

# HGCA Recommended Lists 2015/16 for cereals and oilseeds



Produced in  
partnership by:



For more information, see [www.hgca.com/varieties](http://www.hgca.com/varieties)



# Using the HGCA Recommended Lists

## 1. Select a variety for your intended market using the **Quality Tables**

These tables provide full details of quality data and information on acceptable markets for each variety.

Spring wheat, winter oats, spring oats and winter oilseed rape do not have separate tables for quality, these data are incorporated into a single table with the agronomy information.

For more information on markets, see pages 4–6.

Varieties ranked by UK treated yield within end-use group

Yield data

Market options

Quality data

Pages colour-coded by crop type

Key to symbols used in the table

## 2. Use the **Agronomy Tables** to assess the likely management inputs

These tables provide information on the susceptibility of varieties to major diseases, pests and lodging. Scores are given on a 1–9 scale, where a higher number indicates that the variety shows higher levels of resistance. Caution is required since susceptibility can change within a season. New information on any breakdown of resistance will be available on the HGCA website ([www.hgca.com](http://www.hgca.com)). For more information on regional disease risks, see page 7.

Yield data

Agronomic features

Disease resistance

The HGCA Recommended Lists are also available in a pocketbook format.

Email [publications@hgca.ahdb.org.uk](mailto:publications@hgca.ahdb.org.uk) for more information.

For more information on how the HGCA Recommended List decisions are made, see [www.hgca.com/varieties](http://www.hgca.com/varieties)



## 3. Get more detail from the **Supplementary Tables**

Supplementary tables include annual yield data, which can indicate a variety's consistency of performance in different seasons. There are yields for different sowing dates, soil types and rotations. Speed of development and latest safe sowing date information are also listed.

## 4. Use the **Variety Comments** as a summary

A summary of the key features of each variety can help you decide if the variety is appropriate for your region and end markets.

For more information on how the HGCA Recommended List decisions are made, please go to [www.hgca.com/varieties](http://www.hgca.com/varieties)

Contents	Page
Glossary	3
Markets for wheat	4
Markets for barley, oats and oilseed rape	5
Regional information	6
<b>Winter wheat</b>	
Quality	8
Agronomy	9
Supplementary data	10
Candidate varieties	11
Varieties not added	12
Variety comments	13
Spring wheat (for late autumn sowing)	18
Spring wheat (for spring sowing)	19
Variety comments	20
<b>nabim overview</b>	21
<b>Winter barley</b>	
Quality	22
Agronomy	23
Supplementary data	24
Candidate varieties	25
Variety comments	26
<b>Spring barley</b>	
Quality	28
Agronomy	29
Supplementary data	30
Candidate varieties	31

	Page
Varieties not added	32
Variety comments	33
<b>Winter oats</b>	35
Variety comments	36
Spring oats	37
<b>Winter oilseed rape</b>	
East/West yield data	38
East/West supplementary data	39
North yield data	40
North supplementary data	41
East/West candidate varieties	42
North candidate varieties	43
East/West varieties not added	44
North varieties not added	45
Variety comments	46
<b>Descriptive Lists</b>	
Spring oilseed rape	48
Spring linseed	49
Winter triticale	50
Winter rye varieties	51
<b>Acknowledgements</b>	52

# Glossary

## 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 varieties that are no longer recommended or have been withdrawn from the Recommended List by the breeder.

## Candidate varieties

Candidate varieties are usually in their first or second year of Recommended List trials, having completed at least two years of 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 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. Data for these four crops 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.

## Regional Lists for winter oilseed rape

Recommended Lists for winter oilseed rape are split into two regions. The East/West region and the North region are identified on the map. In the North List, greater emphasis has been placed on resistance to light leaf spot.

## 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. Consistent high yields over a number of years may indicate that a variety offers a level of yield stability.

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

## Brackling

Brackling is folding or breaking of the stems higher up the plant, as opposed to stem lodging where the damage occurs close to, or below, the ground. Assessments are carried out on spring barley at harvest. Ratings are on a 1–9 scale, where a high number indicates high resistance to brackling.

## Lodging

Lodging scores are calculated for varieties grown with and without plant growth regulator (PGR) application. The varieties receive full fungicide treatment.

## 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 greater on farm, particularly where growing conditions are more marginal.

## Sprouting

Sprouting resistance is based on special irrigated test plots. A higher number represents better resistance to sprouting. Data 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.

## Winter hardiness

Winter hardiness scores are calculated for winter barley. These ratings are mainly derived from a special cold tolerance test in the Jura mountains in France. A high number indicates better winter hardiness.

## Oat quality

Grain quality characteristics presented for oats include kernel content, specific weight and per cent screenings through a 2.0 mm sieve. A high kernel content, high specific weight and low per cent screenings are preferred for milling.

## Oilseed rape gross output

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

## Oilseed rape "Clearfield" varieties

"Clearfield" varieties can be identified by the initials CL after the name. These varieties are tolerant to specific imidazolinone herbicides.

# Markets for wheat

## 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**).

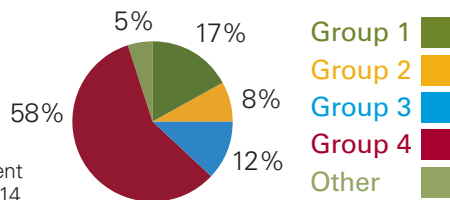
**Group 1** varieties are used for breadmaking and produce consistent milling and baking performance. Provided they achieve the specified quality requirements, millers will offer a premium above base prices. Lower protein Group 1 wheat will also be of value but will attract a lower premium. Group 1 varieties 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. Group 4 varieties are subdivided into hard endosperm and soft endosperm types and care should be taken to avoid mixing them.

### 2014 GB wheat crop by end-use category



Source: Agriculture and Horticulture Development Board Variety Survey 2014

### Cereal foods

Although most cereal food requirement is focused on maize and oats, a significant 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

Wheat varieties used for this purpose are found in nabim 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.

### Feed

Feed varieties currently comprise the majority of the varieties grown. Specific weight is a measure of quality used by the industry. Typical industry standards for feed grain are 72 kg/hl for wheat and 63 kg/hl for barley, with a maximum moisture of 15%. To reflect this, there is a minimum standard of 74 kg/hl specific weight for feed wheat varieties for Recommendation and a requirement for barley to meet 66 kg/hl and above.

### Typical specifications

	 <b>Group 1</b>	 <b>Group 2</b>	 <b>Group 3</b>		
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)	15% (max)	15% (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	70–120
P/L	N/A	N/A	N/A	≤0.9	≤0.55

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 and low strength.

## Export

With the world's population expected to reach 8 billion in 2024, exports of cereals to countries which rely on imports is becoming more crucial to meet demand. Exports can also be beneficial in upholding wheat prices, through 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. In the three years prior to 2012, these markets combined took 4 million tonnes of UK wheat; Spain alone took 20–30% of all UK wheat exports.

The UK has two classifications of wheat for exports: **ukp** (bread wheat) and **uks** (biscuit wheat). These varieties should be managed to achieve the specifications shown in the table below.

When choosing which variety to grow and when marketing grain, the export market should be considered as an option, particularly by growers within a 30 mile radius of a port. There is a constant core market overseas and growers can capitalise on these market opportunities.

For further information on supplying the export market, please visit [www.hgca.com/exports](http://www.hgca.com/exports)



# Markets for barley, oats and oilseed rape

## Barley

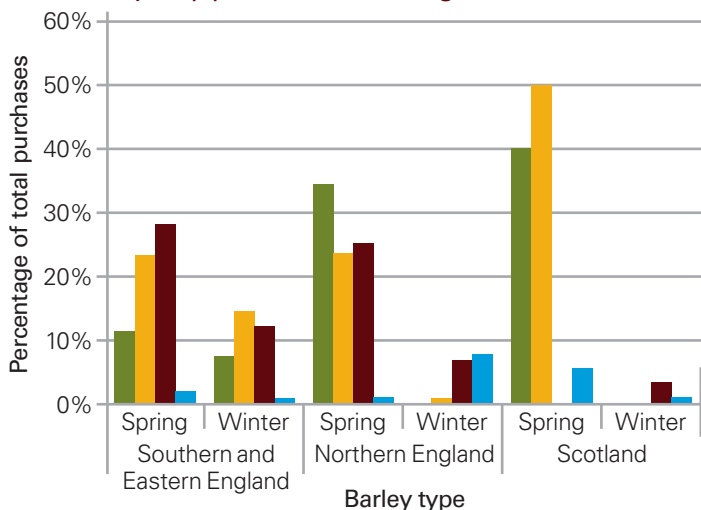


UK barley production has rebounded in recent years, with both 2013 and 2014 close to the 7Mt mark – a level not seen since the late 1990s. The main markets are malting, brewing and distilling, as well as animal feed. With bigger crops in recent years, exports of both malting and feed barley have become increasingly important. Malting barley exports are largely focused on Europe, with feed barley competing in both European and global markets. This has given the UK barley market some resilience against the strength of the Pound against the Euro in recent months, which has hit the competitiveness of UK exports into the Eurozone.

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 1.96 million tonnes from England and Scotland from the 2015 crop.



The graph below shows MAGB members' wish list for 2015 barley crop purchases from England and Scotland



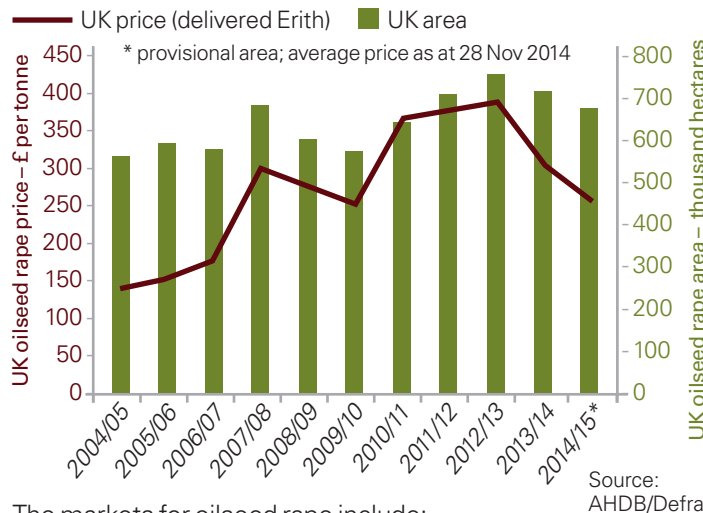
**Grain nitrogen band**

- Under 1.55% (Green)
- 1.56% to 1.65% (Yellow)
- 1.66% to 1.85% (Red)
- Above 1.85% (Blue)

## Oilseed rape



Over recent years, oilseed rape production has taken greater prominence in the UK, with increases in both area and total production. Poor weather meant the area was lower in 2013, with lower prices. Concerns over the removal of key inputs reduced the area further in 2014.



The markets for oilseed rape include:

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

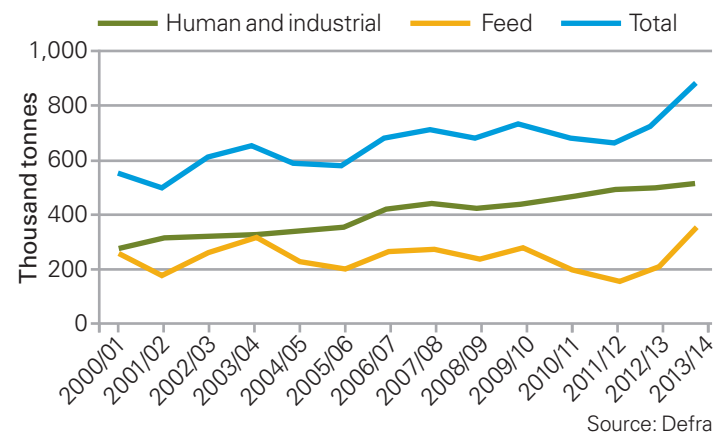
**HOLL** oilseed rape oil meets the food industry's needs as it is a low trans fatty acid and low saturated fat vegetable oil that is stable and performs well in high temperature uses. All HOLL rapeseed is currently grown under contract to ensure quality of supply and traceability. A rotation gap of 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). Although down 14% from last year, the 2014 UK oat crop is still 20% above the average for 2008–2012.



### Market Intelligence from HGCA

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

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

Follow @HGCA\_tweet, email [subscriptions@hgca.ahdb.org.uk](mailto:subscriptions@hgca.ahdb.org.uk) call 024 7647 8730 or visit [www.hgca.com/markets](http://www.hgca.com/markets) for more information.



# Regional information

## Regional variety choice

### Market selection

Information on the main markets within each region is provided by the Agriculture and Horticulture Development Board Variety Survey. This information can be used to show the relative importance of end-use markets in each region.

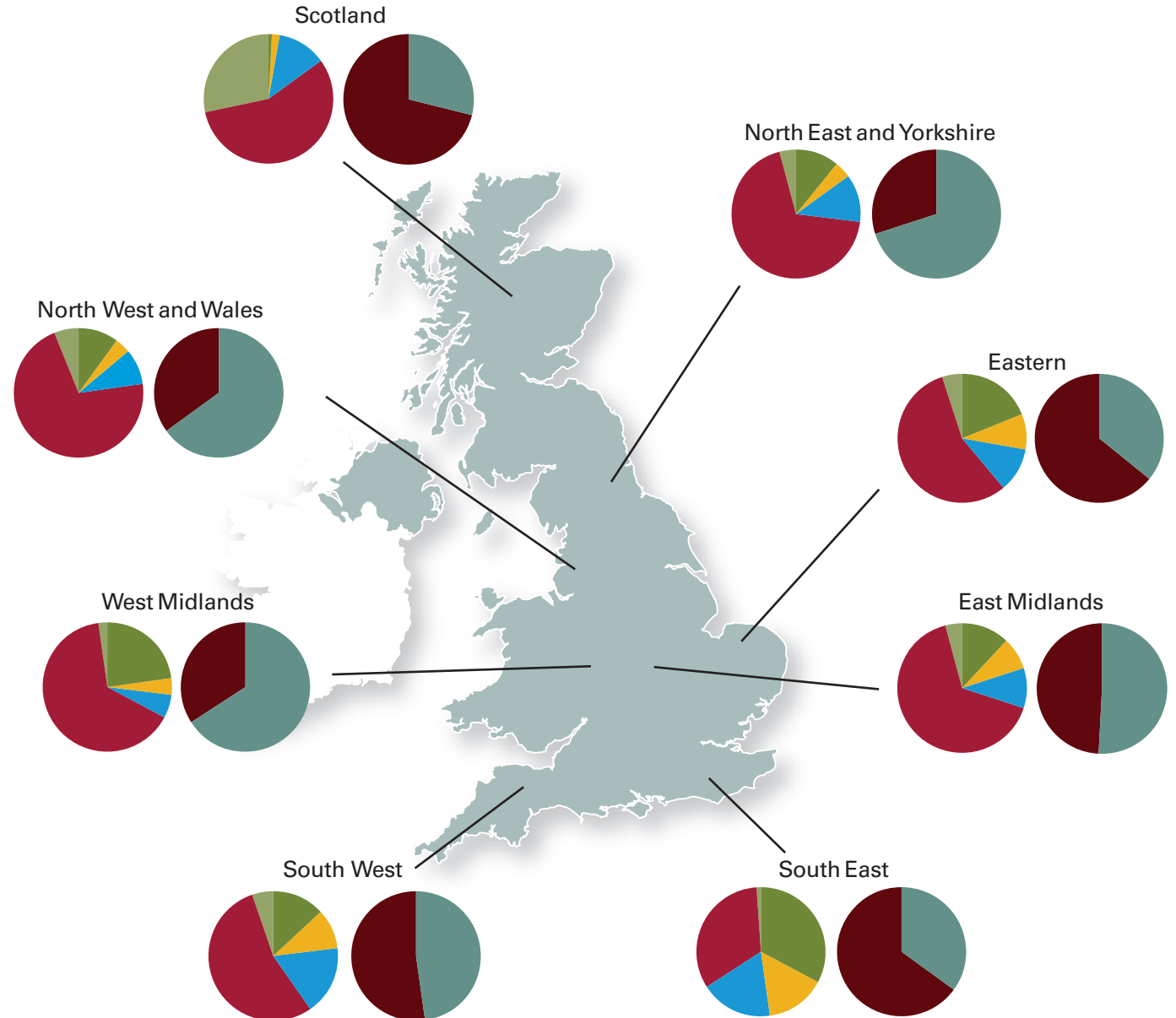
Breadmaking quality wheat varieties are likely to be more popular in the East, while distilling varieties will be of greater importance further north.

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

Use the quality tables (pages 8, 22 and 28) to find varieties with strengths for your specific market.

### Yield

In the Recommended List tables, yields are shown both for the UK and for different regions. The regional yields are based on a smaller number of trials but will indicate how well a variety performs in a specific region.



# Regional information

## 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.

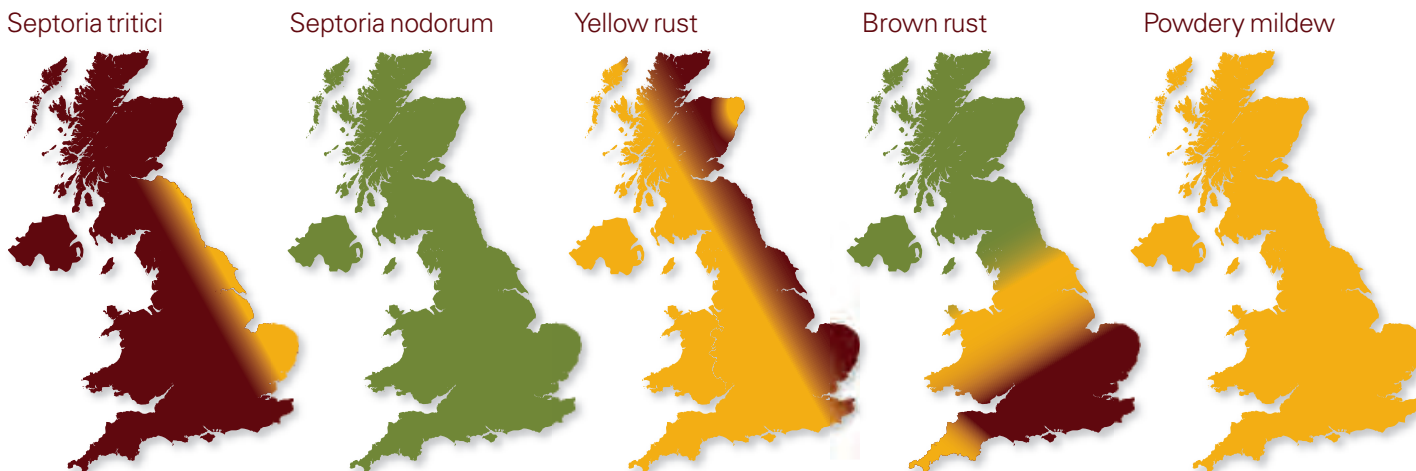
Some diseases are economically important in all regions, for example, septoria tritici in wheat. Others, however, may be more common in specific regions. Yellow rust in wheat, for example, is of greater importance in the east and rhynchosporium in barley is of greater importance in the west and north.

Recommended List disease ratings are based on a 1–9 scale, where high numbers indicate high resistance.

Oilseed rape varieties are presented in the HGCA Recommended List on a regional basis. Use the East/West List (pages 38–39) when choosing varieties up to Teesside where the main disease threat is phoma stem canker. The North List (pages 40–41) is more appropriate when selecting a variety for the north of the UK where the main disease threat is light leaf spot. Varieties that are suitable for both regions are presented on both lists: the yields will differ because the information is based on regional trials.

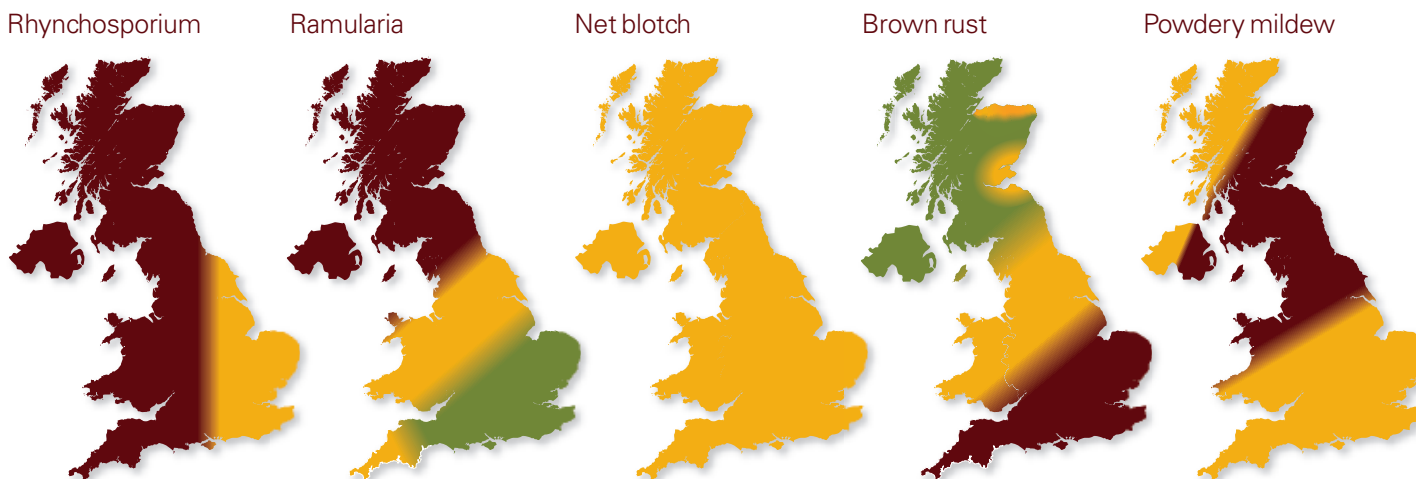
## Wheat disease risk

■ High ■ Moderate ■ Low



## Barley disease risk

■ High ■ Moderate ■ Low

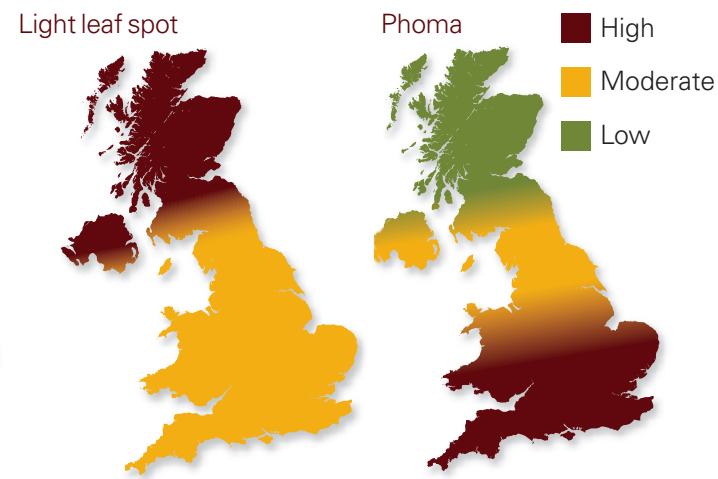


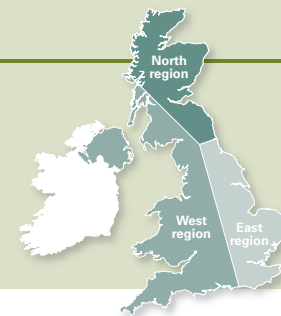
## Emerging disease threats

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. HGCA's website will provide information on disease levels in untreated varieties in spring 2015 ([www.hgca.com/monitoring](http://www.hgca.com/monitoring)).

New races of yellow and brown rust are identified in the UK Cereal Pathogen Virulence Survey. The survey also identifies the susceptibility of varieties to yellow rust at seedling stages of development. This information is reported on the HGCA website ([www.hgca.com/ukcpvs](http://www.hgca.com/ukcpvs)).

## Oilseed rape disease risk





# Winter wheat 2015/16

## Market options, yield and grain quality



	RECOMMENDED	NEW	C	C	NEW	*	NEW	NEW	C*	*	NEW	NEW	NEW	NEW	NEW	C	NEW	*	C																																
	Skyfall	KWS Trinity	Crusoe	Gallant	Solstice	KWS Lili	Cubanita	Panorama	Cordiale	KWS Cashel	Britannia	Zulu	Delphi	KWS Croft	Icon	RGT Conversion	Monterey	Invicta	KWS Target	Claire	Scout	Leeds	Twister	Myriad	Revelation	Cougar	Viscount	Horatio	Beluga	Alchemy	Reflection	Evolution	KWS Kielder	KWS Santiago	Dickens	Costello	Conqueror	KWS Gator	JB Diego	Relay	Grafton	Average LSD (5%)									
End-use group	nabim Group 1					nabim Group 2					nabim Group 3					Soft Group 4					Hard Group 4																														
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	Sp	UK	UK	E	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	N	N	UK	UK	UK	UK	N	N	UK	UK	UK	E&W	UK	UK	UK	UK	UK	UK	E&W	UK								
<b>Fungicide-treated grain yield (% treated control)</b>																																																			
United Kingdom (10.0 t/ha)	102	102	99	97	96	105	101	100	97	96	104	102	102	101	101	101	101	100	98	98	97	105	105	103	103	102	102	102	102	98	107	106	106	105	105	104	104	104	103	102	101	100	3.5								
East region (10.0 t/ha)	101	102	99	99	95	105	101	100	98	96	105	102	102	101	102	101	101	99	99	98	95	105	104	103	103	101	102	103	101	97	106	106	104	106	104	104	104	105	103	102	101	100	2.0								
West region (9.9 t/ha)	103	100	99	99	96	105	102	100	99	94	102	101	100	99	98	100	100	98	97	96	95	103	102	101	100	101	101	101	103	98	109	104	103	105	104	103	104	104	102	103	100	100	3.0								
North region (9.5 t/ha)	104	[103]	95	95	97	[105]	100	[99]	96	98	[102]	103	103	101	103	[102]	103	101	102	-	98	107	107	104	104	103	104	103	103	98	[107]	106	107	105	107	[102]	107	107	101	102	101	3.3									
<b>Main market options (The specific attributes of varieties are different, so, whenever possible, varieties should not be mixed in store)</b>																																																			
UK breadmaking	Y	P	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
UK biscuit, cake-making	-	-	-	-	-	-	-	-	-	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
UK distilling	-	-	-	-	-	-	-	-	-	-	-	[Y]	[Y]	-	Y	Y	-	[Y]	-	[Y]	-	[Y]	[Y]	[Y]	Y	-	Y	[Y]	Y	[Y]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ukp bread wheat for export	-	-	Y	Y	Y	[Y]	[Y]	[Y]	Y	[Y]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
uks soft wheat for export	-	-	-	-	-	-	-	-	-	-	[Y]	[Y]	[Y]	Y	-	-	[Y]	[Y]	Y	Y	Y	Y	-	[Y]	[Y]	[Y]	[Y]	Y	Y	[Y]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Grain quality</b>																																																			
Endosperm texture	Hard	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	Soft	Soft	Soft	Soft	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard								
Protein content (%)	11.8	11.4	12.4	12.0	11.9	11.1	11.4	11.6	12.0	11.6	11.4	11.2	11.4	11.2	10.9	11.1	11.3	11.3	11.4	11.3	11.6	11.0	11.1	11.1	11.1	10.9	10.9	11.1	10.9	11.2	10.6	10.7	10.8	11.0	11.0	11.5	10.8	10.9	11.1	11.3	11.5	0.3									
Hagberg Falling Number	280	337	259	305	258	281	291	246	316	258	209	219	269	217	223	223	234	242	220	239	230	206	176	231	229	193	174	237	165	243	228	184	199	155	236	314	202	201	304	272	289	25									
Specific weight (kg/hl)	78.1	77.1	77.5	77.0	77.9	76.5	79.6	77.2	78.9	76.6	76.7	75.6	75.6	76.1	75.7	76.0	78.7	74.8	76.2	76.1	77.8	77.7	76.7	76.3	75.8	73.7	75.9	75.8	74.9	77.1	77.4	74.2	73.8	74.9	76.2	80.5	75.1	75.4	77.7	76.4	77.9	0.9									
Chopin alveograph W	278	272	228	234	204	215	218	-	[246]	261	94	92	109	96	63	62	97	84	[113]	-	90	81	69	100	82	79	[92]	85	[103]	-	-	-	202	-	-	[143]	211	-	-	-	-	-	-	-	-	-	-				
Chopin alveograph P/L	1.4	1.1	0.7	0.9	0.7	0.8	0.7	-	[0.9]	0.6	0.2	0.3	0.4	0.3	0.2	0.2	0.3	0.3	[0.4]	-	0.3	0.3	0.2	0.3	0.4	0.2	[0.3]	0.3	[0.4]	-	-	1.4	-	-	[0.4]	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Status in RL system</b>																																																			
Year first listed	14	15	12	09	02	15	14	09	04	14	15	14	13	13	14	15	13	10	11	99	09	13	14	13	13	13	09	12	10	06	15	14	13	11	13	15	10	12	08	12	09										
RL status	P2	P1	-	-	-	P1	P2	*	-	P2	P1	P2	-	-	P2	P1	-	*	*	-	-	-	P2	-	-	-	-	-	-	-	P1	P2	-	-	-	P1	*	-	-	-	-	-	-	-	-	-	-	-			

Varieties no longer listed: Chilton, Cocoon, Duxford, Panacea and Tuxedo

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

UK = recommended for the UK	* = variety no longer in trials	Y = suited to that market	P1 = first year of recommendation	Average LSD (5%): varieties that are more than one LSD apart are significantly different at the 5% confidence level.
E = recommended for the East region	C = yield control (for current table)	[Y] = may be suited to that market	P2 = second year of recommendation	
E&W = recommended for the East and West regions	[ ] = limited data	P = Group 1 status to be verified by milling and baking of commercial qualities by April 2015	LSD = least significant difference	
N = recommended for the North region				
Sp = KWS Cashel is a specific recommendation for end use as a corrective wheat with high gluten strength				



# Winter wheat 2015/16

## Yield, agronomy and disease resistance



	RECOMMENDED		NEW	C	C	NEW	*	NEW	NEW	C*	*	NEW	NEW	NEW	NEW	NEW	NEW	NEW	C	NEW	*	C																						
	Skyfall	KWS Trinity	Crusoe	Gallant	Solstice	KWS Lili	Cubanita	Panorama	Cordiale	KWS Cashel	Britannia	Zulu	Delphi	KWS Croft	Icon	RGT Conversion	Monterey	Invicta	KWS Target	Claire	Scout	Leeds	Twister	Myriad	Revelation	Cougar	Viscount	Horatio	Beluga	Alchemy	Reflection	Evolution	KWS Kielder	KWS Santiago	Dickens	Costello	Conqueror	KWS Gator	JB Diego	Relay	Grafton	Average LSD (5%)		
End-use group	nabim Group 1					nabim Group 2					nabim Group 3					Soft Group 4					Hard Group 4																							
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	Sp	UK	UK	E	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	N	N	UK	UK	UK	UK	N	N	UK	UK	UK	E&W	UK	UK	UK	UK	UK	UK	E&W	UK	
<b>Fungicide-treated grain yield (% treated control)</b>																																												
United Kingdom (10.0 t/ha)	102	102	99	97	96	105	101	100	97	96	104	102	102	101	101	101	101	100	98	98	97	105	105	103	103	102	102	102	102	98	107	106	106	105	105	104	104	104	105	103	102	101	100	3.5
East region (10.0 t/ha)	101	102	99	99	95	105	101	100	98	96	105	102	102	101	102	101	101	99	99	98	95	105	104	103	103	101	102	103	101	97	106	106	104	106	104	104	105	103	102	101	100	2.0		
West region (9.9 t/ha)	103	100	99	99	96	105	102	100	99	94	102	101	100	99	98	100	100	98	97	96	95	103	102	101	100	101	101	101	103	98	109	104	103	105	104	103	104	102	103	100	100	3.0		
North region (9.5 t/ha)	104	[103]	95	95	97	[105]	100	[99]	96	98	[102]	103	103	101	103	[102]	103	101	102	-	98	107	107	104	104	103	104	103	103	98	[107]	106	107	105	107	[102]	107	107	101	102	101	3.3		
<b>Untreated grain yield (% treated control)</b>																																												
United Kingdom (10.0 t/ha)	92	84	87	74	73	85	82	84	77	72	89	85	86	86	90	87	84	84	78	80	84	82	79	85	92	96	81	84	80	84	94	91	79	80	87	95	79	83	87	88	84	6.0		
<b>Agonomic features</b>																																												
Resistance to lodging without PGR	8	7	8	7	8	7	7	7	7	7	6	6	8	5	7	7	7	7	7	7	8	7	7	6	8	7	6	7	7	7	7	6	7	7	6	7	6	8	7	8	8	0.9		
Resistance to lodging with PGR	8	8	8	8	8	8	8	8	8	8	6	7	8	6	8	8	7	8	8	8	8	7	7	7	8	8	7	8	8	7	8	7	8	7	7	8	7	8	8	8	8	0.7		
Height without PGR (cm)	81	81	80	81	90	80	84	87	78	83	87	87	84	86	83	83	87	88	83	86	84	85	87	88	84	84	81	87	78	87	80	88	81	85	85	80	82	84	87	80	75	1.7		
Ripening (days +/- Solstice, -ve = earlier)	0	+1	+1	-1	0	+2	0	+1	-1	0	+2	+1	+1	+1	+1	+1	+1	+3	+1	+1	+2	+2	+1	+2	+3	+2	+1	+1	0	+2	0	+2	+3	+2	0	+1	+2	+1	0	+1	-1	0.7		
Resistance to sprouting	[4]	-	[6]	[7]	[7]	-	[7]	[7]	[6]	[6]	-	[5]	[6]	[6]	-	-	[7]	[7]	[6]	[5]	[6]	[6]	[5]	-	[4]	[5]	[5]	[5]	[4]	[6]	-	[5]	[6]	[5]	[5]	-	[6]	[6]	[7]	[6]	[5]	0.8		
<b>Disease resistance</b>																																												
Mildew	6	9	7	6	4	9	6	7	6	8	6	7	6	8	8	8	6	5	4	4	6	3	4	6	6	6	[7]	7	3	[8]	7	6	5	4	8	8	3	6	6	6	7	1.6		
Yellow rust	6	9	9	5	4	7	6	7	5	8	8	9	8	8	8	8	7	8	8	6	9	7	6	8	9	8	4	6	6	7	6	9	4	6	9	9	6	9	8	9	6	0.9		
Brown rust	8	8	4	6	5	5	5	6	4	9	5	4	7	6	5	6	4	6	3	5	7	4	4	5	8	9	7	6	3	4	9	8	8	6	8	7	7	3	5	8	4	1.4		
Septoria nodorum	[5]	[5]	[6]	5	6	[6]	[5]	[5]	[5]	[5]	[5]	[6]	[6]	[5]	[5]	[6]	[6]	5	[6]	[6]	6	[6]	[6]	[5]	[6]	[6]	[6]	[5]	[5]	5	[6]	[6]	[5]	[6]	[5]	[6]	[6]	[6]	6	[5]	[5]	0.8		
Septoria tritici	6	5	6	4	5	6	5	5	5	5	6	5	5	5	6	6	5	5	5	5	5	5	5	5	6	7	5	5	5	6	5	6	5	4	5	6	4	5	5	6	5	0.5		
Eyespot	[6]@	[7]	5	5	4	[5]	[5]	4	5	[3]	[4]	[5]	5	5	[4]	[6]	5	5	6	5	6	5	[6]	5	9@	4	5	5	5	6	[6]	[5]	6	5	4	[4]	4	4	4	4	6@	1.5		
Fusarium ear blight	6	7	6	5	6	6	6	6	5	7	6	6	6	6	6	6	6	6	5	6	6	7	6	6	7	6	6	6	6	7	6	6	6	6	6	6	6	6	6	6	5	0.4		
Orange wheat blossom midge	R	-	-	-	-	-	-	-	-	-	-	R	R	R	-	-	R	-	R	-	R	R	R	R	-	R	R	R	-	-	R	-	R	R	-	-	R	R	-	-	-	-		

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

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

Sp = KWS Cashel is a specific recommendation for end use as a corrective wheat with high gluten strength  
 \* = variety no longer in trials  
 C = yield control (for current table)  
 [ ] = limited data

@ = Skyfall, Revelation and Grafton are 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 5% confidence level.

# Winter wheat 2015/16 – Supplementary data



	RECOMMENDED	NEW	C	C	NEW	*	NEW	NEW	C*	*	NEW	C	NEW	*	C	Average LSD (5%)																											
	Skyfall	KWS Trinity	Crusoe	Gallant	Solstice	KWS Lili	Cubanita	Panorama	Cordiale	KWS Cashel	Britannia	Zulu	Delphi	KWS Croft	Icon	RGT Conversion	Monterey	Invicta	KWS Target	Claire	Scout	Leeds	Twister	Myriad	Revelation	Cougar	Viscount	Horatio	Beluga	Alchemy	Reflection	Evolution	KWS Kielder	KWS Santiago	Dickens	Costello	Conqueror	KWS Gator	JB Diego	Relay	Grafton	Average LSD (5%)	
End-use group	nabim Group 1					nabim Group 2					nabim Group 3					Soft Group 4					Hard Group 4																						
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	Sp	UK	UK	E	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	N	N	UK	UK	UK	UK	N	N	UK	UK	UK	E&W	UK	UK	UK	UK	UK	E&W	UK	
<b>Breeder/UK contact</b>																																											
Breeder	RAGT	KWS	Lim	SyP	Lim	KWS	SyP	Lim	KWS	KWS	Lim	Lim	BA	KWS	RAGTRAGT	BA	Lim	KWS	Lim	Sen	Mom	Mom	Lim	Lim	RAGT	KWS	Lim	KWS	Lim	SyP	Sej	KWS	KWS	Sec	KWS	KWS	KWS	Bre	RAGT	KWS			
UK contact	RAGT	KWS	Lim	Syn	Lim	KWS	Syn	Lim	KWS	KWS	Lim	Lim	Sen	KWS	RAGTRAGT	Sen	Lim	KWS	Lim	Sen	KWS	KWS	Lim	Lim	RAGT	KWS	Lim	Sen	Lim	Syn	Lim	KWS	KWS	Agr	Sen	KWS	KWS	Sen	RAGT	KWS			
<b>Annual treated yield (% control)</b>																																											
2010 (9.9 t/ha)	-	-	98	98	96	-	-	100	[96]	-	-	-	103	105	-	-	102	101	99	[94]	97	105	-	105	107	106	101	103	103	98	-	-	110	104	105	-	106	106	102	104	100	2.8	
2011 (10.1 t/ha)	97	-	98	95	93	-	99	[96]	95	98	-	104	100	107	105	-	101	104	99	[96]	96	106	107	108	106	109	102	103	100	99	-	110	110	106	108	-	108	103	101	102	96	2.7	
2012 (8.9 t/ha)	104	103	96	102	97	107	104	98	100	94	104	100	102	97	98	107	102	93	97	[99]	94	107	104	100	99	94	108	102	102	94	114	104	98	106	103	107	99	101	102	97	102	3.2	
2013 (9.8 t/ha)	104	[99]	99	95	99	[101]	102	[100]	98	97	[101]	101	103	99	100	[97]	100	99	-	-	-	103	104	100	101	103	101	100	101	[99]	[101]	105	108	106	107	[102]	-	103	102	102	[99]	3.5	
2014 (11.4 t/ha)	103	101	101	96	96	105	100	[103]	98	96	104	102	101	101	101	99	101	100	-	[100]	[97]	104	103	103	102	101	100	[103]	103	101	106	105	103	104	104	103	[101]	[103]	104	[100]	[104]	2.5	
<b>Rotational position</b>																																											
First cereal (10.4 t/ha)	102	102	99	98	96	106	101	100	98	96	104	102	102	102	101	102	101	100	99	98	97	105	104	104	103	103	103	102	102	98	108	105	105	105	105	104	104	103	102	101	100	3.7	
Second and more (9.0 t/ha)	102	102	98	97	96	102	102	99	97	96	105	102	101	100	101	100	101	98	97	-	96	104	105	101	101	100	100	102	103	97	105	107	107	106	105	103	106	105	103	101	100	3.6	
<b>Sowing date (most trials were sown in October)</b>																																											
Early sown (before 15 Sept) (10.4 t/ha)	-	-	-	96	94	-	[99]	-	-	-	-	-	103	-	-	-	102	99	-	100	97	[104]	-	-	105	103	103	106	105	[101]	-	-	106	107	104	-	-	104	104	104	102	5.9	
Late sown (mid-Nov to end-Jan) (9.6 t/ha)	[97]	-	[99]	-	94	-	[98]	-	97	[94]	-	-	-	103	[98]	-	[103]	[99]	[100]	-	-	107	[108]	107	[100]	101	-	[102]	[103]	-	-	[107]	104	[107]	106	-	-	[103]	-	[98]	-	5.3	
<b>Soil type (about 50% of trials are on medium soils)</b>																																											
Light soils (9.5 t/ha)	104	[102]	99	95	96	[106]	102	100	96	96	[102]	103	102	101	101	[102]	103	101	99	98	97	106	105	104	102	103	104	104	102	98	[109]	106	105	106	106	[105]	105	105	104	102	100	4.7	
Heavy soils (10.4 t/ha)	102	102	100	98	96	106	101	[99]	98	95	105	102	102	102	101	101	100	100	99	-	95	104	103	104	103	103	101	101	101	97	107	106	105	105	103	105	106	101	102	100	98	4.3	
<b>Agronomic features</b>																																											
Lodging % without PGR	1	2	1	2	1	2	2	2	2	1	8	6	1	12	3	4	4	2	4	3	1	2	3	4	1	2	5	3	2	3	2	4	2	3	4	1	8	1	2	1	1		
Lodging % with PGR	1	0	1	0	1	1	1	1	0	0	6	2	1	7	1	1	3	1	1	1	0	2	3	4	1	1	3	1	0	2	0	2	1	3	3	0	3	1	2	1	0		
Latest safe sowing date #	End	[End	End	Mid	End	[Mid	[Mid	End	Mid	[End	[Mid	End	Mid	End	End	[End	End	Mid	Mid	End	Mid	Mid	End	Mid	End	End	Mid	Mid	End	Mid	[Mid	[Mid	End	End	End	[End	Mid	Mid	End	Mid	Mid		
<b>Speed of development to growth stage 31 (days +/- average)</b>																																											
Early Sept sown	[-8]	-	0	-2	-2	-	[-2]	-6	-3	[+6]	-	[-2]	+1	[-4]	[+1]	-	-2	-1	-1	+4	0	-3	[+2]	+4	[+4]	-1	+4	-2	+1	+1	-	[-2]	+4	+7	0	-	-4	+1	0	-3	+2	7.8	
Early Oct sown	[-4]	[+1]	+1	-5	-4	[+3]	[-1]	-4	-4	[-1]	[+3]	[-1]	-1	-2	[-1]	[-1]	-1	-1	-4	+1	-1	-3	[-1]	+3	+3	-1	+2	-3	+2	+3	[0]	[-1]	+2	+1	-4	[+2]	-6	+3	-3	+1	+2	5.9	
Early Nov sown	[-1]	[-1]	-3	-2	-1	[+2]	[-1]	+1	-4	[-1]	[+2]	[+1]	-2	+1	[-2]	[+1]	-3	+1	-2	+2	+1	0	[-1]	+3	+1	0	+2	0	0	+3	[-1]	[-1]	+2	0	-2	[-3]	-4	0	-2	0	0	4.2	

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

UK = recommended for the UK	* = variety no longer in trials	Agr = Agrii (www.agrii.co.uk)	Sec = Secobra, France	Average LSD (5%): varieties that are more than one LSD apart are significantly different at the 5% confidence level.
E = recommended for the East region	C = yield control (for current table)	BA = Blackman Agriculture	Sej = Sejet, Denmark	
E&W = recommended for the East and West regions	[ ] = limited data	Bre = Saat-zucht Josef Breun, Germany	Sen = Senova (www.senova.uk.com)	
N = recommended for the North region	# = latest safe sowing date is the advised latest sowing time to give a sufficient cold period for flowering	KWS = KWS UK (www.kws-uk.com)	Syn = Syngenta UK Ltd (www.syngenta.co.uk)	
Sp = KWS Cashel is a specific recommendation for end use as a corrective wheat with high gluten strength	LSD = least significant difference	Lim = Limagrain UK (www.limagrain.co.uk)	SyP = Syngenta Participants AG (www.syngenta.co.uk)	
		Mom = Momont, France		
		RAGT = RAGT Seeds (www.ragt.co.uk)		

# Winter wheat trials harvest 2015 – Candidate varieties



CANDIDATE	Previous/Proposed Name	Variety ID	Yield treated (T)	Yield untreated (UT) (as % treated controls)	Lodging % (UT)	Lodging % (T)	Height (cm) (UT)	Maturity (+/- Solstice)	Mildew (1-9)	Yellow rust (1-9)	Brown rust (1-9)	Septoria tritici (1-9)	Eyespot (1-9)	OWBM resistance	Other claim	Endosperm texture	Protein content %	Hagberg Falling Number	Specific wt (kg/hl)	UK contact
<b>Control varieties</b>																				
	Solstice	1282	97	67	[4]	0	89	0	4	4	5	5	4			Hard	11.7	268	78.0	Limagrain UK
	JB Diego	1737	102	84	[1]	0	88	-1	6	7	6	5	6			Hard	11.0	294	77.8	Senova
	Gallant	1766	95	69	[2]	0	82	-3	6	6	6	4	6			Hard	11.7	308	77.0	Syngenta UK
	Invicta	1853	100	77	[1]	0	89	+3	5	8	7	5	5			Soft	11.4	236	74.7	Limagrain UK
	KWS Santiago	1916	106	76	[4]	2	86	+1	4	7	6	4	4			Hard	11.2	159	74.9	KWS UK
<b>Selected as potential breadmaking varieties</b>																				
	KWS Siskin	KWS-W243	2315	95	[4]	2	82	-1	9	9	7	7	5			Hard	11.2	301	77.0	KWS UK
	RGT Adventure	RW41226	2266	79	[2]	0	86	-1	7	6	5	6	3			Hard	11.5	242	77.0	RAGT Seeds
	RGT Illustrious	RW41225	2265	91	[1]	0	87	0	8	9	8	7	5		<i>Pch1</i>	Hard	11.6	261	77.4	RAGT Seeds
	Butler	LGW82	2284	81	[2]	0	84	0	9	7	5	7	7			Hard	11.7	269	76.8	Limagrain UK
	Sherlock	SC2209	2295	87	[2]	1	87	-3	6	9	9	6	6	R		Hard	11.7	240	79.1	Agrii
<b>Selected as potential biscuit-making varieties</b>																				
	KWS Barrel	KWS-W239	2311	81	[1]	1	83	-1	7	8	7	5	3	R		Soft	10.7	226	76.5	KWS UK
	KWS Basset	KWS-W235	2307	Data cannot be published as variety has not completed National List testing																KWS UK
	Spyder	BAW24	2300	91	[10]	3	89	0	9	9	8	7	6			Soft	11.6	264	76.1	Blackman Agriculture
	RGT Pembroke	RW41269	2269	Data cannot be published as variety has not completed National List testing																RAGT Seeds
	RGT Marlborough	RW41298	2271	80	[7]	3	90	-1	8	8	9	6	7	R		Soft	11.2	177	76.0	RAGT Seeds
<b>Selected as potential feed varieties</b>																				
	Belgrade	SJ8575204	2293	94	[10]	2	89	-3	9	7	5	7	3			Hard	10.7	193	75.6	Saaten Union UK
	KWS Silverstone	KWS-W237	2309	88	[8]	8	89	-2	8	8	8	5	7			Hard	11.0	270	78.9	KWS UK
	Graham	CCB11H159	2337	95	[3]	0	85	-3	8	8	7	7	3			Hard	11.0	260	76.6	Syngenta UK
	Amplify	LGW76	2278	75	[1]	0	89	0	8	6	6	6	3	R		Hard	11.6	244	77.6	Limagrain UK
	Mosaic	SY112277	2345	88	[3]	1	81	-1	7	8	4	5	3			Soft	10.9	177	77.4	Syngenta UK
	KWS Crispin	KWS-W233	2305	94	[9]	2	85	0	9	9	6	6	7	R		Hard	11.2	254	76.7	KWS UK
	Mean of controls (t/ha)		10.6	10.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	LSD 5%		3.9	6.2	-	-	2.3	2.3	-	-	-	-	-	-	-	-	0.4	25.0	0.8	
	No. of trials		22	8	4	6	15	6	-	-	-	-	-	-	-	-	9	9	9	

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  
*Pch1* = the Rendezvous resistance gene to eyespot.  
 This has not been verified in Recommended List tests

OWBM = believed to be resistant to orange wheat blossom midge  
 Candidate varieties will be considered for the 2016/17 HGCA Recommended List

To allow direct comparisons, the data presented for control varieties are taken from trials in which the candidates were grown  
 See the HGCA 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 2014 but not added to the HGCA Recommended List



Control varieties Other varieties

	KWS Santiago	JB Diego	Invicta	Gallant	Solstice	Jorvik	KWS Tempo	Energise	RGT Scrummage	Ruskin	Average LSD (5%)
<b>Fungicide-treated grain yield (% treated control)</b>											
United Kingdom (10.0 t/ha)	105	102	100	97	96	105	103	103	101	98	3.5
East region (10.0 t/ha)	106	102	99	99	95	104	102	103	101	98	2.0
West region (9.9 t/ha)	105	103	98	99	96	103	101	101	[99]	95	3.0
North region (9.5 t/ha)	105	101	101	95	97	[108]	[101]	[105]	[103]	[97]	3.3
<b>Untreated grain yield (% treated control)</b>											
United Kingdom (10.0 t/ha)	80	87	84	74	73	80	89	75	76	80	6.0
<b>Grain quality</b>											
Endosperm texture	Hard	Hard	Soft	Hard	Hard	Soft	Hard	Soft	Soft	Hard	
Protein content (%)	11.0	11.1	11.3	12.0	11.9	10.3	11.2	10.8	11.1	11.5	0.3
Hagberg Falling Number	155	304	242	305	258	166	312	157	230	311	25
Specific weight (kg/hl)	74.9	77.7	74.8	77.0	77.9	76.3	79.3	75.5	76.5	78.2	0.9
Chopin alveograph W	-	-	84	234	204	[64]	[221]	79	[95]	[216]	31
Chopin alveograph P/L	-	-	0.3	0.9	0.7	[0.3]	[0.9]	0.3	[0.3]	[1.2]	0.2
<b>Agronomic features</b>											
Resistance to lodging without PGR	7	7	7	7	8	6	8	7	7	8	0.9
Resistance to lodging with PGR	7	8	8	8	8	7	8	8	8	8	0.7
Height without PGR (cm)	85	87	88	81	90	92	82	79	80	75	1.7
Ripening (days +/- Solstice, -ve = earlier)	+2	0	+3	-1	0	+3	+3	+1	0	+1	0.7
<b>Disease resistance</b>											
Mildew	4	6	5	6	4	3	8	5	7	7	1.6
Yellow rust	6	8	8	5	4	8	9	7	4	9	0.9
Brown rust	6	5	6	6	5	5	7	3	5	8	1.4
Septoria nodorum	[6]	6	5	5	6	[5]	[6]	[6]	[5]	[6]	0.8
Septoria tritici	4	5	5	4	5	5	5	5	5	5	0.5
Eyespot	5	4	5	5	4	[4]	[7]	[4]	[5]	[6]	1.5
Fusarium ear blight	6	6	6	5	6	7	7	6	6	7	0.4
Orange wheat blossom midge	R	-	-	-	-	R	-	R	-	-	

This table should be read in conjunction with the HGCA Recommended List of winter wheat for 2015/16.

[ ] = limited data  
R = believed to be resistant to orange wheat blossom midge (OWBM) but this has not been verified in RL tests

LSD = least significant difference

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

# Winter wheat 2015/16 – 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 HGCA tests.



## nabim Group 1 varieties

### Crusoe ukp

**Quality:** Crusoe is a nabim Group 1 variety and meets the specification for ukp for overseas markets. It has a high specific weight and gives good proteins.

**Agronomy:** Crusoe is 2% higher yielding than Gallant. It has high resistance to mildew and yellow rust but is susceptible to brown rust. It has short, stiff straw.


**nabim comment:** It has consistently demonstrated good protein content and quality. The breadcrumb structure has been equal to that of Solstice. In the past three years, millers have seen increasing volumes of this variety. Its baking performance remains good.

### Gallant ukp

**Quality:** A nabim Group 1 variety and meets the specification for ukp for overseas markets. It gives high Hagbergs, specific weights and protein levels.

**Agronomy:** An early maturing variety with short straw and a yield potential around 2% below Crusoe. It is susceptible to septoria tritici.

**nabim comment:** Its milling and baking qualities remain consistently good and this is a popular variety with millers.

 = meets the specification for ukp bread wheat for overseas markets

 = meets the specification for uks biscuit wheat for export

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

### **NEW** KWS Trinity

**Quality:** Added to the HGCA Recommended List 2015/16 as a potential nabim Group 1 UK bread wheat with very high yields. It has a high specific weight and high Hagbergs. nabim is conducting commercial-scale testing and is due to confirm its status for UK milling in April 2015. See the HGCA RL Pocketbook and [www.nabim.org.uk](http://www.nabim.org.uk)

**Agronomy:** KWSTrinity has short straw and a treated yield similar to Skyfall. It has high resistance to mildew, yellow rust and brown rust and a high rating for eyespot and fusarium head blight.

**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 across the three years of testing.

### Skyfall

**Quality:** A nabim Group 1 bread wheat with very high yields and high Hagbergs and specific weights.

**Agronomy:** Its treated yield is 3% higher than Crusoe and Skyfall has also given high yields in untreated trials due to generally good disease resistance, especially to brown rust. Skyfall is an awned wheat with short, stiff straw and is the only winter wheat Group 1 wheat with resistance to orange wheat blossom midge and *Pch1* eyespot resistance. 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 has shown good milling and baking qualities. Nitrogen applications may have to be adjusted to achieve protein specifications.

### Solstice ukp

**Quality:** A popular nabim Group 1 variety giving high specific weights. It meets the specification for ukp for overseas markets and has support from end users.

**Agronomy:** Solstice has medium-long but stiff straw and is susceptible to mildew, yellow rust and eyespot. Solstice's yield potential is now 6% below the highest yielding Group 1 varieties.

**nabim comment:** Solstice still remains a popular variety with both farmers and millers because it has a good balance of protein content, milling characteristics, gluten properties and baking performance.

## UK Cereal Pathogen Virulence Survey

Cereal rusts and mildews are highly variable pathogens and new races are constantly evolving to overcome the resistance genes deployed in new varieties. The UKCPVS aims to monitor changes in the virulence of rusts and mildew and provide new information on changes to varietal resistance.

See [www.hgca.com/ukcpvs](http://www.hgca.com/ukcpvs) for more information.



## Maximising the potential for eyespot resistance and increased grain protein

HGCA is one of the funders of a project to provide the tools for breeders to develop eyespot-resistant varieties with high yield and high grain protein. DNA markers will be developed to allow breeders to track the three traits in their breeding programmes, allowing selection for eyespot resistance and high grain protein and removal of the unwanted yield loss trait.

[www.hgca.com/publications](http://www.hgca.com/publications) – search for '3803'

# Winter wheat 2015/16 – 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 HGCA tests.



## nabim Group 2 varieties

### Cordiale ukp

**Quality:** A nabim Group 2 wheat meeting the specification for ukp for overseas markets. Cordiale gives high grain protein, Hagbergs and specific weights.

**Agronomy:** Cordiale is early maturing with short straw. It is susceptible to brown rust. It has a treated yield potential similar to the Group 1 varieties Gallant and Solstice.

**nabim comment:** This remains the Group 2 variety of choice for most millers and growers. It has higher than average HFNs, with good protein levels and specific weights as key features. Consistent milling and baking performance continue to be seen by millers.

### Cubanita ukp

**Quality:** A high-yielding nabim Group 2 variety meeting the specification for ukp for overseas markets. It gives high Hagbergs and specific weights.

**nabim comment:** There has been some variability with its performance over the three years of testing but insufficient commercial quantities have yet to be seen to confirm this. There may be a tendency for yellowness in the flour colour with lower water absorption and some coarseness in the breadcrumb.

## Understanding the genetics of wheat yield

One of HGCA's current crop of PhD studentships aims to generate the knowledge to help develop new wheat varieties with high and stable yields across different environments. It is focusing on a promising region of chromosome 6A in the winter wheat variety, Rialto.

[www.hgca.com/publications](http://www.hgca.com/publications) – search for '220-0001'

### KWS Cashel ukp

**Quality:** A specific recommendation for use as a corrective wheat with high gluten strength. It meets the specification for ukp for overseas markets.

**Agronomy:** KWS Cashel has a similar yield to Cordiale with high resistance to mildew, yellow rust and brown rust and a high rating for fusarium head blight. Limited data suggest it is susceptible to eyespot.

**nabim comment:** Over the three years of testing, this variety exhibited strong gluten, similar to that of Soissons, giving rise to some evidence of coarseness in the breadcrumb structure. There is also a tendency towards yellowness in the breadcrumb colour.

### NEW KWS Lili ukp

**Quality:** Added to the HGCA Recommended List 2015/16 as a very high-yielding nabim Group 2 wheat. It meets the specification for ukp for overseas markets.

**Agronomy:** KWS Lili has a very high treated yield potential, 4% above Cubanita and similar to the hard feed variety KWS Santiago. It has a high Hagberg in trials but careful management will be required to attain the required protein level milling specification. KWS Lili has short straw and high resistance to mildew and yellow rust.

**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.

### Panorama ukp

**Quality:** A nabim Group 2 variety meeting the specification for ukp for overseas markets. Panorama tends to give high specific weights.

**Agronomy:** Has high resistance to mildew and yellow rust but is susceptible to eyespot. It is no longer in RL trials.

**nabim comment:** This variety shows good grain and milling characteristics. However, it is likely to be more suited to uses in blends due to the variable baking quality.



## nabim Group 3 varieties

### NEW Britannia uks

**Quality:** Added to the HGCA Recommended List 2015/16 as a very high-yielding nabim Group 3 variety meeting the specification for uks for overseas markets, but not suitable for distilling.

**Agronomy:** Has a yield potential 2% above Zulu and close to the highest yielding soft feed varieties. It has high resistance to yellow rust but limited data suggest that it is susceptible to eyespot. It has moderate lodging resistance.

**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:** A nabim Group 3 variety meeting the specification for uks for overseas markets. Rated 'medium' for distilling.

**Agronomy:** Has a treated yield potential some 6% lower than the highest yielding Group 3 variety but it is a slow-developing variety that has proved useful for very early drilling. It is susceptible to mildew.

**nabim comment:** This 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.

### Delphi uks

**Distilling: Medium**

**Quality:** A nabim Group 3 variety recommended for the East region. It meets the specification for uks for overseas markets and is rated 'medium' for distilling.

**Agronomy:** Delphi has stiff straw, high resistance to yellow rust and brown rust and has orange wheat blossom midge resistance.

**nabim comment:** Although relatively new, it has consistently met the rheological requirements of a Group 3 wheat.



# Winter wheat 2015/16 – 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 HGCA tests.

## Icon

Distilling: Good

**Quality:** Icon is a high-yielding nabim Group 3 variety and rated as 'good' for distilling.

**Agronomy:** It has high resistance to mildew and yellow rust but limited data suggest that it is susceptible to eyespot.

**nabim comment:** This is a relatively new variety and only limited commercial quantities have been seen. In the three years of testing there was a trend for it to produce lower protein levels than the Scout and Invicta controls. However, it consistently met the requirements of a Group 3 wheat.

## Invicta uks

Distilling: Medium

**Quality:** A nabim Group 3 variety rated 'medium' for distilling and meeting the specification for uks for overseas markets. It tends to give a low specific weight.

**Agronomy:** Invicta has high resistance to yellow rust but is rather late maturing. It is no longer in RL trials.

**nabim comment:** This variety has a similar performance to that of Scout and is used by most millers for biscuit and cake-making grists.

## KWS Croft uks

**Quality:** A nabim Group 3 variety meeting the specification for uks in overseas markets. Not suitable for distilling.

**Agronomy:** KWS Croft has moderate lodging resistance which needs careful management. It has high resistance to mildew and yellow rust and is resistant to orange wheat blossom midge.

**nabim comment:** Quality results have been consistently similar to Scout and it fully meets the requirements of a Group 3 wheat.

## KWS Target uks

**Quality:** A nabim Group 3 variety meeting the specification for uks in overseas markets but not suitable for distilling.

**Agronomy:** It has high resistance to yellow rust and is resistant to orange wheat blossom midge but is susceptible to mildew and very susceptible to brown rust. It is no longer in RL trials.

**nabim comment:** It has given consistent test results and its performance is similar to that of Scout.

## Monterey uks

**Quality:** A nabim Group 3 variety with a good specific weight. It meets the specification for uks in overseas markets but is not suitable for distilling.

**Agronomy:** A variety with high resistance to yellow rust and resistant to orange wheat blossom midge. It is susceptible to brown rust.

**nabim comment:** Although relatively new, it is consistently similar to Scout and, therefore, this variety meets the requirements of a Group 3 wheat.

## NEW RGT Conversion

Distilling: Good

**Quality:** Added to the HGCA Recommended List 2015/16 as a nabim Group 3 variety and rated as good for distilling.

**Agronomy:** Has high resistance to mildew and yellow rust.

**nabim comment:** Over the three years of testing, this variety had a slightly less resistant gluten quality but good extensibility compared to the control varieties. However, it meets the Group 3 criteria.

## Scout uks

**Quality:** A nabim Group 3 variety meeting the specification for uks in overseas markets but not suitable for distilling. It gives a high specific weight.

**Agronomy:** Scout is stiff strawed and has high resistance to yellow rust and brown rust; it is also resistant to orange wheat blossom midge. Like Claire and Grafton, Scout has slow primordial development and a range of other characteristics that can make it a useful candidate for early drilling.

**nabim comment:** This variety remains popular with growers and many millers. It exhibits similar quality attributes to those of Claire.

## NEW Zulu uks

Distilling: Medium

**Quality:** A nabim Group 3 variety meeting the specification for uks in overseas markets and rated as 'medium' for distilling.

**Agronomy:** It has moderate resistance to lodging but responds well to plant growth regulators. Zulu has orange wheat blossom midge resistance and high resistance to mildew and yellow rust but is susceptible to brown rust.

**nabim comment:** Although a slightly softer milling variety than either Scout or Invicta, it consistently meets the requirements of a Group 3 wheat.

See plots of all the Recommended List varieties at Cereals 2015 and celebrate 50 years of arable innovation.



Celebrating  
50  
years

# Winter wheat 2015/16 – 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 HGCA tests.

## Group 4 varieties

### Alchemy

**Distilling: Medium**

**Quality:** A soft-milling feed wheat with a good specific weight; rated as 'medium' for distilling and recommended for the North region. It meets the specification for **uks** for overseas markets.

**Agronomy:** Has a moderate treated yield potential and is rather susceptible to brown rust. It has high resistance to mildew and yellow rust and a high rating for fusarium head blight.

### Beluga

**Distilling: Good**

**Quality:** A soft-milling feed variety recommended for the North region. Rated as 'good' for distilling and meets the specification for **uks** for overseas markets. It tends to give low Hagbergs and specific weights.

**Agronomy:** Has short straw and has performed well from early sowings. It is very susceptible to mildew and brown rust and is rather susceptible to sprouting.

### Conqueror

**Quality:** A hard-milling feed variety.

**Agronomy:** High resistance to brown rust but moderate resistance to lodging and susceptible to mildew, eyespot and septoria tritici. It is resistant to orange wheat blossom midge. Conqueror has performed well in second wheat trials. It is no longer in RL trials.

### **NEW** Costello

**Quality:** Added to the HGCA Recommended List 2015/16. A hard-milling short-strawed feed variety with high Hagbergs and specific weights.

**Agronomy:** Costello's treated yield potential is 3% below that of the highest yielding varieties but it has given very high yields in untreated trials due to high resistance to mildew, yellow rust and brown rust. Limited data suggest it is susceptible to eyespot.

### Cougar

**Quality:** A soft-milling feed wheat meeting the specification for **uks** for overseas markets. It tends to give low specific weights and is not suitable for distilling.

**Agronomy:** Cougar's treated yield potential is 5% below that of the highest yielding varieties but it has given very high yields in untreated trials due to high resistance to mildew, yellow rust, brown rust and septoria tritici – the only variety on the List with a septoria rating of 7. It is also resistant to orange wheat blossom midge but is susceptible to eyespot.

### Dickens

**Quality:** A hard-milling feed wheat.

**Agronomy:** A high-yielding variety with high resistance to mildew, yellow rust and brown rust but which is susceptible to eyespot. It has moderate resistance to lodging.

### Evolution

**Quality:** A high-yielding hard-milling feed variety. It has a low specific weight.

**Agronomy:** It has high resistance to yellow rust and brown rust and no serious disease weaknesses. It has given high yields in treated second wheat trials and on a range of soil types.

### Grafton

**Quality:** A hard-milling feed variety with a good specific weight.

**Agronomy:** Its treated yield is 7% below the highest yielding hard feed variety but is early maturing and has short, stiff straw. Grafton has high resistance to mildew and *Pch1* eyespot resistance but is susceptible to brown rust. Like Claire and Scout, Grafton has slow primordial development and a range of other characteristics that can make it a useful candidate for early drilling.

### Horatio

**Distilling: Medium**

**Quality:** Horatio is a soft-milling feed variety rated as 'medium' for distilling and meeting the specification for **uks** for overseas markets.

**Agronomy:** Horatio tends to give its highest yields when sown before the middle of September. It has high resistance to mildew and resistance to orange wheat blossom midge.

### JB Diego

**Quality:** A hard-milling feed variety with a good specific weight.

**Agronomy:** It has high resistance to yellow rust but is susceptible to eyespot. Although now 5% lower yielding than the highest yielding feed variety, growers value its consistency and it was again popular in 2014.

### KWS Gator

**Quality:** A hard-milling feed variety.

**Agronomy:** It has stiff straw and is resistant to orange wheat blossom midge. It has high resistance to yellow rust but is susceptible to eyespot and very susceptible to brown rust.

### KWS Kielder

**Quality:** A high-yielding, hard-milling feed wheat. It has a low specific weight.

**Agronomy:** KWS Kielder is a short-strawed variety, which has given high yields and which has done particularly well in second wheat situations. It is resistant to orange wheat blossom midge and has high resistance to brown rust. It is susceptible to yellow rust and is late maturing.

# Winter wheat 2015/16 – 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 HGCA tests.

## KWS Santiago

**Quality:** Recommended for the East and West regions as a hard-milling feed variety. It gives low Hagbergs and specific weights.

**Agronomy:** A high-yielding variety that has performed well in all soil types and rotational positions. It is resistant to orange wheat blossom midge but is susceptible to mildew and septoria tritici.

## Leeds

**Distilling: Medium**

**Quality:** A soft-milling feed wheat rated as 'medium' for distilling and meeting the specification for **uks** for overseas markets. It has a good specific weight.

**Agronomy:** Leeds is high yielding with resistance to orange wheat blossom midge and a high rating for fusarium head blight. It has high resistance to yellow rust but is susceptible to brown rust and very susceptible to mildew.

## Myriad

**Distilling: Medium**

**Quality:** Recommended for the North region as a soft-milling feed wheat, rated as 'medium' for distilling and meeting the specification for **uks** for overseas markets.

**Agronomy:** Myriad is high yielding with resistance to orange wheat blossom midge, high resistance to yellow rust but moderate lodging resistance.

## **NEW** Reflection

**Quality:** Added to the HGCA Recommended List 2015/16 as a very high-yielding hard-milling feed variety with a good specific weight.

**Agronomy:** It has resistance to orange wheat blossom midge and high resistance to mildew and yellow rust and has given high yields in untreated trials.

## Relay

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

**Agronomy:** It has short, stiff straw and high resistance to yellow rust and brown rust but is susceptible to eyespot.

## Revelation

**Distilling: Good**

**Quality:** A soft-milling feed wheat rated as 'good' for distilling and meeting the specification for **uks** for overseas markets.

**Agronomy:** Has good resistance to lodging and high resistance to mildew, yellow rust, brown rust and eyespot (*Pch 1*) and a high rating for fusarium head blight. Revelation has slow primordial development and a range of other characteristics that could make it a useful candidate for early drilling but it is late maturing and has a tendency to sprout.

## Twister

**Distilling: Medium**

**Quality:** Recommended for the North region. A high-yielding soft-milling feed variety rated as 'medium' for distilling.

**Agronomy:** It has resistance to orange wheat blossom midge but is susceptible to mildew and brown rust.

## Viscount

**Distilling: Good**

**Quality:** A soft-milling feed wheat rated as 'good' for distilling and meeting the specification for **uks** for overseas markets. It tends to give low Hagbergs.

**Agronomy:** It has high resistance to mildew and brown rust but is susceptible to yellow rust and has moderate lodging resistance. It has resistance to orange wheat blossom midge.

## Yellow rust ratings

The yellow rust resistance rating for KWS Santiago has increased this year based on data from the Recommended List trials and from work carried out by the UKCPVS (see page 13). It appears that KWS Santiago is less susceptible to the dominant "Warrior" yellow rust race than the previously dominant "Solstice" race.

Growers should take extra care with this rating, as it is still possible to see yellow rust on this variety and the yellow rust population structure could change again. The UKCPVS will continue to monitor the situation and will report any future changes.



## Improving the opportunities for wheat as poultry feed

An ongoing HGCA co-funded project is aiming to develop an accurate means of predicting the nutritive value of wheat for broilers, as well as investigating the effect of harvest moisture content on broiler performance. This could lead to more inclusion of local wheat in broiler diets.

[www.hgca.com/publications](http://www.hgca.com/publications) – search for '3805'

The report of a recently completed HGCA-funded PhD project suggested that wheat-DDGS (dried distillers' grains with solubles) could be used as a substitute for maize grain in diets for broilers or turkeys. The project showed that the metabolisable energy in wheat-DDGS was comparable to that of wheat and maize grain and the digestible P content was greater than in most other major feedstuffs, reducing the quantity of inorganic P compounds needed.

[www.hgca.com/publications](http://www.hgca.com/publications) – search for 'SR28'



# Spring wheat (for late autumn sowing) 2015/16

The data for the spring wheat varieties constitute a Recommended List.

The winter wheat data presented do not constitute a Recommended List and are shown to allow direct comparisons with data for the spring wheat varieties.



	Gallant	Skyfall	Crusoe	Mulika + C	Solstice	Paragon + *	KWS Willow + C	Panorama	Tybalt + C	Cubanita	Cordiale	Ashby + C*	KWS Cashel	Zulu	Monterey	KWS Croft	Delphi	Icon	KWS Target	Invicta	Scout	Twister	Myriad	Leeds	Viscount	Beluga	Horatio	Cougar	Alchemy	Revelation	Evolution	Dickens	KWS Santiago	KWS Kielder	KWS Alderon +	Conqueror	KWS Gator	Belvoir +	JB Diego	Relay	Grafton	Average LSD (5%)	
End-use group	nabim Group 1						nabim Group 2						nabim Group 3						Soft Group 4						Hard Group 4																		
Scope of recommendation	-	-	-	UK	-	UK	UK	-	UK	-	-	UK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	UK	-	-	UK	-	-	-	
UK yield (% treated control)																																											
Fungicide-treated (9.2 t/ha)	[103]	[101]	101	100	96	93	108	[104]	102	[102]	99	98	[98]	[107]	106	106	[105]	[102]	102	101	[98]	[112]	110	109	[106]	105	104	103	[102]	[102]	[110]	109	108	108	106	[105]	105	105	[102]	101	[100]	7.1	
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	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft
Protein content (%)	[10.4]	[9.0]	[10.7]	12.3	[10.6]	12.4	11.6	-	11.9	[9.7]	[10.3]	12.3	[10.0]	[9.0]	[9.1]	[9.8]	[9.4]	-	-	[10.4]	-	-	[10.0]	[9.6]	-	-	-	[9.7]	-	[9.4]	[8.3]	[8.7]	[10.5]	[9.1]	11.9	-	-	11.1	[9.8]	-	-	1.9	
Hagberg Falling Number	-	-	-	329	-	300	254	-	307	-	-	280	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	326	-	-	232	-	-	116	
Specific weight (kg/hl)	[76.8]	[77.0]	[77.2]	78.1	[78.6]	78.9	79.2	-	76.2	[78.8]	[78.8]	78.7	[75.9]	[75.3]	[77.4]	[75.5]	[74.0]	-	-	[73.7]	-	-	[75.7]	[76.5]	-	-	-	[72.0]	-	[72.7]	[73.8]	[75.3]	[73.9]	[73.0]	77.3	-	-	76.6	[77.2]	-	-	3.0	
Agronomic features																																											
Lodging %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Straw height with PGR (cm)	[72]	[70]	70	88	75	92	84	[74]	83	[73]	67	82	[73]	[78]	78	76	[77]	[72]	73	81	[72]	[76]	81	79	[70]	70	79	73	[77]	[76]	[75]	78	77	72	77	[70]	75	75	[76]	70	[64]	3.6	
Ripening (+/- Mulika, -ve = earlier)	-	[0]	-	[0]	-	-	[-1]	-	[0]	[0]	[-2]	[0]	[+1]	[+1]	[+3]	[+2]	-	[+2]	-	-	-	[+3]	[+2]	[+3]	-	-	-	[+3]	-	-	[+3]	[+1]	-	[+4]	[0]	-	-	[-1]	-	-	-	2.3	
Latest safe sowing date #	Mid Feb	End Feb	End Jan	-	End Jan	-	-	End Feb	-	[Mid Feb]	Mid Feb	-	[End Jan]	End Feb	End Feb	End Feb	Mid Feb	End Feb	Mid Feb	Mid Feb	Mid Feb	End Feb	Mid Feb	Mid Feb	Mid Feb	End Feb	End Jan	Mid Feb	End Feb	End Jan	End Jan	End Jan	-	Mid Feb	Mid Feb	-	End Jan	Mid Feb	Mid Feb	-	-		
Disease resistance																																											
Mildew	6	6	7	[7]	4	8	[8]	7	8	6	6	6	8	7	6	8	6	8	4	5	6	4	6	3	[7]	3	7	6	[8]	6	6	8	4	5	6	3	6	[6]	6	6	7	1.3	
Yellow rust	5	6	9	7	4	7	7	7	7	6	5	7	8	9	7	8	8	8	8	8	9	6	8	7	4	6	6	8	7	9	9	9	6	4	7	6	9	7	8	9	6	0.7	
Brown rust	6	8	4	5	5	8	8	6	6	5	4	6	9	4	4	6	7	5	3	6	7	4	5	4	7	3	6	9	4	8	8	8	6	8	6	7	3	9	5	8	4	1.3	
Septoria tritici	4	6	6	5	5	6	6	5	6	5	5	5	5	5	5	5	5	6	5	5	5	5	5	5	5	5	5	7	6	6	6	5	4	5	6	4	5	5	5	6	5	1.2	
Fusarium ear blight	5	6	6	[6]	6	[6]	[6]	6	[5]	6	5	[6]	7	6	6	6	6	6	5	6	6	6	6	7	6	6	6	6	7	7	6	6	6	6	[6]	6	6	[6]	6	6	5	0.3	
Orange wheat blossom midge	-	R	-	R	-	-	-	-	-	-	-	-	-	R	R	R	R	-	R	-	R	R	R	R	-	R	R	-	-	-	-	R	R	-	R	R	R	-	-	-	-	-	
Breeder/UK contact																																											
Breeder	SyP	RAGT	Lim	BA	Lim	RAGT	KWS	Lim	Wier	SyP	KWS	KWS	KWS	Lim	BA	KWS	BA	RAGT	KWS	Lim	Sen	Mom	Lim	Mom	KWS	KWS	Lim	RAGT	Lim	Lim	Sej	Sec	KWS	KWS	KWS	KWS	KWS	KWS	Bre	RAGT	KWS		
UK contact	Syn	RAGT	Lim	Sen	Lim	RAGT	KWS	Lim	Lim	Syn	KWS	KWS	KWS	Lim	Sen	KWS	Sen	RAGT	KWS	Lim	Sen	KWS	Lim	KWS	KWS	Sen	Lim	RAGT	Lim	Lim	Lim	Agr	KWS	KWS	KWS	KWS	KWS	KWS	Sen	RAGT	KWS		
Status in RL system																																											
Year first listed	09	14	12	11	02	99	11	09	03	14	04	03	14	14	13	13	13	14	11	10	09	14	13	13	09	10	12	13	06	13	14	13	11	13	12	10	12	03	08	12	09		
RL Status	-	-	-	-	-	*	-	-	-	-	-	*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Variety no longer listed: Zircon.

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 (page 10).

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  
 UK = recommended for the UK  
 C = yield control (for current table)  
 [ ] = limited data

\* = variety no longer sown in late autumn-sown trials  
 # = latest safe sowing date is the advised latest date to give sufficient cold for flowering; spring wheats have no vernalisation requirement.  
 R = believed to be resistant to orange wheat blossom midge (OWBM), but this has not been verified in Recommended List tests

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  
 RAGT = RAGT Seeds, UK (www.ragt.co.uk)

Sec = Secobra, France  
 Sej = Sejet, Denmark  
 Sen = Senova (www.senova.uk.com)  
 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 5% confidence level.

# Spring wheat (for spring sowing) 2015



	C		C		C*					
	Muilika	Paragon	Granary	Tybalt	KWS Willow	Ashby	KWS Kilburn	KWS Alderon	Belvoir	Average LSD (5%)
End-use group	nabim Group 1		nabim Group 2		Group 4					
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	
<b>UK yield (% control)</b>										
Fungicide-treated (7.0 t/ha)	99	93	104	102	101	99	[106]	103	101	4.4
<b>Grain quality</b>										
Endosperm texture	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	
Protein content (%)	14.0	13.9	[14]	13.1	13.2	14.0	13.6	13.6	12.9	0.6
Hagberg Falling Number	306	312	[222]	293	247	297	229	305	245	37
Specific weight (kg/hl)	76.9	77.4	[77.6]	75.4	77.8	77.5	75.7	75.9	76.2	1.3
<b>Agronomic features</b>										
Resistance to lodging with PGR ∞	-	-	-	-	-	-	-	-	-	-
Straw height without PGR (cm)	82	87	82	78	83	80	87	75	77	2.0
Ripening (+/- Muilika, -ve = earlier)	[0]	[+1]	[+1]	[+1]	[+1]	[+1]	[+2]	[+2]	[+1]	1.2
Resistance to sprouting ∞	-	-	-	-	-	-	-	-	-	-
<b>Disease resistance</b>										
Mildew	[7]	8	[7]	8	[8]	6	[7]	6	[6]	1.3
Yellow rust	7	7	6	7	7	7	6	7	7	0.7
Brown rust	5	8	5	6	8	6	9	6	9	1.3
Septoria tritici	5	6	7	6	6	5	6	6	5	1.2
Fusarium ear blight	[6]	[6]	[6]	[5]	[6]	[6]	-	[6]	[6]	0.3
Orange wheat blossom midge	R	-	-	-	-	-	-	-	R	
<b>Breeder/UK contact</b>										
Breeder	BA	RAGT	KWS	Wier	KWS	KWS	KWS	KWS	KWS	
UK contact	Sen	RAGT	KWS	Lim	KWS	KWS	KWS	KWS	KWS	
<b>Status in RL system</b>										
Year first listed	11	99	09	03	11	03	14	12	03	
RL status	-	-	-	-	-	*	P1	-	-	

Variety no longer listed: Zircon

Varieties are 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)  
 [ ] = limited data  
 ∞ = no data available  
 \* = variety no longer in trials

R = believed to be resistant to orange wheat blossom midge (OWBM) but this has not been verified in Recommended List tests  
 P1 = first year of recommendation  
 LSD = least significant difference

BA = Blackman Agriculture  
 KWS = KWS UK (www.kws-uk.com)  
 Lim = Limagrain UK (www.limagrain.co.uk)  
 RAGT = RAGT Seeds (www.ragt.co.uk)

Sen = Senova (www.senova.uk.com)  
 Wier = Wiersum BV, Netherlands

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

# Spring wheat 2015 – 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:** Mulika yields are 6–7% higher than Paragon. It has high resistance to mildew and yellow rust and is the only spring wheat breadmaking variety with resistance to orange wheat blossom midge.

**nabim comment:** This variety has rheological and baking qualities that are very good and similar to those of Paragon.

### Paragon

**Quality:** A nabim Group 1 variety recommended for both late autumn and spring sowing. It has remained popular with millers due to its high quality and good Hagbergs, specific weights and grain proteins.

**Agronomy:** Paragon is significantly lower yielding than Mulika from both late autumn and spring sowings and has long straw with moderate lodging resistance. It has resistance to mildew (limited data), yellow rust and brown rust. It is no longer in RL trials.

**nabim comment:** This is a variety whose performance in bread making has been excellent and it is still liked by most millers.



## nabim Group 2 varieties

### Ashby

**Quality:** A nabim Group 2 variety with good grain protein and specific weights.

**Agronomy:** Its yield is well below newer Group 2 varieties from both late autumn and spring sowings. It has high resistance to yellow rust.

**nabim comment:** This variety is seldom seen by millers. The quality has been variable, resulting in this variety being used at low levels within breadmaking grists.

### Granary

**Quality:** A nabim Group 2 variety recommended for spring sowing only. It has good grain proteins and specific weights but tends to give lower Hagbergs than other Group 2 spring wheats.

**Agronomy:** When spring-sown, Granary is the highest yielding Group 2 variety. It has high resistance to mildew (limited data) and septoria tritici.

**nabim comment:** This is a variety with a tendency to produce low Hagberg Falling Numbers (HFN) and relatively small quantities of this variety have been seen by millers.

### 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:** It has given very high yields from late autumn sowings. Its yields from spring sowings are similar to Tybalt. It has high resistance to yellow rust and brown rust and limited data suggest it also has high resistance to mildew.

**nabim comment:** This variety has HFNs 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. It tends to give low specific weights and proteins, particularly when late autumn-sown.

**Agronomy:** Tybalt gives its best yields from spring sowing and is 6% lower yielding than KWS Willow when late autumn-sown. It has high resistance to mildew and yellow rust.

**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.

## Group 4 feed varieties

### KWS Alderon

**Quality:** A hard feed variety.

**Agronomy:** High yielding when late-autumn sown, with high resistance to yellow rust.

### Belvoir

**Quality:** A hard feed variety.

**Agronomy:** Belvoir has high resistance to yellow rust and brown rust and is resistant to orange wheat blossom midge.

### KWS Kilburn

**Quality:** A hard feed variety now recommended for both late autumn and spring sowing.

**Agronomy:** A high-yielding variety with high resistance to mildew (limited data) and brown rust. There are insufficient data to give an assessment of lodging resistance.



# nabim overview

## New varieties

This year has seen the advent of two new high-yielding breadmaking wheat varieties. Skyfall, which was added to the Recommended List last year, has been joined by KWS Trinity (provisional Group 1) and KWS Lili (Group 2). All three have parentage traits that have significantly increased the yield potential of breadmaking wheats.

Millers require varieties which have protein strong enough to produce quality loaves, with levels close to the standard 13% specification. It is too early to know if these new varieties will achieve consistent quality, although the signs are promising and Skyfall is doing well. Varieties with yields much above those of Gallant, Crusoe and Solstice 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. Our experience from the finalists in our Milling Wheat Challenge competition clearly demonstrates that consistent quality is achieved by relatively high levels of nitrogen applied at least three timings to suit both soil and growing conditions.

Most growers of milling quality wheat appreciate that protein quality is dependent on adequate applications of both sulphur and nitrogen. These elements interact to provide strong gluten and the other proteins required for good baking performance. The importance of regular testing for soil sulphur and adjusting applications is the key to success.

## Wheat quality from harvest 2014

Although harvest 2014 was good, with excellent yields in many areas, wheat quality has proved a challenge to UK flour millers because only 9% of the crop met the full Group 1 requirement of 13% protein. Although not as bad as the challenges of low specific weights in 2012, this becomes important when millers have to grist flours with consistent baking characteristics.

The ability to cope with low protein levels varies from mill to mill, depending on customer requirements and the ability to

amend grists without affecting dough performance. Addition of extra vital gluten can help but is far from a complete solution. Therefore, millers differ in their capacity to accept low protein levels.

Further information on the methods used for wheat testing can be found in the **nabim** booklet 'Wheat & Flour testing' (available on the **nabim** website [www.nabim.co.uk](http://www.nabim.co.uk)).

## Spring wheat

The lack of black-grass control and the introduction of the three-crop rule have increased the focus on spring-sown crops. Many arable farmers will be considering increasing acreages of spring wheat for spring sowing and this will prompt consideration of end markets.

Currently, growers may select from two Group 1 varieties (Mulika and Paragon) and four group 2 varieties (Granary, Tybalt, KWS Willow and Ashby). Not all perform equally and some may not find ready markets. Mulika and Paragon remain in demand because of their excellent breadmaking qualities, although Mulika is significantly higher yielding, being 7% above Paragon in fungicide-treated spring-sown trials.

The four Group 2 wheats are mixed in their potential markets. Very small amounts of Ashby and Granary are seen and often the quality is variable. Both KWS Willow and Tybalt are better suited to lower inclusion levels in grists, so have relatively limited markets.

## New testing regime

A major problem with marketing new wheat varieties has been that in the past some promising varieties failed to gain a market share before becoming outclassed. In order to encourage earlier adoption, **nabim** has worked with BSPB to develop a new system similar to that already used for malting barley.

The system was introduced in December 2013 when Skyfall obtained provisional Group 1 status. It was confirmed as a full

Group 1 after testing of the commercial quantities later in 2014. Much was learnt about the new procedure and improvements have been made to the system. Assuming everything proceeds to plan, commercial quantities of KWS Trinity will be milled and baked with results being reviewed. Hopefully, it will achieve 'Full' approved status in early April, before planting decisions for 2015 are made.

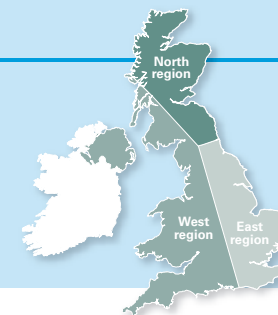
## Milling Wheat Challenge

Variety is an important factor in determining wheat quality but other factors also play their part, such as the standard of crop husbandry, effective use of nitrogen and grain storage. For the past five years, **nabim**, together with HGCA, has run the 'Milling Wheat Challenge' – to find the best grower of consistently high-quality milling wheat. The 2014 competition was won by Joseph Edwards who managed Boddington Estates near Cheltenham. He impressed the judges with his enthusiasm, his technical understanding of milling wheat production and his solid business foundations. He joins previous winners, Andrew Ponder from Essex (2010), James Price from Oxfordshire (2011), Andrew Robinson from Bedfordshire (2012) and Stephen Craggs from Durham (2013) who all demonstrated vision and a clear understanding of both growing the crop and marketing it.

Leaflets for the 2015 competition have been sent to agronomists, merchants and farming organisations and information will appear in the farming press.

Entries can be made on paper and online and full details are on both the **nabim** and **HGCA** websites ([www.nabim.org.uk/challenge](http://www.nabim.org.uk/challenge) or [www.hgca.com/mwc](http://www.hgca.com/mwc)). Entries close on 1 May.





# Winter barley 2015/16

## Market options, yield and grain quality



	Talisman	SY Venture	Flagon	Cassata	Pearl	KWS Infinity	KWS Glacier	KWS Tower	Retriever	Cavalier	California	KWS Cassia	Matros	Florentine	Saffron	Volume \$	Daxor	KWS Meridian	Escadre	Average LSD (5%)	Perseus	Findora
End-use group	Two-row malting					Two-row feed										Six-row feed					Two-row feed	
Scope of recommendation	UK	UK	UK	Sp	UK	UK	UK	UK	UK	N	W	UK	E	UK	UK	UK	UK	UK	N		Not added to Recommended List	
<b>Fungicide-treated grain yield (% treated control)</b>																						
United Kingdom (8.9 t/ha)	99	98	95	94	91	105	104	104	102	102	102	101	101	99	97	107	105	103	99	3.0	103	99
East region (9.0 t/ha)	100	99	95	95	91	106	106	104	102	103	102	101	102	100	98	107	105	102	97	3.8	103	98
North region (8.4 t/ha)	99	95	93	93	89	[105]	104	105	104	104	100	102	100	97	94	107	[108]	105	100	4.1	[106]	[103]
West region (9.1 t/ha)	96	98	94	93	91	103	103	103	100	98	101	101	98	100	97	107	105	105	100	3.9	101	[98]
<b>Untreated grain yield (% treated control)</b>																						
United Kingdom (8.9 t/ha)	82	77	81	77	76	82	84	83	77	77	85	85	89	81	80	86	88	90	80	5.3	78	80
<b>Main market options</b>																						
IBD malting approval for brewing use	P	F	F	F	F	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-
<b>Grain quality</b>																						
Specific weight (kg/hl)	67.9	70.2	70.1	69.0	71.0	68.4	69.9	68.0	66.6	70.2	69.3	71.3	67.9	68.6	70.6	68.7	66.0	66.1	70.5	0.7	70.1	67.9
Screenings % through 2.25 mm	3.5	2.5	2.1	1.7	1.5	2.7	1.8	1.3	-	2.5	[1.4]	1.5	2.5	2.2	1.8	4.7	2.1	1.9	2.2	1.1	2.9	2.5
Screenings % through 2.50 mm	9.0	6.2	5.2	4.1	3.4	6.6	4.7	3.5	-	6.1	[3.4]	3.5	5.9	6.4	4.7	13.1	5.9	4.4	6.5	2.6	7.7	6.8
Nitrogen content (%)	1.63	1.68	1.66	1.66	1.68	-	-	-	-	-	-	-	-	-	-	-	[1.70]	-	-	0.17	-	-
<b>Status in RL system</b>																						
Year first listed	13	12	05	07	99	15	13	14	07	14	13	10	13	11	05	09	15	12	11		-	-
RL Status	-	-	*	-	-	P1	-	P2	-	P2	-	-	-	-	*	-	P1	*	*		-	-

Varieties no longer listed: Archer, Sequel, Tetriss and Winsome

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

Sp = Cassata has a specific recommendation for growers wanting a BaYMV-resistant variety for malting  
 \$ = Volume is a hybrid variety  
 \* = variety no longer in trials

C = yield control (for current table)  
 [] = limited data  
 P1 = first year of recommendation  
 P2 = second year of recommendation

F = full IBD approval  
 P = provisional IBD approval  
 LSD = least significant difference

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

# Winter barley 2015/16

## Yield, agronomy and disease resistance



	Talisman	SY Venture	Flagon <sup>C*</sup>	Cassata <sup>C</sup>	Pearl	KWS Infinity <sup>NEW</sup>	KWS Glacier	KWS Tower	Retriever	Cavalier	California	KWS Cassia <sup>C</sup>	Matros	Florentine	Saffron <sup>*</sup>	Volume \$ <sup>C</sup>	Daxor <sup>NEW</sup>	KWS Meridian <sup>C*</sup>	Escadre <sup>*</sup>	Average LSD (5%)	Perseus	Findora	
End-use group	Two-row malting					Two-row feed										Six-row feed						Two-row feed	
Scope of recommendation	UK	UK	UK	Sp	UK	UK	UK	UK	UK	N	W	UK	E	UK	UK	UK	UK	UK	N		Not added to Recommended List		
<b>Fungicide-treated grain yield (% treated control)</b>																							
United Kingdom (8.9 t/ha)	99	98	95	94	91	105	104	104	102	102	102	101	101	99	97	107	105	103	99	3.0	103	99	
East region (9.0 t/ha)	100	99	95	95	91	106	106	104	102	103	102	101	102	100	98	107	105	102	97	3.8	103	98	
North region (8.4 t/ha)	99	95	93	93	89	[105]	104	105	104	104	100	102	100	97	94	107	[108]	105	100	4.1	[106]	[103]	
West region (9.1 t/ha)	96	98	94	93	91	103	103	103	100	98	101	101	98	100	97	107	105	105	100	3.9	101	[98]	
<b>Untreated grain yield (% treated control)</b>																							
United Kingdom (8.9 t/ha)	82	77	81	77	76	82	84	83	77	77	85	85	89	81	80	86	88	90	80	5.3	78	80	
<b>Agronomic features</b>																							
Resistance to lodging	6	7	5	8	7	7	6	7	6	6	8	7	7	8	8	7	8	7	7	-	6	8	
Straw height (cm)	93	85	98	89	98	87	82	89	85	83	90	88	95	87	87	100	92	103	96	2.9	84	78	
Ripening (+/-Cassata, -ve = earlier)	-1	-1	-2	0	0	-1	-1	-1	-1	-2	-1	-1	0	-2	-1	-2	-1	-2	-2	1.0	-3	-2	
Winter hardiness #	[6]	6	5	6	5	-	[6]	[6]	6	-	6	5	6	6	5	6	-	6	6	-	-	-	
<b>Disease resistance</b>																							
Mildew	6	6	6	4	6	3	3	5	5	5	6	4	7	6	3	5	4	8	4	1.8	5	4	
Yellow rust	[7]	[6]	7	2	6	-	[7]	[7]	8	[9]	[6]	5	[5]	7	7	6	-	[6]	7	2.7	-	-	
Brown rust	6	5	7	6	6	6	7	6	6	6	5	7	7	6	6	6	6	7	5	0.9	6	6	
Rhynchosporium	6	4	6	7	5	6	5	5	4	5	5	4	7	6	4	7	6	6	7	1.4	3	5	
Net blotch	5	5	4	3	5	5	6	4	5	5	6	6	5	6	7	6	5	7	6	2.1	-	6	
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 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

Sp = Cassata has a specific recommendation for growers wanting a BaYMV-resistant variety for malting  
 \$ = Volume is a hybrid variety  
 \* = variety no longer in trials  
 C = yield control (for current table)

[ ] = limited data  
 # = the winter hardiness scores are taken from extreme tests in the Jura mountains of France  
 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 5% confidence level.



# Winter barley 2015/16 – Supplementary data

	Talisman	SY Venture	C*	C		NEW									*	C	NEW	C*	*	Average LSD (5%)	Perseus	Findora
End-use group	Two-row malting					Two-row feed										Six-row feed					Two-row feed	
Scope of recommendation	UK	UK	UK	Sp	UK	UK	UK	UK	UK	N	W	UK	E	UK	UK	UK	UK	UK	N		Not added to Recommended List	
<b>Breeder/UK contact</b>																						
Breeder	Sen	SyP	SyP	Lim	Lim	KWS	KWS	KWS	Sej	Lim	Lim	KWS	Sej	Sen	KWS	SyP	KWS	KWS	KWS		Lim	Sej
UK contact	Sen	Syn	Syn	Lim	Lim	KWS	KWS	KWS	Lim	Lim	Lim	KWS	Lim	Sen	KWS	Syn	KWS	KWS	KWS		Lim	SU
<b>Annual treated yield (% control)</b>																						
2010 treated yield (9.3 t/ha)	102	98	97	95	90	-	106	107	104	-	101	101	102	99	97	106	-	102	101	3.4	-	-
2011 treated yield (8.5 t/ha)	103	97	92	92	88	-	103	104	104	109	101	102	104	101	96	108	-	107	97	4.3	-	-
2012 treated yield (8.5 t/ha)	95	98	94	94	93	105	105	104	99	98	103	103	100	99	98	108	103	101	99	4.0	102	99
2013 treated yield (8.5 t/ha)	100	100	93	96	[90]	106	106	105	106	104	101	103	99	100	97	105	107	103	99	3.5	107	101
2014 treated yield (9.6 t/ha)	97	96	97	93	93	102	103	101	96	97	101	99	98	98	97	106	104	105	98	3.2	100	96
<b>Soil type (about 50% of trials are medium soils)</b>																						
Light soils (8.4 t/ha)	101	98	95	94	92	106	104	106	104	104	101	101	101	99	96	107	105	103	100	3.3	105	101
Heavy soils (9.3 t/ha)	100	101	93	95	91	106	106	105	101	101	103	101	100	100	98	107	104	104	97	5.4	104	94
<b>Agronomic characteristics</b>																						
Lodging % without PGR	8	2	15	1	4	5	7	4	7	13	1	3	5	0	1	5	1	3	3	-	7	2
Lodging % with PGR	4	1	9	0	1	1	3	1	3	3	1	0	2	0	0	3	0	0	2	-	4	0
<b>Malting quality</b>																						
Hot water extract (l deg/kg)	308.5	308.4	305.5	305.7	305.3	-	-	-	-	-	-	-	-	-	-	-	[286.8]	-	-	2.2	-	-

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  
 Sp = Cassata has a specific recommendation for growers wanting a BaYMV-resistant variety for malting

\$ = Volume is a hybrid variety  
 \* = variety no longer in trials  
 C = yield control (for current table)  
 [ ] = limited data  
 LSD = least significant difference

KWS = KWS UK (www.kws-uk.com)  
 Lim = Limagrain UK (www.limagrain.co.uk)  
 Sej = Sejet, Denmark  
 Sen = Senova (www.senova.uk.com)  
 SU = Saaten Union (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 5% confidence level.

# Winter barley trials harvest 2015 – Candidate varieties



Previous/Proposed Name	Variety ID	Yield treated (T)	Yield untreated (UT) (% treated controls)	Lodging % (UT)	Lodging % (T)	Height (cm)	Maturity (+/- Cassata)	Mildew (1-9)	Yellow rust (1-9)	Brown rust (1-9)	Rhynchosporium (1-9)	Net blotch (1-9)	BaYMV	Variety type	Specific weight (kg/ha)	UK contact	
<b>Control varieties</b>																	
Flagon	1910	95	82	[5]	[6]	101	-1	6	7	7	6	4		2-row	69.7		
Cassata	2058	94	79	[1]	[0]	90	0	4	2	6	7	3	R	2-row	68.7		
Volume	2244	106	85	[2]	[0]	102	-2	5	6	6	7	6	R	6-row hybrid	68.5		
KWS Cassia	2309	100	86	[0]	[0]	89	0	4	5	7	4	6	R	2-row	71.1		
KWS Meridian	2436	104	99	[0]	[0]	109	-2	8	[6]	7	6	7	R	6-row	65.7		
<b>Selected as potential malting varieties</b>																	
Craft	SY212-128	2743	Data cannot be published as variety has not completed National List testing													Syngenta UK	
Shadow	SY212-127	2742	100	[84]	[1]	[4]	[89]	[+1]	8	9	8	8	7	R	2-row	69.2	Syngenta UK
<b>Selected as potential feed varieties</b>																	
Bazooka	SY212 118	2737	108	[91]	[1]	[0]	[109]	[-2]	6	9	6	9	7	R	6-row hybrid	68.7	Syngenta UK
Belfry	SY212-124	2739	108	[91]	[0]	[0]	[103]	[-2]	6	9	7	8	8	R	6-row hybrid	68.0	Syngenta UK
Verity	BR05-6261/3	2750	106	[95]	[0]	[0]	[112]	[-1]	8	8	9	8	8	R	6-row	65.6	Senova
KWS Orwell	KWS-B111	2728	105	[86]	[0]	[0]	[86]	[0]	4	9	7	6	6	R	2-row	67.8	KWS UK
Surge	SY212-130	2745	Data cannot be published as variety has not completed National List testing													Syngenta UK	
Kathmandu	SJ091049	2755	104	[87]	[6]	[1]	[82]	[-1]	7	9	8	8	6	R	2-row	66.6	Senova
Mean of controls (t/ha)		9.1	9.1	-	-	-	-	-	-	-	-	-	-	-	-	-	
LSD 5%		4.8	5.7	4.2	2.2	5.8	1.6	-	-	-	-	-	-	-	-	1.1	
No. of trials		17	9	4	4	5	8	-	-	-	-	-	-	-	-	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.

[ ] = limited data  
 R = resistant to BaMMV and to BaYMV strain 1  
 T = data from trials treated with fungicide and PGR  
 UT = data from trials without fungicide or PGR

Candidate varieties will be considered for the 2016/17 HGCA Recommended List  
 See the HGCA 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 2015/16 – Variety comments

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

## Two-row malting varieties

### Cassata

A specific recommendation for growers wanting a malting variety with resistance to barley mosaic virus.

**Quality:** Fully approved by IBD for the production of malt for brewing, with a good specific weight and producing malt of a similar quality to Pearl.

**Agronomy:** Cassata has a yield some 4% lower than SY Venture. It is stiff-strawed with high resistance to rhynchosporium but is susceptible to mildew and very susceptible to yellow rust and net blotch. Cassata is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

**MAGB comment:** Fully approved for brewing. Its share of the market is now decreasing.

### Flagon

**Quality:** A malting variety with a high specific weight.

**Agronomy:** Flagon is an early maturing variety that has a yield some 3% lower than SY Venture. It has high resistance to yellow rust and brown rust but is susceptible to net blotch. This variety has moderate straw strength, requiring careful management. It is no longer in RL trials.

**MAGB comment:** Fully approved for brewing, it offers the maltster higher extracts than Pearl with good processing characteristics. Its market share has started to decrease.

### Pearl

**Quality:** Fully approved for brewing, with a high specific weight.

**Agronomy:** Pearl's yield is now 7% below the highest yielding variety with full IBD approval.

**MAGB comment:** Its share of the UK winter malting barley market continues to decrease.

## SY Venture

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

**Agronomy:** The highest yielding variety with full IBD approval. It 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:** Granted full approval for brewing in 2013, now considerably increasing its share of the winter barley market.

## Talisman

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

**Agronomy:** The highest yielding malting winter barley variety. It 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.

**MAGB comment:** Under second year of commercial testing by IBD for brewing.

## Additions to the IBD approved malting barley list

Talisman has been promoted to Provisional Approval 2 for brewing. See [www.ukmalt.com](http://www.ukmalt.com) for more information.



## Two-row feed varieties

### Cavalier

**Quality:** This variety has a regional recommendation for the North. It is a two-row feed variety with a high specific weight.

**Agronomy:** Cavalier has a high treated yield in the North region with early maturity. It has short straw and is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV) and limited data suggest high resistance to yellow rust.

### California

**Quality:** A regional recommendation for the West. It is a two-row feed variety with a high specific weight.

**Agronomy:** California has good lodging resistance and is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

### Florentine

**Quality:** A two-row feed variety.

**Agronomy:** Florentine has stiff straw and is early maturing. It has high resistance to yellow rust and is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

### KWS Cassia

**Quality:** A two-row feed variety with a high specific weight.

**Agronomy:** KWS Cassia is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV). It has high resistance to brown rust but is susceptible to rhynchosporium and mildew.



# Winter barley 2015/16 – Variety comments

## KWS Glacier

**Quality:** A high-yielding two-row feed variety with a high specific weight.

**Agronomy:** One of the highest yielding two-row feed varieties, which has given very high yields in the East region. It has short straw and is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV). It has high resistance to brown rust and limited data suggest it has high resistance to yellow rust. It is very susceptible to mildew.

## **NEW** KWS Infinity

**Quality:** Added to the Recommended List 2015/16 as a high-yielding two-row feed variety.

**Agronomy:** The highest yielding two-row feed variety on the 2015/16 Recommended List and has given very high yields in the East region. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV) but is very susceptible to mildew.

## KWS Tower

**Quality:** A high-yielding two-row feed variety.

**Agronomy:** One of the highest yielding two-row feed varieties. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV) and limited data suggest it has high resistance to yellow rust. It is susceptible to net blotch.

## Matros

**Quality:** A two-row feed variety with a specific recommendation for the East.

**Agronomy:** It has a good untreated yield and high resistance to mildew, brown rust and rhynchosporium.

## Saffron

**Quality:** A two-row feed variety with a high specific weight.

**Agronomy:** Saffron has stiff straw and high resistance to yellow rust and net blotch but is susceptible to rhynchosporium and very susceptible to mildew. Its yields are some 8% lower than the highest yielding feed variety. This variety is no longer in RL trials.

## Retriever

**Quality:** A two-row feed variety with moderate specific weights.

**Agronomy:** Retriever has given its best relative performance in the North region. It has high resistance to yellow rust and is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV). It is susceptible to rhynchosporium.

## Six-row feed varieties

### **NEW** Daxor

**Quality:** Added to the Recommended List 2015/16 as a high-yielding conventional six-row feed variety.

**Agronomy:** Daxor is the highest yielding conventional six-row feed variety on the List and has shown good resistance to lodging. Limited data suggest it is very high yielding in the North region. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV) but is susceptible to mildew. It tends to give a low specific weight.

## Escadre

**Quality:** Recommended for the North region. A conventional six-row feed variety with a good specific weight.

**Agronomy:** Escadre is an early maturing variety that has high resistance to yellow rust and rhynchosporium and is also resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV). It is susceptible to mildew. It is now 8% lower yielding than the best (hybrid) six-row variety and 6% lower yielding than the best two-row feeds. This variety is no longer in RL trials.

## KWS Meridian

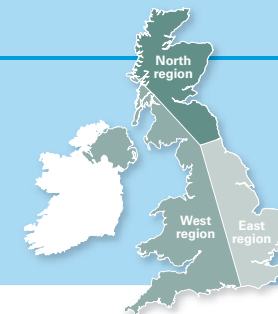
**Quality:** A conventional six-row feed variety with a low specific weight.

**Agronomy:** KWS Meridian is an early maturing variety which has long straw and a good disease package. This includes high resistance to mildew, yellow rust and net blotch and resistance to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV). It has the highest untreated yield on the Recommended List. KWS Meridian has given its best relative yield performances in the North and West regions. This variety is no longer in RL trials.

## Volume

**Quality:** A very high-yielding, early maturing hybrid six-row feed variety that has performed very well in all regions.

**Agronomy:** It has a very high UK treated yield. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV) and has high resistance to rhynchosporium.



# Spring barley 2015

## Market options, yield and grain quality

	RECOMMENDED	NEW	NEW	NEW	NEW	NEW	NEW	NEW	C	C	C*	*	C	C	*	NEW	*	*									
	RGT Planet	KWS Irina	Sanette	Olympus	Deveron	Sienna	Vault	Octavia	Odyssey	Propino	Quench	Moonshine	Concerto	NFC Tipple	Belgravia	Optic	Shada	Scholar	Tesla	Hacker	Rhyncostar	Garner	Kelim	Waggon	Westminster	Average LSD (5%)	
End-use group	Malting varieties															Feed varieties											
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	N	UK	UK	N	N	UK	UK	UK	W	UK	UK	UK	UK	UK		
<b>Fungicide-treated grain yield (% treated control)</b>																											
United Kingdom (7.1 t/ha)	108.9	108	107	105	105	104	104	104	102	102	101	99	97	97	96	93	108	108	104	103	103	101	101	100	93	2.6	
East region (7.1 t/ha)	[111]	106	107	[104]	[104]	[103]	[101]	[106]	103	101	101	[99]	99	96	-	91	107	[107]	104	102	102	101	99	98	93	3.3	
West region (7.5 t/ha)	109.1	107	107	107	106	105	103	100	101	102	101	98	98	97	[98]	92	108	107	105	105	101	102	101	100	94	3.0	
North region (6.8 t/ha)	108.1	108	108	106	106	104	106	105	102	103	101	99	96	98	96	94	108	109	104	103	106	100	102	101	93	2.3	
<b>Main market options</b>																											
IBD malting approval for brewing use	T	P	P	-	N	T	T	T	F	F	O	N	F	F	N	O	-	-	-	-	-	-	-	-	-	-	
IBD malting approval for distilling use	N	N	N	T	T	T	T	T	F	N	N	F	F	N	F	F	-	-	-	-	-	-	-	-	-	-	
IBD malting approval for grain distilling use	N	N	N	T	-	N	-	N	N	N	N	N	N	N	F	N	-	-	-	-	-	-	-	-	-		
Overseas malting	-	[Y]	[Y]	-	-	-	-	-	[Y]	Y	Y	-	[Y]	Y	-	-	-	-	-	-	-	-	-	-	-		
<b>Grain quality</b>																											
Specific weight (kg/hl)	67.9	66.2	67.2	67.0	67.9	70.9	67.1	66.7	68.2	67.9	68.4	67.7	68.8	68.5	68.0	70.1	66.0	68.3	66.1	69.8	67.0	66.9	67.9	67.6	70.0	0.8	
Screenings % through 2.25 mm	1.7	1.8	2.1	1.9	2.3	1.8	1.7	1.6	1.4	1.2	1.9	1.4	1.3	1.8	1.7	1.6	[3.6]	2.1	[2.3]	1.7	[2.9]	-	[2.7]	-	1.5	0.4	
Screenings % through 2.50 mm	4.1	4.6	4.7	5.0	6.4	3.7	4.4	3.4	3.6	2.4	4.9	3.5	2.8	4.4	3.9	5.0	[10.2]	6.0	[4.9]	3.6	[6.8]	-	[7.1]	-	3.5	1.3	
Nitrogen content (%)	1.40	1.43	1.45	1.51	1.43	1.42	1.42	1.38	1.44	1.51	1.49	1.45	1.47	1.46	[1.56]	1.50	1.41	[1.42]	1.48	1.48	[1.47]	-	[1.52]	-	-	0.06	
<b>Status in RL system</b>																											
Year first listed	15	14	13	15	15	15	15	15	12	10	07	11	09	05	08	95	14	15	13	14	13	10	13	05	05		
RL status	P1	P2	P2	P1	P1	P1	P1	P1	-	-	*	*	-	-	-	*	P2	P1	-	P2	*	*	-	-	-		

Varieties no longer listed: Crooner, Glassel, KWS Aurelia, KWS Orphelia, Montoya, Natasia, Overture and Shaloo

Growers are strongly advised to check with their buyer before committing to a malting variety without full IBD approval.

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

Comparisons across regions are not valid.

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

F = full IBD approval  
 N = not approved by IBD for this segment  
 O = no longer approved by IBD  
 P = provisional IBD approval  
 T = under test for IBD approval in this segment

Y = suited to that market  
 [Y] = may be suited to that market  
 [ ] = limited data  
 C = yield control (for current table)  
 \* = variety no longer in trials

P1 = first year of recommendation  
 P2 = second year of recommendation  
 LSD = least significant difference

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

# Spring barley 2015

## Yield, agronomy and disease resistance



	RECOMMENDED	NEW	NEW	NEW	NEW	NEW	NEW	NEW	C	C	C*	*	C	C	*	NEW	*	*									
	RGT Planet	KWS Irina	Sanette	Olympus	Deveron	Sienna	Vault	Octavia	Odyssey	Propino	Quench	Moonshine	Concerto	NFC Tipple	Belgravia	Optic	Shada	Scholar	Tesla	Hacker	Rhyncostar	Gamer	Kelim	Waggon	Westminster	Average LSD (5%)	
End-use group	Malting varieties															Feed varieties											
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	N	UK	UK	N	N	UK	UK	UK	W	UK	UK	UK	UK	UK		
<b>Fungicide-treated grain yield (% treated control)</b>																											
United Kingdom (7.1 t/ha)	108.9	108	107	105	105	104	104	104	102	102	101	99	97	97	96	93	108	108	104	103	103	101	101	100	93	2.6	
East region (7.1 t/ha)	[111]	106	107	[104]	[104]	[103]	[101]	[106]	103	101	101	[99]	99	96	-	91	107	[107]	104	102	102	101	99	98	93	3.3	
West region (7.5 t/ha)	109.1	107	107	107	106	105	103	100	101	102	101	98	98	97	[98]	92	108	107	105	105	101	102	101	100	94	3.0	
North region (6.8 t/ha)	108.1	108	108	106	106	104	106	105	102	103	101	99	96	98	96	94	108	109	104	103	106	100	102	101	93	2.3	
<b>Untreated grain yield as % treated control</b>																											
United Kingdom (7.1 t/ha)	97	94	92	91	91	93	89	90	89	90	88	87	86	84	85	77	96	94	93	92	89	88	90	87	84	3.1	
<b>Agronomic features</b>																											
Resistance to lodging	7	8	7	7	7	7	7	6	6	7	7	7	6	7	-	7	7	7	6	8	6	8	8	7	7	0.5	
Straw height (cm)	74	70	72	74	70	78	76	73	75	77	72	73	78	70	78	75	69	69	76	75	70	74	79	74	82	1.6	
Ripening (+/- Optic, -ve = earlier)	+1	+1	+2	+2	+2	+2	+2	+1	+2	+1	+1	0	+2	0	+1	0	+2	+1	+1	0	+1	0	+2	0	+1	0.8	
Resistance to brackling	8	9	8	6	7	8	7	6	8	8	8	7	8	8	8	5	8	9	6	8	8	7	9	8	7	0.9	
<b>Disease resistance</b>																											
Mildew	[9]	9	9	[9]	[9]	[9]	[9]	[9]	9	6	8	[9]	9	6	[8]	5	9	[9]	9	9	9	9	8	9	8	1.0	
Yellow rust	[4]	[6]	[7]	[7]	[4]	[6]	[5]	[7]	7	4	5	7	7	5	7	7	[5]	[7]	[6]	[5]	[5]	6	[5]	7	7	1.9	
Brown rust	5	5	4	7	5	5	4	5	4	5	4	4	6	6	6	7	6	5	5	5	4	4	4	5	6	1.8	
Rhynchosporium	5	5	6	6	5	6	5	7	6	6	6	5	4	4	6	3	5	6	7	6	7	7	6	4	7	1.1	
Ramularia	[6]	7	8	[4]	[5]	[5]	[7]	[5]	6	6	6	4	6	4	[6]	5	7	[8]	7	5	4	4	8	8	7	3.1	

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

UK = recommended for the UK  
 N = recommended for the North region  
 W = recommended for the West region  
 [ ] = limited data  
 C = yield control (for current table)  
 \* = variety no longer in trials  
 LSD = least significant difference

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

# Spring barley 2015 – Supplementary data

	RECOMMENDED		NEW		NEW		NEW		NEW		NEW		C		C		C*		*		C		C		*		NEW		*		*			
	RGT Planet	KWS Irina	Sanette	Olympus	Deveron	Sienna	Vault	Octavia	Odyssey	Propino	Quench	Moonshine	Concerto	NFC Tipple	Belgravia	Optic	Shada	Scholar	Tesla	Hacker	RhyncoStar	Garner	Kelim	Waggon	Westminster	Average LSD (5%)								
End-use group	Malting varieties															Feed varieties																		
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	N	UK	UK	N	N	UK	UK	UK	W	UK	UK	UK	UK	UK									
<b>Breeder/UK contact</b>																																		
Breeder	RAGT	KWS	SyP	LimEur	LimEur	LimEur	Syn	LimEur	Lim	SyP	SyP	RAGT	Lim	SyP	Lim	SyP	SyP	Syn	Lim	Sec	Sec	SyP	SyP	SyP	Lim									
UK contact	RAGT	KWS	Syn	Lim	Lim	Lim	Syn	Lim	Lim	Syn	Syn	RAGT	Lim	Syn	Lim	Syn	Syn	Syn	Lim	Agr	Agr	Syn	Syn	Syn	Lim									
<b>Annual treated yield (% control)</b>																																		
2010 treated (7.3 t/ha)	-	-	105	-	-	-	-	-	102	101	101	99	99	98	99	93	-	-	104	-	103	100	103	100	92	3.2								
2011 treated (7.3 t/ha)	-	106	106	-	-	-	-	-	107	100	101	97	96	96	95	92	106	-	104	102	103	102	104	99	96	3.2								
2012 treated (6.4 t/ha)	112	109	108	103	107	104	103	104	102	102	99	99	100	97	[93]	92	108	106	105	106	101	101	101	101	[95]	3.2								
2013 treated (7.0 t/ha)	106	105	-	103	104	103	106	103	99	105	102	98	96	98	97	92	109	108	103	102	105	101	102	100	92	3.4								
2014 treated (7.8 t/ha)	110	110	109	109	106	105	104	104	102	102	101	101	97	99	96	-	108	109	105	104	104	102	97	102	92	2.6								
<b>Malting quality</b>																																		
Hot water extract (l deg/kg)	315.2	314.7	313.8	311.9	311.8	315.7	313.5	316.9	313.8	313.6	313.4	313.3	316.1	311.9	311.7	312.5	311.6	311.4	313.9	314.2	313.2	-	311.0	-	-	1.8								

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

UK = recommended for the UK  
 N = recommended for the North region  
 W = recommended for the West region  
 [ ] = limited data  
 C = yield control (for current table)  
 \* = variety no longer in trials  
 LSD = least significant difference

Agr = Agrii ([www.agrii.co.uk](http://www.agrii.co.uk))  
 KWS = KWS UK ([www.kws-uk.com](http://www.kws-uk.com))  
 Lim = Limagrain UK ([www.limagrain.co.uk](http://www.limagrain.co.uk))  
 LimEur = Limagrain Europe SA

RAGT = RAGT Seeds ([www.ragt.co.uk](http://www.ragt.co.uk))  
 Sec = Secobra, France  
 Syn = Syngenta UK Ltd ([www.syngenta.co.uk](http://www.syngenta.co.uk))  
 SyP = Syngenta Participants AG ([www.syngenta.co.uk](http://www.syngenta.co.uk))

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



# Spring barley trials harvest 2015 – Candidate varieties



	Previous/Proposed Name	Variety ID	Yield treated (T)	Yield untreated (UT) (% treated controls)	Lodging % (UT)	Lodging % (T)	Height (cm)	Maturity (+/- Concerto) (T)	Brackling % (T)	Mildew (1-9)	Yellow rust (1-9)	Brown rust (1-9)	Rhynchosporium (1-9)	Specific weight (kg/hl)	UK contact
<b>Control varieties</b>															
	NFC Tipple	1966	98	85	[1.2]	[4.8]	71	-2	17	6	5	6	4	69.0	
	Quench	2121	101	88	[2.9]	[3.7]	73	-1	13	8	5	4	6	69.3	
	Concerto	2288	96	84	[6.6]	[9.4]	80	0	17	9	7	6	4	69.2	
	Propino	2336	104	90	[2.7]	[1.5]	78	-1	19	6	4	5	6	68.6	
	Odyssey	2470	100	88	[3.1]	[7.8]	77	0	18	9	7	4	6	69.0	
<b>Selected as potential malting varieties</b>															
	Ovation	LGB12-8317-A	2788	91	[1.0]	[19.1]	75	[0]	21	(9)	(9)	5	9	67.1	Limagrain UK
	Laureate	SY412-328	2780	97	[1.0]	[24.3]	73	[0]	17	(9)	(9)	8	7	66.8	Syngenta UK
	Origin	LGB11-2972-A	2792	92	[1.0]	[4.1]	74	[0]	27	(9)	(9)	6	8	67.4	Limagrain UK
	KWS Sassy	KWS12/230	2771	94	[4.0]	[27.5]	80	[0]	29	(9)	(8)	6	7	68.2	KWS UK
	Fairing	SY412-318	2777	Data cannot be published as variety has not completed National List testing											Syngenta UK
	Mean of controls (t/ha)		7.4	7.4	-	-	-	-	-	-	-	-	-	-	-
	LSD 5%		3.3	4.4	-	-	1.8	1.1	7.9	-	-	-	-	0.9	
	No. of trials		22	12	2	4	18	5	13	-	-	-	-	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.

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

Candidate varieties will be considered for the 2016/17 HGCA Recommended List  
See the HGCA 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 varieties grown in RL trials in 2014 but not added to the HGCA Recommended List



	Control varieties					Other varieties							
	Propino	Odyssey	Quench	Concerto	NFC Tipple	Dragoon	Piper	Amalika	Milford	Pathfinder	RGT Conquest	Invictus	Average LSD (5%)
<b>Fungicide treated grain yield (% treated control)</b>													
United Kingdom (7.1 t/ha)	102	102	101	97	97	109	105	105	104	104	103	103	2.6
East region (7.1 t/ha)	101	103	101	99	96	[107]	[104]	[106]	[107]	[103]	[105]	[102]	3.3
West region (7.5 t/ha)	102	101	101	98	97	109	106	102	104	105	102	[102]	3.0
North region (6.8 t/ha)	103	102	101	96	98	110	105	107	102	103	102	105	2.3
<b>Untreated grain yield (% treated control)</b>													
United Kingdom (7.1 t/ha)	90	89	88	86	84	97	93	90	93	91	91	90	3.1
<b>Grain quality</b>													
Specific weight (kg/hl)	67.9	68.2	68.4	68.8	68.5	65.4	67.3	64.9	67.5	68.6	69.6	67.6	0.8
Screenings % through 2.25 mm	1.2	1.4	1.9	1.3	1.8	1.9	1.6	3.1	2.0	1.8	1.8	-	0.4
Screenings % through 2.50 mm	2.4	3.6	4.9	2.8	4.4	5.4	4.0	10.3	6.2	4.4	4.5	-	1.3
Nitrogen content (%)	1.51	1.44	1.49	1.47	1.46	[1.43]	1.47	[1.44]	[1.57]	[1.53]	1.43	[1.48]	0.06
<b>Agronomic features</b>													
Resistance to lodging	7	6	7	6	7	7	8	6	7	7	7	7	0.5
Straw height (cm)	77	75	72	78	70	72	72	71	70	71	80	76	1.6
Ripening (+/- Optic, -ve = earlier)	+1	+2	+1	+2	0	+1	+1	-1	+1	+1	+2	0	0.8
Resistance to brackling	8	8	8	8	8	8	9	6	9	8	8	5	0.9
<b>Disease resistance</b>													
Mildew	6	9	8	9	6	[9]	[9]	[9]	[8]	[9]	[9]	[9]	1.0
Yellow rust	4	7	5	7	5	[7]	[2]	[7]	[2]	[7]	[7]	[7]	1.9
Brown rust	5	4	4	6	6	6	4	5	6	4	5	6	1.8
Rhynchosporium	6	6	6	4	4	5	6	4	5	8	6	7	1.1
Ramularia	6	6	6	6	4	[5]	[4]	[6]	[5]	[5]	[5]	[4]	3.1

This table should be read in conjunction with the HGCA Recommended List of spring barley for 2015.

[ ] = limited data      LSD = least significant difference

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

# Spring barley 2015 – 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 good resistance to brackling, combined with high resistance to mildew and yellow rust.

**MAGB comment:** Fully approved for malt distilling and the only variety fully approved for grain distilling.

### Concerto

**Quality:** Concerto has full IBD Approval for brewing and malt distilling and may be suited to European markets.

**Agronomy:** It is a relatively late-maturing variety with moderate lodging resistance but good resistance to brackling. It 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 around a half of the spring barley market.

### **NEW** Deveron

**Quality:** Added to the Recommended List 2015/16 as a high-yielding variety with malt distilling potential.

**Agronomy:** A relatively late-maturing variety. Limited data suggest that Deveron has high resistance to mildew but it is susceptible to brown rust.

**MAGB comment:** Under test by IBD and growers are advised to speak to merchants before committing to this or other varieties in this position.

### KWS Irina

**Quality:** KWS Irina is provisionally approved by IBD for brewing and may be suited to European markets.

**Agronomy:** It has given very high treated yields, with high resistance to mildew. It has relatively short straw combined with the highest lodging and brackling resistance scores of all malting varieties on the List.

**MAGB comment:** Under first year of commercial testing by IBD for brewing.

### Moonshine

**Quality:** Recommended for the North region as a malt distilling variety.

**Agronomy:** Moonshine has high resistance to mildew (based on limited data) and yellow rust but is susceptible to brown rust and rhynchosporium. It has shown earlier ripening characteristics than other malt distilling varieties. It is no longer in RL trials.

**MAGB comment:** Fully approved for malting distilling in 2013, it holds a very small share of the Scottish market.

### NFC Tipple

**Quality:** Fully IBD-approved for brewing and suited to European markets.

**Agronomy:** NFCTipple has short straw with good resistance to brackling and is relatively early maturing. It is susceptible to rhynchosporium and ramularia.

**MAGB comment:** Fully approved for brewing, its share of the UK market continues to decline.

### **NEW** Octavia

**Quality:** Added to the Recommended List 2015/16 as a high-yielding variety with potential for brewing and malt distilling.

**Agronomy:** Octavia has the best rhynchosporium resistance of the malting varieties and limited data suggest that it also has high resistance to mildew and yellow rust. It only has moderate lodging and brackling resistance.

**MAGB comment:** Under test by IBD and growers are advised to speak to merchants before committing to this or other varieties in this position.

### Odyssey

**Quality:** Fully IBD-approved for brewing and malt distilling and may be suited to European markets.

**Agronomy:** Odyssey is a relatively late-maturing variety with moderate lodging resistance but good resistance to brackling. It has high resistance to mildew and yellow rust but is susceptible to brown rust.

**MAGB comment:** Fully approved for malt distilling in 2013 and for brewing in 2014.

### **NEW** Olympus

**Quality:** Added to the Recommended List 2015/16 as a high-yielding variety with potential for malt and grain distilling.

**Agronomy:** A relatively late-maturing variety, which has shown high resistance to brown rust. Limited data suggest that Olympus also has high resistance to mildew and yellow rust but is susceptible to ramularia.

**MAGB comment:** Under test by IBD and growers are advised to speak to merchants before committing to this or other varieties in this position.

### Optic

**Quality:** Recommended for the North region. Optic has full IBD approval for malt distilling but is no longer approved for brewing.

**Agronomy:** Its yield potential is now 12% below the highest yielding malt distilling variety. It has high resistance to yellow rust and brown rust but is susceptible to mildew and very susceptible to rhynchosporium. It also has a tendency to brackle. Most varieties are later maturing than Optic. It is no longer in RL trials.

**MAGB comment:** Fully approved for malt distilling, it continues to lose support, particularly from England.

### Propino

**Quality:** Fully IBD-approved for brewing and 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 15%.

### Quench

**Quality:** A malting variety for brewing but no longer supported by the IBD. Suited to European markets.

**Agronomy:** Quench has good brackling resistance and high resistance to mildew but is susceptible to brown rust. It is no longer in RL trials.

**MAGB comment:** Removed from the IBD approved list in 2013.

# Spring barley 2015 – Variety comments

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

## **NEW** RGT Planet

**Quality:** Added to the Recommended List 2015/16 as a very high-yielding variety with malting potential for brewing.

**Agronomy:** RGT Planet has given the highest treated and untreated yields of all varieties on the 2015/16 Recommended List. It has good resistance to brackling. Early observations suggest it has high resistance to mildew but is susceptible to yellow rust.

**MAGB comment:** Under test by IBD and growers are advised to speak to merchants before committing to this or other varieties in this position.

## Sanette

**Quality:** Provisionally approved by IBD for brewing and may be suited to European markets.

**Agronomy:** It has given very high treated yields. It is a relatively late-maturing variety that has good resistance to brackling. It has shown high resistance to mildew and ramularia and limited data suggest that Sanette also has high resistance to yellow rust but it is susceptible to brown rust.

**MAGB comment:** Under second year of commercial testing by IBD for brewing.

## **NEW** Sienna

**Quality:** Added to the Recommended List 2015/16 as a high-yielding variety with potential for brewing and malt distilling.

**Agronomy:** A relatively late-maturing variety with a high specific weight and good resistance to brackling. Limited data suggest that it has high resistance to mildew.

**MAGB comment:** Under test by IBD and growers are advised to speak to merchants before committing to this or other varieties in this position.

## **NEW** Vault

**Quality:** Added to the Recommended List 2015/16 as a high-yielding variety with potential for brewing and malt distilling.

**Agronomy:** A relatively late-maturing variety. Limited data suggest that it has high resistance to mildew but it is susceptible to brown rust.

**MAGB comment:** Under test by IBD and growers are advised to speak to merchants before committing to this or other varieties in this position.

## Additions to the IBD approved malting barley list

Odyssey now has Full Approval for malt distilling and brewing. **Sanette** has been promoted to Provisional Approval 2 for brewing. **KWS Irina** has been granted Provisional Approval 1 for brewing. See [www.ukmalt.com](http://www.ukmalt.com) for more information.



## Two-row feed varieties

### Garner

Earlier than most varieties, Garner has stiff straw and high resistance to mildew and rhynchosporium. It is susceptible to brown rust and ramularia. It is no longer in RL trials.

### Hacker

A feed variety recommended for the West region, Hacker has given high yields in the West region, Hacker tends to ripen relatively early and has high lodging and brackling resistance. It has high resistance to mildew.

### Kelim

A later-maturing feed variety with stiff straw. It has high resistance to mildew and ramularia but is susceptible to brown rust.

## Rhyncostar

A feed variety that has given high yields in the North region. Rhyncostar is short strawed with good brackling resistance but moderate lodging resistance. It has high resistance to mildew and rhynchosporium but is susceptible to brown rust and ramularia. It is no longer in RL trials.

## Shada

Shada is a later-maturing feed variety which has given very high yields in both fungicide-treated and untreated trials. It is a short-strawed variety with good brackling resistance and has high resistance to mildew and ramularia.

## **NEW** Scholar

Added to the Recommended List 2015/16 as a very high-yielding feed variety. It is the highest yielding variety in the North. It is a short-strawed variety with very good brackling resistance. Limited data suggest Scholar has high resistance to mildew, yellow rust and ramularia.

## Tesla

A high-yielding feed variety with high resistance to mildew, rhynchosporium and ramularia but moderate lodging and brackling resistance.

## Waggon

A relatively early maturing feed variety with good brackling resistance. It has high resistance to mildew, yellow rust and ramularia but is susceptible to rhynchosporium.

## Westminster

Westminster is now 15% lower yielding than the highest yielding feed variety but it remains popular with mixed arable/livestock farmers due to its combination of longer than average straw and good disease resistance. It has high resistance to mildew, yellow rust, rhynchosporium and ramularia.



# Winter oats 2015/16



	Rhapsody	Balado \$	Dalguise C	Gerald C	Mascani ~ C	Fusion \$	Beacon	Grafton	Average LSD (5%)
Variety type	Husked varieties					Naked varieties			
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	
<b>UK yield (% treated control)</b>									
Fungicide-treated (8.3 t/ha)	109	105	101	101	98	77	74	71	5.1
<b>Grain quality</b>									
Kernel content (%)	72.3	73.0	75.9	73.7	78.1	-	-	-	1.0
Specific weight (kg/hl)	50.2	49.6	54.4	53.4	54.5	63.7	65.2	65.0	1.1
Screenings % through 2.0 mm	2.4	3.1	3.2	3.0	1.5	37.8	15.2	14.9	3.6
<b>Agronomic features</b>									
Resistance to lodging	-	[9]	[4]	[6]	[6]	[9]	-	[5]	1.8
Straw length (cm)	106	86	116	112	111	85	110	112	3.1
Ripening (days +/- Gerald, -ve = earlier)	0	+1	-1	0	-1	+1	0	-1	1.1
<b>Disease resistance</b>									
Mildew	[8]	4	4	3	6	3	[9]	4	1.9
Crown rust	[6]	[3]	3	5	8	[3]	[5]	[5]	1.8
<b>Treated yields with and without PGR as % treated control</b>									
With PGR (8.3 t/ha)	109	106	101	101	98	77	74	71	4.9
Without PGR (7.9 t/ha)	[103]	[95]	[101]	[105]	[94]	[78]	[77]	[72]	28.1
<b>Breeder/ UK contact</b>									
Breeder	IBERS	IBERS	Sen	IBERS	IBERS	IBERS	IBERS	IBERS	
UK contact	Sen	Sen	Sen	Sen	Sen	Sen	Sen	Sen	
<b>Status in RL system</b>									
Year first listed	14	10	03	93	04	10	14	00	
RL status	P2	-	-	-	-	-	P2	-	

Maestro	Fergus	RGT Lineout
Husked varieties		
Candidate	Candidate	Candidate
108	105	103
77.5	74.0	76.9
51.9	49.5	53.1
8.2	3.3	4.7
-	-	-
105	106	109
-2	-1	-3
[5]	[8]	[5]
[3]	[4]	[7]
108	105	103
-	-	-
IBERS	IBERS	R2n
Sen	Sen	RAGT
-	-	-
-	-	-

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

\$ = Balado and Fusion 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)

P2 = second year of recommendation

IBERS = Institute of Biological, Environmental & Rural Sciences

Sen = Senova ([www.senova.uk.com](http://www.senova.uk.com))

RAGT = RAGT Seeds ([www.ragt.co.uk](http://www.ragt.co.uk))

R2n = RAGT, France ([www.ragt.co.uk](http://www.ragt.co.uk))

LSD = least significant difference

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

## Winter oats 2015/16 – Variety comments

### Husked varieties

#### Balado

A short, relatively stiff-strawed husked variety with a high treated yield, around 7% higher than Mascani. It has a low specific weight and kernel content. It is susceptible to mildew and limited data suggest it is very susceptible to crown rust.

#### Dalguise

A husked variety with a high specific weight. It has low lodging resistance, is susceptible to mildew and very susceptible to crown rust.

#### Gerald

A husked variety. Gerald has been a very successful and popular variety but it is now declining as Mascani's market share grows. It is very susceptible to mildew.

#### Mascani

Mascani is a husked variety. It has a fungicide-treated yield 3% below Gerald but has better grain quality attributes, in terms of kernel content, specific weight and low screenings, and is the most popular winter oat variety with both millers and growers. Mascani has the best available winter oat resistance to crown rust, though a race exists to which it could be susceptible. It is less susceptible to mildew than Gerald with similar lodging resistance.

#### Rhapsody

A husked variety with very high yields. Rhapsody yields are 11% higher than Mascani but it has a low specific weight and kernel content. Based on limited data, it has high resistance to mildew.

### Naked varieties

#### Beacon

A huskless (naked) oat variety. It has a fungicide-treated yield 3% above Grafton, with a similar specific weight. Limited data suggest it has very high resistance to mildew.

#### Fusion

A huskless (naked) oat variety with short, very stiff straw. Fusion has given yields 6% above Grafton. It is very susceptible to mildew and (based on limited data) to crown rust.

#### Grafton

A huskless (naked) oat variety. It has moderate resistance to lodging and is susceptible to mildew.

## Spring oats 2015 – Variety comments

### Husked varieties

#### **NEW** Aspen

Added to the HGCA Recommended List 2015/16 as a very high-yielding husked variety. Limited data suggest it has a high specific weight and kernel content and it has given relatively high yields in untreated trials. Based on limited data, it is relatively early maturing but susceptible to crown rust.

#### Atego

A husked variety that is very early to mature. It is very susceptible to mildew and limited data suggest it is susceptible to crown rust.

#### Canyon

Canyon has replaced Firth as the most popular spring oat variety. A husked variety, it is relatively early maturing and has a high specific weight. It has high resistance to mildew but limited data suggest it is susceptible to crown rust. It has given relatively high yields in untreated trials.

#### Conway

A husked variety with a high specific weight and kernel content. It has above average mildew resistance but limited data suggest it is susceptible to crown rust.

#### Firth

A husked variety that remains popular and widely used by millers. It has a high specific weight and kernel content. Firth has above average resistance to mildew but limited data suggest it is susceptible to crown rust.

#### Husky

A husked variety that is very early to mature. It has a high specific weight and kernel content and above average resistance to mildew. It is no longer in RL trials.

### Monaco

A husked variety which is relatively early maturing. Monaco has a low specific weight and kernel content. It is susceptible to mildew and (based on limited data) crown rust.

#### **NEW** Montrose

Added to the HGCA Recommended List 2015/16 as a high-yielding husked variety. Limited data suggest it has a high specific weight and high lodging resistance. It is susceptible to mildew and limited data suggest it is very susceptible to crown rust.

#### Rozmar

A husked variety with a mean yield that is similar to Firth's but with a lower kernel content and specific weight. Limited data suggest it has high resistance to crown rust.

#### SW Argyle

A husked variety that is relatively late to mature. Limited data suggest it has high resistance to crown rust. It is no longer in RL trials.

### Naked varieties

#### Lennon

A variety for the relatively small huskless (naked) spring oat market. As with the winter naked varieties, it has a yield potential that is substantially lower than the husked types; in this case, its yield is 37% below that of the highest yielding husked variety. It has a high specific weight and is relatively early maturing. It is no longer in RL trials.

# Spring oats 2015



	RECOMMENDED	NEW	NEW	C	C	C	*	*	*	Average LSD (5%)	
	Aspen	Montrose	Monaco	Canyon	Conway	Firth	Rozmar	SW Argyle	Atego	Husky	
Variety type	Husked varieties										
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	
<b>UK yield (% treated control)</b>											
Fungicide-treated (7.9 t/ha)	108	104	103	101	101	100	99	98	97	97	3.7
Untreated as % of treated control	[92]	[87]	82	93	88	87	83	85	77	83	5.8
<b>Grain quality</b>											
Kernel content (%)	[77.7]	[76.7]	75.1	76.2	77.9	78.7	75.1	76.6	76.3	78.6	1.1
Specific weight (kg/hl)	[55.2]	[55.7]	51.8	55.1	54.6	54.2	53.7	53.5	53.6	55.7	0.8
Screenings % through 2.0 mm	[1.3]	[0.7]	[3.2]	1.2	[1.2]	2.3	2.6	[1.2]	3.0	[1.7]	1.8
<b>Agronomic features</b>											
Resistance to lodging	[7]	[8]	[7]	[7]	[7]	7	[6]	[7]	[7]	[7]	1.0
Straw length (cm)	105	108	104	115	108	106	113	111	103	109	2.4
Ripening (days +/- Firth, -ve = earlier)	[-2]	[-1]	-2	-2	0	0	-1	+2	-3	-3	+1
<b>Disease resistance</b>											
Mildew	6	4	4	8	7	7	6	6	3	7	0.7
Crown rust	[4]	[3]	[4]	[4]	[4]	[4]	[8]	[9]	[4]	[5]	1.2
<b>Breeder/UK contact</b>											
Breeder	Bau	Lant	SF	Nord	IBERS	KWS	Selg	Lant	Selg	Nord	
UK contact	Sen	Sen	Sen	SU	Sen	KWS	Cope	Sen	Cope	SU	
<b>Status in RL system</b>											
Year first listed	15	15	14	11	14	00	11	03	07	08	
RL status	P1	P1	P2	-	P2	-	-	*	-	*	

	*			
	Lennon †	Symphony	WPB Valdez	Glamis
Variety type	Naked variety	Husked varieties		Husked variety
Scope of recommendation	Described	Candidate	Candidate	Not added to the RL
<b>UK yield (% treated control)</b>				
Fungicide-treated (7.9 t/ha)	[71]	[102]	[102]	101
Untreated as % of treated control	[61]	[86]	[92]	[89]
<b>Grain quality</b>				
Kernel content (%)	-	[77.0]	[75.8]	[76.0]
Specific weight (kg/hl)	[64.5]	[53.3]	[51.8]	[55.7]
Screenings % through 2.0 mm	[20.8]	[1.4]	[3.9]	[1.6]
<b>Agronomic features</b>				
Resistance to lodging	[6]	[7]	[8]	[7]
Straw length (cm)	[102]	[119]	[111]	105
Ripening (days +/- Firth, -ve = earlier)	[-2]	[-1]	[-1]	[-2]
<b>Disease resistance</b>				
Mildew	7	4	7	6
Crown rust	[5]	[4]	[7]	[4]
<b>Breeder/UK contact</b>				
Breeder	IBERS	Nord	Wier	IBERS
UK contact	Sen	SU	KWS	Sen
<b>Status in RL system</b>				
Year first listed	-	-	-	-
RL status	*	-	-	-



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  
 † = Lennon is a naked variety that is not eligible for recommendation  
 P1 = first year of recommendation  
 P2 = second year of recommendation

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

Selg = Selgen, Czech Republic  
 Sen = Senova ([www.senova.uk.com](http://www.senova.uk.com))  
 SF = Saatucht Firlbeck, Germany  
 SU = Saaten Union UK ([www.saaten-union.co.uk](http://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 5% confidence level.



# Winter oilseed rape 2015/16 – East/West region

## Yield, quality, agronomy and disease resistance



	NEW	NEW	NEW	NEW	NEW	NEW	NEW	NEW	NEW	NEW	NEW	C	*	C	*	*	*	*	*				Other varieties					
	V316 OL~	Popular	SY Harnas	Picto	Campus	Incentive	Arazzo	Charger	Fencer	Harper	Mentor \$	Trinity	PT211	Marathon	PR46W21	Rivalda	Sesame	Avatar	DK Cabernet	Compass	DK Camelot	Troy #	Quartz	Fashion	DK Expower	Cracker \$	Average LSD (5%)	DK Imagine CL #&
Variety type	RH	RH	RH	Conv	Conv	RH	RH	Conv	RH	RH	RH	Conv	RH	RH	RH	Conv	Conv	RH	Conv	RH	Conv	RH	Conv	Conv	RH	RH		RH
Scope of recommendation	UK	E/W	UK	E/W	UK	UK	E/W	E/W	E/W	E/W	Sp	E/W	UK	E/W	E/W	E/W	E/W	E/W	E/W	UK	E/W	Sp	E/W	E/W	UK	Sp		Described
<b>Gross output (yield adjusted for oil content) as % control</b>																												
Fungicide-treated (5.3 t/ha)	109	107	107	107	106	106	106	106	105	104	103	103	103	102	102	101	101	101	101	100	100	99	99	99	98	95	4.7	95
<b>Seed yield as % control</b>																												
Fungicide-treated (5.0 t/ha)	108	106	108	107	105	105	108	107	103	103	102	103	102	104	101	102	102	100	100	98	99	100	99	99	98	95	4.3	96
<b>Agronomic features</b>																												
Resistance to lodging	8	8	8	[8]	8	8	[8]	8	[8]	8	8	8	8	8	8	8	8	8	8	8	7	8	8	8	7	8	0.3	8
Stem stiffness	8	8	7	8	8	8	8	9	8	7	9	8	8	8	8	7	8	7	9	8	6	9	7	8	6	8	0.5	9
Shortness of stem	6	6	7	6	6	6	6	7	6	6	7	7	6	7	6	7	6	7	7	6	8	8	7	6	6	6	0.3	9
Earliness of flowering	7	6	7	6	6	7	8	8	7	7	6	6	6	7	6	7	6	8	5	6	7	6	5	6	8	7	0.4	4
Earliness of maturity	5	5	5	5	5	5	5	5	5	6	5	5	5	5	5	4	6	5	5	5	6	5	5	5	6	5	0.4	6
<b>Seed quality (at 9% moisture)</b>																												
Oil content, fungicide-treated (%)	46.0	46.0	44.2	44.4	45.6	45.7	43.6	44.0	46.0	45.1	45.4	43.9	45.7	44.5	44.2	45.3	45.0	45.8	45.6	44.5	45.0	44.5	44.6	44.4	44.4	0.3	44.0	
Glucosinolate (µmoles/g of seed)	12.9	10.4	12.3	11.6	11.2	10.1	12.0	10.3	9.0	10.0	10.2	10.0	10.6	10.9	12.6	12.2	12.8	10.1	10.1	9.7	10.5	12.0	10.4	11.9	11.8	10.4	-	10.6
<b>Disease resistance</b>																												
Light leaf spot	6	6	7	5	6	6	5	4	5	6	5	6	6	5	5	5	6	5	6	6	5	6	5	5	6	7£	0.8	6
Stem canker	6	5	6	5	5	4	4	4	8	8	3	6	5	3	3	5	[4]	4	6	[4]	6	4	9	5	8	4	1.2	5
<b>Status in RL system</b>																												
Year first listed	15	15	15	15	15	14	15	14	15	14	15	14	13	13	09	13	11	13	10	11	12	13	13	10	12	12		-
RL status	P1	P1	P1	P1	P1	P2	P1	P2	P1	P2	P1	P2	-	-	-	-	*	-	-	*	*	-	-	*	*	-		-

Varieties no longer listed in the East/West region: Rhino, Vision, PR45D05 and Cash

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

There is a target plant population of 40 plants per square metre for RL trials. Maximum seed rates are 70 seeds/sqm for hybrids and 100 seeds/sqm for conventional varieties and may be below these levels 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

RH = restored hybrid

Conv = conventional open-pollinated variety

\* = variety no longer in trial in region

£ = high levels of disease have been observed in Scotland on Cracker and further tests are being undertaken. Growers in Scotland should bear this in mind when considering fungicide inputs

~ = V316 OL is a high oleic, low linolenic (HOLL) variety

LSD = least significant difference

C = yield control (for current table; Excalibur and Vision were also used as yield controls but are no longer in trial)

[ ] = limited data

\$ = Mentor and Cracker are recommended for growing on land infected with common strains of clubroot; they may, however, be infected by some strains and infections have been reported in some fields

# = semi-dwarf varieties that are believed to carry the Bzh dwarfing gene in the heterozygous state but this has not been verified in RL tests

& = DK Imagine CL is an example of a Clearfield® variety, with tolerance to specific imidazolinone herbicides

P1 = first year of recommendation

P2 = second year of recommendation

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



# Winter oilseed rape 2015/16 – East/West region

## Supplementary data



	NEW	NEW	NEW	NEW	NEW	NEW	NEW	NEW	NEW	NEW	NEW	NEW	NEW	C	*	C	*	*	*	*	*	*	*		Other varieties			
	V316 OL ~	Popular	SY Hamas	Picto	Campus	Incentive	Arazzo	Charger	Fencer	Harper	Mentor \$	Trinity	PT211	Marathon	PR46W21	Rivalda	Sesame	Avatar	DK Cabemet C	Compass	DK Camelot *	Troy #	Quartz	Fashion	DK Expower *	Cracker \$	Average LSD (5%)	DK Imagine CL #&
Variety type	RH	RH	RH	Conv	Conv	RH	RH	Conv	RH	RH	RH	Conv	RH	RH	RH	Conv	Conv	RH	Conv	RH	Conv	RH	Conv	Conv	RH	RH		RH
Scope of recommendation	UK	E/W	UK	E/W	UK	UK	E/W	E/W	E/W	E/W	Sp	E/W	UK	E/W	E/W	E/W	E/W	E/W	E/W	UK	E/W	Sp	E/W	E/W	UK	Sp		Described
<b>Breeder/ UK contact</b>																												
Breeder	Mon	DSV	Syn	Mom	Mom	LSPB	LSPB	Mom	Bay	BayR	Lemb	Lant	DP	DSV	DP	KWS	LSPB	LSPB	DK	DSV	DK	LSPB	KWS	Lant	DK	LSPB		DK
UK contact	Mon	DSV	Syn	KWS	KWS	DSV	RAGT	KWS	Bay	Bay	LSPB	Els	DP	DSV	DP	KWS	LSPB	LSPB	DK	DSV	DK	DSV	KWS	Sen	DK	LSPB		DK
<b>Annual treated gross output (yield adjusted for oil content) as % control</b>																												
2011 (6.2 t/ha)	-	-	-	-	-	100	-	100	-	104	-	103	101	104	103	100	97	103	103	99	99	102	99	97	100	93	5.3	97
2012 (4.4 t/ha)	[105]	[107]	[103]	[107]	[101]	[111]	[105]	[118]	[102]	[99]	[104]	[100]	104	103	102	102	102	99	100	98	98	100	97	100	94	93	7.0	96
2013 (5.3 t/ha)	104	105	108	107	107	107	106	104	108	105	102	109	106	103	102	101	105	102	101	102	101	98	105	99	99	97	4.2	95
2014 (5.4 t/ha)	116	111	110	108	109	110	108	107	105	106	105	99	102	101	101	102	-	101	98	-	101	97	96	-	99	97	5.6	93
<b>Agronomy</b>																												
Plant height (cm)	157	150	147	152	154	154	150	139	152	151	148	144	154	145	153	145	154	148	148	156	135	134	139	151	149	155	2.8	126
<b>Harvest method – gross output (yield adjusted for oil content) as % control</b>																												
Swathed (6.0 t/ha)	[106]	[107]	[104]	[105]	[105]	[111]	[103]	[106]	[104]	[104]	[108]	[102]	[103]	[102]	103	101	98	[99]	100	98	98	[96]	[101]	97	98	96	9.2	[90]
Desiccated (5.3 t/ha)	114	110	108	107	107	106	105	105	105	105	104	105	103	103	102	101	102	102	101	100	100	100	99	99	98	95	4.2	97

UK = recommended for both the East/West and North regions  
 E/W = recommended for the East/West 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; Excalibur and Vision were also used as yield controls but are no longer in trial)  
 [ ] = limited data  
 LSD = least significant difference

\$ = Mentor and Cracker are recommended for growing on land infected with common strains of clubroot; they may, however, be infected by some strains and infections have been reported in some fields  
 # = semi-dwarf varieties that are believed to carry the *Bzh* dwarfing gene in the heterozygous state but this has not been verified in RL tests  
 & = DK Imagine CL is an example of a Clearfield® variety, with tolerance to specific imidazolinone herbicides  
 ~ = V316 OL is a high oleic, low linolenic (HOLL) variety

Bay = Bayer CropScience ([www.bayercropscience.co.uk](http://www.bayercropscience.co.uk))  
 BayR = Bayer CropScience Raps ([www.bayercropscience.co.uk](http://www.bayercropscience.co.uk))  
 DK = DEKALB ([www.dekalb.co.uk](http://www.dekalb.co.uk))  
 DP = DuPont Pioneer ([www.pioneer.com/uk](http://www.pioneer.com/uk))  
 DSV = DSV United Kingdom ([www.dsv-uk.co.uk](http://www.dsv-uk.co.uk))  
 Els = Elsoms Seeds ([www.elsoms.com](http://www.elsoms.com))  
 KWS = KWS UK ([www.kws-uk.com](http://www.kws-uk.com))  
 Lant = Lantmannen SW Seed BV, Sweden  
 Lemb = Lembke, Germany  
 LSPB = LS Plant Breeding ([www.lspb.eu](http://www.lspb.eu))  
 Mom = Momont, France  
 Mon = Monsanto UK Ltd ([www.monsanto.com](http://www.monsanto.com))  
 RAGT = RAGT Seeds ([www.ragt.co.uk](http://www.ragt.co.uk))  
 Sen = Senova ([www.senova.uk.com](http://www.senova.uk.com))  
 Syn = Syngenta UK Ltd ([www.syngenta.co.uk](http://www.syngenta.co.uk))

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



# Winter oilseed rape 2015/16 – North region

## Yield, quality, agronomy and disease resistance

	RECOMMENDED	NEW	NEW	NEW	NEW	NEW	NEW			*	*		*	NEW	*				
	SY Hamas	DK Explicit	V316 OL ~	Campus	DK Exentiel	PT234	Anastasia	Incentive	Boheme	Artoga	DK Expower *	PT211	Compass	Mentor \$	Catana	Troy #	Cracker \$	Average LSD (5%)	
Variety type	RH	RH	RH	Conv	RH	RH	Conv	RH	Conv	RH	RH	RH	RH	RH	Conv	RH	RH		
Scope of recommendation	UK	N	UK	UK	N	N	N	UK	N	N	UK	UK	UK	Sp	N	Sp	Sp		
<b>Gross output (yield adjusted for oil content) as % control</b>																			
Fungicide-treated (5.2 t/ha)	[114]	[111]	[111]	[110]	[109]	[109]	109	109	107	104	103	103	102	[102]	102	100	97	7.7	
<b>Seed yield as % control</b>																			
Fungicide-treated (4.7 t/ha)	[114]	[108]	[108]	[108]	[108]	[107]	109	107	104	104	103	102	100	[100]	100	100	97	7.2	
<b>Agronomic features</b>																			
Resistance to lodging	8	7	8	8	8	[8]	8	8	8	8	7	8	8	8	8	8	8	0.3	
Stem stiffness	7	7	8	8	7	7	8	8	7	7	6	8	8	9	8	9	8	0.6	
Shortness of stem	7	5	6	6	6	6	7	6	7	6	6	6	6	7	6	8	6	0.3	
Earliness of flowering	7	6	7	6	7	7	6	7	8	7	8	6	6	6	6	6	7	0.5	
Earliness of maturity	5	5	5	5	6	6	5	5	6	6	6	5	5	5	5	5	5	0.5	
<b>Seed quality (at 9% moisture)</b>																			
Oil content, fungicide-treated (%)	44.3	45.9	45.5	45.3	44.5	45.5	44.1	45.0	45.4	43.9	44.1	44.9	45.4	45.9	45.3	44.1	44.1	0.6	
Glucosinolate (µmoles/g of seed)	12.3	10.4	12.9	11.2	11.4	10.4	11.1	10.1	11.2	11.6	11.8	10.6	9.7	10.2	14.3	12.0	10.4	-	
<b>Disease resistance</b>																			
Light leaf spot	7	6	6	6	6	6	6	6	6	7	6	6	6	5	7	6	7f	0.8	
Stem canker	6	8	6	5	8	6	5	4	5	4	8	5	[4]	3	3	4	4	1.2	
<b>Status in RL system</b>																			
Year first listed	15	15	15	15	15	15	13	14	13	12	13	13	11	15	08	13	11		
RL Status	P1	P1	P1	P1	P1	P1	-	P2	-	*	*	-	*	P1	*	-	-		

Other varieties

DK Imagis CL &
RH
Described
[108]
[106]
8
7
6
6
5
45.1
11.7
6
5
-
-

Varieties no longer listed for the North region: Cuillin, DK Imagine CL, Pendulum, PR45D05 and Temple

On the 1–9 scales, high figures indicate that a variety shows the character to a high degree (eg high resistance). There may be races of light leaf spot present in Scotland to which varieties with high resistance are susceptible.

There is a target plant population of 40 plants per square metre for RL trials. Maximum seed rates are 70 seeds/sqm for hybrids and 100 seeds/sqm for conventional varieties and may be below these levels 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

[ ] = limited data  
 \$ = Mentor and Cracker are recommended for growing on land infected with common strains of clubroot; they may, however, be infected by some strains and infections have been reported in some fields  
 For this table, DK Cabernet, Excalibur, PR46W21 and Vision were the yield controls, but are not recommended for the North region

~ = V316 OL is a high oleic, low linolenic (HOLL) variety  
 £ = high levels of disease have been observed in Scotland on Cracker and further tests are being undertaken. Growers in Scotland should bear this in mind when considering fungicide inputs  
 LSD = least significant difference

# = 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  
 & = DK Imagis CL is an example of a Clearfield® variety, with tolerance to specific imidazolinone herbicides  
 P1 = first year of recommendation  
 P2 = second year of recommendation

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

# Winter oilseed rape 2015/16 – North region

## Supplementary data



	RECOMMENDED	NEW	NEW	NEW	NEW	NEW	NEW			*	*		*	NEW	*				
	SY Harmas	DK Explicit	V316 OL ~	Campus	DK Exentiel	PT234	Anastasia	Incentive	Boheme	Artoga	DK Expower	PT211	Compass	Mentor \$	Catana	Troy #	Cracker \$	Average LSD (5%)	
Variety type	RH	RH	RH	Conv	RH	RH	Conv	RH	Conv	RH	RH	RH	RH	RH	Conv	RH	RH		
Scope of recommendation	UK	N	UK	UK	N	N	N	UK	N	N	UK	UK	UK	Sp	N	Sp	Sp		
<b>Breeder/ UK contact</b>																			
Breeder	Syn	DK	Mon	Mom	Mon	DP	Lim	LSPB	SCP	Lim	DK	DP	DSV	Lemb	DK	LSPB	LSPB		
UK contact	Syn	DK	Mon	KWS	DK	DP	Lim	DSV	Syn	Lim	DK	DP	DSV	LSPB	DK	DSV	LSPB		
<b>Annual treated gross output (yield adjusted for oil content) as % control</b>																			
2011 (5.5 t/ha)	-	-	-	-	-	-	[104]	[106]	[102]	[99]	[109]	[101]	[102]	-	[102]	[105]	[102]	8.5	
2012 (4.3 t/ha)	[110]	[103]	[107]	[105]	[109]	[109]	[107]	[107]	[104]	[96]	[97]	[102]	[99]	[104]	[100]	[103]	[95]	13.4	
2013 (5.0 t/ha)	[110]	[110]	[105]	[104]	[109]	[107]	[113]	[113]	[107]	[111]	[103]	[107]	[105]	[102]	[97]	[99]	[99]	12.0	
2014 (5.4 t/ha)	[118]	[115]	[115]	[116]	[109]	[110]	[114]	[110]	[114]	[111]	[102]	[104]	-	[101]	[107]	[95]	[91]	8.9	
<b>Agromony</b>																			
Plant height (cm)	146	163	157	154	153	150	147	154	149	156	149	154	156	148	150	134	154	3.4	
<b>Harvest method - gross output (yield adjusted for oil content) as % control</b>																			
Swathed (5.3 t/ha)	[115]	[112]	[114]	[110]	[116]	[110]	[110]	[120]	[103]	[102]	[107]	[102]	[98]	[100]	[101]	[98]	[98]	13.9	
Desiccated (5.0 t/ha)	[119]	[118]	[116]	[116]	[109]	[110]	109	108	108	104	102	103	103	[100]	103	101	97	8.7	

### Other varieties

DK Imagis CL &
RH
Described
DK
DK
-
[109]
[105]
[108]
157
[113]
[105]

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  
 For this table, DK Cabernet, Excalibur, PR46W21 and Vision were the yield controls, but are not recommended for the North region

\$ = Mentor and Cracker are recommended for growing on land infected with common strains of clubroot; they may, however, be infected by some strains and infections 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  
 & = DK Imagis CL is an example of a Clearfield® variety, with tolerance to specific imidazolinone herbicides  
 ~ = V316 OL is a high oleic, low linolenic (HOLL) variety  
 LSD = least significant difference

DK = DEKALB ([www.dekalb.co.uk](http://www.dekalb.co.uk))  
 DP = DuPont Pioneer ([www.pioneer.com/uk](http://www.pioneer.com/uk))  
 DSV = DSV United Kingdom ([www.dsv-uk.co.uk](http://www.dsv-uk.co.uk))  
 KWS = KWS UK ([www.kws-uk.com](http://www.kws-uk.com))  
 Lemb = Lembke, Germany  
 Lim = Limagrain UK ([www.limagrain.co.uk](http://www.limagrain.co.uk))  
 LSPB = LS Plant Breeding ([www.lspb.eu](http://www.lspb.eu))  
 Mom = Momont, France  
 Mon = Monsanto UK Ltd ([www.monsanto.com](http://www.monsanto.com))  
 SCP = Syngenta Crop Protection ([www.syngenta.co.uk](http://www.syngenta.co.uk))  
 Syn = Syngenta UK Ltd ([www.syngenta.co.uk](http://www.syngenta.co.uk))

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



# Winter oilseed rape trials harvest 2015 – East/West region

## Candidate varieties



	Previous name	Variety ID	Variety type	Gross output (%)	Treated seed yield (%)	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
<b>Control varieties</b>															
	Excalibur	1684	RH	98	99	44.5	8	7	145	7	7	6	5		
	Vision	1953	Conv	100	100	44.6	9	8	147	4	5	5	6		
	PR46W21	1970	RH	102	101	46.0	9	8	150	5	5	4	4		
	DK Cabernet	2019	Conv	100	100	45.2	9	8	146	3	5	6	7		
<b>Candidate varieties</b>															
	Wembley	LSF 1240	2617	RH	110	109	45.5	9	8	146	7	5	6	6	LS Plant Breeding
	Precision	LE12/253	2578	RH	110	107	46.5	8	8	151	5	5	6	4	DSV UK
	Nikita	LEL12/248	2574	Conv	110	108	46.4	9	8	145	5	5	8	5	Limagrain UK
	Alizze	HR 158108	2622	RH	109	107	46.3	9	8	151	7	6	8	6	RAGT Seeds
	Einstein	WRH 424	2587	RH	109	108	45.7	9	8	146	6	6	5	4	DSV UK
	Elgar	SWO24120	2637	Conv	108	107	45.7	9	8	146	6	6	7	7	Elsoms Seeds
	Windozz	HR 381536	2623	RH	108	108	45.0	9	8	146	7	6	6	6	RAGT Seeds
	Angus	LSF 1241	2615	RH	107	107	45.3	9	8	153	7	6	6	8	LS Plant Breeding
	V 324 OL		2591	RH	106	104	46.7	9	8	154	5	5	7	6	HOLL Monsanto UK
	Mean of controls (t/ha)				5.6	5.2	-	-	-	-	-	-	-		
	LSD 5%				4.3	4.0	0.4	0.5	0.5	3.6	0.5	0.4	-	-	
	No. of trials				12	12	12	7	18	18	19	18	-	-	

Amalie is also in trial as a specialist variety with Turnip Yellows Virus resistance.

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.

HOLL = High Oleic Low Linolenic variety

Candidate varieties will be considered for the 2016/17 HGCA Recommended List

See the HGCA 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.

All data except disease ratings are taken from fungicide-treated trials

To allow direct comparisons, the data presented for control varieties are taken only from trials in which the candidate varieties have also been grown



# Winter oilseed rape trials harvest 2015 – North region

## Candidate varieties



Previous name	Variety ID	Variety type	Gross output (%)	Treated seed yield (%)	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	
<b>Control varieties</b>															
Excalibur	1684	RH	99	100	43.7	8	7	145	7	7	6	5			
Vision	1953	Conv	99	100	44.2	9	8	147	4	5	5	6			
PR46W21	1970	RH	99	98	45.4	9	8	150	5	5	4	4			
DK Cabernet	2019	Conv	103	103	44.9	9	8	146	3	5	6	7			
<b>Candidate varieties</b>															
Alizze	HR 158108	2622	RH	115	113	45.9	9	8	151	7	6	8	6	RAGT Seeds	
Barbados	MH 07 BD 054	2630	Conv	Data cannot be published as variety has not completed National List testing										KWS UK	
Nikita	LEL12/248	2574	Conv	114	111	46.2	9	8	145	5	5	8	5	Limagrain UK	
Precision	LE12/253	2578	RH	111	109	46.1	8	8	151	5	5	6	4	DSV UK	
Gardenia	MH 07 GD 089	2592	Conv	Data cannot be published as variety has not completed National List testing										KWS UK	
V 324 OL		2591	RH	111	108	46.5	9	8	154	5	5	7	6	HOLL	Monsanto UK
Pennine	DIE21/11	2601	Conv	Data cannot be published as variety has not completed National List testing										Monsanto UK	
Mean of controls (t/ha)				5.1	4.8	-	-	-	-	-	-	-	-		
LSD 5%				6.5	6.4	0.7	0.5	0.5	3.6	0.5	0.4	-	-		
No. of trials				5	5	5	7	18	18	19	18	-	-		

Amalie is also in trial as a specialist variety with Turnip Yellows Virus resistance.

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.

HOLL = High Oleic Low Linolenic variety

All data except disease ratings are taken from fungicide-treated trials

Candidate varieties will be considered for the 2016/17 HGCA Recommended List

To allow direct comparisons, the data presented for control varieties are taken only from trials in which the candidate varieties have also been grown

See the HGCA 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 oilseed rape varieties grown in RL trials in 2014 but not added to the HGCA Recommended List – East/West region



	Control varieties				Other varieties \$							Average LSD (5%)
	Excalibur	Vision	PR46W21	DK Cabernet	Combiner	Dragster	Advance	Dozen	Marble #	Attletick		
Variety type	RH	Conv	RH	Conv	RH	Conv	Conv	RH	RH	RH		
<b>Gross output (yield adjusted for oil content) as % control</b>												
Fungicide-treated (5.3 t/ha)	98	99	102	101	105	104	104	103	102	101	4.7	
<b>Seed yield as % control</b>												
Fungicide-treated (5.0 t/ha)	99	100	101	100	102	104	102	102	101	102	4.3	
<b>Agronomic features</b>												
Resistance to lodging	7	8	8	8	8	[8]	[8]	[8]	8	[8]	0.3	
Stem stiffness	7	8	8	9	8	7	8	8	8	8	0.5	
Shortness of stem	7	7	6	7	6	7	7	6	8	7	0.3	
Earliness of flowering	8	6	6	5	7	8	8	7	6	6	0.4	
Earliness of maturity	6	5	5	5	6	5	6	5	5	5	0.4	
<b>Seed quality (at 9% moisture)</b>												
Oil content, fungicide-treated (%)	44.3	43.9	45.7	45.0	46.6	44.8	46.1	45.1	45.2	44.3	0.3	
Glucosinolate (µmoles/g of seed)	17.4	13.8	12.6	10.1	9.6	10.5	14.0	13.3	11.3	14.5	-	
<b>Disease resistance</b>												
Light leaf spot	6	5	5	6	6	6	6	5	7	4	0.8	
Stem canker	4	5	3	6	5	5	4	6	4	5	1.2	
<b>Harvest method – gross output (yield adjusted for oil content) as % control</b>												
Swathed (6.0 t/ha)	99	98	103	100	[108]	[93]	[105]	[108]	[102]	[102]	9.2	
Desiccated (5.3 t/ha)	99	99	102	101	107	103	107	102	103	101	4.2	

This table should be read in conjunction with the HGCA Recommended List of winter oilseed rape for 2015/16. 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

\$ = Rinker (conventional open-pollinated variety) – data cannot be published as variety has not completed National List testing  
# = Semi-dwarf varieties that are believed to carry the *Bzh* dwarfing gene in the heterozygous state but this has not been verified in RL tests

LSD = least significant difference

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

# Winter oilseed rape varieties grown in RL trials in 2014 but not added to the HGCA Recommended List – North region



Control varieties      Other varieties \$

Variety type	Excalibur	Vision	PR46W21	DK Cabernet	Combiner	Picto	Sundance	Mantara	Popular	Marble #	Average LSD (5%)
<b>Gross output (yield adjusted for oil content) as % control</b>											
Fungicide-treated (5.2 t/ha)	101	99	[102]	98	[107]	[107]	[107]	[106]	[106]	[104]	7.7
<b>Seed yield as % control</b>											
Fungicide-treated (4.7 t/ha)	102	99.9	[100]	97.8	[104]	[108]	[105]	[106]	[104]	[103]	7.2
<b>Agronomic features</b>											
Resistance to lodging	7	8	8	8	8	[8]	8	8	8	8	0.3
Stem stiffness	7	8	8	9	8	8	7	8	8	8	0.6
Shortness of stem	7	7	6	7	6	6	7	7	6	8	0.3
Earliness of flowering	8	6	6	5	7	6	7	7	6	6	0.5
Earliness of maturity	6	5	5	5	6	5	5	6	5	5	0.5
<b>Seed quality (at 9% moisture)</b>											
Oil content, fungicide-treated (%)	43.5	43.3	45.2	44.1	46.8	[43.5]	45.2	44.1	45.4	44.8	0.6
Glucosinolate (µmoles/g of seed)	17.4	13.8	12.6	10.1	9.6	11.6	10.9	10.6	10.4	11.3	-
<b>Disease resistance</b>											
Light leaf spot	6	5	5	6	6	5	5	7	6	7	0.8
Stem canker	4	5	3	6	5	5	5	5	5	4	1.2
<b>Harvest method – gross output (yield adjusted for oil content) as % control</b>											
Swathed (5.3 t/ha)	[105]	[96]	[103]	[97]	[113]	[104]	[108]	[107]	[105]	[104]	13.9
Desiccated (5.0 t/ha)	101	100	101	98	[107]	-	[105]	[107]	[105]	[97]	8.7

This table should be read in conjunction with the HGCA Recommended List of winter oilseed rape for 2015/16. 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

\$ = SY Medal (restored hybrid) – data cannot be published as variety has not completed National List testing  
# = Semi-dwarf varieties that are believed to carry the *Bzh* dwarfing gene in the heterozygous state but this has not been verified in RL tests

LSD = least significant difference

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

# Winter oilseed rape 2015/16 – Variety comments

## Conventional varieties

### Anastasia

A conventional, open-pollinated variety recommended for the North region. It has a very high treated gross output, is stiff stemmed and has high resistance to lodging.

### Boheme

A conventional, open-pollinated variety recommended for the North region. It has a very high treated gross output and has high resistance to lodging. Boheme is a relatively early flowering and early maturing variety.

### **NEW** Campus

A conventional open-pollinated variety added to the 2015/16 Recommended Lists for both the East/West and North regions. It has a very high treated gross output, is stiff stemmed and has high resistance to lodging.

### Catana

A conventional, open-pollinated variety recommended for the North region. It is a stiff-stemmed variety and has high resistance to lodging. Catana has high resistance to light leaf spot but is very susceptible to stem canker. It is no longer in RL trials.

### Charger

An early flowering conventional, open-pollinated variety recommended for the East/West region. It has a very high treated gross output, is very stiff stemmed and has high resistance to lodging. It is susceptible to stem canker and light leaf spot.

### DK Cabernet

A conventional, open-pollinated variety recommended for the East/West region. It is relatively early maturing and short stemmed but only scores medium for stem stiffness. It is no longer in RL trials.

### DK Camelot

A conventional, open-pollinated variety recommended for the East/West region. It is relatively early maturing and short stemmed but only scores medium for stem stiffness. It is no longer in RL trials.

### Fashion

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.

### **NEW** Picto

A conventional open-pollinated variety added to the 2015/16 Recommended List for the East/West region. It is very high yielding and has the highest treated gross output of all conventional varieties on the East/West List. It is stiff stemmed and limited data suggest it has high resistance to lodging.

### Quartz

A conventional, open-pollinated variety recommended for the East/West region. It has high resistance to lodging and has very high resistance to stem canker.

### Rivalda

A conventional, open-pollinated variety recommended for the East/West region. It has high resistance to lodging.

### Sesame

A conventional, open-pollinated variety recommended for the East/West region. It is stiff stemmed and has high resistance to lodging. It is late maturing and limited data suggest it is susceptible to stem canker. 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.

## Restored hybrid varieties

### **NEW** Arazzo

A restored hybrid variety added to the 2015/16 Recommended List for the East/West region. Early flowering, this variety has given a very high treated gross output in the East/West. It is stiff stemmed and limited data suggest it has high resistance to lodging when grown at the hybrid seed rate. Arazzo is susceptible to stem canker.

### Artoga

A restored hybrid variety recommended for the North region. It has a high treated gross output and high resistance to lodging when sown at the hybrid seed rate. It has high light leaf spot resistance but is susceptible to stem canker. It is no longer in RL trials.

### Avatar

A restored hybrid variety recommended for the East/West region. It has high resistance to lodging when grown at the hybrid seed rate. Avatar is a relatively early flowering and early maturing variety. It is susceptible to stem canker.

### Compass

A restored hybrid variety recommended for both the East/West and North regions. It is stiff stemmed and has high resistance to lodging but is susceptible to stem canker. It is no longer in RL trials.

### Cracker

This restored hybrid variety has a specific recommendation for both the North and East/West regions for its resistance to the common strains of clubroot, though it may be susceptible to strains found in some fields. It is stiff stemmed with high lodging resistance when grown at the hybrid seed rate. Populations of light leaf spot in parts of Scotland have produced higher than expected levels of the disease on the previously resistant variety Cracker, indicating that new variants of light leaf spot are emerging which render the variety more susceptible, and these may become widespread. It is susceptible to stem canker.



# Winter oilseed rape 2015/16 – Variety comments

## **NEW** DK Exentiel

A restored hybrid variety added to the 2015/16 Recommended List for the North region. This variety has given a very high treated gross output in the North. It has high resistance to lodging when grown at the hybrid seed rate combined with high resistance to stem canker.

## **NEW** DK Explicit

A restored hybrid variety added to the 2015/16 Recommended List for the North region. It is a relatively tall variety that has given a very high treated gross output in the North. It has high resistance to stem canker.

## DK Expower

A restored hybrid variety recommended for both the North and the East/West regions. It has high stem canker resistance but only medium stem stiffness. It is a relatively early flowering and early maturing variety. It is no longer in RL trials.

## **NEW** Fencer

A restored hybrid variety added to the 2015/16 Recommended List for the East/West region. This variety has given a high treated gross output in the East/West. It is stiff stemmed and limited data suggest it has high resistance to lodging when grown at the hybrid seed rate. It has high resistance to stem canker.

## Harper

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

## Incentive

A restored hybrid recommended for both the East/West and North regions. It has a very high treated gross output in both regions, is stiff-stemmed and has high resistance to lodging when grown at the hybrid seed rate. It is susceptible to stem canker.

## Marathon

A restored hybrid recommended for the East/West region. It is stiff stemmed and has high resistance to lodging when grown at the hybrid seed rate. It is very susceptible to stem canker.

## **NEW** Mentor

A restored hybrid variety added to the 2015/16 Recommended Lists for both the East/West and North regions 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 very stiff stemmed with high lodging resistance when grown at the hybrid seed rate. It is very susceptible to stem canker and has a relatively low rating for light leaf spot.

## **NEW** Popular

A restored hybrid variety added to the 2015/16 Recommended List for the East/West region. It combines very high treated gross output with good stem stiffness and high resistance to lodging.

## PR46W21

A restored hybrid recommended for the East/West region. It is stiff stemmed and has high resistance to lodging when grown at the hybrid seed rate. It is very susceptible to stem canker.

## PT211

A restored hybrid recommended for both the East/West and North regions. It is stiff stemmed and has high resistance to lodging when grown at the hybrid seed rate.

## **NEW** PT234

A restored hybrid variety added to the 2015/16 Recommended List for the North region. This variety has given a very high treated gross output in the North. Limited data suggest it has high resistance to lodging when grown at the hybrid seed rate.

## **NEW** SY Harnas

A restored hybrid variety added to the 2015/16 Recommended Lists for both the East/West and North regions. It has given a very high treated gross output in both regions and has the highest gross output on the North region List. SY Harnas has high resistance to lodging when grown at the hybrid seed rate and high resistance to light leaf spot.

## Troy

This variety has a specific recommendation for both the East/West and North regions 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.

## **NEW** V316 OL

A restored hybrid HOLL (high oleic, low linolenic) variety added to the 2015-2016 Recommended Lists for both the East/West and North regions. V316 OL is the first high-quality food grade oil variety to make the List on yield and agronomic performance. It has given very high treated gross outputs in both regions and has the highest gross output on the East/West region List. It is a stiff-stemmed variety with high lodging resistance.

## Other varieties

*The following varieties are examples of the Clearfield® type. They are not on the Recommended List but have been included in RL trials to allow information to be presented here.*

## DK Imagine CL and DK Imagis CL

These varieties are two 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.  
[www.agricentre.basf.co.uk/agroportal/uk/en/crops/osr/clearfield\\_osr/clearfield.html](http://www.agricentre.basf.co.uk/agroportal/uk/en/crops/osr/clearfield_osr/clearfield.html)

# Spring oilseed rape Descriptive List 2015

	DESCRIBED	NEW	NEW	C	NEW	*	C	*	*	*	*	Average LSD (5%)	
	Mirakel	Dodger	Doktrin	Builder	Makro	Simba	Delight	Tamarin	Belinda	Larissa	Colossus	James	
Variety type	RH	RH	RH	RH	RH	RH	RH	Conv	RH	Conv	Conv	Conv	
<b>Gross output (yield adjusted for oil content) as % control</b>													
UK without fungicide (2.9 t/ha)	[107]	[106]	[106]	[105]	103	[102]	99	97	96	92	91	89	6.1
Number of trials	7	10	10	7	17	7	19	18	18	15	16	14	
<b>Seed yield as % control</b>													
UK without fungicide (2.8 t/ha)	[106]	[105]	[106]	[104]	102	[102]	99	98	97	93	91	89	5.8
<b>Seed quality (at 9% moisture)</b>													
Oil content (%)	[44.6]	[45.1]	[44.4]	[45.3]	45.0	[44.1]	44.3	43.5	43.5	43.4	43.7	44.6	0.7
Glucosinolate content (µmoles/g)	10.0	15.2	9.7	13.8	14.7	13.3	4.7	16.1	14.5	13.4	12.8	14.8	-
<b>Agronomic features</b>													
Standing ability	-	-	-	-	[8]	-	[8]	[8]	[8]	[8]	[9]	[8]	0.8
Shortness of stem	6	6	7	6	6	7	7	7	7	7	6	7	0.3
Earliness of flowering	[7]	7	7	[7]	5	[5]	8	7	8	6	5	6	0.9
Earliness of maturity	[6]	[5]	[5]	[6]	3	[6]	6	7	7	6	3	6	1.9
<b>Annual gross output (yield adjusted for oil content) as % control</b>													
2009 (2.7 t/ha)	-	-	-	-	[110]	-	[98]	[90]	[89]	[92]	[88]	[80]	9.7
2010 (2.9 t/ha)	-	-	-	-	[101]	-	[94]	[99]	[91]	[91]	[91]	[90]	12.9
2011 (2.7 t/ha)	-	[110]	[110]	-	[102]	-	[100]	[98]	[101]	[98]	[89]	[93]	10.2
2012 (3.4 t/ha)	[105]	[99]	[104]	[108]	[102]	[99]	[97]	[99]	[96]	[96]	[86]	[87]	15.6
2013 (3.0 t/ha)	[102]	[109]	[107]	[108]	[101]	[103]	[101]	[99]	[94]	[87]	[94]	[91]	10.1
2014 (3.1 t/ha)	[111]	[105]	[103]	[100]	[104]	[100]	[105]	[96]	[103]	-	-	-	11.8
<b>Breeder/ UK contact</b>													
Breeder	NPZ	Bay	NPZ	Bay	NPZ	Lant	BayR	Lant	BayR	BayR	UG	UG	
UK Contact	DSV	Bay	DSV	Bay	DSV	Sen	Bay	Sen	Bay	Bay	JTSD	JTSD	
<b>Status in DL system</b>													
Year first listed	15	14	14	15	12	15	09	10	10	09	10	11	
DL status	P1	P2	P2	P1	-	P1	*	-	*	*	*	*	

Varieties no longer listed: Ability, Amulet, Carnival, Dylan, Heros, Kumily, Orwell and Shelley

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)  
 LSD = least significant difference

Bay = Bayer CropScience ([www.bayercropscience.co.uk](http://www.bayercropscience.co.uk))  
 BayR = Bayer CropScience Raps. ([www.bayercropscience.co.uk](http://www.bayercropscience.co.uk))  
 DSV = DSV United Kingdom ([www.dsv-uk.co.uk](http://www.dsv-uk.co.uk))  
 JTSD = John Turner Seed Developments ([www.jttd.co.uk](http://www.jttd.co.uk))

Lant = Lantmannen SW Seed BV, Sweden  
 NPZ = NPZ-Lembke, Germany ([www.npz.de](http://www.npz.de))  
 Sen = Senova ([www.senova.uk.com](http://www.senova.uk.com))  
 UG = University of Guelph, Canada

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

# Spring linseed Descriptive List 2015



	Juliet	Batsman <sup>C</sup>	Brighton	Phoenix <sup>NEW</sup>	Festival	Kaolin	Cumulus	Pilgrim	Duchess	Bowler	Altess	Marquise	Artes <sup>C</sup>	GK Emma	Zenith	Serpent	Baladin <sup>*</sup>	Omegalin	Abacus <sup>C</sup>	Birdseye \$ <sup>*</sup>	Average LSD (5%)
Variety type	Seed colour brown																				
<b>Seed yield as % control</b>																					
UK without fungicide (1.8 t/ha)	111	106	104	102	102	101	101	101	100	100	99	99	99	98	97	96	96	96	96	90	10.8
Number of trials	17	19	19	11	19	19	11	11	19	16	19	13	19	19	11	16	14	11	17	19	
<b>Seed quality (at 9% moisture)</b>																					
Oil content of seed (%)	42.6	41.3	41.1	41.1	43.3	42.3	41.3	41.2	40.6	41.4	39.7	41.2	41.6	40.2	42.2	41.6	42.5	44.1	40.8	38.9	0.5
<b>Agronomic features</b>																					
Plant height (cm)	58	58	57	60	56	53	62	61	49	54	46	47	55	49	54	55	58	53	54	57	2.4
Earliness of flowering	4	6	3	5	4	4	4	3	7	4	7	8	4	7	5	3	4	6	5	3	0.9
Earliness of maturity	3	7	5	6	6	6	5	4	7	6	8	7	5	7	7	5	5	5	7	4	1.3
<b>Annual seed yield (% control)</b>																					
2009 (2.2 t/ha)	[110]	[108]	[106]	-	[99]	[102]	-	-	[101]	-	[97]	-	[100]	[94]	-	-	[101]	-	[93]	[92]	11.0
2010 (1.6 t/ha)	[117]	105	98	-	98	100	-	-	102	99	99	102	96	105	-	92	94	-	[100]	82	8.8
2011 (1.9 t/ha)	[122]	[105]	[104]	[104]	[101]	[91]	[97]	[98]	[84]	[95]	[99]	[91]	[103]	[91]	[89]	[95]	[87]	[91]	[93]	[91]	11.7
2012 (1.9 t/ha)	[88]	[102]	[112]	[106]	[104]	[110]	[101]	[97]	[108]	[105]	[106]	-	[100]	[93]	[106]	[101]	[102]	[96]	[98]	[100]	11.0
2013 (1.8 t/ha)	116	108	102	98	107	103	105	107	103	99	96	102	96	105	95	96	-	100	95	86	7.7
2014 #	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Breeder/UK contact</b>																					
Breeder	GKI	Bilt	Bilt	Pars	LaS	LaS	JTSD	JTSD	GIE	Bilt	GIE	GIE	Lim	GKI	JTSD	JTSD	LaS	TdL	JTSD	JTSD	
UK contact	Agr	Els	Els/RApp	JTSD	PC	Dalt	JTSD	JTSD	PC	Els	PC	PC	Lim	Agr	JTSD	JTSD	Dalt	PC	Sen/JTSD	JTSD/RApp	
<b>Status in DL system</b>																					
Year first listed	01	12	11	-	12	09	14	14	12	13	09	14	09	09	14	13	11	14	06	11	
DL Status	-	-	-	P1	-	-	P1	P1	-	P2	-	P1	-	-	P1	P2	*	P1	-	*	

Varieties no longer listed: Rooster and Valoal

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

P1 = first year of listing

P2 = second year of listing

\* = variety no longer in trials

C = yield control (for current table)

# = there were no yield results for 2014 due to trial failure

\$ = Birdseye is believed to be a low ALA (alpha-linolenic acid) variety but this has not been verified in HGCA tests

Agr = Agrii ([www.agrii.co.uk](http://www.agrii.co.uk))

Bilt = van de Bilt, Netherlands

Dalt = Dalton Seeds ([www.dalmark.co.uk](http://www.dalmark.co.uk))

Els = Elsoms Seeds ([www.elsoms.com](http://www.elsoms.com))

GIE = GIE Linea, France

GKI = GK Kht, Hungary

JTSD = John Turner Seed Developments ([www.jttd.co.uk](http://www.jttd.co.uk))

LaS = Laboulet Semences, France

Lim = Limagrain UK ([www.limagrain.co.uk](http://www.limagrain.co.uk))

Pars = Parsons Seeds Ltd

PC = Premium Crops ([www.premiumcrops.com](http://www.premiumcrops.com))

RApp = Robin Appel ([www.robin-appel.com](http://www.robin-appel.com))


Sen = Senova ([www.senova.uk.com](http://www.senova.uk.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 5% confidence level.

# Winter triticale Descriptive List 2015/16

DESCRIBED 	NEW	C		*	C				
	Tradiro	KWS Fido	Benetto	Agostino	Tulus	Toledo	Tribeca	Grenado	Average LSD (5%)
<b>Grain yield as % treated control</b>									
Fungicide-treated (9.0 t/ha)	[111]	111	103	103	102	102	102	97	11.5
Number of trials	6	7	9	9	9	7	9	9	
<b>Agronomic features</b>									
Lodging (%)	[3]	[2]	[2]	[0]	[0]	[0]	[8]	[0]	14.8
Straw length (cm)	[101]	[108]	114	99	103	[98]	118	96	5.5
Ripening (days +/- Benetto, -ve = earlier)	-	[0]	[0]	[0]	[0]	[2]	[1]	[1]	3.1
<b>Grain quality</b>									
Specific weight (kg/hl)	[70.5]	74.7	72.6	75.0	71.3	71.4	71.6	71.3	1.9
Protein content (%)	[10.5]	10.4	10.9	11.2	10.9	10.9	10.7	10.4	0.6
<b>Breeder/ UK contact</b>									
Breeder	Lant	Lant	Dank	Lant	Nord	Dank	Desp	Dank	
UK contact	Sen	Sen	Sen	Sen	SU	Sen	Els	Sen	
<b>Status in DL system</b>									
Year first listed	15	14	05	11	12	14	12	08	
DL status	P1	P2	-	-	*	P2	-	-	

Varieties no longer listed: Agrano, Amarillo, Constant and Ragtac

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

[ ] = limited data

P1 = first year of listing

P2 = second year of listing

C = yield control (for current table)

\* = no longer in trial

Dank = Danko, Poland

Desp = Maison Florimund Desprez, France

Els = Elsoms Seeds ([www.elsoms.com](http://www.elsoms.com))

Lant = Lantmannen SW seed BV, Sweden

Nord = Nordsaat, Germany

Sen = Senova ([www.senova.uk.com](http://www.senova.uk.com))

SU = Saaten Union UK ([www.saaten-union.co.uk](http://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 5% confidence level.

# Winter rye Descriptive List 2015/2016



DESCRIBED	NEW C *		Average LSD (5%)
	SU Mephisto	Capitan	
Variety type	Hybrid	Conv	
<b>Grain yield as % treated control</b>			
Fungicide-treated (9.3 t/ha)	100	91	5.0
Number of trials	6	8	
<b>Agronomic features</b>			
Lodging (%)	[12]	[3]	20.3
Straw length (cm)	[131]	135	8.4
Ripening (days +/- SU Mephisto, -ve = earlier)	[0]	[0]	4.1
<b>Grain quality</b>			
Protein content (%)	9.6	10.3	0.5
Hagberg Falling Number	[201]	202.0	38.0
Specific weight (kg/hl)	76.7	76.0	1.4
<b>Breeder/ UK contact</b>			
Breeder	Hybro	Dieck	
UK contact	SU	Dalt	
<b>Status in DL system</b>			
Year first listed	15	12	
DL status	-	*	

Year 3 Candidates		
SU Satellit	SU Phoenix	Inspector
Hybrid	Hybrid	Conv
[106]	[101]	[97]
4	4	4
[24]	[3]	[11]
[124]	[135]	[139]
[-1]	[0]	[0]
[9.4]	[9.7]	[9.8]
[224]	[224]	[220]
[77.2]	[77.2]	[77.2]
Hybro	Hybro	PHP
SU	SU	SU

Variety no longer listed: Askari

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

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

Dalt = Dalton Seeds  
 Dieck = Dieckmann Seeds, Germany  
 Hybro = Hybro, Germany  
 PHP = P.H.Petersen, Germany  
 SU = Saaten Union UK ([www.saaten-union.co.uk](http://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 5% confidence level.



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## Preliminary data

The selection of new varieties to promote into HGCA 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 and APHA for the use of these data.



## Processors

HGCA is grateful for the valuable contributions made by member companies of BBPA, BOBMA, MAGB, nabim, SWA and SWRI who conduct milling, baking, malting, brewing and distilling tests both at the preliminary and Recommended List stages.



## Committee members and growers

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



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For specific Recommended Lists enquiries, call 024 7647 8746 or email [rl@hgca.ahdb.org.uk](mailto:rl@hgca.ahdb.org.uk)

## HGCA

Stoneleigh Park  
Warwickshire  
CV8 2TL

Publication orders  
T 0845 245 0009  
E [hgca@cambertown.com](mailto:hgca@cambertown.com)

## Test and trials contractors

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