of recommendation
P2 = Second year of recommendation
Bay = Bayer CropScience (www.bayercropscience.co.uk)

Cor = Corteva Agriscience™ (www.corteva.co.uk/pioneer)
DLF = DLF Seeds Ltd (www.dlf.co.uk)
DSV = DSV UK (www.dsv-uk.co.uk)
Els = Elsoms Seeds (www.elsoms.com)
KWS = KWS UK (www.kws-uk.com)
KWSMR = KWS Momont Recherche (www.kws-uk.com)
Lim = Limagrain UK (www.lgseeds.co.uk)
LimEur = Limagrain Europe SA (www.lgseeds.co.uk)
LSPB = LS Plant Breeding (www.lspb.eu)
MonTec = Monsanto Technology LLC (www.monsanto.com)

NPZ = NPZ-Lembke, Germany (www.npz.de)
Pars = Parsons Seeds Ltd
Pick = Mike Pickford
PionOS = Pioneer Overseas Corporation (www.corteva.co.uk/pioneer)
R2n = RAGT, France (www.ragt.co.uk)
RAGT = RAGT Seeds (www.ragt.co.uk)
Syn = Syngenta UK Ltd (www.syngenta.co.uk)
SyP = Syngenta Participations AG (www.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 trials harvest 2019

Candidate varieties

AHDB CANDIDATE

Previous/proposed name	Variety ID	Variety type	Gross output (%) - UK	Gross output (%) - East/West	Gross output (%) - North	Treated seed yield (%) - UK	Treated seed yield (%) - East/West	Treated seed yield (%) - North	Oil content (%)	Resistance to lodging (1–9)	Stem stiffness (1–9)	Height (cm)	Earliness of flowering (1–9)	Earliness of maturity (1–9)	Resistance to light leaf spot (1–9)	Resistance to stem canker (1–9)	Breeder's claim	UK contact
Control varieties																		
Alizze	HR 158108	2622	RH	100	100	100	99	99	100	45.4	8	7	153	7	6	7	5		RAGT Seeds
Nikita	LEL12/248	2574	Conv	102	101	104	102	101	104	45.7	8	7	149	6	5	7	4		Limagrain UK
Campus	MH 06 CP 057	2535	Conv	104	103	106	104	104	105	45.3	8	7	157	5	5	6	6		KWS UK
V 316 OL	MDS 16	2523	RH	98	99	96	98	99	96	45.3	8	7	156	5	5	6	5	HOLL	Bayer CropScience
Trinity	SWO3085	2440	Conv	96	96	95	97	97	96	45.1	7	7	153	4	5	6	6		Elsoms Seeds
Candidate varieties - UK																		
Acacia	LEL16/326	3034	Conv	109	110	106	108	109	106	45.7	8	8	149	5	5	6	5		Limagrain UK
Aurelia	LE16/321	3029				Data cannot be published as variety has not completed National List testing													Limagrain UK
Aardvark	LEL16/325	3035	Conv	106	107	106	106	107	105	45.6	7	8	153	6	5	6	5		Limagrain UK
PX131	X15WX448C	2992				Data cannot be published as variety has not completed National List testing													Corteva Agriscience™
Resort	LSF16151W12	3018	RH	95	97	91	95	96	91	45.8	7	7	155	6	5	6	6	HEAR	LS Plant Breeding
Candidate varieties - East/West																		
Ambassador	LE16/319	3030				Data cannot be published as variety has not completed National List testing													Limagrain UK
Artemis	LE16/316	3032				Data cannot be published as variety has not completed National List testing													Limagrain UK
Crocodile	RAP16122W15	3016	RH		106			106		44.9	7	7	152	5	6	6	4	Clubroot resistant	DSV UK
Darling	WRH 527	2999	RH		105			104		45.9	7	7	159	6	5	5	8	TuYV resistant	DSV UK
Blazen	MH 11 BZ 036	3052	Conv		104			105		44.8	8	8	151	4	5	5	6		KWS UK
Award	WRH 532	3002				Data cannot be published as variety has not completed National List testing													DSV UK
Dazzler	WRH 530	3000	RH		104			103		46.0	7	8	155	7	6	6	8	TuYV resistant	DSV UK
Croozer	NPZ16101W15	3013				Data cannot be published as variety has not completed National List testing													LS Plant Breeding
Nizza CL &	HRE095	2973				Data cannot be published as variety has not completed National List testing													RAGT Seeds
Mean of controls (t/ha)			5.4	5.2	6.3	5.0	4.8	5.8	-	-	-	-	-	-	-	-		
Overall mean			-	-	-	-	-	-	45.2	7.3	7.1	157	5.3	5.3	-	-		
LSD 5%			3.2	3.9	4.9	3.1	3.7	4.7	0.3	1.1	0.5	3.4	0.4	0.3	-	-		
Number of trials			21	17	4	21	17	4	21	4	16	23	23	20	-	-		

All values are UK values (except gross output and treated seed yield). On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (e.g. high resistance). The 1–9 ratings are not comparable to those used on the Recommended List table. Candidate varieties will be considered for the 2020/21 AHDB Recommended List. To allow direct comparisons the data presented for control varieties are taken only from trials in which the candidate varieties have also been grown. See the AHDB Recommended List for full data on control varieties. All data except disease ratings are taken from fungicide-treated trials.

These summaries are derived from National List and BSPB trials. Acknowledgement is made to APHA and BSPB for the use of the data.

Conv = Conventional open-pollinated variety
RH = Restored hybrid
SD = Semi-dwarf

HEAR = High Erucic Acid
HOLL = High Oleic, Low Linolenic

& = Clearfield® variety, with tolerance to specific imidazolinone herbicides

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

Winter oilseed rape 2019/20

Variety comments

Varieties

Alizze

A restored hybrid variety recommended for the UK. This relatively early-flowering variety has given a high treated gross output in the East/West region. Alizze has high resistance to lodging with good stem stiffness at maturity. It has high resistance to light leaf spot. Alizze is no longer in RL trials.

Anastasia

A conventional, open-pollinated variety recommended for the North region. Anastasia has high resistance to lodging with good stem stiffness at maturity. It has high resistance to light leaf spot.

Architect

A restored hybrid variety that is specifically recommended for its resistance to Turnip Yellows Virus (TuYV). Architect has high resistance to lodging with good stem stiffness at maturity. It is a relatively early-maturing variety.

Aspire NEW

This new addition is a conventional, open-pollinated variety recommended for the UK. Aspire has given a very 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. Aspire has high resistance to light leaf spot and is resistant to Turnip Yellows Virus (TuYV).

Aquila

A restored hybrid variety recommended for the East/West region. This variety has high resistance to lodging with good stem stiffness at maturity. It has high resistance to stem canker. Aquila is no longer in RL trials.

Ballad NEW

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

Barbados

A conventional, open-pollinated variety recommended for the North region. Barbados has given a high treated gross output in the North. This variety has high resistance to lodging with good stem stiffness at maturity. Barbados has high resistance to both light leaf spot and stem canker. It is a relatively late-maturing variety.

Broadway

A conventional, open-pollinated variety recommended for the North region. This variety has high resistance to lodging with good stem stiffness at maturity. Broadway has high resistance to light leaf spot, but is susceptible to stem canker. It is a relatively late-maturing variety.

Butterfly

A conventional, open-pollinated variety recommended for the North region. This variety has given a high treated gross output in the North. It has high resistance to lodging with good stem stiffness at maturity. Butterfly has high resistance to light leaf spot. It is a relatively late-maturing variety.

Campus

A conventional, open-pollinated variety recommended for the UK, giving a high treated gross output in the North region. This variety has high resistance to lodging with good stem stiffness at maturity. Campus is no longer in RL trials.

Crome NEW

This new addition is a restored hybrid variety that is specifically recommended for its resistance to the common strains of clubroot, although it may still be susceptible to strains found in some fields. Crome 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. Limited data suggest that this variety is susceptible to stem canker.

DK Expansion NEW

This new addition is a restored hybrid variety recommended for the UK. This variety has given a high treated gross output in both the East/West and North regions. DK Expansion is a relatively tall variety, but has high resistance to lodging with good stem stiffness at maturity. It has high resistance to stem canker.

DK Exsteel NEW

This new addition is a restored hybrid variety recommended for the North region. This variety has given a very high treated gross output in the North. It is a relatively tall variety, but has high resistance to lodging with good stem stiffness at maturity. DK Exsteel has high resistance to both light leaf spot and stem canker.

Elevation

A conventional, open-pollinated variety recommended for the North region. This variety has given a very high treated gross output in the North. Elevation has high resistance to lodging with good stem stiffness at maturity.

Winter oilseed rape 2019/20

Variety comments

Elgar

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

Flamingo

A conventional, open-pollinated variety recommended for the East/West region. It has given a high treated gross output in the East/West. This variety has high resistance to lodging with good stem stiffness. It has high resistance to light leaf spot, but is susceptible to stem canker. Flamingo is no longer in RL trials.

George NEW

This new addition is a restored hybrid variety for the East/West region. It has given a high treated gross output in the East/West. George has high resistance to lodging with good stem stiffness at maturity. Limited data suggest that this variety has high resistance to stem canker.

Kielder

A conventional, open-pollinated variety recommended for the North region. It has given a high treated gross output in the North. This variety has high resistance to lodging and is very stiff-stemmed at maturity. Kielder has high resistance to light leaf spot, but is very susceptible to stem canker. It is a relatively late-maturing variety.

Mentor

A restored hybrid variety that is specifically recommended for its resistance to the common strains of clubroot, although it may be susceptible to strains found in some fields. This variety has high resistance to lodging and is very stiff-stemmed at maturity. It is very susceptible to stem canker. Mentor is no longer in RL trials.

Nikita

A conventional, open-pollinated variety recommended for the UK, giving a high treated gross output in the North. This variety has high resistance to lodging with good stem stiffness at maturity. Nikita has high resistance to light leaf spot, but is susceptible to stem canker.

PT275 NEW

This new addition is a restored hybrid variety recommended for the East/West region. It has given a very high treated gross output in the East/West. It has high resistance to lodging with good stem stiffness at maturity.

PT279CL NEW

This new addition is a restored hybrid variety that is specifically recommended for its tolerance to specific herbicides. It has tolerance to specific Clearfield herbicides containing imidazilinone. Growers are advised to visit the BASF website for more information on the management and husbandry of these types of varieties. PT279CL has high resistance to lodging with good stem stiffness at maturity. It is a relatively early-maturing variety.

Temptation NEW

This new addition is a restored hybrid variety that is specifically recommended 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.

V 316 OL

A restored hybrid variety, recommended for the UK, with a specialist high oleic, low linolenic (HOLL) oil type. It has high resistance to lodging with good stem stiffness at maturity. V 316 OL is no longer in RL trials.

Wembley

A restored hybrid variety recommended for the East/West region. This variety has given a high treated gross output in the East/West, combined with relatively early flowering and maturity. Wembley has high resistance to lodging with good stem stiffness at maturity. It has high resistance to light leaf spot. Wembley is no longer in RL trials.

Windozz

A restored hybrid variety recommended for the East/West region. It has given a very high treated gross output in the East/West. Windozz has high resistance to lodging with good stem stiffness at maturity. It is a relatively early-flowering variety.

Winter oilseed rape 2019/20

Variety comments

Described variety

Ergo

Described for the East/West region. A high erucic acid (HEAR) variety. HEAR varieties have around 50% erucic acid, compared to less than 2% for '00' varieties and 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 from appearing in subsequent '00' oilseed rape crops, because this may lead to deductions or rejections.

Erucic acid risks

For rapeseed oil to be used in food products, erucic acid levels must, by law, not exceed five per cent. The current maximum level is set to two per cent in most contracts. AHDB has worked with industry to issue a set of guidelines to help farmers maintain low levels of the acid in their crops. The guidance is centred on five 'risk points':

1. **Seed source:** Farm-saved seed carries a risk as it can become contaminated with seed from volunteers. Erucic acid tests should be conducted on all seed sources before drilling
2. **Pre-planting:** After harvest, cultivations should be delayed (ideally, by at least four weeks) to allow OSR volunteers to germinate and be controlled
3. **Established crop:** Fields with OSR volunteers and erucic acid-producing weed populations should be identified, as they are at higher risk
4. **Harvest:** Poor segregation of crops also increases risk. Double-low OSR must be segregated from HEAR OSR and weed-prone crops at all times
5. **Contracts:** It is essential to read and understand any contract before it is signed. Sealed and labelled representative samples of all seed should be retained in case of any dispute

ahdb.org.uk/erucic-acid

Image credit: Gary Naylor Photography

Spring oilseed rape Descriptive List 2019

AHDB DESCRIBED

	Lagonda	Lexus	Lumen	Builder	Dodger	Makro	Sunder	Mirakel	Axana	Tamarin	Average LSD (5%)
Variety type	RH	RH	RH	RH	RH	RH	RH	RH	RH	Conv	
	NEW	NEW				C		C		*	
Gross output, yield adjusted for oil content (% control)											
UK without fungicide (3.1 t/ha)	[116]	[106]	[106]	102	102	101	101	99	[99]	92	7.3
Number of trials	5	5	8	13	14	14	13	13	9	13	
Seed yield (% control)											
UK without fungicide (2.9 t/ha)	[117]	[106]	[105]	102	102	101	99	99	[99]	94	7.3
Seed quality (at 9% moisture)											
Oil content (%)	[44.5]	[45.0]	[45.0]	45.6	45.3	45.3	46.0	44.7	[45.2]	43.6	0.6
Glucosinolate content (µmoles/g)	11.0	13.1	11.0	14.4	15.2	14.7	12.9	10.5	10.9	11.9	-
Agronomic features											
Shortness of stem (1–9)	[6]	[6]	7	6	6	6	7	7	7	7	0.3
Earliness of flowering (1–9)	7	7	7	7	7	6	7	7	8	6	0.8
Earliness of maturity (1–9)	[5]	[5]	7	5	5	3	5	7	5	6	1.6
Annual gross output, yield adjusted for oil content (% control)											
2013 (3.0 t/ha)	-	-	-	[106]	[107]	[100]	[101]	[100]	-	[97]	9.1
2014 (3.3 t/ha)	-	-	[109]	[94]	[98]	[97]	[94]	[103]	[96]	[90]	9.5
2015 #	-	-	-	-	-	-	-	-	-	-	-
2016 (3.0 t/ha)	[104]	[111]	[101]	[105]	[101]	[104]	[103]	[96]	[98]	[87]	22.0
2017 (3.2 t/ha)	[127]	[101]	[103]	[102]	[103]	[106]	[103]	[94]	[97]	[92]	15.2
2018 (3.2 t/ha)	[[116]]	[[107]]	[[110]]	[[109]]	[[99]]	[[103]]	[[104]]	[[97]]	[[104]]	-	-
Breeder/UK contact											
Breeder	NPZ	NPZ	NPZ	BASF	BASF	NPZ	BASF	NPZ	Eur	Lant	
UK contact	DSV	DSV	DSV	BASF	BASF	DSV	BASF	DSV	GSd	Sen	
Status in DL system											
Year first listed	19	19	18	15	14	12	17	15	18	10	
DL status	P1	P1	P2	-	-	-	-	-	P2	*	

Varieties no longer listed: Doktrin and Simba.
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.
The data in this table are provided for information only and do not constitute a recommendation.

RH = Restored hybrid
Conv = Conventional open-pollinated variety
C = Yield control (for current table)
* = Variety no longer in trials
# = There were no yield results for 2015 due to trial failure

[ ] = Limited data
[[ ]] = 1 trial only
P1 = First year of listing
P2 = Second year of listing
BASF = BASF Agricultural Solutions Seed US LLC (https://agriculture.basf.com/en/Crop-Protection.html)

DSV = DSV UK (www.dsv-uk.co.uk)
Eur = Euralis Semences (www.euralis.fr)
GSd = Grainseed (www.grainseed.co.uk)
Lant = Lantmannen SW Seed BV, Sweden
NPZ = NPZ-Lembke, Germany (www.npz.de)
Sen = Senova (www.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.

Spring linseed Descriptive List 2019

AHDB DESCRIBED

	Juliet	Bingo	Daniel	Batsman	Ineke	Empress	Bowler	Aquarius	Octal	Aries	Festival	Kaolin	Lion	Galaad	Brighton	Carina	Faser	Omegalin	Abacus	Marquise	Altess	Average LSD (5%)
Seed colour	B	B		B		B	B	B	B	B	B	B	B		B	B			B		B	
				C				C		*		*			*	*			*C		*	
Seed yield as % control																						
UK without fungicide (1.9 t/ha)	113	108	103	103	103	102	102	102	102	101	100	100	100	[100]	99	99	97	97	96	94	92	7.1
Number of trials	17	17	12	17	12	17	17	17	17	15	14	17	12	9	17	17	12	17	17	14	14	
Seed quality (at 9% moisture)																						
Oil content of seed (%)	41.9	40.3	40.1	40.7	39.9	40.4	40.9	43.1	41.2	41.1	42.9	41.5	42.9	[40.6]	40.6	41.8	39.6	43.5	40.1	40.7	38.9	0.4
Agronomic features																						
Plant height (cm)	59	54	56	58	62	53	54	56	54	55	56	54	54	46	57	58	54	55	54	49	47	2.3
Earliness of flowering (1–9)	4	5	6	6	3	6	4	6	3	4	4	4	5	8	3	4	6	6	5	8	7	0.9
Earliness of maturity (1–9)	4	5	5	6	4	5	6	6	5	6	6	5	6	8	5	5	6	6	7	7	8	0.7
Annual seed yield (% control)																						
2013 (1.9 t/ha)	112	102	-	104	-	105	95	104	98	93	103	99	-	-	98	105	-	96	92	98	93	6.9
2014#	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2015 (1.7 t/ha)	[116]	[107]	[104]	[109]	[106]	[105]	[106]	[98]	[100]	[102]	-	[89]	[99]	-	[101]	[99]	[96]	[102]	[94]	[97]	[89]	12.1
2016 (2.2 t/ha)	[102]	[107]	[103]	[96]	[100]	[100]	[102]	[105]	[101]	[106]	[102]	[106]	[104]	[100]	[99]	[94]	[98]	[101]	[99]	[91]	[94]	9.4
2017 (1.7 t/ha)	[114]	[104]	[103]	[101]	[107]	[108]	[110]	[102]	[109]	[105]	[94]	[103]	[100]	[98]	[99]	[97]	[106]	[95]	[98]	-	-	13.6
2018 (2.5 t/ha)	[126]	[119]	[103]	[106]	[100]	[95]	[100]	[99]	[103]	-	[100]	[100]	[94]	[99]	[101]	[101]	[91]	[89]	[95]	[90]	[91]	13.7
Breeder/UK contact																						
Breeder	GKI	Bilt	Med	Bilt	JTSD	GIE	Bilt	LimEur	LaS	Lim	LaS	LaS	Lim	LaS	Bilt	LimEur	JTSD	TdL	JTSD	GIE	GIE	
UK contact	Agr	Els	Agr	Els	JTSD	PC	Els	Lim	Dalt	Lim	PC	Dalt	Lim	PC	Els	Lim	JTSD	PC	JTSD	PC	PC	
Status in DL system																						
Year first listed	01	17	18	12	18	17	13	17	17	09	12	09	18	17	11	17	18	14	06	14	09	
DL status	-	-	P2	-	P2	-	-	-	-	*	-	*	P2	-	*	*	P2	-	*	-	*	

Varieties no longer listed: Cumulus, GK Emma and Phoenix.
On the 1–9 scale, high figures indicate that a variety shows the character to a high degree (e.g. early maturity).
The data in this table are provided for information only and do not constitute a recommendation. Data for the Year 3 candidate Bliss cannot be published as this variety has not yet completed National List testing.

B = Brown
C = Yield control (for current table)
* = Variety no longer in trials
[ ] = Limited data
# = There were no yield results for 2014 due to trial failure
P2 = Second year of listing

Agr = Agrii (www.agrii.co.uk)
Bilt = Van de Bilt, Netherlands
Dalt = Dalton Seeds (www.dalmark.co.uk)
Els = Elsoms Seeds (www.elsoms.com)
GIE = GIE Linea, France
GKI = GK Kht, Hungary

JTSD = JTSD Ltd (www.jtsd.co.uk)
LaS = Laboulet Semences, France
Lim = Limagrain UK (www.lgseeds.co.uk)
LimEur = Limagrain Europe SA (www.lgseeds.co.uk)
Med = Medovarsky
PC = Premium Crops (www.premiumcrops.com)

TdL = Terre de Lin, France

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

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Year 3 Candidates

AHDB DESCRIBED

	Kasyno	KWS Fido	Dometica	Cyrkon	Tribeca	Securo	LD17	Kereon	Agostino	Average LSD (5%)	MAH7515 $	Tender PZO
		C							C			
Grain yield (as % treated control)												
Fungicide-treated (9.9 t/ha)	108	105	101	101	100	99	99	97	95	6.4	-	[100]
Number of trials	8	10	8	10	10	10	8	10	10		-	4
Agronomic features												
Lodging (%)	[0]	[0]	[2]	[0]	[5]	[2]	[6]	[2]	[0]	3.6	-	[16]
Straw length (cm)	103	112	111	97	122	121	106	110	104	4.8	-	[126]
Ripening (days +/- Agostino, -ve = earlier)	[+1]	0	[-1]	0	0	+1	[-1]	-1	0	1.3	-	[0]
Grain quality												
Specific weight (kg/hl)	74.6	76.5	71.7	73.9	73.7	74.8	77.6	75.7	75.7	1.2	-	[75.7]
Protein content (%)	11.7	11.5	11.4	11.6	11.6	12.2	12.0	11.6	11.8	0.4	-	[12.1]
Breeder/UK contact												
Breeder	Dank	Lant	Lant	Hod	Desp	Eng	LD	Desp	Lant		-	IGP
UK contact	Sen	Sen	Sen	Dalt	Els	Cope	Pick	Els	Sen		Dalt	Sen
Status in DL system												
Year first listed	18	14	18	16	12	17	18	16	11		-	-
DL status	P2	-	P2	-	-	-	P2	-	-		-	-

Varieties no longer listed: Tradiro.
The data in this table are provided for information only and do not constitute a recommendation.
$ Data for the Year 3 candidates cannot be published as these varieties have not completed National List testing.

C = Yield control (for current table)
[ ] = Limited data
P2 = Second year of listing
Cope = Trevor Cope Seeds (www.trevorcopeseeds.co.uk)
Dalt = Dalton Seeds (www.dalmark.co.uk)
Dank = Danko Hodowla Roslin, Poland (www.danko.pl)
Desp = Maison Florimond Desprez, France (www.florimond-desprez.com)
Els = Elsoms Seeds (www.elsoms.com)
Eng = Saatzucht Streng-Engelen
Hod = Hodowla Roslin Strzelce, Poland (www.hr-strzelce.pl)
IGP = IG-Pflanzenzucht, Germany
Lant = Lantmannen SW Seed BV
LD = Lemaire Deffontaines
Pick = Mike Pickford
Sen = Senova (www.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.

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Year 3 Candidates

AHDB DESCRIBED

	SU Performer	SU Cossani	Tur	SU Mephisto	Inspector	Dukato	Average LSD (5%)	SU Promotor	Dankowskie Hadron $
Variety type	Hybrid	Hybrid	Hybrid	Hybrid	Conv	Conv		Hybrid	Conv
				C					
Grain yield (as % treated control)									
Fungicide-treated (9.7 t/ha)	107	102	100	100	92	90	7.9	[101]	-
Number of trials	12	10	12	12	12	12		4	-
Agronomic features									
Lodging (%)	[5]	[11]	[0]	[10]	[14]	[19]	3.4	[2]	-
Straw length (cm)	132	132	134	131	144	143	6.2	[130]	-
Ripening (days +/- SU Mephisto, -ve = earlier)	+1	0	+1	0	+1	+1	2.1	[+1]	-
Grain quality									
Protein content (%)	9.6	9.8	9.7	9.8	10.4	10.1	0.5	[9.9]	-
Hagberg Falling Number	235	229	184	204	203	195	28.1	[244]	-
Specific weight (kg/hl)	78.7	77.2	76.4	77.5	78.8	78.6	0.9	[77.7]	-
Breeder/UK contact									
Breeder	Hybro	SU	Dank	Hybro	PHP	Hybro		SU	Dank
UK contact	SU	SU	Sen	SU	SU	SU		SU	Sen
Status in DL system									
Year first listed	17	18	17	15	16	17		-	-
DL status	-	P2	-	-	-	-		-	-

Varieties no longer listed: SU Drive and SU Phoenix.
The data in this table are provided for information only and do not constitute a recommendation.
$ Data for the Year 3 candidate cannot be published as the variety has not completed National List testing.

Conv = Conventional variety
C = Yield control (for current table)
[ ] = Limited data
P2 = Second year of listing

Dank = Danko Hodowla Roslin, Poland (www.danko.pl)
Hybro = Hybro, Germany
PHP = P.H.Petersen, Germany (www.phpetersen.com)

Sen = Senova (www.senova.uk.com)
SU = Saaten Union UK (www.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.

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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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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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