RECOMMENDEDLISTS

AHDB
AGRICULTURE & HORTICULTURE DEVELOPMENT BOARD

AHDB Recommended Lists for cereals and oilseeds 2017/18

Summer edition 2017

Produced in partnership with:

BSPB promoting innovation
British Society of Plant Breeders

maltsters
Maltsters Association of Great Britain

nabim
National Association of British and Irish Millers

Using the AHDB Recommended Lists

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. 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

Visit **cereals.ahdb.org.uk/monitoring** to use the Variety Selection Tool to visualise RL trials data from your region.

See for yourself

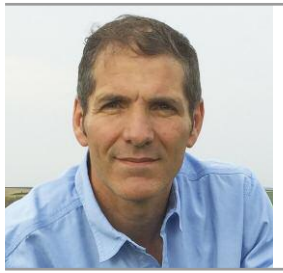
Visit the AHDB Cereals & Oilseeds stand at Cereals 2017 to see plots of all the Recommended List varieties and to pick up copies of the popular Recommended List Pocketbooks.

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

Contents

AHDB DESCRIBED

AHDB Cereals & Oilseeds key contacts



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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 have been withdrawn from the Recommended List by the breeder. Before a variety is taken off the List, it is removed from trials (indicated by an * in the tables).

Regional Lists for winter oilseed rape
Oilseed rape varieties are presented in the AHDB Recommended List on a regional basis. New for this year are UK gross outputs and seed yields. This will enable you to compare performance of varieties throughout the UK. Use the East/West List (pages 42–43) when choosing varieties up to Teesside. The North List (pages 44–45) is more appropriate when selecting a variety for the North of the UK. Varieties that are suitable for both regions are presented on both regional tables.

Candidate varieties
Candidate varieties are usually in their first or second year of RL trials, having completed at least two years of preliminary trials, eg National List trials. They are considered for recommendation in the autumn if there are sufficient data.

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 as 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, it does not constitute a recommendation.

Yield and quality

Yields
Yields are calculated as a percentage of the control. A range of 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 and should be treated more cautiously. Divisions between regions are not absolute and growers are advised to consider which region is most appropriate for their conditions.

Annual yields
Annual yields provide a breakdown of variety performance in different seasons over the years the variety has been tested. Consistent high yields over a number of 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

Brackling
Brackling is folding or breaking of the stems higher up the plant than 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.

Disease resistance ratings
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. 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, straw strength 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 data. Due to major changes in wheat yellow rust in 2016, wheat yellow rust ratings are based on 2016 information only.

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 six 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 varieties are used for breadmaking and produce 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 breadmaking 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.

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

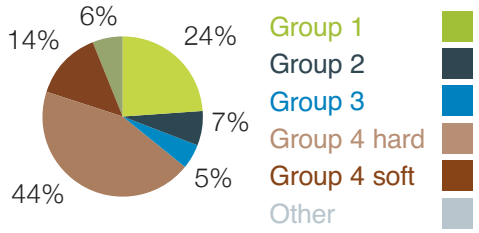
Cereal foods
Although most cereal food requirement is focused on maize and oats, a notable amount of wheat and barley (often malted) is also required. Much of the wheat used consists of Group 3 and 4 varieties. Quality requirements vary and premiums may be available depending on markets and usage.

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. Processors require grain giving good alcohol yields and high processing efficiency. They do not currently specify preferred varieties.

Starch production
Starch production requires similar characteristics to varieties for distilling but the industry currently uses any variety.

2016 GB wheat area by end-use category
Source: Agriculture and Horticulture Development Board Variety Survey 2016



Exports
Exports play an important role and provide some support to wheat prices by preventing oversupply in the domestic market. The UK produces good quality milling wheat, which is highly sought after in countries such as Algeria, Morocco, Portugal and Spain.

There is a constant core market overseas and growers can capitalise on these market opportunities when choosing which variety to grow and when marketing grain. If you farm within an 80 mile radius of a port, your local market could be Spain, Algeria, Portugal, Turkey and the Netherlands.

Overseas buyers have different requirements to domestic buyers. AHDB has developed the **uks** (soft biscuit wheat) and **ukp** (bread wheat) classifications so overseas buyers who are unfamiliar with individual varieties can instantly understand what qualities 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%.

For further information on supplying the export market, please visit **cereals.ahdb.org.uk/exports**

Typical specifications

	nabim Group 1	nabim Group 2	nabim Group 3	ukp	uks
Specific weight	76 kg/hl (min)	76 kg/hl (min)	74 kg/hl (min)	76 kg/hl (min)	75 kg/hl (min)
Moisture content	15% (max)	15% (max)	15% (max)	14% (max)	14% (max)
Admix	2% (max)	2% (max)	2% (max)	2% (max)	2% (max)
Hagberg Falling Number (HFN)	250 s (min)	250 s (min)	220 s (min)	250 s (min)	220 s (min)
Protein	13%	12.5%	11.5%	11–13%	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 which is very extensible with low strength.

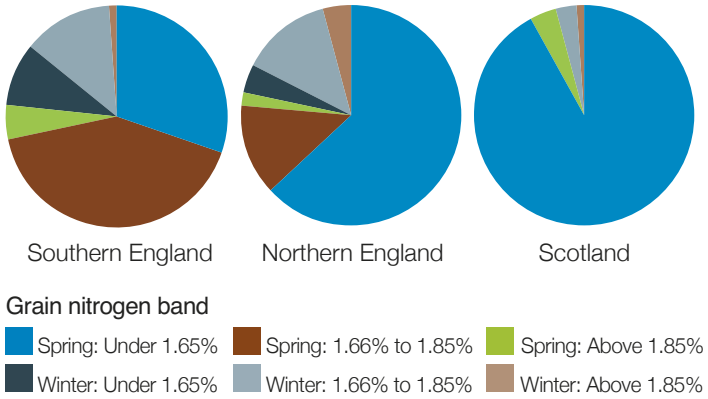
Market information

Barley

Barley is currently enjoying a resurgence within the UK, with the crop area increasing year on year for the past two 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 2017 crop.

The graph below shows MAGB members' wish list for 2017 barley crop purchases from England and Scotland

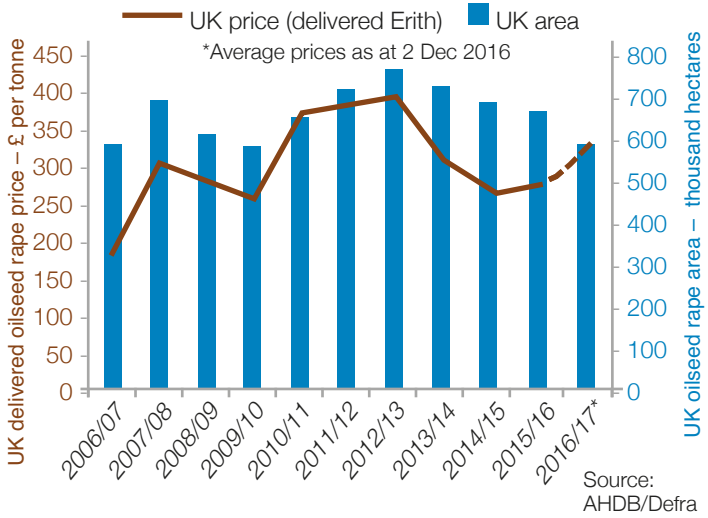


Exports

With bigger crops in recent years, exports of both malting and feed barley have become increasingly important. Malting barley exports are largely focused on Europe, with feed barley competing in both European and global markets. In 2015, the UK signed a protocol agreement with China for the export of UK barley. This was the result of many years of work by AHDB Cereals & Oilseeds, supported by UK government agencies and industry bodies.

Oilseed rape

Oilseed rape remains an important part of many rotations, although the area has declined since the record 0.76 million hectares in 2012. In 2016, the smallest area since 2009 was recorded following lower prices and concerns over the loss of key inputs.



Source: AHDB/Defra

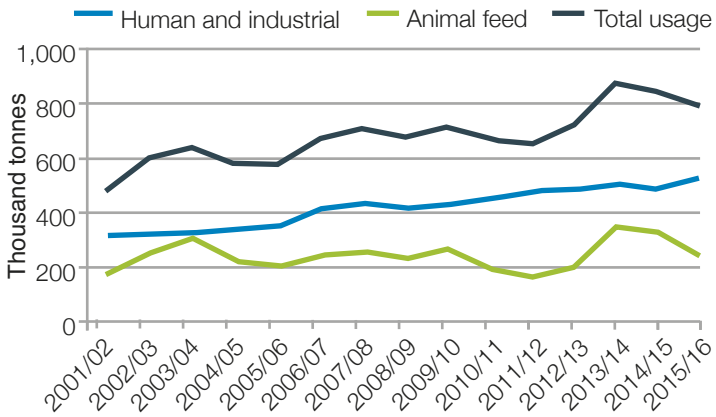
The markets for oilseed rape include:
– Edible oil
– High oleic, low linolenic (HOLL) oilseed rape
– High erucic acid rapeseed (HEAR)
– Biodiesel

HOLL oilseed rape oil meets the food industry's needs as it is a low trans fatty acid and low saturated fat vegetable oil that is stable and performs well in 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, with the human and industrial market increasing in recent years. All varieties should be acceptable for both uses. Varieties may be either husked or huskless (naked). The 2016 UK oat area is estimated at 141,000ha, 8% larger than 2015 and 4% above the 2011–2015 average.



Source: Defra

Market Intelligence from AHDB

Looking at the UK, EU and world markets, AHDB offers free up-to-the-minute data through a range of resources to support farmers in their decision-making:

– Real-time, contextualised price information and commentary on market movements in **Grain Market Daily**
– Regular market analysis in **Prospects**
– Weekly grain and oilseeds round-up in **Market Report**
– Daily futures prices

Email **cereals.subscriptions@ahdb.org.uk** call **024 7647 8730** or visit **cereals.ahdb.org.uk/markets** for more information.

Regional information

Regional markets

Information from the Agriculture and Horticulture Development Board 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, breadmaking quality varieties generally tend to be more popular in the East, while distilling varieties will be of greater importance further north.

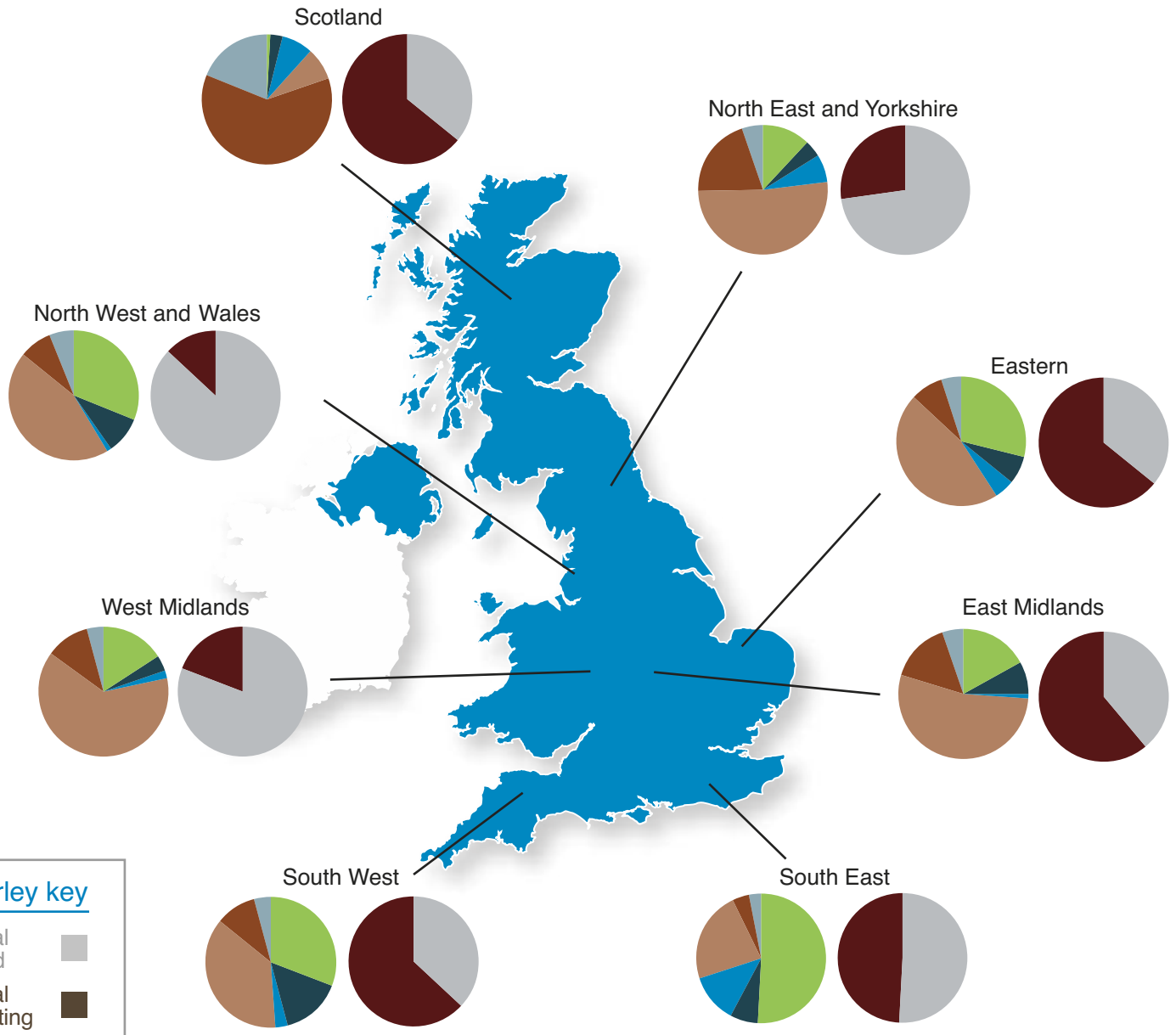
For barley, spring malt varieties for brewing will be in greater demand in the South, while further north, malt distilling varieties will be more appropriate.

Regional trials data

The AHDB Cereals & Oilseeds 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.

Area by variety for harvest 2016



Source: Agriculture and Horticulture Development Board Variety Survey 2016

Regional information

Regional disease risk

Variety treated yields are presented based on trials where 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.

Disease risk

High Moderate Low

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 (cereals.ahdb.org.uk/monitoring).

New races of yellow rust and brown rust have been identified in the UK Cereal Pathogen Virulence Survey. In 2016, major changes were seen in the susceptibility of some wheat varieties to yellow rust. Yellow rust ratings have therefore been calculated using 2016 information only.

The UKCPVS is currently investigating isolates collected during 2016. This information is reported on cereals.ahdb.org.uk/ukcpvs. A group of yellow rust isolates, sampled in 2015, had a distinct pattern of virulence on a wide set of varieties and were shown to be genetically unrelated to other races. Given these differences, it is highly likely these are a new race which has the provisional name 'Invicta'.

Wheat disease risk

Septoria tritici

Septoria nodorum

Yellow rust

Brown rust

Powdery mildew

Oilseed rape disease risk

Light leaf spot

Phoma

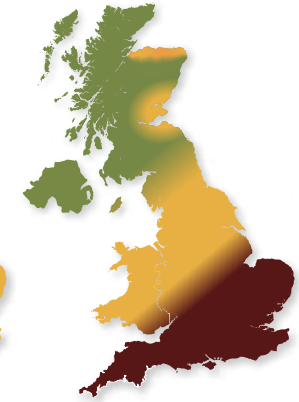
Barley disease risk

Rhynchosporium

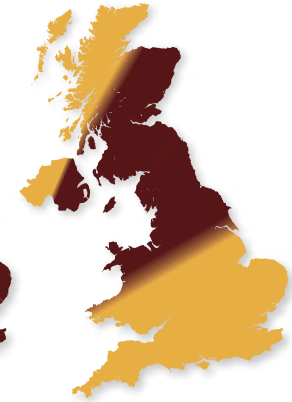
Ramularia

Net blotch

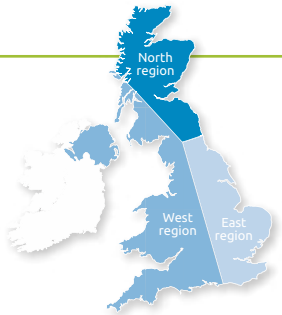
Brown rust



Powdery mildew



Winter wheat 2017/18 – nabim Groups 1–3 and Soft Group 4
Market options, yield and grain quality



AHDB RECOMMENDED

	KWS Zyatt	Skyfall	KWS Trinity	RGT Illustrious	Crusoe	Gallant	KWS Siskin	KWS Lili	Cordiale	KWS Barrel	Britannia	Spyder	KWS Basset	Zulu	Claire	Bennington	LG Sundance	Savello	LG Motown	Moulton	Hardwicke	Leeds	Viscount	Myriad	Revelation	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	UK	UK	UK	E&W	UK	UK	UK	E&W	UK	N	UK	UK	N	UK	N	N	UK	
	NEW	C			C	*					*			C	*	NEW	NEW	NEW	NEW	NEW	NEW					
Fungicide-treated grain yield (% treated control)																										
United Kingdom (10.7 t/ha)	102	101	99	98	97	97	103	102	96	103	102	100	100	99	96	104	104	103	103	103	103	102	100	99	98	2.7
East region (10.8 t/ha)	102	100	99	98	97	97	103	102	97	102	102	101	101	99	96	105	103	104	103	103	103	102	99	99	99	3.1
West region (10.7 t/ha)	103	101	98	98	98	96	104	102	96	102	101	101	99	98	96	103	104	101	102	104	101	100	99	98	97	3.4
North region (9.9 t/ha)	[98]	101	100	95	93	93	101	104	94	109	102	97	101	102	[[97]]	[101]	[102]	[106]	[104]	[100]	[104]	104	103	103	100	4.3
Main market options (The specific attributes of varieties are different, so, whenever possible, varieties should not be mixed in store)																										
UK breadmaking	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
UK biscuit, cake-making	-	-	-	-	-	-	-	-	-	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	
UK distilling	-	-	-	-	-	-	-	-	-	-	-	-	-	[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 (%)	11.9	11.9	11.6	11.8	12.5	11.9	11.5	11.2	12.0	10.9	11.6	11.8	11.3	11.3	11.5	11.2	11.0	11.0	11.0	11.4	11.0	11.1	11.0	11.1	11.2	0.3
Protein content (%) – Milling spec	13.0	13.1	12.9	13.1	13.8	13.0	12.9	12.3	13.2	12.1	13.0	13.0	12.5	12.5	12.8	12.3	12.2	12.3	12.2	12.7	12.1	12.1	12.1	12.3	12.4	0.3
Hagberg Falling Number	273	291	342	273	262	311	304	297	324	212	228	276	225	233	260	240	179	216	217	269	195	206	192	238	246	22
Specific weight (kg/hl)	77.7	77.9	76.9	76.8	77.3	76.8	76.8	76.5	79.0	76.4	76.3	75.8	76.9	75.6	76.0	76.7	74.5	74.3	75.3	77.1	75.5	77.7	76.0	76.4	75.9	0.7
Chopin alveograph W	196	[265]	263	[264]	215	235	186	199	[230]	95	96	[138]	93	97	-	93	75	-	60	99	88	87	[96]	104	90	26
Chopin alveograph P/L	0.6	[1.6]	1.1	[1.2]	0.6	0.9	0.7	0.8	[0.8]	0.4	0.2	[0.5]	0.4	0.3	-	0.5	0.4	-	0.4	0.5	0.7	0.3	[0.3]	0.3	0.3	0.2

Varieties no longer listed: Horatio, KWS Gator, KWS Kielder, RGT Conversion, Scout and Solstice.

Varieties are presented in order of highest UK treated yield within end-use groups.
Comparisons of varieties across regions are not valid.

UK = recommended for the UK
E&W = recommended for the East and West regions
N = recommended for the North region

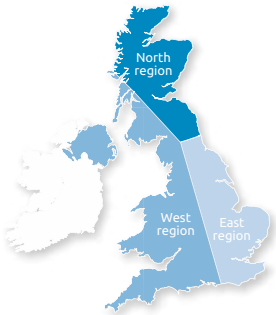
* = variety no longer in trials
C = yield control (for current table)
[ ] = limited data
[[ ]] = very limited data

P = to be verified by milling and baking of commercial samples by April 2017
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 2017/18 – Hard Group 4
Market options, yield and grain quality



AHDB RECOMMENDED

	KWS Kerrin	Shabras	Belgrade	Freiston	KWS Silverstone	Dunston	Graham	Reflection	KWS Santiago	KWS Crispin	Evolution	Dickens	Costello	JB Diego	Grafton	Relay	Average LSD (5%)
End-use group	Hard Group 4																
Scope of recommendation	E&W	UK	E&W	UK	UK	UK	UK	UK	E&W	UK	UK	UK	UK	UK	UK	E&W	
	NEW	NEW		NEW		NEW			C					C		*	
Fungicide-treated grain yield (% treated control)																	
United Kingdom (10.7 t/ha)	106	106	104	104	104	104	104	103	103	103	102	102	101	100	99	98	2.7
East region (10.8 t/ha)	106	105	104	103	104	104	103	103	104	103	102	101	101	100	99	98	3.1
West region (10.7 t/ha)	105	106	105	106	103	102	106	105	102	104	101	102	102	101	99	97	3.4
North region (9.9 t/ha)	[110]	[105]	102	[106]	106	[107]	100	104	104	98	104	104	99	100	[100]	100	4.3
Main market options (The specific attributes of varieties are different, so, whenever possible, varieties should not be mixed in store)																	
UK breadmaking	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
UK biscuit, cake-making	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
UK distilling	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ukp bread wheat for export	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
uks soft wheat for export	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Grain quality																	
Endosperm texture	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	
Protein content (%)	10.5	10.9	11.0	10.8	11.0	11.1	11.1	10.9	11.1	11.3	10.8	11.1	11.6	11.2	11.5	11.4	0.3
Protein content (%) - Milling spec	11.6	12.1	12.0	12.0	12.0	12.4	12.2	12.1	12.5	12.5	12.1	12.2	12.6	12.4	12.8	12.6	0.3
Hagberg Falling Number	135	200	193	177	295	231	275	239	168	277	195	251	326	309	305	286	22
Specific weight (kg/hl)	75.7	75.5	75.0	76.8	78.1	76.4	76.1	77.3	75.1	76.4	74.2	75.9	80.1	77.4	77.8	76.3	0.7
Chopin alveograph W	-	-	-	[76]	[179]	[74]	134	-	-	-	[198]	-	202	-	-	-	26
Chopin alveograph P/L	-	-	-	[0.9]	[1.5]	[0.7]	0.6	-	-	-	[1.4]	-	0.9	-	-	-	0.2

Varieties no longer listed: Horatio, KWS Gator, KWS Kielder, RGT Conversion, Scout and Solstice.

Varieties are presented in order of highest UK treated yield within end-use groups.
Comparisons of varieties across regions are not valid.

UK = recommended for the UK
E&W = recommended for the East and West regions
N = recommended for the North region

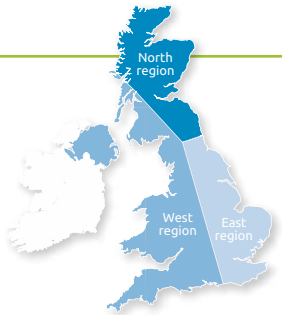
* = variety no longer in trials
C = yield control (for current table)
[ ] = limited data
[[ ]] = very limited data

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 2017/18 – nabim Groups 1–3 and Soft Group 4
Yield, agronomy and disease resistance



AHDB RECOMMENDED

	KWS Zyatt	Skyfall	KWS Trinity	RGT Illustrious	Crusoe	Gallant	KWS Siskin	KWS Lili	Cordiale	KWS Barrel	Britannia	Spyder	KWS Basset	Zulu	Claire	Bennington	LG Sundance	Savello	LG Motown	Moulton	Hardwicke	Leeds	Viscount	Myriad	Revelation	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	UK	UK	UK	E&W	UK	UK	UK	E&W	UK	N	UK	UK	N	UK	N	N	UK	
	NEW	C			C	*					*			C	*	NEW	NEW	NEW	NEW	NEW	NEW					
Grain yield (% treated control)																										
United Kingdom (10.7 t/ha)	102	101	99	98	97	97	103	102	96	103	102	100	100	99	96	104	104	103	103	103	103	102	100	99	98	2.7
East region (10.8 t/ha)	102	100	99	98	97	97	103	102	97	102	102	101	101	99	96	105	103	104	103	103	103	102	99	99	99	3.1
West region (10.7 t/ha)	103	101	98	98	98	96	104	102	96	102	101	101	99	98	96	103	104	101	102	104	101	100	99	98	97	3.4
North region (9.9 t/ha)	[98]	101	100	95	93	93	101	104	94	109	102	97	101	102	[[97]]	[101]	[102]	[106]	[104]	[100]	[104]	104	103	103	100	4.3
Untreated grain yield (% treated control)																										
United Kingdom (10.7 t/ha)	91	82	76	83	77	60	88	75	64	74	74	84	76	76	70	90	90	81	89	90	86	71	71	70	81	6.2
Agronomic features																										
Resistance to lodging without PGR (1–9)	7	8	7	7	7	7	6	7	8	8	6	6	7	6	[6]	7	7	6	6	7	7	7	7	6	7	0.8
Resistance to lodging with PGR (1–9)	8	8	8	8	8	8	7	8	8	8	6	7	8	7	8	8	7	7	7	7	8	8	7	7	8	0.7
Height without PGR (cm)	84	82	81	89	81	82	84	81	79	83	88	90	85	89	87	91	87	88	84	90	80	86	81	89	86	2.2
Ripening (days +/- JB Diego, -ve = earlier)	0	0	+1	+1	0	-2	0	+2	-2	+1	+1	0	+1	+1	0	+1	+1	0	-1	0	0	+2	0	+1	+3	0.7
Resistance to sprouting (1–9)	-	4	[7]	[6]	6	6	[5]	[7]	6	[6]	[6]	[6]	[6]	6	[5]	-	-	-	-	-	-	6	5	[6]	5	0.9
Disease resistance																										
Mildew (1–9)	7	6	8	7	7	6	9	8	6	6	5	9	5	7	[5]	7	6	7	8	7	5	3	[7]	6	6	2.1
Yellow rust (1–9)	7	6	9	9	9	4	9	7	4	8	4	6	8	5	5	7	9	8	9	8	8	6	6	4	9	1.0
Brown rust (1–9)	6	9	8	7	3	7	5	5	4	6	6	7	5	4	5	7	6	4	7	7	6	5	8	5	8	1.3
Septoria nodorum (1–9)	[6]	[5]	[5]	[6]	6	5	[6]	[6]	[5]	[5]	[5]	[7]	[6]	[6]	[5]	[7]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[5]	[6]	0.7
Septoria tritici (1–9)	6.4	6.0	5.3	6.3	6.7	4.6	6.8	5.9	4.8	4.4	5.3	5.7	5.4	5.7	5.3	6.2	7.3	5.3	5.8	6.5	5.9	4.6	4.6	5.5	6.4	0.7
Eyespot (1–9)	[7]@	6@	5	7@	4	5	4	5	5	4	3	4	5	4	5	[5]	[3]	[4]	[3]	[4]	[4]	4	5	5	8@	1.5
Fusarium ear blight (1–9)	6	7	6	6	6	5	6	6	5	6	6	6	6	6	6	6	6	6	6	6	6	7	6	6	7	0.5
Orange wheat blossom midge	-	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 (eg high resistance).
Comparisons of varieties across regions are not valid.

UK = recommended for the UK
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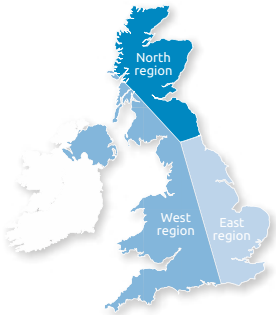
@ = believed to carry the *Pch1* Rendezvous resistance gene to eyespot but this has not been verified in Recommended List tests
R = believed to be resistant to orange wheat blossom midge (OWBM) but this has not been verified in Recommended List tests
LSD = least significant difference

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

Winter wheat 2017/18 – Hard Group 4
Yield, agronomy and disease resistance



AHDB RECOMMENDED

	KWS Kerrin	Shabras	Belgrade	Freiston	KWS Silverstone	Dunston	Graham	Reflection	KWS Santiago	KWS Crispin	Evolution	Dickens	Costello	JB Diego	Grafton	Relay	Average LSD (5%)
End-use group	Hard Group 4																
Scope of recommendation	E&W	UK	E&W	UK	UK	UK	UK	UK	E&W	UK	UK	UK	UK	UK	UK	E&W	
	NEW	NEW		NEW		NEW			C					C		*	
Fungicide-treated grain yield (% treated control)																	
United Kingdom (10.7 t/ha)	106	106	104	104	104	104	104	103	103	103	102	102	101	100	99	98	2.7
East region (10.8 t/ha)	106	105	104	103	104	104	103	103	104	103	102	101	101	100	99	98	3.1
West region (10.7 t/ha)	105	106	105	106	103	102	106	105	102	104	101	102	102	101	99	97	3.4
North region (9.9 t/ha)	[110]	[105]	102	[106]	106	[107]	100	104	104	98	104	104	99	100	[100]	100	4.3
Untreated grain yield (% treated control)																	
United Kingdom (10.7 t/ha)	84	86	88	88	81	92	88	76	69	88	80	77	85	77	74	80	6.2
Agronomic features																	
Resistance to lodging without PGR (1–9)	7	6	6	6	6	7	7	7	7	7	7	7	7	7	8	7	0.8
Resistance to lodging with PGR (1-9)	7	7	6	7	6	8	8	8	7	7	7	7	8	8	8	8	0.7
Height without PGR (cm)	84	86	90	92	89	93	86	81	86	85	91	86	82	88	77	80	2.2
Ripening (days +/- JB Diego, -ve = earlier)	+1	-1	-1	0	0	+1	-1	-1	+1	+1	+2	0	+1	0	-1	0	0.7
Resistance to sprouting (1–9)	-	-	[4]	-	[6]	-	[7]	[5]	5	[5]	5	5	[7]	7	5	6	0.9
Disease resistance																	
Mildew (1–9)	7	7	9	7	7	5	8	6	5	9	6	7	8	6	[6]	5	2.1
Yellow rust (1–9)	7	8	6	9	7	7	8	3	6	9	8	9	9	5	6	8	1.0
Brown rust (1–9)	7	4	5	7	8	6	5	9	5	5	8	6	5	6	5	7	1.3
Septoria nodorum (1–9)	[6]	[6]	[6]	[7]	[6]	[6]	[6]	[5]	5	[6]	[6]	[5]	[6]	6	[5]	[5]	0.7
Septoria tritici (1–9)	5.2	6.2	6.1	6.7	4.6	6.7	6.7	5.4	4.3	5.9	5.5	4.7	6.0	5.2	5.3	6.4	0.7
Eyespot (1–9)	[5]	[5]	3	[4]	5	[6]@	4	5	4	4	5	4	5	5	6@	4	1.5
Fusarium ear blight (1–9)	6	6	5	6	6	6	6	6	6	6	6	6	6	6	5	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 (eg high resistance).
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Winter wheat 2017/18 – Supplementary data nabim Groups 1–3 and Soft Group 4

AHDB RECOMMENDED

	KWS Zyatt	Skyfall	KWS Trinity	RGT Illustrious	Crusoe	Gallant	KWS Siskin	KWS Lili	Cordiale	KWS Barrel	Britannia	Spyder	KWS Basset	Zulu	Claire	Bennington	LG Sundance	Savello	LG Motown	Moulton	Hardwicke	Leeds	Viscount	Myriad	Revelation	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	UK	UK	UK	E&W	UK	UK	UK	E&W	UK	N	UK	UK	N	UK	N	N	UK	
	NEW	C			C	*					*			C	*	NEW	NEW	NEW	NEW	NEW	NEW					
Breeder/UK contact																										
Breeder	KWS	RAGT	KWS	R2n	Lim	SyP	KWS	KWS	KWS	KWS	Lim	BA	KWS	Lim	Lim	ElsW	LimEur	SyP	LimEur	ElsW	Sej	Mom	KWS	Lim	Lim	
UK contact	KWS	RAGT	KWS	RAGT	Lim	Syn	KWS	KWS	KWS	KWS	Lim	Sen	KWS	Lim	Lim	Els	Lim	Syn	Lim	Els	KWS	KWS	KWS	Lim	Lim	
Annual treated yield (% control)																										
2012 (9.0 t/ha)	-	102	101	-	95	101	-	105	99	-	103	-	-	99	[97]	-	-	-	-	-	-	106	107	99	98	3.1
2013 (10.0 t/ha)	-	102	[97]	[100]	97	92	[100]	[99]	96	[101]	[99]	[101]	[99]	98	[[98]]	-	-	-	-	-	-	101	98	98	99	3.4
2014 (11.7 t/ha)	103	100	99	98	99	94	103	102	95	102	102	99	102	99	[98]	104	104	104	103	103	104	102	98	100	100	2.6
2015 (11.7 t/ha)	102	100	100	98	96	96	105	102	94	104	103	99	102	100	[94]	103	102	103	102	101	103	101	101	101	99	2.8
2016 (10.7 t/ha)	100	99	98	94	97	[100]	102	102	97	103	102	100	97	100	[95]	104	105	102	103	104	100	101	100	101	96	2.2
Rotational position																										
First cereal (10.9 t/ha)	101	100	99	97	97	97	104	103	97	103	102	100	100	99	97	104	103	103	103	103	102	102	101	100	99	2.9
Second and more (9.9 t/ha)	103	101	99	98	96	95	102	100	95	103	102	99	101	99	[[96]]	103	104	105	103	102	103	101	99	99	98	3.3
Sowing date (most trials were sown in October)																										
Early sown (before 15 Sept) (10.9 t/ha)	-	99	101	[97]	97	96	-	[[105]]	-	98	-	101	103	[101]	97	[105]	-	-	-	-	-	[101]	98	-	100	4.0
Late sown (mid-Nov to end-Jan) (10.1 t/ha)	[97]	98	99	97	96	[95]	102	104	96	104	102	100	100	101	-	[99]	[[105]]	[102]	[102]	[101]	[[101]]	103	[[104]]	104	[98]	4.5
Soil type (about 50% of trials are on medium soils)																										
Light soils (10.1 t/ha)	[100]	100	99	95	95	92	102	104	94	106	102	99	99	101	96	[100]	[104]	[103]	[106]	[103]	[102]	104	101	102	99	5.2
Heavy soils (11.0 t/ha)	102	101	99	98	98	97	103	102	96	102	102	100	100	99	[[94]]	105	103	102	102	102	101	101	[[98]]	99	98	3.5
Agronomic features																										
Lodging % without PGR	1	1	1	2	1	2	5	1	1	1	11	7	2	9	6	3	4	6	6	4	3	2	2	7	2	
Lodging % with PGR	1	0	0	1	1	1	2	1	1	1	6	4	1	4	2	1	5	3	5	3	1	2	3	3	1	
Latest safe sowing date #	[Mid Feb]	End Feb	Mid Feb	[Mid Feb]	End Jan	Mid Feb	[End Jan]	Mid Feb	Mid Feb	[End Jan]	Mid Feb	[End Jan]	[End Jan]	Mid Feb	Mid Feb	[Mid Feb]	[End Jan]	[Mid Feb]	[End Jan]	[End Jan]	[Mid Feb]	End Feb	Mid Feb	Mid Feb	End Jan	
Speed of development to growth stage 31 (days +/- average)																										
Early Sept sown	-	-5	[-8]	[+5]	+3	-2	[-12]	[-3]	-1	[+5]	[+2]	[+4]	[-7]	0	+3	-	-	-	-	-	-	-4	+4	+4	+7	14.2
Early Oct sown	-	-4	+2	[+2]	-1	-3	[-6]	-1	-4	[+4]	-3	[-2]	[-2]	+1	+2	-	-	-	-	-	-	-1	+2	+4	+3	8.0
Early Nov sown	-	0	[0]	[+1]	-2	+1	[-4]	[+1]	-2	[+6]	[+1]	[-1]	[-2]	+2	+2	-	-	-	-	-	-	+1	+2	+3	+4	4.0
Status in RL system																										
Year first listed	17	14	15	16	12	09	16	15	04	16	15	16	16	14	99	17	17	17	17	17	17	13	09	13	13	
RL status	P1	-	-	P2	-	*	P2	-	-	P2	*	P2	P2	-	*	P1	P1	P1	P1	P1	P1	-	-	-	-	

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
P1 = first year of recommendation
P2 = second year of recommendation

* = variety no longer in trials
C = yield control (for current table)
[ ] = limited data
[[ ]] = very limited data
= latest safe sowing date is the advised latest sowing time to give a sufficient cold period for flowering

Agr = Agrii (www.agrii.co.uk)
BA = Blackman Agriculture
Bre = Saatzucht Josef Breun, Germany
DSV = DSV United Kingdom (www.dsv-uk.co.uk)
Els = Elsoms Seeds (www.elsoms.com)
ElsW = Elsoms Wheat Ltd (www.elsoms.com)
KWS = KWS UK (www.kws-uk.com)
Lim = Limagrain UK (www.limagrain.co.uk)
LimEur = Limagrain Europe SA (www.limagrain.co.uk)

Mom = Momont, France
RAGT = RAGT Seeds (www.ragt.co.uk)
R2n = RAGT, France (www.ragt.co.uk)
Sec = Secobra, France
Sej = Sejet, Denmark
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 Participants 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 wheat 2017/18 – Supplementary data Hard Group 4

AHDB RECOMMENDED

	KWS Kerrin	Shabras	Belgrade	Freiston	KWS Silverstone	Dunston	Graham	Reflection	KWS Santiago	KWS Crispin	Evolution	Dickens	Costello	JB Diego	Grafton	Relay	Average LSD (5%)
End-use group	Hard Group 4																
Scope of recommendation	E&W	UK	E&W	UK	UK	UK	UK	UK	E&W	UK	UK	UK	UK	UK	UK	E&W	
	NEW	NEW		NEW		NEW			C					C		*	
Breeder/UK contact																	
Breeder	KWS	SyP	Sej	ElsW	KWS	ElsW	SyP	SyP	KWS	KWS	Sej	Sec	KWS	Bre	KWS	RAGT	
UK contact	KWS	Syn	SU	Els	KWS	Els	Syn	Syn	KWS	KWS	Lim	Agr	Sen	Sen	KWS	RAGT	
Annual treated yield (% control)																	
2012 (9.0 t/ha)	-	-	-	-	-	-	-	112	105	-	102	101	105	100	101	96	3.1
2013 (10.0 t/ha)	-	-	[105]	-	[101]	-	[101]	[99]	104	[99]	102	105	[99]	100	[97]	100	3.4
2014 (11.7 t/ha)	108	106	102	104	105	104	104	103	102	104	102	101	100	101	[101]	[97]	2.6
2015 (11.7 t/ha)	105	104	102	103	104	105	101	101	104	101	102	101	102	101	[99]	100	2.8
2016 (10.7 t/ha)	105	105	106	105	103	101	105	103	104	103	103	102	99	101	[98]	96	2.2
Rotational position																	
First cereal (10.9 t/ha)	106	105	104	104	105	104	104	104	103	103	102	102	101	100	100	97	2.9
Second and more (9.9 t/ha)	107	107	103	105	103	105	101	102	104	100	103	102	100	101	98	99	3.3
Sowing date (most trials were sown in October)																	
Early sown (before 15 Sept) (10.9 t/ha)	-	-	-	-	-	[107]	[104]	[[106]]	102	-	-	100	102	100	98	100	4.0
Late sown (mid-Nov to end-Jan) (10.1 t/ha)	[106]	[101]	104	[101]	103	[101]	[102]	103	105	104	103	103	99	99	[[101]]	[96]	4.5
Soil type (about 50% of trials are on medium soils)																	
Light soils (10.1 t/ha)	[107]	[106]	102	[105]	106	[106]	101	104	104	101	104	103	101	100	96	97	5.2
Heavy soils (11.0 t/ha)	104	104	105	103	104	102	104	103	103	103	102	100	102	100	[98]	98	3.5
Agronomic features																	
Lodging % without PGR	3	5	9	11	15	2	3	1	3	3	4	4	2	2	1	2	
Lodging % with PGR	2	3	6	4	8	2	2	0	2	5	3	3	0	2	1	1	
Latest safe sowing date #	[End Jan]	[Mid Feb]	[End Jan]	[Mid Feb]	[End Jan]	[Mid Feb]	[End Jan]	Mid Feb	End Jan	[Mid Feb]	Mid Feb	End Jan	End Jan	End Jan	End Jan	End Jan	
Speed of development to growth stage 31 (days +/- average)																	
Early Sept sown	-	-	[+2]	-	[-4]	-	[+5]	[0]	+8	[-5]	0	-1	[+3]	0	+7	0	14.2
Early Oct sown	-	-	[-7]	-	[-6]	-	[-2]	+1	+4	[-7]	-1	-3	+1	-1	+2	0	8.0
Early Nov sown	-	-	[0]	-	[-4]	-	[-2]	[-1]	+2	[-6]	+1	0	[-3]	-2	+1	+2	4.0
Status in RL system																	
Year first listed	17	17	16	17	16	17	16	15	11	16	14	13	15	08	09	12	
RL status	P1	P1	P2	P1	P2	P1	P2	-	-	P2	-	-	-	-	-	*	

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ElsW = Elsoms Wheat Ltd (www.elsoms.com)
KWS = KWS UK (www.kws-uk.com)
Lim = Limagrain UK (www.limagrain.co.uk)
LimEur = Limagrain Europe SA (www.limagrain.co.uk)

Mom = Momont, France
RAGT = RAGT Seeds (www.ragt.co.uk)
R2n = RAGT, France (www.ragt.co.uk)
Sec = Secobra, France
Sej = Sejet, Denmark
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 Participants 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 wheat trials harvest 2017 – 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 wt (kg/hl)	UK contact
Control varieties																			
JB Diego	BR5251D35	1737	101	73	1	1	87	0	6	6	6	5	5		Hard	12.4	309	77.1	Senova
KWS Santiago	CPBT W165	1916	105	71	2	2	84	+1	5	6	5	4	4	R	Hard	12.4	171	75.5	KWS UK
Crusoe	NAWW25	2009	96	80	0	1	80	+1	7	8	3	7	4		Hard	14.0	267	77.5	Limagrain UK
Skyfall	S.J3326	2138	98	89	0	0	82	+1	6	6	9	6	6	R	Hard	13.2	274	77.9	RAGT Seeds
Zulu	LGW54	2155	99	75	1	4	89	0	7	7	6	6	4	R	Soft	12.5	240	75.5	Limagrain UK
Selected as potential biscuit-making varieties																			
Elicit	EW2087	2492	104	90	0	2	84	+1	6	9	7	6	[4]	R	Soft	12.8	217	77.2	Elsoms Seeds
Selected as potential feed varieties																			
RGT Universe	RW41498	2519	105	79	3	6	90	+2	5	7	4	6	[5]	R	Soft	12.5	174	75.5	RAGT Seeds
LG Generation	LGW108	2524	Data cannot be published as variety has not completed National List testing																Limagrain UK
KWS Jackal	KWSW290	2565	Data cannot be published as variety has not completed National List testing																KWS UK
Elation	EW2082	2490	104	85	1	1	81	0	7	8	6	5	[4]	R	Soft	12.6	187	77.6	Elsoms Seeds
KWS Luther £	KWSW286	2561	Data cannot be published as variety has not completed National List testing																KWS UK
RGT Gravity	RW41494	2517	107	84	1	4	85	+1	5	8	6	5	[4]	R	Hard	12.5	199	76.0	RAGT Seeds
Gleam	SY114257	2546	106	92	1	2	86	0	7	7	6	6	[7]	R	Hard	12.1	205	75.8	Syngenta UK Ltd
Verso	SY114242	2544	105	82	1	1	85	+1	6	7	7	6	[5]	R	Hard	12.1	180	75.4	Syngenta UK Ltd
Mean of controls (t/ha)			11.2	11.2	-	-	-	325	-	-	-	-	-			-	-	-	
Overall mean			-	-	0.8	1.4	85	-	-	-	-	-	-			12.7	252	76.7	
LSD 5%			4.3	6.4	0.9	1.0	2.3	1.1	-	-	-	-	-			0.3	26.8	0.8	
Number of trials			32	10	9	5	13	8	-	-	-	-	-			10	10	10	

On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (eg high resistance).
The 1–9 ratings are not comparable to those used on the Recommended List table.

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
£ = candidate for North region
[ ] = limited data

LSD 5%: Varieties that are more than one LSD apart are significantly different at the 95% confidence level.

Candidate varieties will be considered for the 2018/19 AHDB Recommended List.

To allow direct comparisons, the data presented for control varieties are taken from trials in which the candidates were grown.

See the AHDB Recommended List for full data on control varieties.

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

Winter wheat varieties grown in RL trials in 2016 but not added to the AHDB Recommended List

	Control varieties					Other varieties								
	Skyfall	Crusoe	Zulu	KWS Santiago	JB Diego	LG Cassidy	Stratosphere	RGT Knightsbridge	RGT Westminster	LG Bletchley	Marlowe	RGT Paddington	Marston	Average LSD (5%)
Fungicide-treated grain yield (% treated control)														
United Kingdom (10.7 t/ha)	101	97	99	103	100	101	105	104	103	101	105	104	102	2.7
East region (10.8 t/ha)	100	97	99	104	100	102	105	104	103	101	105	104	102	3.1
West region (10.7 t/ha)	101	98	98	102	101	101	104	104	103	101	106	103	101	3.4
North region (9.9 t/ha)	101	93	102	104	100	[99]	[106]	[106]	[102]	[101]	[106]	[[103]]	[101]	4.3
Untreated grain yield (% treated control)														
United Kingdom (10.7 t/ha)	82	77	76	69	77	76	83	77	82	86	78	72	85	6.2
Grain quality														
Endosperm texture	Hard	Hard	Soft	Hard	Hard	Hard	Soft	Soft	Soft	Soft	Hard	Hard	Hard	
Protein content (%)	11.9	12.5	11.3	11.1	11.2	11.4	10.8	10.8	11.3	11.3	11.0	11.2	11.4	0.3
Protein content (%) – Milling spec	13.1	13.8	12.5	12.5	12.4	12.5	12.0	12.0	12.5	12.6	12.4	12.3	12.8	0.3
Hagberg Falling Number	291	262	233	168	309	242	208	244	181	191	234	197	308	22
Specific weight (kg/hl)	77.9	77.3	75.6	75.1	77.4	77.2	72.7	72.6	74.9	76.0	76.0	76.4	76.8	0.7
Chopin alveograph W	[265]	215	97	-	-	179	[56]	71	129	104	-	[124]	165	26
Chopin alveograph P/L	[1.6]	0.6	0.3	-	-	0.5	[0.6]	0.4	0.5	0.4	-	[0.8]	0.8	0.2
Agronomic features														
Resistance to lodging without PGR (1–9)	8	7	6	7	7	7	7	7	7	7	6	7	7	0.8
Resistance to lodging with PGR (1–9)	8	8	7	7	8	8	7	7	8	8	6	8	8	0.7
Height without PGR (cm)	82	81	89	86	88	85	88	84	83	84	91	83	87	2.2
Ripening (days +/- JB Diego, -ve = earlier)	0	0	+1	+1	0	0	0	+1	+1	0	+1	0	+1	0.7
Resistance to sprouting (1–9)	4	6	6	5	7	-	-	-	-	-	-	-	-	0.9
Disease resistance														
Mildew (1–9)	6	7	7	5	6	5	7	4	6	4	8	4	9	2.1
Yellow rust (1–9)	6	9	5	6	5	9	7	6	8	8	7	7	9	1.0
Brown rust (1–9)	9	3	4	5	6	4	5	3	6	9	5	5	4	1.3
Septoria nodorum (1–9)	[5]	6	[6]	5	6	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	0.7
Septoria tritici (1–9)	6.0	6.7	5.7	4.3	5.2	5.5	4.9	5.6	5.2	5.4	5.3	5.4	6.8	0.7
Eyespot (1–9)	6@	4	4	4	5	[4]	[4]	[4]	[5]	[3]	[4]	[6]@	[3]	1.5
Fusarium ear blight (1–9)	7	6	6	6	6	6	6	6	6	6	6	6	6	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 2017/18.

[ ] = limited data
[[ ]] = very 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 2017/18 – Variety comments

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.

nabim Group 1 varieties

Crusoe ukp

Quality: Crusoe is a **nabim** Group 1 variety which is also classified as a **ukp** bread wheat for export. It has a high specific weight and gives good proteins.
Agronomy: This short-strawed variety has high resistance to mildew, yellow rust and septoria tritici but is susceptible to eyespot and very susceptible to brown rust.
nabim comment: Increasing volumes of this variety continue to be seen. It has consistently demonstrated good protein content and quality. Its baking performance is good with good bread crumb structure.

Gallant ukp

Quality: Gallant is a **nabim** Group 1 variety which is also classified as a **ukp** bread wheat for export. It gives high Hagbergs and specific weights.
Agronomy: A very early maturing variety with short straw and a yield potential around 4% below Skyfall. It is susceptible to yellow rust. It is no longer in RL trials.
nabim comment: Its milling and baking qualities remain consistently good and it remains a popular variety with millers.

KWS Trinity

Quality: A **nabim** Group 1 bread wheat with high Hagbergs and specific weights.
Agronomy: This short-strawed variety has a treated UK yield around 2% below Skyfall and has given particularly good relative yields when sown mid-September. It has high resistance to mildew, yellow rust and brown rust.
nabim comment: It exhibits good gluten quality even at lower protein levels and has shown good baking performance. Because it is high yielding, nitrogen applications may have to be adjusted to achieve protein specifications.

NEW KWS Zyatt ukp

Quality: Added to the AHDB Recommended List for 2017/18 as a **nabim** Group 1 bread wheat which is also classified as a **ukp** bread wheat for export. KWS Zyatt has given high yields, combined with high specific weights and Hagbergs.
Agronomy: This short-strawed variety has given high treated yields in the East and West regions. This relatively early ripening variety has given very high yields in second cereal situations and has performed well in trials on heavy soils. KWS Zyatt has a good overall disease package and gave the second highest untreated UK yield on the 2017/18 Recommended List.
nabim comment: In the three years of testing, the performance of this variety was consistent with that of other Group 1 varieties, although with slightly lower protein and water absorption qualities. It has shown good baking performance. Because it is high yielding, nitrogen applications may have to be adjusted to achieve protein specifications.

RGT Illustrious

Quality: A **nabim** Group 1 bread wheat with high Hagbergs and specific weights.
Agronomy: This variety has given UK yields slightly above Crusoe. It has good overall disease resistance, with high ratings for mildew, yellow rust, brown rust and eyespot (*Pch1*).
nabim comment: In the three years of testing the performance of this variety was consistent with that of other Group 1 varieties. It exhibits good gluten quality even at lower protein levels and has shown good baking performance. Because it is high yielding, nitrogen applications may have to be adjusted to achieve protein specifications.

Skyfall

Quality: A **nabim** Group 1 bread wheat with high yields, high Hagbergs and specific weights.
Agronomy: Its UK treated yield is 4% higher than Crusoe and it has given high yields in the North and West regions. It is an awned wheat with short, stiff straw and is the only breadmaking winter wheat with resistance to orange wheat blossom midge. This variety has good overall disease resistance, especially to brown rust, fusarium ear blight and eyespot (*Pch1*). It has a tendency to 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 ripening and has a tendency to sprout so should be given priority at harvest.
nabim comment: This variety is well established and favoured by many millers because it shows good milling and baking qualities. Because it is high yielding, nitrogen applications may have to be adjusted to achieve protein specifications.

Export specifications

ukp = meets the specification for **ukp** bread wheat for overseas markets

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

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

Winter wheat 2017/18 – Variety comments

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.

nabim Group 2 varieties

Cordiale ukp

Quality: A **nabim** Group 2 wheat and classified as a **ukp** bread wheat for export. Cordiale gives good proteins, Hagbergs and specific weights.
Agronomy: This variety is very early maturing and has short, stiff straw. It has a treated yield potential similar to the Group 1 variety Gallant. It is susceptible to brown rust and yellow rust.
nabim comment: This remains the Group 2 variety of choice for most millers and growers. It has higher than average Hagbergs, with good protein levels and specific weights as key features. Consistent milling and baking performance continue to be seen by millers.

KWS Lili ukp

Quality: A high yielding **nabim** Group 2 wheat and classified as a **ukp** bread wheat for export. It has a high Hagberg in trials but careful management will be needed to attain the required protein level for milling specification.
Agronomy: This variety has a treated UK yield potential 6% above Cordiale and has given very high yields in the North region. It is a later maturing variety with short straw and high resistance to mildew and yellow rust. KWS Lili has performed particularly well on lighter soils and seems best suited to first wheat situations.
nabim comment: The performance of this variety has been variable throughout the three years of testing. There are some concerns with 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 and classified as a **ukp** bread wheat for export. It has high Hagbergs and specific weights.
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 performed particularly well in first cereal situations. 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 but is susceptible to eyespot. Limited data suggest this variety has a tendency to sprout, so it should be given priority at harvest.
nabim comment: Over the three years of testing, this variety showed a degree of variability in its baking performance so may be more suited to use in blends. Some yellowness may be seen in the flour colour.

Making more meaningful variety choices

Variety Selection Tool
Compare the performance of varieties using the online tool based on variety trial information.

Local information
Use the tool to make comparisons using location-specific information.

Local focus
Select geographical location, rotational position, soil type or sowing date.

Local impact
Visualise the results in chart or table format for easy variety comparison.

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Winter wheat 2017/18 – Variety comments

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.

nabim Group 3 varieties

Britannia uks

Quality: A high-yielding **nabim** Group 3 wheat, classified as a **uks** soft wheat for export but not suitable for distilling.
Agronomy: This variety has a yield potential around 3% above Zulu. It has moderate resistance to lodging and is susceptible to yellow rust and eyespot. It is no longer in RL trials.
nabim comment: Over the three years of testing, this variety gave a sound performance and demonstrated high gluten extensibility. It fully meets the Group 3 criteria.

Claire uks

Distilling: Medium

Quality: Claire is a **nabim** Group 3 wheat, classified as a **uks** soft wheat for export. It is rated 'medium' for distilling.
Agronomy: This variety has a treated yield potential some 7% lower than the highest yielding Group 3 variety but it is a slow developing variety which has proved useful for very early drilling. It is susceptible to mildew and rather susceptible to sprouting. It is no longer in RL trials.
nabim comment: This early-sowing biscuit wheat continues to be the benchmark for Group 3. It is preferred by millers because of its milling qualities, bright white flour colour and its gluten characteristics, which result in high dough extensibility.

KWS Barrel uks

Quality: A high-yielding **nabim** Group 3 wheat. It is classified as a **uks** soft wheat for export but is not suitable for distilling.
Agronomy: This short, stiff-strawed variety has produced very high yields in the North region and has performed particularly well on lighter soils. It has high resistance to yellow rust, combined with resistance to orange wheat blossom midge. It is susceptible to septoria tritici and eyespot.
nabim comment: Over the three years of testing, this variety fully met the Group 3 criteria.

KWS Basset uks

Quality: A **nabim** Group 3 wheat with a high specific weight. It is classified as a **uks** soft wheat for export but is not suitable for distilling.
Agronomy: KWS Basset has high resistance to yellow rust, combined with resistance to orange wheat blossom midge.
nabim comment: Over the three years of testing, this variety fully met the Group 3 criteria, although there was some variation in dough extensibility.

Spyder

Quality: A **nabim** Group 3 soft wheat, recommended for the East and West regions. It is not suitable for distilling.
Agronomy: This variety has medium-long straw with moderate resistance to lodging but responds well to plant growth regulators. It has high resistance to mildew and brown rust but is susceptible to eyespot.
nabim comment: Over the three years of testing, this variety showed slightly higher water absorption levels than other Group 3 varieties but it meets the Group 3 criteria.

Zulu uks

Distilling: Medium

Quality: A **nabim** Group 3 variety, 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, where it has given high yields. It has moderate resistance to lodging but responds well to plant growth regulators. Zulu has high resistance to mildew combined with orange wheat blossom midge resistance. It is susceptible to brown rust and eyespot.
nabim comment: Although a slightly softer milling variety than Claire, it consistently meets the requirements of a Group 3 wheat.

Winter wheat 2017/18 – Variety comments

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.

Soft Group 4 varieties

NEW Bennington uks

Quality: Added to the AHDB Recommended List for 2017/18 as a soft-milling, high-yielding feed variety for the East and West regions. It is classified as a **uks** soft wheat for export but is not suitable for distilling.
Agronomy: This variety with medium-long straw has given very high yields in the East region and has performed particularly well on heavier soils. It has given high untreated yields in trials and has high resistance to mildew, yellow rust and brown rust.

NEW Hardwicke

Distilling: Medium

Quality: Added to the AHDB Recommended List for 2017/18 as a soft-milling, high-yielding feed wheat for the North region. It is rated as 'medium' for distilling.
Agronomy: Limited data suggests this short-strawed variety is high yielding in the North region. It has high resistance to yellow rust but is susceptible to eyespot.

Leeds uks

Distilling: Medium

Quality: A soft-milling feed wheat with a high specific weight, rated as 'medium' for distilling and classified as a **uks** soft wheat for export.
Agronomy: This variety has given high yields in the North region but is rather late maturing. Leeds performs best on lighter soils and is resistant to orange wheat blossom midge. It has above average resistance to fusarium ear blight but is very susceptible to mildew and susceptible to eyespot.

NEW LG Motown

Distilling: Medium

Quality: Added to the AHDB Recommended List for 2017/18 as a soft-milling, high-yielding feed wheat. It is rated as 'medium' for distilling.
Agronomy: This relatively early maturing variety has given high UK yields in treated and untreated trials. Limited data suggest it has a very high yield potential on light soils. This short-strawed variety has moderate resistance to lodging but responds well to plant growth regulators. It has high resistance to mildew, yellow rust and brown rust, combined with resistance to orange wheat blossom midge. Limited data suggest it is susceptible to eyespot.

NEW LG Sundance

Distilling: Medium

Quality: Added to the AHDB Recommended List for 2017/18 as a soft-milling, high-yielding feed variety. It tends to give low specific weights and is rated as 'medium' for distilling.
Agronomy: This variety has given high UK yields in treated and untreated trials. It has the highest rating for resistance to septoria tritici on the 2017/18 Recommended List, combined with high resistance to yellow rust and resistance to orange wheat blossom midge. Limited data suggest it is susceptible to eyespot.

NEW Moulton uks

Distilling: Medium

Quality: Added to the AHDB Recommended List 2017/18 as a soft-milling, high-yielding feed variety with a high specific weight. It is rated as 'medium' for distilling and classified as a **uks** soft feed for export.
Agronomy: This variety with medium-long straw has given high UK yields in treated and untreated trials. It has high resistance to mildew, yellow rust, brown rust and septoria tritici but limited data suggest it is susceptible to eyespot.

Myriad uks

Distilling: Medium

Quality: Recommended for the North region as a soft-milling feed wheat, rated as 'medium' for distilling and classified as a **uks** wheat for export.
Agronomy: This variety is high yielding in the North region, is resistant to orange wheat blossom midge and is susceptible to yellow rust. Myriad has moderate resistance to lodging but responds well to plant growth regulators.

Revelation uks

Distilling: Good

Quality: A soft-milling feed wheat, rated as 'good' for distilling and classified as a **uks** wheat for export.
Agronomy: Rather late maturing, this variety has a good overall disease package with high resistance to yellow rust, brown rust and eyespot (*Pch1*) and above average resistance to fusarium head blight. Revelation has slow primordial development and a range of other characteristics that could make it a useful candidate for very early drilling.

NEW Savello

Distilling: Medium

Quality: Added to the AHDB Recommended List for 2017/18 as a soft-milling, high-yielding feed variety for the North region. It has a low specific weight and is rated as 'medium' for distilling.
Agronomy: Limited data suggest this variety has a very high yield potential in the North region. It has also performed particularly well in second cereal situations. It has moderate resistance to lodging but responds well to plant growth regulators. Savello has high resistance to mildew and yellow rust. It is susceptible to brown rust and limited data suggest it is susceptible to eyespot.

Viscount uks

Distilling: Good

Quality: A soft-milling feed wheat recommended for the North region, rated as 'good' for distilling and classified as a **uks** wheat for export.
Agronomy: This short-strawed variety is high-yielding in the North region, has high resistance to brown rust and is resistant to orange wheat blossom midge. It is susceptible to sprouting and tends to give low Hagbergs.

Winter wheat 2017/18 – Variety comments

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.

Hard Group 4 varieties

Belgrade
Quality: Belgrade is a hard-milling, high-yielding feed variety recommended for the East and West regions.
Agronomy: This is a relatively early maturing variety which has given very high yield in trials on heavy soils. It has medium-long straw with moderate resistance to lodging and limited data suggests it is susceptible to sprouting. Belgrade has given high yields in untreated UK trials. It has high resistance to mildew and is very susceptible to eyespot.

Costello
Quality: A hard-milling feed variety with high Hagbergs and specific weights.
Agronomy: This short-strawed variety has given its best relative performance in the West region. It has high resistance to mildew and yellow rust.

Dickens
Quality: A hard-milling feed wheat.
Agronomy: This variety has given its best relative performance in the North region and on lighter soils, where it has produced high yields. It has high resistance to mildew and yellow rust but is susceptible to eyespot.

NEW Dunston
Quality: Added to the AHDB Recommended List for 2017/18 as a hard-milling, high-yielding feed variety.
Agronomy: This variety with medium-long straw has given high treated and untreated UK yields and limited data suggests it is very high yielding in the North region. Dunston has high resistance to yellow rust and septoria tritici. This variety is suited to first and second cereal rotations and limited data suggests it gives very high yields in both early sowing and light land situations.

Evolution
Quality: A hard-milling feed wheat that tends to give low specific weights.
Agronomy: This relatively late maturing variety has given high yields in trials on light soils and performs well in second cereal situations. It has no serious disease weaknesses, with high resistance to yellow rust and brown rust.

NEW Freiston
Quality: Added to the AHDB Recommended List for 2017/18 as a hard-milling feed variety with high specific weights.
Agronomy: This variety has given its best relative performance in the North and West regions, where it has given very high yields. It has medium-long straw with moderate resistance to lodging but responds well to plant growth regulators. Freiston has also produced high yields in untreated UK trials. It has a good overall disease package with high resistance to mildew, yellow rust, brown rust and septoria tritici. Limited data suggests it is susceptible to eyespot.

Grafton
Quality: A hard-milling feed variety with good Hagbergs and specific weights.
Agronomy: Its treated yield is 7% below the highest yielding hard feed variety but growers value its early maturity and short, stiff straw. Grafton has slow primordial development and a range of other characteristics that can make it a useful candidate for very early sowing.

Graham
Quality: A hard-milling, high-yielding feed variety with high Hagbergs.
Agronomy: This variety has given its best relative performance in the West region, where it has produced very high yields. It is a relatively early maturing variety that has performed best in a first cereal situation and on heavier soils. Graham has given high untreated UK yields in trials and has high resistance to mildew, yellow rust and septoria tritici. It is susceptible to eyespot.

JB Diego
Quality: A hard-milling feed variety with good Hagbergs and specific weights.
Agronomy: Although now 6% lower yielding than the highest yielding feed variety, growers still value its consistency and it was again popular in 2016.

KWS Crispin
Quality: A hard-milling feed variety with high Hagbergs.
Agronomy: This variety has produced high treated and untreated UK yields, performing best in first cereal situations. It has high resistance to mildew and yellow rust, combined with resistance to orange wheat blossom midge. It is susceptible to eyespot.

NEW KWS Kerrin
Quality: Added to the AHDB Recommended List for 2017/18 as a hard-milling, very high-yielding feed variety for the East and West regions. It tends to give low Hagbergs.
Agronomy: This short-strawed variety has given very high yields in both first and second wheat situations with limited data suggesting very high yields in both late sowing and on light soils. KWS Kerrin has high resistance to mildew, yellow rust and brown rust as well as resistance to orange wheat blossom midge.

Winter wheat 2017/18 – Variety comments

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 Santiago

Quality: Recommended for the East and West regions as a hard-milling, high-yielding feed variety.
Agronomy: KWS Santiago has performed well on a range of soil types and rotational positions and is resistant to orange wheat blossom midge. KWS Santiago tends to give low Hagbergs, is relatively late maturing and is susceptible to septoria tritici and eyespot.

KWS Silverstone

Quality: KWS Silverstone is a hard-milling high-yielding feed variety with high Hagbergs and specific weights.
Agronomy: This variety has given its best relative performance in the North region, where it has given very high yields. It has moderate resistance to lodging but has a very high yield potential on less fertile, lighter soils. KWS Silverstone has high resistance to mildew, yellow rust and brown rust.

Reflection

Quality: A hard-milling feed variety with a high specific weight.
Agronomy: This short-strawed variety is high yielding, especially when grown as a first cereal. It is a relatively early maturing variety. Reflection has high resistance to mildew and brown rust but is very susceptible to yellow rust. It is resistant to orange wheat blossom midge.

Relay

Quality: A hard-milling feed variety recommended for the East and West regions which has given high Hagbergs.
Agronomy: This variety has short, stiff straw. Relay has high resistance to yellow rust and brown rust but it is susceptible to eyespot.

NEW Shabras

Quality: Added to the AHDB Recommended List for 2017/18 as a hard-milling, very high-yielding feed variety.
Agronomy: This is a relatively early maturing variety that has given very high yields, particularly in trials in second cereal situations. It has moderate resistance to lodging but responds well to plant growth regulators. Shabras has high resistance to yellow rust and mildew but is susceptible to brown rust.

Disease sampling in 2017

The UK Cereal Pathogen Virulence Survey is looking for fresh leaf samples showing signs of wheat yellow rust, brown rust and powdery mildew, as well as barley powdery mildew.

Sampling guidelines have been developed to ensure samples reach the FREEPOST UKCPVS address in the best possible condition.

For complete information, visit
cereals.ahdb.org.uk/ukcpvs

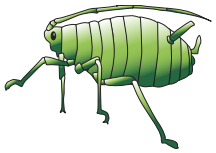
Keeping you informed: disease and pest alerts

AHDB collects a vast amount of information from its variety and research site network across England and Scotland.

By sharing observations, AHDB can help flag up emerging issues, such as pest and disease hotspots.

AHDB uses several routes to keep you informed about the developments that really matter – web, blogs, email, tweets and news stories.

To find out more, visit
cereals.ahdb.org.uk/monitoring



Harvest Results

The Recommended Lists (RL) trials Harvest Results service runs during the main harvest period.

For regular updates of yield results and commentary, keep an eye on **cereals.ahdb.org.uk/harvestresults**

To receive up-to-date results direct to your inbox, email **cereals.subscriptions@ahdb.org.uk**

New for 2017

Our new Harvest Results interactive tool lets you select the most relevant RL trials results for the current harvest year.

If you are interested in yield results from specific regions or particular soil types, this is the tool for you.

Wheat sown mid-November to late January

This table is for supplementary information only on variety performance for varieties drilled in the mid-November to late January period.
The data do not constitute a Recommended or Descriptive list. For details on recommended varieties of winter and spring wheat, refer to the relevant tables.

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	KWS Trinity	RGT Illustrious	Skyfall	Crusoe	Gallant	**Mulika +**	KWS Lili	KWS Siskin	**KWS Willow +**	**KWS Chilham +**	**KWS Cochise +**	Cordiale	**Tybalt +**	KWS Barrel	Britannia	Zulu	Spyder	KWS Basset	Viscount	Myriad	Leeds	Revelation	KWS Crispin	KWS Santiago	Belgrade	Evolution	KWS Silverstone	Reflection	Dickens	Graham	**KWS Kilburn +**	Costello	JB Diego	**KWS Alderon +**	Grafton	Relay	**Average LSD (5%)**
End-use group	nabim Group 1						nabim Group 2							nabim Group 3					Soft Group 4				Hard Group 4															
						C						C*																							C			
UK yield (% treated control)																																					
Fungicide-treated (9.6 t/ha)	105	104	104	101	101	**98**	109	108	**106**	**105**	**104**	101	**99**	110	108	107	107	106	[110]	109	108	102	110	110	110	109	109	109	108	108	**105**	105	105	**103**	[[103]]	101	5.2
Grain quality																																					
Endosperm texture	Hard	Hard	Hard	Hard	Hard	**Hard**	Hard	Hard	**Hard**	**Hard**	**Hard**	Hard	**Hard**	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	**Hard**	Hard	Hard	**Hard**	Hard	Hard	
Protein content (%)	11.3	11.4	11.6	12.1	[12.0]	**12.6**	10.7	11.2	**11.7**	**11.9**	**12.4**	[11.8]	**12.1**	10.6	11.4	10.7	11.4	10.9	[[10.6]]	[[10.9]]	[10.4]	[10.7]	10.8	10.7	10.8	10.3	10.8	10.7	[10.5]	[10.8]	**12.2**	11.4	10.8	**12.1**	-	[[11.4]]	0.6
Hagberg Falling Number	357	294	307	283	[348]	**322**	320	297	**263**	**330**	**242**	[362]	**307**	220	241	240	281	243	[[202]]	[[234]]	[208]	[281]	291	180	180	213	310	240	[269]	[288]	**280**	343	327	**329**	-	[[345]]	41
Specific weight (kg/hl)	76.6	76.1	77.7	77.9	[77.0]	**78.2**	75.5	76.3	**79.4**	**79.5**	**79.7**	[78.7]	**76.3**	75.9	76.2	75.2	75.3	76.6	[[74.3]]	[[76.0]]	[77.5]	[74.9]	76.3	74.4	75.1	74.3	78.0	77.2	[75.4]	[75.9]	**77.6**	80.4	77.3	**77.7**	-	[[75.2]]	1.2
Agronomic features																																					
Lodging %	[[0]]	[[2]]	[[0]]	[0]	[[0]]	**[23]**	[[0]]	[[2]]	**[[4]]**	**[14]**	**[6]**	[[0]]	**[13]**	[[13]]	[[13]]	[[0]]	[[5]]	[[0]]	[[0]]	[[0]]	[8]	[[0]]	[[13]]	[2]	[[10]]	[[1]]	[[21]]	[[0]]	[2]	-	**-**	[[0]]	[3]	**[0]**	[[0]]	[[0]]	2.2
Straw height with PGR (cm)	73	76	71	70	[71]	**88**	71	72	**85**	**82**	**90**	68	**84**	73	78	77	81	74	[[72]]	81	78	[77]	74	77	80	75	79	70	78	[74]	**93**	69	77	**78**	[[67]]	[71]	3.2
Ripening (+/- Mulika, -ve = earlier)	+2	[+3]	+1	[+3]	[[-3]]	**0**	+5	[+2]	**-1**	**[+1]**	**[0]**	[0]	**-1**	[+3]	+3	+2	[+3]	[+4]	[[+2]]	[+3]	+4	[[+6]]	[+3]	[+4]	[+1]	+4	[+3]	+1	+3	[+1]	**[+2]**	+3	[+2]	**+1**	-	-	1.8
Disease resistance																																					
Mildew (1–9)	8	7	6	7	6	**[7]**	8	9	**[8]**	**-**	**-**	6	**8**	6	5	7	9	5	[7]	6	3	6	9	5	9	6	7	6	7	8	**[7]**	8	6	**6**	[6]	5	2.1
Yellow rust (1–9)	9	9	6	9	4	**7**	7	9	**6**	**7**	**6**	4	**6**	8	4	5	6	8	6	4	6	9	9	6	6	8	7	3	9	8	**6**	9	5	**7**	6	8	1.0
Brown rust (1–9)	8	7	9	3	7	**4**	5	5	**8**	**4**	**8**	4	**5**	6	6	4	7	5	8	5	5	8	5	5	5	8	8	9	6	5	**9**	5	6	**6**	5	7	1.3
Septoria tritici (1–9)	5	6	6	7	5	**6**	6	7	**6**	**6**	**6**	5	**6**	4	5	6	6	5	5	6	5	6	6	4	6	6	5	5	5	7	**6**	6	5	**6**	5	6	0.7
Fusarium ear blight (1–9)	6	6	6	6	5	**[6]**	6	6	**[6]**	**-**	**-**	5	**[5]**	6	6	6	6	6	6	6	6	7	6	6	5	6	6	6	6	6	**-**	6	6	**[6]**	5	6	0.5
Orange wheat blossom midge	-	-	R	-	-	**R**	-	-	**-**	**R**	**R**	-	**-**	R	-	R	-	R	R	R	R	-	R	R	-	-	-	R	-	-	**-**	-	-	**-**	-	-	
Breeder/UK contact																																					
Breeder	KWS	R2n	RAGT	Lim	SyP	**BA**	KWS	KWS	**KWS**	**KWS**	**KWS**	KWS	**Wier**	KWS	Lim	Lim	BA	KWS	KWS	Lim	Mom	Lim	KWS	KWS	Sej	Sej	KWS	SyP	Sec	SyP	**KWS**	KWS	Bre	**KWS**	KWS	RAGT	
UK contact	KWS	RAGT	RAGT	Lim	Syn	**Sen**	KWS	KWS	**KWS**	**KWS**	**KWS**	KWS	**Lim**	KWS	Lim	Lim	Sen	KWS	KWS	Lim	KWS	Lim	KWS	KWS	SU	Lim	KWS	Syn	Agr	Syn	**KWS**	Sen	Sen	**KWS**	KWS	RAGT	

Yields are expressed as % of the spring wheat controls. For full information on the late-sown yield performance of winter wheat varieties, please see the winter wheat Recommended List Supplementary data table.
On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (eg high resistance). All yields are taken from treated trials receiving a full fungicide and PGR programme.

+ = **spring wheat**
C = yield control (for current table)
[ ] = limited data
[[ ]] = very limited data
R = believed to be resistant to orange wheat blossom midge (OWBM), but this has not been verified in Recommended List tests
* = variety no longer in trials

There are insufficient data to provide late autumn listings for newer winter wheat varieties and their absence from the table does not imply that they are unsuitable for late-autumn sowing.

Agr = Agrii (www.agrii.co.uk)
BA = Blackman Agriculture
Bre = Saatzucht Josef Breun, Germany
KWS = KWS UK (www.kws-uk.com)
Lim = Limagrain UK (www.limagrain.co.uk)
Mom = Momont, France
R2n = RAGT, France (www.ragt.co.uk)
RAGT = RAGT Seeds, UK (www.ragt.co.uk)
Sec = Secobra, France
Sej = Sejet, Denmark
Sen = Senova (www.senova.uk.com)
Str = Strube, Germany
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)
Wier = Wiersum, 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 wheat (for spring sowing) 2017

AHDB RECOMMENDED

	Mulika	KWS Cochise	KWS Chilham	Granary	Tybalt	KWS Willow	KWS Kilburn	KWS Alderon	Average LSD (5%)	Not added to Recommended List: Kabot
End-use group	nabim Group 1	nabim Group 2					Hard Group 4			Hard Group 4
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK		
	C	NEW	NEW		C*			C		
UK yield as % control (spring sowing)										
Fungicide-treated (7.8 t/ha)	96	[106]	[103]	101	101	100	104	103	5.0	[100]
Untreated (% treated control) (7.8 t/ha)	76	[79]	[84]	74	78	82	80	78	7.0	[72]
UK yield as % control (autumn sowing)										
Fungicide-treated (9.6 t/ha)	98	[104]	[105]	-	99	106	105	103	5.2	[102]
Grain quality (spring sowing)										
Endosperm texture	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard		Hard
Protein content (%)	12.9	12.8	12.4	12.8	12.2	12.1	12.6	12.3	0.5	12.9
Hagberg Falling Number	316	247	316	255	310	273	265	318	32	301
Specific weight (kg/hl)	77.4	79.3	78.5	78.3	76.1	78.4	76.6	77.0	1.1	77.8
Agronomic features (spring sowing)										
Resistance to lodging with PGR ∞	-	-	-	-	-	-	-	-	-	-
Straw height without PGR (cm)	85	88	82	84	81	86	90	78	2.0	84
Ripening (+/- Mulika, -ve = earlier)	0	[0]	[+1]	0	0	+2	+3	+2	1.3	[0]
Resistance to sprouting ∞	-	-	-	-	-	-	-	-	-	-
Disease resistance										
Mildew (1–9)	[7]	-	-	[7]	8	[8]	[7]	6	1.3	-
Yellow rust (1–9)	7	6	7	5	6	6	6	7	0.7	6
Brown rust (1–9)	4	8	4	7	5	8	9	6	2.1	8
Septoria tritici (1–9)	6	6	6	6	6	6	6	6	1.4	6
Fusarium ear blight (1–9)	[6]	-	-	[6]	[5]	[6]	-	[6]	0.3	-
Orange wheat blossom midge	R	R	R	-	-	-	-	-		-
Annual treated yield (% control, spring sowing)										
2012 (7.3 t/ha)	[99]	-	-	[108]	[100]	[100]	[111]	[101]	8.5	-
2013 (7.9 t/ha)	[97]	-	-	[99]	[103]	[103]	[100]	[100]	8.1	-
2014 (7.2 t/ha)	[[95]]	[[115]]	[[117]]	[[104]]	[[100]]	[[100]]	[[109]]	[[105]]	9.0	[[118]]
2015 (8.0 t/ha)	[97]	[104]	[100]	[98]	[99]	[99]	[101]	[104]	5.5	[97]
2016 (8.4 t/ha)	[94]	[103]	[100]	[96]	[100]	[101]	[105]	[107]	7.6	[96]
Breeder/UK contact										
Breeder	BA	KWS	KWS	KWS	Wier	KWS	KWS	KWS		Str
UK contact	Sen	KWS	KWS	KWS	Lim	KWS	KWS	KWS		SU
Status in RL system										
Year first listed	11	17	17	09	03	11	14	12		-
RL status	-	P1	P1	-	-	-	-	-		-

Variety no longer listed: Belvoir.

Varieties are presented in order of highest UK treated yield within end-use groups.

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

UK = recommended for the UK
C = yield control (for current table)
* = variety no longer in trials
[ ] = limited data
[[ ]] = 2 trials 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
LSD = least significant difference
BA = Blackman Agriculture
KWS = KWS UK (www.kws-uk.com)
Lim = Limagrain UK (www.limagrain.co.uk)
Sen = Senova (www.senova.uk.com)
Str = Strube, Germany
SU = Saaten Union UK (www.saaten-union.co.uk)
Wier = Wiersum BV, Netherlands

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

Spring wheat 2017 – Variety comments

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 spring wheats.

nabim Group 1 varieties

Mulika

Quality: A **nabim** Group 1 variety recommended for both late autumn and spring sowing; it gives good Hagbergs, grain proteins and specific weights and remains a popular choice with growers.
Agronomy: This variety has high resistance to yellow rust but is susceptible to brown rust. Limited data suggest it has high resistance to mildew.
nabim comment: This variety has rheological and baking qualities that are good.

Group 4 feed varieties

KWS Alderon

Quality: A hard feed variety recommended for both late autumn and spring sowing.
Agronomy: This short-strawed variety has a good specific weight and has high resistance to yellow rust.

KWS Kilburn

Quality: A hard feed variety recommended for spring sowing only. KWS Kilburn is a high-yielding variety with good grain proteins.
Agronomy: This is a later maturing variety with high resistance to brown rust and limited data suggest it also has high resistance to mildew.

nabim Group 2 varieties

Granary

Quality: A **nabim** Group 2 variety recommended for spring sowing only. It has good grain proteins and specific weights.
Agronomy: Granary has high resistance to brown rust and limited data suggest it has high resistance to mildew.
nabim comment: This is a variety with a tendency to produce low Hagbergs and relatively small quantities of this variety have been seen by millers.

NEW KWS Chilham

Quality: Added to the AHDB Recommended List 2017/18 as a **nabim** Group 2 variety for both late-autumn and spring sowing. It gives good Hagbergs and specific weights.
Agronomy: Limited data suggest this variety has a high yield potential in both late autumn and spring sowings. KWS Chilham has high resistance to yellow rust and is resistant to orange wheat blossom midge but is susceptible to brown rust.
nabim comment: Over the three years of testing, this variety showed slightly lower protein levels than the control, but with a stronger gluten quality. The baking quality would not necessarily suit all end users.

NEW KWS Cochise

Quality: Added to the AHDB Recommended List 2017/18 as a **nabim** Group 2 variety for both late autumn and spring sowing. It gives good grain proteins and specific weights.
Agronomy: Limited data suggest this variety has a high yield potential in both late autumn and spring sowings. KWS Cochise has a good overall disease package with high resistance to brown rust and orange wheat blossom midge resistance.
nabim comment: This variety showed a degree of variability in performance over the three years of testing.

KWS Willow

Quality: A **nabim** Group 2 variety with good specific weights but which tends to give low grain proteins when late autumn-sown.
Agronomy: This variety has given high yields from late autumn sowings. Its yields from spring sowings are similar to Tybalt. KWS Willow has high resistance to brown rust. Limited data suggest it also has high resistance to mildew.
nabim comment: This variety has Hagbergs which tend to be low and, overall, it has shown some variability especially with baking performance. As a result, it is more likely to be suited to uses in blends.

Tybalt

Quality: A **nabim** Group 2 spring wheat variety recommended for both late autumn and spring sowing. It tends to give good Hagbergs but lower specific weights.
Agronomy: Tybalt gives its best yields from spring sowing. It has high resistance to mildew but has weak straw.
nabim comment: This variety has a tendency to show low protein content and softer grain. It shows fair baking performance and will be used at low grist inclusion levels by most millers. This variety is no longer in RL trials.

nabim overview

New varieties

There is a consistent market for UK-grown quality wheat if the quality specifications are met. **nabim** member companies mill more than five million tonnes of wheat each year so we represent a well-established market. While farmers now have a very broad range of varieties to choose from across the Groups, the decision may depend on many considerations but should include the preferences of local millers.

For a fourth successive year, the Recommended List (RL) has gained a new Group 1 variety with KWS Zyatt. It is a variety with a good untreated yield and, so far, it appears to be consistently good in its breadmaking performance; which was commercially assessed early in 2017 and gained 'Full' approved status. With three other high-yielding varieties already on the RL it gives farmers an even broader range of quality breadmaking wheats from which to select. Skyfall, which joined in 2013, has lived up to expectations and achieved a strong market position and is favoured by many millers. KWS Trinity joined a year later in 2014 and appears to be similar to Skyfall with a high yielding potential. RGT Illustrious achieved Group 1 status in 2016 after the commercial milling and baking tests conducted by **nabim**.

A change to this year's RL is that it now shows percentage grain protein achieved by varieties grown in trials to milling specifications, as well as the protein levels reported in all trials.

Varieties with yields much above those of Gallant or Crusoe may be at risk of lower protein levels unless nitrogen applications are well managed. The key will be well-considered nitrogen applications made at the most effective timings. Experience indicates that growers should have a clear strategy for nitrogen application, determined by whether they are aiming for the milling market or merely aiming to achieve high yields. The two goals are seldom the same!

Group 2 winter wheats remain as in 2016, with three varieties from which to choose. Cordiale is a well-established variety that performs well in most baking systems and is preferred by many millers. KWS Siskin was added to the RL last year to join with KWS Lilli and both have established positions amongst growers and millers. This year, two new spring wheat varieties have joined the RL (KWS Chilham and KWS Cochise) to add to Granary, KWS Willow and Tybalt within Group 2. Spring varieties are used by millers, although the lack of volume in the past has somewhat limited their availability.

No new Group 3 wheat varieties have joined the RL this year. Last year KWS Barrel, KWS Bassett and Spyder joined the RL and each has established a market with flour millers. The key success criteria for Group 3 varieties are to have consistent rheology with doughs that can be easily extended but are not elastic. Group 3 now contains eight varieties so choice remains wide with Claire and Scout continuing to be popular with most millers.

Wheat testing for the RL

A new feature to the assessment of Group 1 varieties was introduced in 2013 when Skyfall obtained provisional Group 1 status and this system has also been used for KWS Trinity (2015) and RGT Illustrious (2016). All three varieties were confirmed to 'Full' Group 1 status after the milling, baking and testing of commercial quantities.

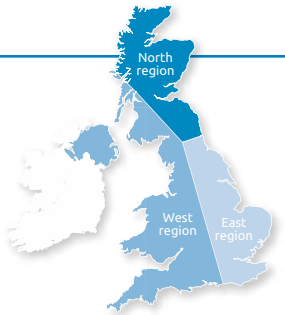
This year, commercial quantities of KWS Zyatt were assessed in this way and it achieved 'Full' approved status in early April.

Wheat quality from 2016 harvest

The UK wheat harvest took place in relatively good conditions and, in most localities, was all but complete by the third week of September. AHDB has now published the final report on wheat quality, which indicated that this year milling wheat was similar to that of the 2015 harvest crop. With more than 5,700 samples examined, this year appeared to be slightly better than the three-year average with 45% of samples meeting the full milling wheat specification (13.0% protein, 76.0 kg/l specific weight and 250s HFN).

However, testing by UK millers has shown that specific weights are lower than last year which may be a result of the lack of solar radiation in the grain filling period during April to June. The most important quality feature this year is that the protein levels are higher than last year but some of this is termed 'bran' protein which is a consequence of the lower specific weights. This is further aggravated by the reduced quality of the protein, which shows as weakness in gluten strength. This underlines the key message that it is not just total protein levels that matter but the quality of the protein (gluten) which imparts the desired functionality. Gluten strength is especially important for wholemeal products in order to ensure good baking performance.

Winter barley 2017/18
Market options, yield and grain quality



AHDB RECOMMENDED

Not added to Recommended List

	Craft	SY Venture	Talisman	Flagon	KWS Orwell	Surge	KWS Infinity	KWS Creswell	KWS Glacier	KWS Tower	California	KWS Cassia	Bazooka $	Sumningdale $	Belfry $	Funky	Volume $	Average LSD (5%)	Rubinesse
End-use group	Two-row malting				Two-row feed								Six-row feed						Two-row malting
Scope of recommendation	UK	UK C	UK	E&W *	UK	UK	UK	N NEW	UK C	UK	W	UK	UK	UK NEW	UK	UK NEW	UK C		Not added to RL
Fungicide-treated grain yield (% treated control)																			
United Kingdom (9.4 t/ha)	98	96	96	94	104	103	103	103	102	102	99	99	109	109	108	107	106	2.8	95
East region (9.6 t/ha)	98	96	97	93	104	104	103	102	102	101	99	99	109	107	108	107	105	3.3	96
West region (9.2 t/ha)	97	96	94	94	104	103	102	102	102	103	100	99	109	109	108	106	107	3.8	94
North region (8.9 t/ha)	98	94	95	93	104	102	104	106	103	103	98	101	109	113	107	107	107	4.5	93
Untreated grain yield (% treated control)																			
United Kingdom (9.4 t/ha)	79	72	77	79	83	88	80	76	80	79	81	82	90	91	91	91	84	4.9	80
Main market options																			
IBD malting approval for brewing use	P	F	F	F	-	-	-	-	-	-	-	-	-	-	-	-	-		-
Grain quality																			
Specific weight (kg/hl)	69.0	69.5	66.8	69.0	67.3	68.6	67.5	67.1	68.8	67.0	68.3	70.5	68.2	67.2	67.2	68.3	67.5	0.8	68.1
Screenings (% through 2.25 mm)	1.8	3.4	3.8	2.7	2.2	2.2	3.2	2.8	2.7	1.8	[3.1]	2.0	3.0	3.3	3.5	6.3	5.4	1.7	4.1
Screenings (% through 2.5 mm)	4.9	9.2	10.6	7.3	6.1	5.4	8.3	8.7	8.0	5.6	[9.8]	5.4	9.4	11.0	10.3	20.3	15.3	4.1	10.7
Nitrogen content (%)	1.64	1.64	1.60	1.69	-	-	-	-	-	-	-	-	-	-	-	[1.57]	-	0.05	1.62
Status in RL system																			
Year first listed	16	12	13	05	16	16	15	17	13	14	13	10	16	17	16	17	09		-

Varieties no longer listed: Cassata, Cavalier, Florentine, Matros, Pearl and Retriever.

Comparisons of variety performance across regions are not valid.

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

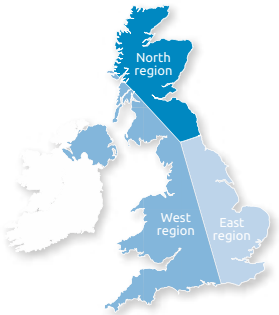
C = yield control (for current table). For this table Cassata and KWS Meridian were also yield controls but are no longer listed
* = variety no longer in trials
[ ] = limited data

F = full IBD approval
P = provisional IBD approval
$ = hybrid 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 barley 2017/18
Yield, agronomy and disease resistance



AHDB RECOMMENDED

Not added to Recommended List

	Craft	SY Venture	Talisman	Flagon	KWS Orwell	Surge	KWS Infinity	KWS Creswell	KWS Glacier	KWS Tower	California	KWS Cassia	Bazooka $	Sunningdale $	Belfry $	Funky	Volume $	Average LSD (5%)	Rubinesse
End-use group	Two-row malting				Two-row feed								Six-row feed						Two-row malting
Scope of recommendation	UK	UK	UK	E&W	UK	UK	UK	N	UK	UK	W	UK	UK	UK	UK	UK	UK		Not added to RL
		C		*				NEW	C					NEW		NEW	C		
Fungicide-treated grain yield (% treated control)																			
United Kingdom (9.4 t/ha)	98	96	96	94	104	103	103	103	102	102	99	99	109	109	108	107	106	2.8	95
East region (9.6 t/ha)	98	96	97	93	104	104	103	102	102	101	99	99	109	107	108	107	105	3.3	96
West region (9.2 t/ha)	97	96	94	94	104	103	102	102	102	103	100	99	109	109	108	106	107	3.8	94
North region (8.9 t/ha)	98	94	95	93	104	102	104	106	103	103	98	101	109	113	107	107	107	4.5	93
Untreated grain yield (% treated control)																			
United Kingdom (9.4 t/ha)	79	72	77	79	83	88	80	76	80	79	81	82	90	91	91	91	84	4.9	80
Agronomic features																			
Resistance to lodging (1–9)	8	7	6	5	8	6	7	7	7	7	8	8	8	7	8	8	7	-	7
Straw height without PGR (cm)	[95]	91	100	101	[91]	[93]	94	92	88	94	95	93	[118]	114	[110]	100	109	4.8	91
Straw height with PGR (cm)	90	86	97	101	87	86	90	88	84	91	92	91	111	107	103	94	104	1.9	86
Ripening (+/-Cassata, -ve = earlier)	0	0	-1	-1	0	0	0	-1	-1	0	-1	0	0	-1	-1	-1	-1	0.8	0
Winter hardiness #	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Disease resistance																			
Mildew (1–9)	6	6	6	6	3	5	4	5	3	5	6	4	4	5	5	6	5	2.0	7
Yellow rust (1–9)	[8]	[7]	[9]	[7]	[6]	[7]	[6]	[8]	[8]	[8]	[7]	[5]	[9]	[6]	[8]	[9]	[8]	3.0	[9]
Brown rust (1–9)	7	6	7	7	7	8	6	5	7	6	5	7	6	6	7	8	5	1.3	7
Rhynchosporium (1–9)	6	4	6	6	6	7	6	6	4	5	5	4	7	7	7	7	7	1.3	7
Net blotch (1–9)	7	6	5	4	6	7	5	4	7	4	6	6	6	6	7	6	6	2.8	7
BaYMV	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 (eg high resistance).
Comparisons of variety performance across regions are not valid.

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

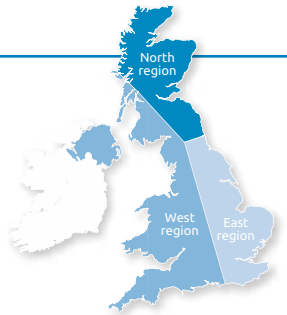
C = yield control (for current table). For this table Cassata and KWS Meridian were also yield controls but are no longer listed
* = variety no longer in trials
[ ] = limited data
$ = hybrid variety

# = the winter hardiness scores are taken from extreme tests in the Jura mountains of France but there are 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 2017/18 – Supplementary data



AHDB RECOMMENDED

Not added to Recommended List

	Craft	SY Venture	Talisman	Flagon	KWS Orwell	Surge	KWS Infinity	KWS Creswell	KWS Glacier	KWS Tower	California	KWS Cassia	Bazooka $	Sunningdale $	Belfry $	Funky	Volume $	Average LSD (5%)	Rubinesse
End-use group	Two-row malting				Two-row feed								Six-row feed						Two-row malting
Scope of recommendation	UK	UK C	UK	E&W *	UK	UK	UK	N NEW	UK C	UK	W	UK	UK	UK NEW	UK	UK NEW	UK C		Not added to RL
Breeder/UK contact																			
Breeder	SyP	SyP	Sen	SyP	KWS	SyP	KWS	KWS	KWS	KWS	Lim	KWS	SyP	SyP	SyP		SyP		Sec
UK contact	Syn	Syn	Sen	Syn	KWS	Syn	KWS	KWS	KWS	KWS	Lim	KWS	Syn	Syn	Syn	KWS	Syn		Agr
Annual treated yield (% control)																			
2012 treated yield (8.5 t/ha)	-	96	94	93	-	-	104	-	103	103	100	101	-	-	-	-	107	-	-
2013 treated yield (8.7 t/ha)	99	97	97	92	105	104	104	-	104	103	99	101	108	-	107	-	104	-	-
2014 treated yield (9.7 t/ha)	98	95	96	95	103	102	102	103	102	101	99	98	108	109	107	105	106	-	96
2015 treated yield (10.3 t/ha)	97	95	96	-	103	101	102	103	102	102	97	98	109	109	107	107	107	-	95
2016 treated yield (9.0 t/ha)	97	94	93	-	105	104	102	102	101	102	101	100	110	110	109	107	107	-	93
Soil type (about 50% of trials are medium soils)																			
Light soils (9.3 t/ha)	99	97	97	94	105	103	103	104	102	103	97	99	110	111	107	108	106	3.7	95
Heavy soils (10.0 t/ha)	97	96	95	91	103	104	102	100	102	101	102	99	109	106	108	105	107	4.0	94
Agronomic characteristics																			
Lodging without PGR (%)	1	2	7	18	0	7	3	4	5	2	1	2	3	5	2	1	4	-	2
Lodging with PGR (%)	0	1	5	12	0	4	1	1	4	1	1	1	0	2	0	0	2	-	1
Malting quality																			
Hot water extract (l deg/kg)	309.3	307.5	307.7	305.2	-	-	-	-	-	-	-	-	-	-	-	[295.8]	-	3.4	309.3
Status in RL system																			
Year first listed	16	12	13	05	16	16	15	17	13	14	13	10	16	17	16	17	09		-
RL status	P2	-	-	*	P2	P2	-	P1	-	-	-	-	P2	P1	P2	P1	-		Not added

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

UK = recommended for the UK
E = recommended for the East region
W = recommended for the West region
N = recommended for the North region
P1 = first year of recommendation
P2 = second year of recommendation

C = yield control (for current table). For this table Cassata and KWS Meridian were also yield controls but are no longer listed
* = variety no longer in trials
[ ] = limited data
$ = hybrid variety

Agr = Agrii (www.agrii.co.uk)
KWS = KWS UK (www.kws-uk.com)
Lim = Limagrain UK (www.limagrain.co.uk)
Sec = Secobra, France
Sen = Senova (www.senova.uk.com)
Syn = Syngenta UK Ltd (www.syngenta.co.uk)
SyP = Syngenta Participants 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 2017 – Candidate varieties

AHDB CANDIDATE

	Previous/Proposed name	Variety ID	Yield treated (T)	Yield untreated (UT) (% treated control)	Lodging % (UT)	Lodging % (T)	Height (cm)	Maturity (days +/- Cassata)	Mildew (1–9)	Brown rust (1–9)	Rhynchosporium (1–9)	Net blotch (1–9)	BaYMV	Variety type	Specific weight (kg/hl)	UK contact
Control varieties																
Cassata	NSL 00-7265	2058	91	76	5	1	85	0	4	6	6	3	R	2-row	68.4	Limagrain UK
Volume	NFC 205-14	2244	107	87	7	3	100	-1	5	5	7	6	R	6-row hybrid	66.8	Syngenta UK Ltd
KWS Meridian	LP 6-728	2436	106	95	5	1	105	-1	-	-	-	-	R	6-row	64.7	KWS UK
SY Venture	SYN 208-57	2443	94	74	5	2	81	0	6	6	4	6	R	2-row	69.1	Syngenta UK Ltd
KWS Glacier	KWS B100	2523	102	81	7	6	78	-1	3	7	4	7	R	2-row	68.2	KWS UK
Selected as potential malting varieties																
Coref	SY614014	2887	99	[80]	5	3	92	-1	5	5	6	6	R	2-row	66.5	Syngenta UK Ltd
Electrum	SY614009	2886	Data cannot yet be published as variety has not yet completed National List testing													Syngenta UK Ltd
Hiverac	AC10/181/16	2899	98	[82]	12	6	89	-1	6	5	5	6	-	2-row	67.1	Saaten Union UK
Selected as potential feed varieties																
Belmont	SY 214244	2893	Data cannot yet be published as variety has not yet completed National List testing													Syngenta UK Ltd
KWS Astaire	KW6-341	2877	106	[92]	2	1	99	0	6	7	6	7	R	6-row	64.9	KWS UK
Libra	SY213139	2890	105	[87]	4	1	103	-1	4	5	6	5	R	6-row hybrid	69.9	Syngenta UK Ltd
Mean of controls (t/ha)			9.8	9.8	-	-	-	303	-	-	-	-			-	
Overall mean			-	-	4.8	1.7	91	-	-	-	-	-			67.2	
LSD 5%			3.2	5.4	2.6	1.9	3.6	0.9	-	-	-	-			1.0	
Number of trials			20	7	4	6	9	11	-	-	-	-			8	

On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (eg high resistance).
The 1–9 ratings are not comparable to those used on the Recommended List table.

[ ] = limited data
LSD = least significant difference
R = resistant to barley mild mosaic virus (BaMMV) and to barley yellow mosaic virus (BaYMV) strain 1
T = data from trials treated with fungicide and PGR
UT = data from trials without fungicide or PGR

LSD 5%: Varieties that are more than one LSD apart are significantly different at the 95% confidence level.
Yellow rust (1–9) ratings are not presented as there were no ratings for the candidate varieties.
Candidate varieties will be considered for the 2018/19 AHDB Recommended List.
See the AHDB Recommended List for full data on control varieties.

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

Winter barley 2017/18 – Variety comments

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

Two-row malting varieties

Craft
Provisional Brewing

Quality: A potential malting variety for brewing, with a high specific weight. Provisionally approved by IBD for brewing.

Agronomy: Craft is stiff-strawed with high resistance to brown rust and net blotch. Limited data suggests high resistance to yellow rust. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

MAGB comment: Under test by IDB for brewing, with completion expected spring 2017. Growers are advised to speak to merchants before committing to this or other varieties in this position.

Flagon
Brewing

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

Agronomy: Flagon has a yield some 2% lower than SY Venture. It has high resistance to brown rust but is susceptible to net blotch and is the only variety on the Recommended List that does not have resistance to the common strains of barley mosaic virus. This variety has moderate straw strength, requiring careful management. It is no longer in RL trials.

MAGB comment: Decline in popularity has been arrested. Growers are advised to speak to their merchants about end markets.

SY Venture
Brewing

Quality: Fully approved by IBD 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). It is susceptible to rhynchosporium.

MAGB comment: Widely accepted by the malting industry with the largest market share in this sector.

Talisman
Brewing

Quality: Fully approved by IBD for the production of malt for brewing.

Agronomy: Talisman has high resistance to brown rust and is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

MAGB comment: Limited demand from the malting industry. Growers are advised to speak to their merchants about end markets.

Two-row feed varieties

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

NEW KWS Creswell
Added to the Recommended List for 2017/18 as a two-row feed variety for the North region. It is high yielding and has given very high yields in the North region. Limited data suggests it has high resistance to yellow rust but it is susceptible to net blotch. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

KWS Cassia
A two-row feed variety with a high specific weight. It has high lodging resistance and high resistance to brown rust but is susceptible to rhynchosporium and mildew. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

KWS Glacier
A two-row feed variety. Has high resistance to brown rust and limited data suggest it has high resistance to yellow rust but it is susceptible to rhynchosporium and very susceptible to mildew. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

KWS Infinity
A high-yielding two-row feed variety. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV) but is very susceptible to mildew.

KWS Orwell
The highest yielding two-row feed variety on the 2017/18 Recommended List. It has high resistance to lodging and brown rust but it is very susceptible to mildew. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

KWS Tower
A two-row feed variety which is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV). Limited data suggest it has high resistance to yellow rust but it is susceptible to net blotch.

Surge
A high-yielding two-row feed variety. It has high resistance to brown rust, rhynchosporium and net blotch and has given good yields in untreated trials. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

IBD Approved List

Brewing use
Full approval: Flagon, SY Venture, Talisman

Malt distilling use
None approved

Grain distilling use
None approved

Institute of Brewing & Distilling

Winter barley 2017/18 – Variety comments

Six-row feed varieties

Bazooka
A very high-yielding six-row hybrid feed variety. It is the highest yielding feed variety in all regions on the 2017/18 Recommended List and although it is taller than Volume it has high resistance to lodging. Bazooka has high resistance to rhynchosporium and limited data suggest it has high resistance to yellow rust and it has given good yields in untreated trials. It has resistance to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

Belfry
A very high-yielding six-row hybrid feed variety with good lodging resistance. It has high resistance to brown rust, rhynchosporium and net blotch and limited data suggest it also has high resistance to yellow rust. It has given good yields in untreated trials and is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

NEW Funky
Added to the Recommended List for 2017/18 as a very high-yielding six-row (non-hybrid) feed variety. This variety has high resistance to lodging and has given good yields in untreated trials. It has high resistance to brown rust and rhynchosporium and limited data suggest it also has high resistance to yellow rust. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

NEW Sunningdale
Added to the Recommended List for 2017/18 as a very high-yielding six-row hybrid feed variety. This variety has given good yields in untreated trials and has performed particularly well in the North region. It has high resistance to rhynchosporium and has resistance to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

Volume
A high-yielding hybrid six-row feed variety. This variety has high resistance to rhynchosporium and (based on limited data) to yellow rust and is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

Disease sampling in 2017

The UK Cereal Pathogen Virulence Survey is looking for fresh leaf samples showing signs of wheat yellow rust, brown rust and powdery mildew, as well as barley powdery mildew.

Sampling guidelines have been developed to ensure samples reach the FREEPOST UKCPVS address in the best possible condition.

For complete information, visit
cereals.ahdb.org.uk/monitoring

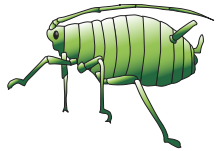
Keeping you informed: disease and pest alerts

AHDB collects a vast amount of information from its variety and research site network across England and Scotland.

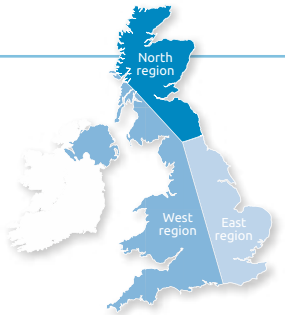
By sharing observations, AHDB can help flag up emerging issues, such as pest and disease hotspots.

AHDB uses several routes to keep you informed about the developments that really matter – web, blogs, email, tweets and news stories.

To find out more, visit
cereals.ahdb.org.uk/monitoring



Spring barley 2017
Market options, yield and grain quality



AHDB RECOMMENDED

Not added to Recommended List

	RGT Planet	Laureate	KWS Irina	Chanson ~	LG Opera	Dioptric	KWS Sassy	Olympus	Sienna	Octavia	Propino	Odyssey	Fairing	Concerto	Belgravia	Ovation	Scholar	Hacker	Average LSD (5%)	Acorn
End-use group	Malting varieties															Feed varieties				Malting variety
Scope of recommendation	UK	UK	UK	UK	UK	Nr	UK	UK	UK	UK	UK	UK	Sp	UK	Nr	UK	UK	W		-
			C	NEW	NEW	NEW					C	C		C						
Fungicide-treated grain yield (% treated control)																				
United Kingdom (7.6 t/ha)	105	105	104	104	104	104	103	102	101	100	100	98	97	94	93	104	104	100	2.8	101
East region (7.9 t/ha)	106	107	103	105	105	102	103	101	99	102	98	100	97	95	-	106	103	99	3.9	103
West region (7.8 t/ha)	106	103	104	101	102	102	100	102	101	98	100	98	98	95	-	102	103	102	4.1	102
North region (7.2 t/ha)	105	105	105	106	105	106	105	103	102	101	101	98	96	93	91	104	105	100	3.5	100
Main market options																				
IBD malting approval for brewing use	F	P	F	T	T	-	P	-	-	F	F	F	-	F	N	-	-	-		T
IBD malting approval for malt distilling use	N	P	N	-	T	-	P	-	P	F	N	F	-	F	F	-	-	-		T
IBD malting approval for grain distilling use	N	-	N	-	-	T	-	P	N	-	N	N	P	N	F	-	-	-		-
Grain quality																				
Specific weight (kg/hl)	67.6	66.1	65.8	65.4	66.2	68.2	67.8	66.4	70.4	66.2	68.0	68.0	68.2	68.8	68.2	66.1	68.2	69.7	0.7	67.6
Screenings (% through 2.25 mm)	1.6	1.6	2.0	1.3	2.6	3.0	1.2	2.3	1.8	1.7	1.1	1.6	1.0	1.4	2.1	1.6	2.1	1.7	0.4	1.6
Screenings (% through 2.5 mm)	4.2	3.7	4.8	3.4	6.9	7.6	2.7	5.7	4.1	4.1	2.4	4.1	2.6	3.2	5.1	4.3	6.4	4.0	1.0	3.9
Nitrogen content (%)	1.39	1.41	1.42	1.37	1.35	1.37	1.42	1.47	1.42	1.38	1.48	1.42	1.50	1.45	-	1.38	[1.41]	1.47	0.07	1.39
Status in RL system																				
Year first listed	15	16	14	17	17	17	16	15	15	15	10	12	16	09	08	16	15	14		-

Varieties no longer listed: Kelim, Origin, Waggon and Westminster.

Growers are strongly advised to check with their buyer before committing to a malting variety without full IBD approval.
Varieties are presented in order of highest UK treated yield within end-use groups.
Comparisons of variety performance across regions are not valid.

UK = recommended for the UK
Nr = recommended for the North region
W = recommended for the West region
Sp = Fairing is under test for the production of malt for grain distilling

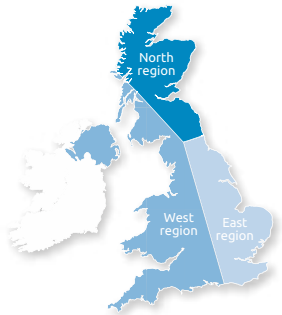
F = full IBD approval
N = not approved by IBD for this segment
P = provisional IBD approval
T = under test for IBD approval in this segment

C = yield control (for current table). For this table, Sanette was also a yield control but is no longer listed
[ ] = limited data
~ = Variety lacking a gene for lipoxygenase production

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 2017
Yield, agronomy and disease resistance



AHDB RECOMMENDED

Not added to Recommended List

	RGT Planet	Laureate	KWS Irina	Chanson ~	LG Opera	Dioptric	KWS Sassy	Olympus	Sienna	Octavia	Propino	Odyssey	Fairing	Concerto	Belgravia	Ovation	Scholar	Hacker	Average LSD (5%)	Acorn
End-use group	Malting varieties															Feed varieties				Malting variety
Scope of recommendation	UK	UK	UK	UK	UK	Nr	UK	UK	UK	UK	UK	UK	Sp	UK	Nr	UK	UK	W		-
			C	NEW	NEW	NEW					C	C		C						
Fungicide-treated grain yield (% treated control)																				
United Kingdom (7.6 t/ha)	105	105	104	104	104	104	103	102	101	100	100	98	97	94	93	104	104	100	2.8	101
East region (7.9 t/ha)	106	107	103	105	105	102	103	101	99	102	98	100	97	95	-	106	103	99	3.9	103
West region (7.8 t/ha)	106	103	104	101	102	102	100	102	101	98	100	98	98	95	-	102	103	102	4.1	102
North region (7.2 t/ha)	105	105	105	106	105	106	105	103	102	101	101	98	96	93	91	104	105	100	3.5	100
Untreated grain yield (% treated control)																				
United Kingdom (7.6 t/ha)	91	92	88	88	88	90	89	86	88	85	84	82	84	80	79	84	89	87	3.0	89
Agronomic features																				
Resistance to lodging (no PGR) (1-9)	7	7	8	6	6	7	6	7	7	6	7	6	7	6	7	7	7	7	0.4	7
Straw height (cm)	75	73	71	76	72	72	80	75	79	77	77	75	74	79	80	73	69	75	2.7	79
Ripening (+/-Concerto, -ve = earlier)	-1	0	-1	-1	-1	0	0	0	0	0	-1	0	-2	0	0	0	0	-1	1.0	-1
Resistance to brackling (1–9)	8	8	9	7	8	8	6	6	7	6	8	8	7	8	7	7	9	8	0.7	8
Disease resistance																				
Mildew (1–9)	9	[8]	9	[9]	[9]	[9]	[9]	9	9	9	6	9	[8]	8	[8]	[8]	9	[9]	0.7	[9]
Yellow rust (1–9)	[4]	[6]	[6]	[7]	[6]	[6]	[6]	[8]	[7]	[8]	4	8	[9]	8	8	[6]	[9]	[5]	2.6	[7]
Brown rust (1–9)	4	5	4	5	5	5	5	5	5	5	5	3	[3]	5	6	4	5	5	1.3	5
Rhynchosporium (1–9)	6	6	5	5	5	6	5	6	6	6	6	5	8	4	5	6	6	6	1.0	7
Ramularia (1–9)	8	7	7	6	6	8	6	7	8	7	6	6	7	6	6	5	8	7	2.3	5

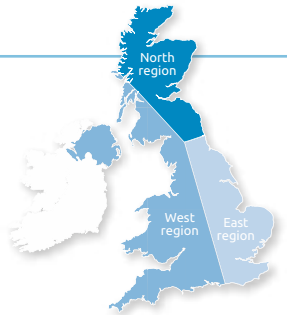
On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (eg high resistance).
Comparisons of variety performance across regions are not valid.

UK = recommended for the UK
Nr = recommended for the North region
W = recommended for the West region
Sp = Fairing is under test for the production of malt for grain distilling

C = yield control (for current table). For this table, Sanette was also a yield control but is no longer listed
~ = 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 2017 – Supplementary data



Not added to Recommended List

AHDB RECOMMENDED

	RGT Planet	Laureate	KWS Irina	Chanson ~	LG Opera	Dioptric	KWS Sassy	Olympus	Sienna	Octavia	Propino	Odyssey	Fairing	Concerto	Belgravia	Ovation	Scholar	Hacker	Average LSD (5%)	Acorn
End-use group	Malting varieties															Feed varieties				Malting variety
Scope of recommendation	UK	UK	UK	UK	UK	Nr	UK	UK	UK	UK	UK	UK	Sp	UK	Nr	UK	UK	W		-
			C	NEW	NEW	NEW					C	C		C						
Breeder/UK contact																				
Breeder	RAGT	SyP	KWS		LimEur	SyP	KWS	LimEur	LimEur	LimEur	SyP	Lim	SyP	Lim	Lim	LimEur	SyP	Sec		-
UK contact	RAGT	Syn	KWS	SU	Lim	Syn	KWS	Lim	Lim	Lim	Syn	Lim	Syn	Lim	Lim	Lim	Syn	Agr		SU
Annual treated yield (% control)																				
2012 treated yield (6.9 t/ha)	107	-	105	-	-	-	-	100	100	100	98	98	-	95	92	-	102	101	-	-
2013 treated yield (7.2 t/ha)	106	105	104	-	-	-	103	102	101	101	103	99	96	95	95	105	106	101	-	-
2014 treated yield (8.1 t/ha)	106	[104]	105	104	104	104	102	104	101	101	99	98	98	93	[94]	105	105	100	-	102
2015 treated yield (8.5 t/ha)	105	106	103	105	105	103	103	103	100	102	98	101	96	95	94	106	104	99	-	101
2016 treated yield (7.5 t/ha)	106	105	104	102	103	103	103	101	102	97	100	98	99	95	-	102	103	101	-	102
Malting quality																				
Hot water extract (l deg/kg)	314.7	315.5	314.7	314.3	316.2	314.6	315.9	312.3	315.6	316.1	313.2	314.0	311.0	316.0	-	312.9	310.9	314.3	2.0	316.1
Status in RL system																				
Year first listed	15	16	14	17	17	17	16	15	15	15	10	12	16	09	08	16	15	14		-
RL Status	-	P2	-	P1	P1	P1	P2	-	-	-	-	-	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 under test for the production of malt for grain distilling
C = yield control (for current table). For this table, Sanette was also a yield control but is no longer listed

[ ] = limited data
~ = Variety lacking a gene for lipoxygenase production
LSD = least significant difference
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.limagrain.co.uk)
LimEur = Limagrain Europe SA
RAGT = RAGT Seeds (www.ragt.co.uk)
Sec = Secobra, France
SU = Saaten Union UK (www.saaten-union.co.uk)
Syn = Syngenta UK Ltd (www.syngenta.co.uk)
SyP = Syngenta Participants AG (www.syngenta.co.uk)

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

Spring barley trials harvest 2017 – Candidate varieties

AHDB CANDIDATE

	Previous/Proposed name	Variety ID	Yield treated (T)	Yield untreated (UT) (% treated control)	Lodging % (UT)	Height (cm)	Maturity (days +/- Concerto) (T)	Brackling % (T)	Mildew (1–9)	Brown rust (1–9)	Rhynchosporium (1–9)	Specific weight (kg/hl)	UK contact
Control varieties													
Concerto	NSL 03-5262	2288	95	83	13	81	0	19	8	5	4	69.6	Limagrain UK
Propino	NFC 406-119	2336	100	88	2	78	0	16	6	5	6	68.9	Syngenta UK Ltd
Odyssey	NSL08-4556-A	2470	100	86	9	76	+1	19	9	3	5	68.6	Limagrain UK
Sanette	SY 409-226	2572	103	92	3	73	+1	14	9	4	5	67.6	Syngenta UK Ltd
KWS Irina	KWS-09/320	2613	103	91	1	72	0	10	9	4	5	66.3	KWS UK
Selected as potential malting varieties													
LG Diablo	LGBU13-1624-A	2907	Data cannot be published as variety has not yet completed National List testing										Limagrain UK
LG Tomahawk	LGBU13-4169-B	2901	Data cannot be published as variety has not yet completed National List testing										Limagrain UK
LG Figaro	LGBU12-4217-A	2903	Data cannot be published as variety has not yet completed National List testing										Limagrain UK
RGT Asteroid	RP14033	2913	Data cannot be published as variety has not yet completed National List testing										RAGT Seeds
Mean of controls (t/ha)			8.0	8.0	-	-	149	-	-	-	-	-	
Overall mean			-	-	-	75.6	-	17.9	-	-	-	67.8	
LSD 5%			4.1	4.8	-	4.4	1.1	8.0	-	-	-	0.8	
Number of trials			20	11	2	16	8	12	-	-	-	10	

On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (eg high resistance).
The 1–9 ratings are not comparable to those used on the Recommended List table.

T = data from trials treated with fungicide
UT = data from trials without fungicide or PGR
[ ] = limited data

Lodging % (UT) data not presented as there was no data for the candidate varieties.

LSD 5%: Varieties that are more than one LSD apart are significantly different at the 95% confidence level.
Yellow rust (1–9) ratings not presented as there were no ratings for the candidate varieties.
Candidate varieties will be considered for the 2018 AHDB Recommended List.
See the AHDB Recommended List for full data on control varieties.

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

Spring barley 2017 – Variety comments

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

Malting varieties

Belgravia
Quality: Recommended for the North region with full IBD approval for malt and grain distilling.
Agronomy: Belgravia has high resistance to mildew (based on limited data) and yellow rust.
MAGB comment: Fully approved for malt distilling and currently the only variety fully approved for grain distilling.

NEW Chanson
Quality: Added to the Recommended List for 2017 as a high-yielding variety with potential for brewing. It is the first recommended variety lacking a gene for lipoxygenase production which may have potential added benefits to the end user.
Agronomy: A high-yielding variety with (based on limited data) high resistance to mildew. It has medium resistance to lodging and tends to give a rather low specific weight.
MAGB comment: Under test by IBD for brewing with completion expected spring 2018. Growers are advised to speak to merchants before committing to this or other varieties in this position.

Concerto
Quality: Fully approved by IBD for brewing and malt distilling and may be suited to European markets.
Agronomy: This variety has medium lodging resistance but good resistance to brackling. Concerto has high resistance to mildew and yellow rust but is susceptible to rhynchosporium.
MAGB comment: Fully approved for both brewing and malt distilling, it now holds in excess of half the total spring barley market.

NEW Dioptric
Quality: Added to the North region of the Recommended List for 2017 as a high-yielding variety with potential for grain distilling.
Agronomy: A high-yielding variety with high resistance to ramularia and (based on limited data) to mildew. It has given good yields in untreated trials and has high resistance to brackling.
MAGB comment: Under test by IBD for grain distilling, with completion expected spring 2018. Growers are advised to speak to merchants before committing to this or other varieties in this position.

Fairing
Quality: Provisionally approved by IBD for grain distilling.
Agronomy: This variety is a potential alternative to Belgravia for grain distilling with a yield potential in the North region 5% above Belgravia. This variety is relatively early maturing and has high resistance to rhynchosporium. Limited data suggest that it has high resistance to mildew and yellow rust but is very susceptible to brown rust.
MAGB comment: Under test by IDB for grain distilling, with completion expected spring 2017. Growers are advised to speak to merchants before committing to this or other varieties in this position.

KWS Irina
Quality: Fully approved by IBD for brewing and may be suited to European markets.
Agronomy: This variety has given high treated yields and has the highest scores for lodging and brackling resistance of all malting varieties on the list. It has high resistance to mildew but is susceptible to brown rust and tends to give a rather low specific weight.
MAGB comment: Fully approved for brewing since 2015. Growers are advised to speak to their merchants about end markets.

KWS Sassy
Quality: A high-yielding variety which is provisionally approved by IBD for brewing and malt distilling.
Agronomy: This variety has a UK treated yield around 2% below Laureate but which has a similar yield in the North region. Limited data suggest it has high resistance to mildew but medium resistance to lodging and brackling.
MAGB comment: Under test by IBD for brewing and malt distilling, with completion expected spring 2017. Growers are advised to speak to merchants before committing to this or other varieties in this position.

Laureate
Quality: A high-yielding variety with provisional approval by IBD for brewing and malt distilling.
Agronomy: One of the highest yielding varieties in both fungicide treated and untreated trials. It has good resistance to brackling and (based on limited data) to mildew. Laureate tends to give a rather low specific weight.
MAGB comment: Under test by IDB for brewing and malt distilling, with completion expected spring 2017. Growers are advised to speak to merchants before committing to this or other varieties in this position.

NEW LG Opera
Quality: Added to the Recommended List for 2017 as a high-yielding variety with potential for brewing and malt distilling.
Agronomy: This variety has given high treated yields and has high resistance to brackling. Limited data suggests it has high resistance to mildew. It has medium resistance to lodging.
MAGB comment: Under test by IBD for brewing and malt distilling, with completion expected spring 2018. Growers are advised to speak to merchants before committing to this or other varieties in this position.

Spring barley 2017 – Variety comments

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

Octavia

Quality: Fully approved by IBD for brewing and malt distilling.
Agronomy: Octavia has high resistance to mildew (based on limited data) and yellow rust but has moderate lodging and brackling resistance.
MAGB comment: Awarded full IBD approval for malt distilling in spring 2016. Growers are advised to speak to their merchants about end markets

Odyssey

Quality: Fully approved by IBD for brewing and malt distilling and may be suited to European markets.
Agronomy: This variety has medium lodging resistance but good resistance to brackling. Odyssey has high resistance to mildew and yellow rust but is susceptible to brown rust.
MAGB comment: Fully approved for malt distilling in 2013 and brewing in 2014.

Olympus

Quality: A variety with provisional IBD approval for grain distilling.
Agronomy: Olympus has high resistance to mildew and limited data suggest that it also has high resistance to yellow rust.
MAGB comment: Under test by IBD for grain distilling, with completion expected spring 2017. Growers are advised to speak to merchants before committing to this or other varieties in this position.

Propino

Quality: Fully approved by IBD for brewing and is suited to European markets.
Agronomy: Propino has good brackling resistance but is susceptible to yellow rust.
MAGB comment: Fully approved for brewing, it continues to hold its share of the spring barley market at around 19%.

RGT Planet

Quality: A high-yielding variety with full approval by IBD for brewing.
Agronomy: One of the highest yielding varieties in both fungicide treated and untreated trials. It has good resistance to brackling and high resistance to mildew and ramularia but it is susceptible to brown rust and limited data suggest it is susceptible to yellow rust.
MAGB comment: Awarded full approval for brewing in spring 2016. Growers are advised to speak to their merchants about end markets.

Sienna

Quality: A variety with provisional IBD approval for malt distilling.
Agronomy: This variety has a good specific weight and high resistance to mildew and ramularia.
MAGB comment: Under test by IDB for malt distilling, with completion expected spring 2017. Growers are advised to speak to merchants before committing to this or other varieties in this position.

Feed varieties

Hacker

A feed variety recommended for the West region. It has a good specific weight and has high resistance to brackling and mildew.

Ovation

A high-yielding feed variety. Limited data suggests that Ovation has high resistance to mildew but that it is susceptible to brown rust. Ovation tends to give a rather low specific weight.

Scholar

A high-yielding feed variety. Scholar has relatively short straw and has high brackling resistance. This variety has high resistance to mildew and ramularia and limited data suggest it also has high resistance to yellow rust.

IBD Approved List

Brewing use
Full approval: Concerto, KWS Irina, Octavia, Odyssey, Propino, RGT Planet

Malt distilling use
Full approval: Belgravia, Concerto, Octavia, Odyssey

Grain distilling use
Full approval: Belgravia

Institute of Brewing & Distilling

Winter oats 2017/18

AHDB RECOMMENDED

	RGT Victorious	Griffin	Maestro	RGT Lineout	Dalguise	Gerald	Mascani ~	Peloton	Fusion $	Beacon	Grafton	Average LSD (5%)	RGT Southwark	Vodka	Coracle	Eagle	Wenlock $
													Year 4 Candidates				Not added
Variety type	Husked varieties							Naked varieties					Husked varieties				Husked variety
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK		Candidate	Candidate	Candidate	Candidate	Not added to the RL
	NEW	NEW			C		C	NEW									
UK yield (% treated control)																	
Fungicide-treated (8.5 t/ha)	107	106	103	101	100	98	98	78	73	73	71	4.5	107	106	104	102	104
Grain quality																	
Kernel content (%)	74.2	75.9	76.8	75.9	75.8	73.8	78.0	-	-	-	-	1.2	75.8	75.6	75.2	75.6	73.7
Specific weight (kg/hl)	52.8	50.3	51.6	52.7	54.4	53.6	54.4	65.9	64.1	65.6	65.3	1.2	54.8	54.3	51.7	53.5	50.5
Screenings (% through 2.0mm)	6.8	2.7	9.1	5.0	3.4	3.2	1.3	26.4	38.4	16.9	17.0	4.1	5.0	2.3	2.0	5.2	4.3
Agronomic features																	
Resistance to lodging (1–9)	3	5	6	6	4	5	7	6	8	6	6	1.7	[4]	[6]	[4]	[1]	6
Straw length (cm)	120	120	110	112	120	116	115	112	83	115	116	3.4	118	113	114	120	100
Ripening (days +/- Mascani, -ve = earlier)	-1	+1	-1	-2	-1	+2	0	0	+2	0	-2	1.1	-2	0	+1	-3	+2
Disease resistance																	
Mildew (1–9)	4	5	4	4	3	3	5	6	3	7	3	1.8	2	2	4	4	2
Crown rust (1–9)	8	5	4	6	4	5	6	6	3	5	5	0.8	7	6	6	4	5
Treated yields with and without PGR (% treated control)																	
With PGR (8.6 t/ha)	108	106	103	102	101	98	98	76	72	72	70	5.2	107	106	105	104	102
Without PGR (8.5 t/ha)	106	105	104	102	99	99	97	79	74	74	73	4.3	108	107	103	100	105
Annual treated yield (% control)																	
2012 (7.3 t/ha)	-	-	[112]	[104]	103	101	94	-	66	65	73	9.6	-	-	-	-	-
2013 (8.6 t/ha)	[102]	[110]	[91]	[98]	96	95	100	[79]	80	76	68	7.3	-	-	-	-	[111]
2014 (9.0 t/ha)	[108]	[108]	107	100	98	100	97	[80]	76	72	67	5.6	[104]	[105]	[101]	[104]	[103]
2015 (9.3 t/ha)	107	106	102	101	102	99	98	79	72	75	75	4.6	[104]	[106]	[107]	[99]	102
2016 (8.3 t/ha)	106	101	100	103	100	97	100	75	70	73	72	4.4	109	106	103	101	102
Breeder/UK contact																	
Breeder	R2n	IBERS	IBERS	R2n	Sen	IBERS	IBERS	IBERS	IBERS	IBERS	IBERS		R2n	Mom	IBERS	SE	IBERS
UK contact	RAGT	Sen	Sen	RAGT	Sen	Sen	Sen	Sen	Sen	Sen	Sen		RAGT	KWS	Sen	Cope	Sen
Status in RL system																	
Year first listed	17	17	16	16	03	93	04	17	10	14	00		-	-	-	-	-
RL status	P1	P1	P2	P2	-	-	-	P1	-	-	-		-	-	-	-	-

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

UK = recommended for the UK
$ = Fusion and Wenlock are dwarf varieties
~ = a race of crown rust has been identified which may affect Mascani but infection levels in trials have been low so far

[ ] = limited data
C = yield control (for current table). For this table Balado was also a yield control but is no longer listed
P1 = first year of recommendation
P2 = second year of recommendation

Cope = Trevor Cope Seeds (www.trevorcopeseeds.co.uk)
IBERS = Institute of Biological, Environmental & Rural Sciences
KWS = KWS UK (www.kws-uk.com)
Mom = Moment, France
RAGT = RAGT Seeds (www.ragt.co.uk)

R2n = RAGT, France (www.ragt.co.uk)
Sen = Senova (www.senova.uk.com)
SE = Saatzucht Edelhof, Austria

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 2017/18 – Variety comments

Husked varieties

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

Gerald
A relatively late maturing husked variety with moderate straw strength. It is very susceptible to mildew.

NEW Griffin
Added to the AHDB Recommended List for 2017/18 as a very high-yielding husked variety. It has relatively long straw, moderate lodging resistance and tends to give a low specific weight.

RGT Lineout
An early ripening husked variety. It is susceptible to mildew.

Maestro
An early maturing, high-yielding husked variety. It tends to give low specific weights and a higher level of screenings than other husked varieties. It is susceptible to mildew and crown rust.

Mascani
A popular husked variety. 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 varieties and has the best available winter oat resistance to crown rust, though a race exists to which it could be susceptible. Mascani remains by far the most popular variety with oat millers and growers.

NEW RGT Victorious
Added to the AHDB Recommended List for 2017/18 as a very high-yielding husked variety with excellent resistance to the common strains of crown rust. It is early maturing, has relatively long straw with low lodging resistance and is very susceptible to mildew.

Naked varieties

Beacon
A huskless (naked) oat variety with a specific weight similar to Grafton. It has high resistance to mildew.

Fusion
A huskless (naked) oat variety with short, stiff straw and a similar specific weight to Grafton. Fusion is relatively late maturing and very susceptible to both mildew and crown rust.

Grafton
A huskless (naked) variety with a yield potential 7% below the new variety Peloton. It is very susceptible to mildew.

NEW Peloton
Added to the AHDB Recommended List for 2017/18 as a huskless (naked) oat variety with a higher yield potential to older varieties. It has medium resistance to mildew and crown rust.

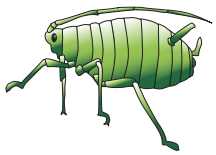
Keeping you informed: disease and pest alerts

AHDB collects a vast amount of information from its variety and research site network across England and Scotland.

By sharing observations, AHDB can help flag up emerging issues, such as pest and disease hotspots.

AHDB uses several routes to keep you informed about the developments that really matter – web, blogs, email, tweets and news stories.

To find out more, visit
cereals.ahdb.org.uk/monitoring



50 years of pathogen virulence monitoring

Whether it be the latest information from the 8 March 2017 stakeholder event or pathogen population facts from 1967, AHDB's web page on the UK Cereal Pathogen Virulence Survey (UKCPVS) has it all
cereals.ahdb.org.uk/ukcpvs

Spring oats 2017

AHDB RECOMMENDED

	Aspen	Yukon	WPB Elyann	Montrose	Canyon	Rozmar	Firth	Conway	Atego	Average LSD (5%)	Delfin	Oliver	Kamil	Harmony
											Year 4 Candidates	Year 4 Described candidates		Not added to the RL
Variety type	Husked varieties										Husked variety	Naked varieties†		Husked variety
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK		Candidate	Candidate	Candidate	Not added to the RL
	C	NEW	NEW		C		C		*					
UK yield (% treated control)														
Fungicide-treated (8.4 t/ha)	104	102	100	100	99	98	97	95	94	3.9	104	73	63	100
Untreated (% of treated control)	88	94	87	84	90	81	84	84	75	5.3	[98]	[60]	[56]	90
Grain quality														
Kernel content (%)	77.2	76.1	80.7	76.5	75.8	74.9	78.3	78.1	76.2	1.0	[75.5]	-	-	78.4
Specific weight (kg/hl)	54.6	54.1	54.2	55.5	55.1	53.5	53.6	54.2	53.2	0.7	[54.2]	[65.1]	[68.3]	52.3
Screenings (% through 2.0mm)	1.8	2.5	2.0	1.3	1.7	3.2	2.8	2.5	3.8	2.2	[2.4]	[13.4]	[7.8]	1.2
Agronomic features														
Resistance to lodging (1–9)	7	8	7	7	7	6	7	8	7	1.2	[9]	[7]	[8]	8
Straw length (cm)	110	119	112	115	122	121	113	116	108	2.3	[123]	[118]	[121]	117
Ripening (days +/- Firth, -ve = earlier)	-1	-1	-1	-1	0	0	0	0	-1	0.9	0	0	+1	-1
Disease resistance														
Mildew (1–9)	6	8	7	4	8	5	7	7	3	0.7	9	4	5	8
Crown rust (1–9)	4	[5]	[5]	3	4	8	4	4	4	1.3	[4]	[3]	[5]	[4]
Annual treated yield (% control)														
2012 (8.0 t/ha)	[109]	-	-	[102]	[94]	[96]	[97]	[96]	[95]	9.5	-	-	-	-
2013 (8.4 t/ha)	[105]	[99]	[100]	[103]	[96]	[97]	[99]	[97]	[96]	4.9	-	-	-	[99]
2014 (8.8 t/ha)	[101]	[103]	[101]	[97]	[102]	[94]	[97]	[96]	[93]	6.7	[104]	[73]	[65]	[106]
2015 (8.7 t/ha)	[106]	[103]	[99]	[97]	[99]	[99]	[95]	[90]	[91]	6.6	[102]	[75]	[65]	[99]
2016 (8.2 t/ha)	[101]	[104]	[101]	[100]	[102]	[101]	[97]	[98]	[97]	5.5	[105]	[73]	[62]	[94]
Breeder/UK contact														
Breeder	Bau	Nord	Wier	Lant	Nord	Selg		IBERS	Selg		Nord			Nord
UK contact	Sen	SU	KWS	Sen	SU	Cope	KWS	Sen	Cope		SU	Cope	Cope	SU
Status in RL system														
Year first listed	15	17	17	15	11	11	00	14	07		-	-	-	-
RL status	-	P1	P1	-	-	-	-	-	*		-	-	-	-

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

UK = recommended for the UK
[ ] = limited data
C = yield control (for current table)
* = variety no longer in trials
P1 = first year of recommendation
† = naked spring oat varieties are described, not recommended

Bau = Bauer, Germany
Cope = Trevor Cope Seeds (www.trevorcopeseeds.co.uk)
IBERS = Institute of Biological, Environmental & Rural Sciences
KWS = KWS UK (www.kws-uk.com)
Lant = Lantmannen SW Seed BV, Sweden
Nord = Nordsaat, Germany

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 2017 – Variety comments

Husked varieties

Aspen
A popular, high-yielding husked variety with a high specific weight and kernel content. It is susceptible to crown rust.

Atego
An early maturing husked variety. It is very susceptible to mildew and susceptible to crown rust. It is no longer in RL trials.

Canyon
Canyon is the most popular spring oat variety. It is a husked variety with a high specific weight and good resistance to mildew. It has given relatively high yields in untreated trials.

Conway
A husked variety with a high kernel content and specific weight. It is susceptible to crown rust.

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

Montrose
An early maturing husked variety with a high specific weight. It is susceptible to mildew and very susceptible to crown rust.

Rozmar
A husked variety with high resistance to crown rust.

NEW WPB Elyann
Added to the AHDB Recommended List for 2017. It is early maturing and has given high kernel content and specific weight values.

NEW Yukon
Added to the AHDB Recommended List for 2017 as an early maturing, high-yielding husked variety with a good specific weight. It has high resistance to lodging and high resistance to mildew.

Winter oilseed rape 2017/18 – East/West region
Yield, quality, agronomy and disease resistance

Described variety

AHDB RECOMMENDED

	Elgar	Flamingo	Nikita	V316 OL ~	Windozz	Aquila	Alizze	Wembley	Campus	Incentive	Picto	Angus	Arazzo	SY Harnas	Popular	Fencer	Harper	Trinity	Mentor $	DK Secret #	Amalie ¥	Troy #	Average LSD (5%)	Ergo †
Variety type	Conv	Conv	Conv	RH	RH	RH	RH	RH	Conv	RH	Conv	RH	RH	RH	RH	RH	RH	Conv	RH	RH	Conv	RH		RH
Scope of recommendation	E/W	E/W	UK	UK	E/W	E/W	UK	E/W	UK	E/W	E/W	E/W	E/W	UK	E/W	E/W	E/W	E/W	Sp	UK	Sp	UK		Sp
		NEW	NEW			NEW			*	*	*		*	*	*	*	*	C*		NEW		*		NEW
Gross output, yield adjusted for oil content (% control)																								
East/West region (5.4 t/ha)	110	109	108	108	108	108	108	107	106	106	106	105	105	104	104	103	101	101	101	100	98	94	4.8	97
North region (5.3 t/ha)	[103]	109	109	109	[104]	[107]	109	[105]	109	107	[103]	[98]	[100]	108	[104]	[104]	[107]	[100]	100	97	96	95	8.1	[95]
United Kingdom (5.4 t/ha)	109	109	109	108	108	108	108	107	107	106	105	104	104	105	104	103	102	101	101	100	98	94	4.5	96
Seed yield (% control)																								
East/West region (5.0 t/ha)	110	107	107	108	109	108	107	107	106	105	107	106	107	106	103	102	102	101	100	101	99	96	4.5	96
North region (4.9 t/ha)	[104]	107	108	108	[105]	[107]	108	[105]	109	106	[104]	[98]	[102]	110	[103]	[103]	[106]	[101]	99	99	96	96	7.6	[94]
United Kingdom (5.0 t/ha)	109	107	107	108	109	108	107	107	107	106	107	105	107	106	103	102	102	101	100	101	99	96	4.2	96
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	0.2	8
Stem stiffness (1–9)	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	8	8	8	8	8	8	0.5	9
Shortness of stem (1–9)	6	6	7	6	7	6	6	7	6	6	6	6	6	7	7	6	6	7	7	9	7	8	0.2	6
Earliness of flowering (1–9)	7	6	7	7	8	7	8	8	6	7	6	8	8	7	6	7	8	6	6	7	6	6	0.4	6
Earliness of maturity (1–9)	6	4	5	5	6	5	5	6	5	5	5	6	6	5	5	5	6	5	5	6	5	5	0.4	5
Seed quality (at 9% moisture)																								
Oil content, fungicide-treated (%)	45.4	46.4	46.3	46.0	44.8	45.7	46.0	45.3	45.7	45.8	44.4	45.1	43.8	44.5	46.0	46.2	45.3	45.4	46.2	44.5	44.9	44.6	0.3	45.7
Glucosinolate (µmoles/g of seed)	10.5	12.0	9.5	12.9	10.6	12.0	13.0	12.3	11.2	10.1	11.6	13.4	12.0	12.3	10.4	9.0	10.0	10.0	10.2	10.7	13.7	12.0	-	12.3
Disease resistance																								
Light leaf spot (1–9)	7	7	7	6	5	6	7	7	6	6	6	6	6	6	6	5	6	6	6	7	6	6	0.7	5
Stem canker (1–9)	6	4	4	5	5	8	5	5	6	4	5	8	4	5	4	8	8	6	3	8	6	4	1.2	4

Varieties no longer listed in the East/ West region: Avatar, Charger, DK Cabernet, Marathon, PR46W21, PT211, Quartz and Rivalda.
On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (eg high resistance).
The target (spring) plant population is 40 plants/m² for RL trials. Maximum seed rate is 70 seeds/m² and may be lower if conditions permit.
Glucosinolate contents are taken from the National List trials data.

UK = recommended for both the East/West and North regions
E/W = recommended for the East/West region
Sp = specific recommendation
Conv = conventional open-pollinated variety
RH = restored hybrid
* = variety no longer in trial in region

C = yield control (for current table). For this table, PR46W21, DK Cabernet and PT211 were also yield controls but are no longer listed
[ ] = limited data
~ = HOLL (high oleic, low linolenic) variety
¥ = Amalie has a specific recommendation for its resistance to Turnip Yellows Virus (TuYV)
$ = Mentor is recommended for growing on land infected with common strains of clubroot; Mentor may, however, be infected by some strains and infections that have been reported in some fields

= semi-dwarf variety believed to carry the *Bzh* dwarfing gene in the heterozygous state but this has not been verified in RL tests
† = HEAR (High Erucic Acid) 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 2017/18 – East/West region
Supplementary data

Described variety

AHDB RECOMMENDED

	Elgar	Flamingo	Nikita	V316 OL ~	Windozz	Aquila	Alizze	Wembley	Campus	Incentive	Picto	Angus	Arazzo	SY Harnas	Popular	Fencer	Harper	Trinity	Mentor $	DK Secret #	Amalie ¥	Troy #	Average LSD (5%)	Ergo †
Variety type	Conv	Conv	Conv	RH	RH	RH	RH	RH	Conv	RH	Conv	RH	RH	RH	RH	RH	RH	Conv	RH	RH	Conv	RH		RH
Scope of recommendation	E/W	E/W	UK	UK	E/W	E/W	UK	E/W	UK	E/W	E/W	E/W	E/W	UK	E/W	E/W	E/W	E/W	Sp	UK	Sp	UK		Sp
		NEW	NEW			NEW			*	*	*		*	*	*	*	*	C*		NEW		*		NEW
Breeder/UK contact																								
Breeder	Els	Mom	LimEur	Mon	R2n	LimEur	R2n	NPZ	Mom	LSPB	Mom	NPZ	LSPB	SyP	DSV	Bay	BayR	Lant	NPZ	MonTec	LimEur	LSPB		NPZ
UK contact	Els	KWS	Lim	Mon	RAGT	Lim	RAGT	LSPB	KWS	DSV	KWS	LSPB	RAGT	Syn	DSV	Bay	Bay	Els	LSPB	Mon	Lim	DSV		LSPB
Annual treated gross output, yield adjusted for oil content (% control)																								
2013 (5.6 t/ha)	101	-	104	100	102	-	102	106	103	102	103	103	101	104	101	103	100	104	98	-	92	94	5.0	-
2014 (5.6 t/ha)	112	[108]	111	116	111	[114]	112	110	108	109	107	107	107	109	110	105	105	99	104	[102]	-	97	6.4	[101]
2015 (5.8 t/ha)	114	106	105	106	110	102	107	106	103	106	102	103	107	101	100	101	100	100	100	101	99	95	5.9	95
2016 (4.4 t/ha)	110	115	115	112	109	113	111	108	113	107	111	109	102	103	105	102	100	102	100	97	101	90	5.4	97
Agronomy																								
Plant height (cm)	150	149	145	157	147	154	151	148	154	153	154	154	150	147	148	149	150	145	147	119	147	130	3.1	151
Status in RL system																								
Year first listed	16	17	16	15	16	17	16	16	15	14	15	16	15	15	15	15	14	14	15	17	16	13		-
RL status	P2	P1	P1	-	P2	P1	P2	P2	*	*	*	P2	*	*	*	*	*	*	-	P1	P2	*		-

UK = recommended for both the East/West and North regions
E/W = recommended for the East/West region
Sp = specific recommendation
Conv = conventional variety
RH = restored hybrid
* = variety no longer in trial in region
C = yield control (for current table). For this table, PR46W21, DK Cabernet and PT211 were also yield controls but are no longer listed
P1 = first year of recommendation
P2 = second year of recommendation
[ ] = limited data

~ = HOLL (high oleic, low linolenic) variety
† = HEAR (High Erucic Acid) variety
¥ = Amalie has a specific recommendation for its resistance to Turnip Yellows Virus (TuYV)
$ = Mentor is recommended for growing on land infected with common strains of clubroot; Mentor may, however, be infected by some strains and infections that have been reported in some fields
# = semi-dwarf variety believed to carry the *Bzh* dwarfing gene in the heterozygous state but this has not been verified in Recommended List tests
Bay = Bayer CropScience (www.bayercropscience.co.uk)
BayR = Bayer CropScience Raps (www.bayercropscience.co.uk)
DSV = DSV United Kingdom (www.dsv-uk.co.uk)

Els = Elsoms Seeds (www.elsoms.com)
KWS = KWS UK (www.kws-uk.com)
Lant = Lantmannen SW Seed BV, Sweden
Lim = Limagrain UK (www.limagrain.co.uk)
LimEur = Limagrain Europe SA (www.limagrain.co.uk)
LSPB = LS Plant Breeding (www.lspb.eu)
Mom = Momont, France
Mon = Monsanto UK Ltd (www.monsanto.com)
MonTec = Monsanto Technology LLC (www.monsanto.com)
NPZ = NPZ-Lembke, Germany (www.npz.de)
RAGT = RAGT Seeds (www.ragt.co.uk)
R2n = RAGT, France (www.ragt.co.uk)
Syn = Syngenta UK Ltd (www.syngenta.co.uk)
SyP = Syngenta Participants 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 2017/18 – North region
Yield, quality, agronomy and disease resistance

Described variety

AHDB RECOMMENDED

	Anastasia	Alizze	Campus	DK Explicit	Nikita	Barbados	V316 OL ~	SY Harnas	V324 OL ~	DK Exentiel	PT234	Mentor $	DK Secret #	Amalie ¥	Troy #	Average LSD (5%)	DK Imagis CL &
Variety type	Conv	RH	Conv	RH	Conv	Conv	RH	RH	RH	RH	RH	RH	RH	Conv	RH		RH
Scope of recommendation	N	UK	UK	N	UK	N	UK	UK	N	N	N	Sp	UK	Sp	UK		N
				*						*	*		NEW		*		
Gross output, yield adjusted for oil content (% control)																	
North region (5.3 t/ha)	110	109	109	109	109	109	109	108	107	106	104	100	97	96	95	8.1	102
East/West region (5.4 t/ha)	-	108	106	[101]	108	100	108	104	104	[101]	[101]	101	100	98	94	4.8	[99]
United Kingdom (5.4 t/ha)	-	108	107	102	109	101	108	105	104	101	101	101	100	98	94	4.5	99
Seed yield (% control)																	
North region (4.9 t/ha)	111	108	109	108	108	109	108	110	106	106	103	99	99	96	96	7.6	101
East/West region (5.0 t/ha)	-	107	106	[101]	107	100	108	106	103	[102]	[101]	100	101	99	96	4.5	[99]
United Kingdom (5.0 t/ha)	-	107	107	102	107	101	108	106	103	103	101	100	101	99	96	4.2	99
Agronomic features																	
Resistance to lodging (1–9)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	0.2	8
Stem stiffness (1–9)	8	8	8	7	8	8	8	7	8	8	8	8	8	8	8	0.5	8
Shortness of stem (1–9)	7	6	6	5	7	6	6	7	6	6	6	7	9	7	8	0.2	6
Earliness of flowering (1–9)	6	8	6	6	7	5	7	7	6	7	7	6	7	6	6	0.4	5
Earliness of maturity (1–9)	5	5	5	5	5	4	5	5	5	6	6	5	6	5	5	0.4	5
Seed quality (at 9% moisture)																	
Oil content, fungicide-treated (%)	45.1	46.0	45.7	46.2	46.3	45.5	46.0	44.5	46.3	45.0	45.8	46.2	44.5	44.9	44.6	0.3	45.3
Glucosinolate (µmoles/g of seed)	11.1	13.0	11.2	10.4	9.5	12.0	12.9	12.3	9.9	11.4	10.4	10.2	10.7	13.7	12.0	-	11.7
Disease resistance																	
Light leaf spot (1–9)	6	7	6	6	7	7	6	6	7	6	6	6	7	6	6	0.7	6
Stem canker (1–9)	6	5	6	9	4	7	5	5	4	8	5	3	8	6	4	1.2	5

Varieties no longer listed in the North region: Cracker, Incentive and PT211
On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (eg 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 National List trials data.

UK = recommended for both the East/West and North regions
N = recommended for the North region
Sp = specific recommendation
RH = restored hybrid
Conv = conventional open-pollinated variety
* = variety no longer in trial in region

C = yield control (for current table). For this table, PR46W21, DK Cabernet, PT211 and Trinity were the yield controls
[ ] = limited data
~ = HOLL (high oleic, low linolenic) variety
$ = Mentor is recommended for growing on land infected with common strains of clubroot; Mentor may, however, be infected by some strains and infections that have been reported in some fields

= semi-dwarf variety that is believed to carry the *Bzh* dwarfing gene in the heterozygous state but this has not been verified in RL tests
¥ = Amalie has a specific recommendation for its resistance to Turnip Yellows Virus (TuYV)
& = Clearfield® variety, with tolerance to specific imidazolinone herbicides

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 2017/18 – North region
Supplementary data

Described variety

AHDB RECOMMENDED

	Anastasia	Alizze	Campus	DK Explicit	Nikita	Barbados	V316 OL ~	SY Harnas	V324 OL ~	DK Exentiel	PT234	Mentor $	DK Secret #	Amalie ¥	Troy #	Average LSD (5%)	DK Imagis CL &
Variety type	Conv	RH	Conv	RH	Conv	Conv	RH	RH	RH	RH	RH	RH	RH	Conv	RH		RH
Scope of recommendation	N	UK	UK	N	UK	N	UK	UK	N	N	N	Sp	UK	Sp	UK		N
				*						*	*		NEW		*		
Breeder/UK contact																	
Breeder	Lim	R2n	Mom	DK	LimEur	Mom	Mon	SyP		Mon	DP	NPZ	MonTec	LimEur	LSPB		DK
UK contact	Lim	RAGT	KWS	DK	Lim	KWS	Mon	Syn	Mon	DK	DP	LSPB	Mon	Lim	DSV		DK
Annual treated gross output, yield adjusted for oil content (% control)																	
2013 (5.2 t/ha)	[111]	[105]	[98]	[105]	[106]	[111]	[99]	[104]	[107]	[104]	[101]	[97]	-	[90]	[97]	12.5	[100]
2014 (5.4 t/ha)	[113]	[116]	[115]	[115]	[113]	[111]	[115]	[118]	[109]	[108]	[110]	[100]	[95]	-	96	12.1	[108]
2015 (6.0 t/ha)	[106]	[106]	[106]	[101]	[104]	[104]	[105]	[103]	[105]	[101]	[101]	[103]	[96]	[97]	94	9.3	[95]
2016 (4.6 t/ha)	[115]	[110]	[113]	[116]	[113]	[112]	[113]	[107]	[109]	[111]	[103]	[99]	[100]	[95]	[94]	14.5	[104]
Agronomy																	
Plant height (cm)	145	151	154	164	145	152	157	147	155	153	151	147	119	147	130	3.1	158
Status in RL system																	
Year first listed	13	16	15	15	16	16	15	15	16	15	15	15	17	16	13		-
RL status	-	P2	-	*	P2	P2	-	-	P2	*	*	-	P1	P2	*		-

C = yield control (for current table). For this table, PR46W21, DK Cabernet, PT211 and Trinity were the yield controls
UK = recommended for both the East/West and North regions
N = recommended for the North region
Sp = specific recommendation
RH = restored hybrid
Conv = conventional open-pollinated variety
* = variety no longer in trial in region
[ ] = limited data
P1 = first year of recommendation
P2 = second year of recommendation

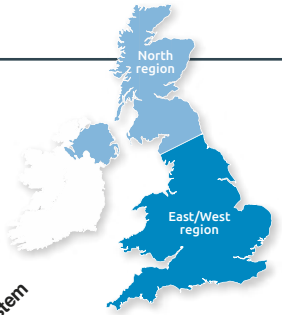
$ = Mentor is recommended for growing on land infected with common strains of clubroot; Mentor may, however, be infected by some strains and infections that have been reported in some fields
# = semi-dwarf variety that is believed to carry the *Bzh* dwarfing gene in the heterozygous state but this has not been verified in RL tests
& = Clearfield® variety, with tolerance to specific imidazolinone herbicides
~ = HOLL (high oleic, low linolenic) variety
¥ = Amalie has a specific recommendation for its resistance to Turnip Yellows Virus (TuYV)

DK = DEKALB (www.dekalb.co.uk)
DP = DuPont Pioneer (www.pioneer.com/uk)
DSV = DSV United Kingdom (www.dsv-uk.co.uk)
KWS = KWS UK (www.kws-uk.com)
Lim = Limagrain UK (www.limagrain.co.uk)
LimEur = Limagrain Europe SA (www.limagrain.co.uk)
LSPB = LS Plant Breeding (www.lspb.eu)
Mom = Momont, France
Mon = Monsanto UK Ltd (www.monsanto.com)
MonTec = Monsanto Technology LLC (www.monsanto.com)
NPZ = NPZ-Lembke, Germany (www.npz.de)
RAGT = RAGT Seeds (www.ragt.co.uk)
R2n = RAGT, France (www.ragt.co.uk)
Syn = Syngenta UK Ltd (www.syngenta.co.uk)
SyP = Syngenta Participants 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 2017
Candidate varieties



AHDB CANDIDATE

Previous/Proposed name	Variety ID	Variety type	Gross output (%) – East/West	Gross output (%) – North	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 claims	UK contact
Control varieties																
PR46W21	X05W085C	1970	RH	99	96	98	96	45.5	8	8	151	5	6	4	3	DuPont Pioneer
DK Cabernet	MLCH149	2019	Conv	100	100	101	101	44.7	8	8	151	3	5	6	7	DEKALB
PT211	X09W007C	2306	RH	101	102	101	102	45.2	8	8	154	5	6	6	6	DuPont Pioneer
Trinity	SWO3085	2440	Conv	100	101	100	101	44.9	8	8	154	4	6	7	6	Elsoms Seeds
Candidate varieties – UK																
Django	MH 09 DJ 058	2855	Conv	110	109	110	109	45.4	8	8	146	5	5	6	7	KWS UK
Arrow	LE14/277	2841	RH	107	104	107	104	45.1	8	8	158	6	6	7	8	Limagrain UK
Sparrow	WRH 461	2782	RH	107	103	107	103	45.5	8	8	152	6	6	7	6	DSV UK
Butterfly	MH 09 BU 006	2856	Conv	106	111	106	111	45.3	9	8	148	5	6	7	7	KWS UK
PX126	13WX511C	2795	RH SD	98	91	98	91	45.4	8	8	123	2	6	7	6	DuPont Pioneer
DK Serafin	NPZ14009W13	2817	RH SD	96	97	97	98	44.0	8	9	130	5	6	6	8	Monsanto UK Ltd
Candidate varieties – East/West																
Zeland	LSF14038W11	2815	RH	108		109		45.0	8	8	153	6	6	6	6	RAGT Seeds
DK Expedient	CWH344	2771	RH	107		107		44.9	8	7	152	7	6	6	8	Monsanto UK Ltd
DK Pliny	CWH321	2769	RH	96		100		43.0	8	8	149	6	7	5	8	Clubroot resistant	Monsanto UK Ltd
Candidate varieties – North																
Broadway	CSL 11/14	2807	Conv		114		113	45.4	8	8	152	5	6	7	5		DLF Seeds Ltd
Kielder	PSL1293-372	2866	Conv		114		112	46.0	8	9	155	6	6	7	4		Elsoms Seeds
Elevation	CSL 10/14	2806	Conv		111		111	45.5	8	8	151	3	6	5	5		DLF Seeds Ltd
Stowell	WRH 477	2787	RH		106		107	44.9	8	8	155	5	6	6	6		DSV UK
Halexia	MH 12AQ37	2776	RH		103		103	44.8	8	8	152	6	6	6	6		KWS UK
Specialist varieties – UK																
Annalise	LEL14/292	2846	Conv	105	106	103	104	46.9	8	8	154	4	5	6	6	TuYV resistant	Limagrain UK
Architect	LE14/276	2840	RH	105	104	105	104	44.7	8	8	159	4	6	6	6	TuYV resistant	Limagrain UK
Mean of controls (t/ha)				5.2	5.3	4.9	4.9	-	-	-	-	-	-	-	-		
Overall Mean				-	-	-	-	44.9	8.0	8.0	153	4.7	6.0	-	-		
LSD 5%				5.7	11.3	5.3	11.0	0.3	0.4	0.4	4.8	0.5	0.5	-	-		
Number of trials				14	5	14	5	19	5	16	16	17	18	-	-		

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 (eg high resistance). The 1–9 ratings are not comparable to those used on the Recommended List table.

Conv = conventional open-pollinated variety
RH = restored hybrid
SD = semi-dwarf
TuYV = Turnip Yellows Virus

Candidate varieties will be considered for the 2018/19 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.

All data except disease ratings are taken from fungicide-treated trials.
See the AHDB Recommended List for full data on control varieties (pages 42–45).

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

Winter oilseed rape varieties grown in RL trials in 2016 but not added to the AHDB Recommended List

	Control varieties				Other varieties												
	DK Cabernet	PR46W21	PT211	Trinity	Skye	Artic	DK Exclaim	INV1030	Hawai	Dariot	DK Exception	Harpege	SY Florida	Hasting	DK Exalte	Arabica	Average LSD (5%)
Variety type	Conv	RH	RH	Conv	Conv	Conv	RH	RH	RH	RH	RH	RH	RH	RH	RH	Conv	
Region for which considered	-	-	-	-	UK	UK	UK	UK	E/W	E/W	E/W	E/W	E/W	E/W	N	N	
Gross output, yield adjusted for oil content (% control)																	
United Kingdom (5.4 t/ha)	99	99	101	101	106	105	105	105	108	105	105	105	104	103	102	103	4.5
East/West region (5.4 t/ha)	99	99	101	101	106	105	105	105	108	105	105	104	104	103	102	102	4.8
North region (5.3 t/ha)	97	98	104	[100]	[108]	109	109	108	[104]	[107]	[105]	[106]	[106]	[102]	108	107	8.1
Seed yield (% control)																	
United Kingdom (5.0 t/ha)	100	99	101	101	107	103	106	103	106	105	106	104	105	103	102	103	4.2
East/West region (5.0 t/ha)	100	99	100	101	107	103	105	102	106	105	106	104	105	103	102	102	4.5
North region (4.9 t/ha)	98	97	104	[101]	[109]	107	109	105	[102]	[106]	[105]	[105]	[106]	[103]	108	105	7.6
Agronomic features																	
Resistance to lodging (1–9)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	0.2
Stem stiffness(1–9)	8	8	8	8	8	8	8	7	9	7	7	8	7	8	7	8	0.5
Shortness of stem (1–9)	7	6	6	7	7	7	6	6	6	6	6	7	6	6	6	7	0.2
Earliness of flowering (1–9)	5	6	6	6	7	5	6	6	6	6	7	6	8	5	7	6	0.4
Earliness of maturity (1–9)	5	5	4	5	5	4	5	5	5	5	5	6	6	4	5	5	0.4
Seed quality (at 9% moisture)																	
Oil content, fungicide-treated (%)	44.9	45.8	45.8	45.4	45.2	46.8	45.1	47.1	46.7	45.7	44.8	45.6	44.8	45.3	45.5	46.0	0.3
Glucosinolate (µmoles/g of seed)	10.1	12.6	10.6	10.0	12.4	11.8	13.2	10.1	10.7	11.5	10.6	11.3	12.2	9.9	12.6	7.5	-
Disease resistance																	
Light leaf spot (1–9)	6	4	6	6	6	6	6	6	6	6	6	6	6	6	7	6	0.7
Stem canker (1–9)	5	3	5	6	5	6	9	9	4	9	9	6	8	7	8	5	1.2

This table should be read in conjunction with the AHDB Recommended List of winter oilseed rape for 2017/18.
On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (eg high resistance).

Conv = conventional open-pollinated variety
RH = restored hybrid
[ ] = limited data

UK = Considered for both the East/West and North regions
N = Considered for the North region
E/W = Considered for the East/West region

LSD = least significant difference

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

Winter oilseed rape 2017/18 – Variety comments

Varieties

Alizze
A restored hybrid variety recommended for the UK. This relatively early flowering variety has given very high treated gross outputs in both regions. It is stiff stemmed and has high resistance to lodging when grown at the hybrid seed rate. Alizze has high resistance to light leaf spot.

Amalie
A conventional, open-pollinated variety with a specific recommendation for resistance to Turnip Yellows Virus (TuYV). It is stiff stemmed and has high resistance to lodging.

Anastasia
A conventional, open-pollinated variety recommended for the North region. It has the highest gross output in the North region and is stiff stemmed with high resistance to lodging.

Angus
A restored hybrid variety recommended for the East/West region. It has given a high treated gross output in the East/West. It is stiff stemmed and has high resistance to lodging when grown at the hybrid seed rate. It is a relatively early flowering variety. Angus has high resistance to stem canker.

NEW Aquila
A restored hybrid variety added to the 2017/18 Recommended List for the East/West region. This relatively early flowering variety has given very high treated gross outputs in the East/West region, it is stiff stemmed and has high resistance to lodging when grown at the hybrid seed rate. Aquila has high resistance to stem canker.

Arazzo
A restored hybrid variety recommended for the East/West region. This relatively early flowering variety has given a high treated gross output in the East/West. It is stiff stemmed and has high resistance to lodging when grown at the hybrid seed rate. Arazzo is susceptible to stem canker. It is no longer in RL trials.

Barbados
A conventional, open-pollinated variety recommended for the North region. It has a very high gross output in the North region, is very stiff stemmed and has high resistance to lodging. Barbados has high resistance to both light leaf spot and stem canker. It is a relatively late maturing variety.

Campus
A conventional, open-pollinated variety recommended for the UK and has given a high treated gross output in both the East/West and North regions. Campus is stiff stemmed and has high resistance to lodging. It is no longer in RL trials.

DK Exentiel
A restored hybrid variety recommended for the North region. This variety has given a high treated gross output in the North, has high resistance to lodging when grown at the hybrid seed rate with good stem stiffness and high resistance to stem canker. It is no longer in RL trials.

DK Explicit
A restored hybrid recommended for the North region where it has given a very high gross output. DK Explicit is a relatively tall variety but has high resistance to lodging when grown at the hybrid seed rate. It has very high resistance to stem canker. It is no longer in RL trials.

NEW DK Secret
Added to the 2017/18 Recommended List for the UK as a restored hybrid, semi-dwarf variety (believed to carry the OGU/INRA dwarfing gene in the heterozygous state). It has a gross output potential some 6% higher than Troy in the East/West region and 2% higher in the North. Like Troy, it is short and very stiff-stemmed with high lodging resistance. It is earlier flowering and maturing than Troy and has high resistance to both light leaf spot and stem canker.

Elgar
A conventional, open-pollinated variety recommended for the East/West region. It has given very high treated gross outputs, giving the highest gross output on the East/West region list. Elgar is stiff stemmed and has high resistance to lodging. It has high resistance to light leaf spot.

Fencer
A restored hybrid variety recommended for the East/West region. It is stiff stemmed, has high resistance to lodging when grown at the hybrid seed rate and high resistance to stem canker. It is no longer in RL trials.

NEW Flamingo
A conventional, open-pollinated variety added to the 2017/18 Recommended List for the East/West region. It has given a very high gross output and has high resistance to lodging with good stem stiffness. Flamingo has high resistance to light leaf spot but is susceptible to stem canker. It is relatively late maturing.

Harper
A restored hybrid recommended for the East/West region. It has high resistance to lodging when grown at the hybrid seed rate with good stem stiffness. It is relatively early flowering and has high stem canker resistance. It is no longer in RL trials.

Winter oilseed rape 2017/18 – Variety comments

Incentive
A restored hybrid recommended for the East/West region where it has a high treated gross output. It is stiff stemmed and has high resistance to lodging when grown at the hybrid seed rate. Incentive is susceptible to stem canker. It is no longer in RL trials.

Mentor
A restored hybrid variety with a specific recommendation for its resistance to the common strains of clubroot, though it may be susceptible to strains found in some fields. It is stiff stemmed and has high lodging resistance when grown at the hybrid seed rate. It is very susceptible to stem canker.

NEW Nikita
A conventional, open-pollinated variety with a very high treated gross output. This variety was added to the Recommended List for the North region last year but is now recommended for the UK. It is stiff stemmed and has high resistance to lodging. Nikita has high resistance to light leaf spot but is susceptible to stem canker.

Picto
A conventional, open-pollinated variety recommended for the East/West region where it has a high treated gross output. It is stiff stemmed and has high resistance to lodging. It is no longer in RL trials.

Popular
A restored hybrid variety recommended for the East/West region. It has good stem stiffness and high resistance to lodging. It is susceptible to stem canker. It is no longer in RL trials.

PT234
A restored hybrid variety recommended for the North region. It is stiff stemmed and has good lodging resistance when grown at the hybrid seed rate. It is no longer in RL trials.

SY Harnas
A restored hybrid variety recommended for the UK, giving a very high treated gross output in the North. SY Harnas has high resistance to lodging when grown at the hybrid seed rate. It is no longer in RL trials.

Trinity
A conventional, open-pollinated variety recommended for the East/West region. It is stiff-stemmed and has high resistance to lodging. It is no longer in RL trials.

Troy
This variety has a specific recommendation for the UK as a restored hybrid, semi-dwarf variety (believed to carry the OGU/INRA dwarfing gene in the heterozygous state). It is short and very stiff-stemmed and has high lodging resistance but is susceptible to stem canker. It is no longer in RL trials.

V316 OL
A restored hybrid HOLL (high oleic, low linolenic) variety recommended for the UK. Although V316 OL is a high quality food grade oil variety, it is also very competitive on yield and agronomic performance, giving very high treated gross outputs in both regions with good stem stiffness and high lodging resistance when grown at the hybrid seed rate.

V324 OL
A restored hybrid HOLL (high oleic, low linolenic) variety recommended for the North region. It has given high treated gross outputs in the North and is stiff-stemmed with high lodging resistance when grown at the hybrid seed rate. It has high resistance to light leaf spot but is susceptible to stem canker.

Wembley
A restored hybrid variety recommended for the East/West region. This relatively early flowering variety has given a high treated gross output in the East/West. It is stiff stemmed and has high resistance to lodging when grown at the hybrid seed rate. Wembley has high resistance to light leaf spot.

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 is stiff stemmed and has high resistance to lodging when grown at the hybrid seed rate. It is a relatively early flowering variety.

Described varieties

Ergo
Described in the East/West region table. A high erucic acid (HEAR) variety. HEAR varieties have a different oil profile (having around 50% erucic acid, compared to 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 (which can lead to deductions or rejections) from appearing in subsequent '00' oilseed rape crops.

DK Imagis CL
Described for the North region. This variety is one of a number of available restored hybrid Clearfield varieties which have tolerance to specific imidazolinone (IMI) herbicides. Growers are advised to see the BASF website for more information on the management and husbandry of these types of varieties.

Spring oilseed rape Descriptive List 2017

AHDB DESCRIBED

	Builder	Dodger	Mirakel	Sunder	Makro	Flower	Doktrin	Simba	Delight	Tamarin	Belinda	Colossus	Average LSD (5%)
Variety type	RH	RH	RH	RH	RH	RH	RH	RH	RH	Conv	RH	Conv	
Scope of recommendation				NEW	C	NEW			*	C*	*	*	
Gross output, yield adjusted for oil content (% control)													
UK without fungicide (3.0 t/ha)	[107]	106	[105]	[104]	103	[103]	102	[102]	99	97	97	91	6.2
Number of trials	10	13	10	9	18	8	13	10	16	18	15	13	
Seed yield (% control)													
UK without fungicide (2.8 t/ha)	[105]	105	[104]	[102]	102	[99]	102	[102]	99	98	97	92	5.9
Seed quality (at 9% moisture)													
Oil content (%)	[45.2]	45.0	[44.4]	[45.6]	44.9	[47.0]	44.1	[43.9]	44.3	43.3	43.4	43.6	0.5
Glucosinolate content (µmoles/g)	13.8	15.2	10.0	10.6	14.7	10.6	9.7	13.3	14.7	16.1	14.5	12.8	-
Agronomic features													
Standing ability (1–9)	-	-	-	-	[8]	-	-	-	[8]	[8]	[8]	[9]	0.5
Shortness of stem (1–9)	6	6	6	7	6	7	7	7	7	7	7	6	0.3
Earliness of flowering (1–9)	7	6	7	7	5	7	7	5	8	7	8	5	0.8
Earliness of maturity (1–9)	5	5	6	[5]	3	[7]	5	6	6	7	7	3	1.9
Annual gross output, yield adjusted for oil content (% control)													
2010 (2.9 t/ha)	-	-	-	-	[101]	-	-	-	[94]	[100]	[90]	[91]	13.2
2011 (2.7 t/ha)	-	[109]	-	-	[102]	-	[110]	-	[100]	[98]	[101]	[89]	11.9
2012 (2 trials only)	-	-	-	-	-	-	-	-	-	-	-	-	-
2013 (3.0 t/ha)	[108]	[109]	[102]	[103]	[101]	[103]	[107]	[103]	[101]	[99]	[94]	[94]	9.0
2014 (3.1 t/ha)	[100]	[105]	[111]	[101]	[104]	[104]	[103]	[100]	[105]	[96]	[103]	-	10.1
2015 (no data)	-	-	-	-	-	-	-	-	-	-	-	-	
2016 (2.9 t/ha)	[110]	[106]	[101]	[108]	[109]	[101]	[91]	[104]	-	[92]	-	-	19.6
Breeder/UK contact													
Breeder	Bay	Bay	NPZ	Bay	NPZ	Bay	NPZ	Lant	BayR	Lant	BayR	UG	
UK contact	Bay	Bay	DSV	Bay	DSV	Bay	DSV	Sen	Bay	Sen	Bay	JTSD	
Status in DL system													
Year first listed	15	14	15	17	12	17	14	15	09	10	10	10	
DL status	P2	-	P2	P1	-	P1	-	P2	*	*	*	*	

Varieties no longer listed: James and Larissa.
On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (eg early maturity).
The data in this table are provided for information only and do not constitute a recommendation.

RH = restored hybrid
Conv = conventional open-pollinated variety
[ ] = limited data

P1 = first year of listing
P2 = second year of listing
* = variety no longer in trials
C = yield control (for current table)

Bay = Bayer CropScience (www.bayercropscience.co.uk)
BayR = Bayer CropScience Raps (www.bayercropscience.co.uk)
DSV = DSV United Kingdom (www.dsv-uk.co.uk)
JTSD = JTSD Ltd (www.jtsd.co.uk)
Lant = Lantmannen SW Seed BV, Sweden

NPZ = NPZ-Lembke, Germany (www.npz.de)
Sen = Senova (www.senova.uk.com)
UG = University of Guelph, Canada

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 2017

AHDB DESCRIBED

	Juliet	Bingo	Empress	Aquarius	Batsman	Brighton	Festival	Octal	Cumulus	Carina	Bowler	Aries	Kaolin	Pilgrim	Phoenix	Omegalin	Galaad	Altess	GK Emma	Marquise	Abacus	Duchess	Serpent	Average LSD (5%)	Year 3 Candidates: Daniel $	Ineke $	Lion	Faser $
Seed colour	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	Y		B	B	B	B	B	B		-	-	B	-
Scope of recommendation		NEW	NEW	NEW	C			NEW		NEW		C					NEW				C*		*					
Seed yield as % control																												
UK without fungicide (1.8 t/ha)	109	107	105	104	104	102	102	101	101	101	101	100	100	100	99	98	97	97	97	97	96	95	94	8.6	-	-	[104]	-
Number of trials	21	12	12	12	23	23	20	12	18	12	23	23	23	18	18	18	12	23	23	20	22	23	19		-		7	-
Seed quality (at 9% moisture)																												
Oil content of seed (%)	41.8	40.4	40.5	43.2	40.7	40.6	42.9	41.3	40.6	41.8	40.9	41.3	41.7	40.8	40.5	43.7	40.7	39.2	39.7	40.7	40.2	40.1	41.1	0.4	-	-	[42.9]	-
Agronomic features																												
Plant height (cm)	59	55	54	57	59	59	58	55	63	59	56	57	55	61	60	55	48	48	50	49	55	51	57	2.6	-	-	56	-
Earliness of flowering (1–9)	4	5	6	6	6	3	4	3	4	4	4	4	4	3	5	6	8	7	7	8	5	7	3	1.1	-	-	[5]	-
Earliness of maturity (1–9)	4	5	5	7	6	5	6	5	5	5	6	5	5	4	6	6	7	8	7	7	7	7	5	0.9	-	-	6	-
Annual seed yield (% control)																												
2010 (1.6 t/ha)	[117]	-	-	-	105	98	98	-	-	-	99	96	100	-	-	-	98	99	105	102	[100]	102	92	9.3	-	-	-	-
2011 (1.9 t/ha)	[122]	-	-	-	[105]	[104]	[101]	-	[97]	-	[95]	[103]	[91]	[98]	[104]	[91]	[91]	[99]	[91]	[91]	[93]	[84]	[95]	11.4	-	-	-	-
2012 (1.9 t/ha)	[88]	-	-	-	[102]	[112]	[104]	-	[101]	-	[105]	[100]	[110]	[97]	[106]	[96]	-	[106]	[93]	-	[98]	[108]	[101]	10.1	-	-	-	-
2013 (1.8 t/ha)	116	106	109	108	108	102	107	102	105	109	99	96	103	107	98	100	-	96	105	102	95	103	96	7.4	-	-	-	-
2014 #	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-
2015 (1.7 t/ha)	[114]	[106]	[104]	[96]	[107]	[100]	-	[99]	[104]	[98]	[105]	[101]	[88]	[98]	[97]	[100]	-	[87]	[97]	[95]	[92]	[87]	[86]	12.6	-	-	[98]	-
2016 (2.2 t/ha)	[101]	[107]	[100]	[105]	[95]	[98]	[102]	[101]	[98]	[94]	[102]	[106]	[105]	[97]	[93]	[101]	[100]	[94]	[90]	[91]	[99]	[88]	-	9.5	-	-	[104]	-
Breeder/UK contact																												
Breeder	GKI	Bilt	GIE	LimEur	Bilt	Bilt	LaS	LaS	JTSD	LimEur	Bilt	Lim	LaS	JTSD	Pars	TdL	LaS	GIE	GKI	GIE	JTSD	GIE	JTSD			JTSD	Lim	JTSD
UK contact	Agr	Els	PC	Lim	Els	Els	PC	Dalt	JTSD	Lim	Els	Lim	Dalt	JTSD	JTSD	PC	PC	PC	Agr	PC	JTSD	PC	JTSD		Agr	JTSD	Lim	JTSD
Status in DL system																												
Year first listed	01	17	17	17	12	11	12	17	14	17	13	09	09	14	15	14	17	09	09	14	06	12	13		-	-	-	-
DL status	-	P1	P1	P1	-	-	-	P1	-	P1	-	-	-	-	-	-	P1	-	-	-	*	*	*		-	-	-	-

$ Data for the Year 3 candidates Daniel, Ineke and Faser cannot be published as these varieties have not completed National List testing.
On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (eg early maturity).
The data in this table are provided for information only and do not constitute a recommendation.

[ ] = limited data
* = variety no longer in trials
C = yield control (for current table)
# = there were no yield results for 2014 due to trial failure
P1 = first year of listing
B = brown
Y = yellow

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.limagrain.co.uk)
LimEur = Limagrain Europe SA (www.limagrain.co.uk)
Pars = Parsons Seeds Ltd
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.

Winter triticale Descriptive List 2017/18

AHDB DESCRIBED

	KWS Fido	Tradiro	Cyrkon	Adverdo	Securo	Kereon	Agostino	Tribeca	Average LSD (5%)	Year 3 Candidates: Kasyno	LD17 $	Dometica
Scope of recommendation					NEW		C	C				
Grain yield (% treated control)												
Fungicide-treated (9.2 t/ha)	109	107	101	101	[101]	101	100	100	9.9	[108]	-	[100]
Number of trials	10	10	10	8	6	8	10	10		4	-	4
Agronomic features												
Lodging (%)	[2]	[3]	[0]	-	-	-	[0]	[8]	24.5	-	-	-
Straw length (cm)	112	102	95	101	[117]	110	102	121	5.8	[101]	-	[109]
Ripening (days +/- Agostino, -ve = earlier)	[+1]	[+1]	[0]	[+3]	[+2]	[-1]	[0]	[0]	3.8	[0]	-	[-1]
Grain quality												
Specific weight (kg/hl)	74.5	70.1	72.2	72.4	[73.0]	73.4	74.7	71.7	1.8	[72.9]	-	[69.4]
Protein content (%)	10.9	11.0	11.1	10.6	[11.6]	11.0	11.4	11.1	0.6	[11.1]	-	[10.9]
Breeder/UK contact												
Breeder	Lant	Lant	Hod	Lant	Eng	Desp	Lant	Desp		Dank		Lant
UK contact	Sen	Sen	Dalt	Sen	Cope	Els	Sen	Els		Sen	DLF	Sen
Status in DL system												
Year first listed	14	15	16	16	17	16	11	12		-	-	-
DL status	-	-	P2	P2	P1	P2	-	-		-	-	-

The data in this table are provided for information only and do not constitute a recommendation.
$ Data for the Year 3 candidate LD17 cannot be published as this variety has not completed National List testing.

[ ] = limited data
C = yield control (for current table)
P1 = first year of listing
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
Desp = Maison Florimund Desprez, France
DLF = DLF Seeds Ltd (www.dlf.co.uk)
Els = Elsoms Seeds (www.elsoms.com)

Eng = Saatzucht Streng-Engelen
Hod = Hodowla Roslin Strzelce, Poland (www.hr-strzelce.pl)
Lant = Lantmannen SW Seed BV, Sweden
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 rye Descriptive List 2017/18

AHDB DESCRIBED

	SU Performer	SU Drive	SU Mephisto	SU Phoenix	Tur	Inspector	Dukato	Average LSD (5%)	Year 3 Candidates: SU Cossani
Variety type	Hybrid	Hybrid	Hybrid	Hybrid	Hybrid	Conv	Conv		Hybrid
Scope of recommendation	NEW	NEW	C		NEW		NEW		
Grain yield as % treated control									
Fungicide-treated (9.2 t/ha)	108	102	100	99	98	93	90	4.1	105
Number of trials	8	8	10	10	8	10	8		6
Agronomic features									
Lodging (%)	-	-	-	-	-	-	-	-	-
Straw length (cm)	130	130	130	133	130	141	141	4.3	132
Ripening (days +/- SU Mephisto, -ve = earlier)	[0]	[0]	[0]	[+1]	[+2]	[0]	[0]	1.3	[+1]
Grain quality									
Protein content (%)	9.2	9.3	9.4	9.6	9.3	9.8	9.8	0.3	9.2
Hagberg Falling Number	245	200	214	219	196	217	206	18	240
Specific weight (kg/hl)	78.6	77.8	77.4	78.5	76.2	78.6	78.3	0.6	77.1
Breeder/UK contact									
Breeder	Hybro	Hybro	Hybro	Hybro	Dank	PHP	Hybro		
UK contact	SU	SU	SU	SU	Sen	SU	SU		SU
Status in DL system									
Year first listed	17	17	15	16	17	16	17		-
DL status	P1	P1	-	P2	P1	P2	P1		Yr3

The data in this table are provided for information only and do not constitute a recommendation.

[ ] = limited data
Conv = conventional variety
C = yield control (for current table)
P1 = first year of listing
P2 = second year of listing

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

Notes

Notes

Acknowledgements

The AHDB Recommended Lists 2017/18 are managed by a project consortium of AHDB Cereals & Oilseeds, BSPB, MAGB and nabim.

Funding for the Recommended List trials and tests is provided by AHDB Cereals & Oilseeds but the production of the Lists would be impossible without the contribution and support of the industry.

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CEREALS & OILSEEDS

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

AHDB is grateful for the valuable contributions made by member companies of BBPA, BOBMA, MAGB and SWA who conduct distilling tests both at the preliminary and Recommended List stages.

Test and trials contractors

AHDB is grateful to the following organisations who, as well as undertaking contract work for the Recommended Lists, provide much valuable advice: ADAS, Agri-Food and Biosciences Institute, Biomathematics & Statistics Scotland, Breeding Services, BSPB, Campden BRI, Cropworks, Envirofield, Harper Adams University, NIAB TAG, Oxford Agricultural Trials Ltd, SACCS, Scottish Agronomy, SGS, SRUC, The James Hutton Institute and Trials Force Ltd.

Committee members and growers

Lastly, 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.