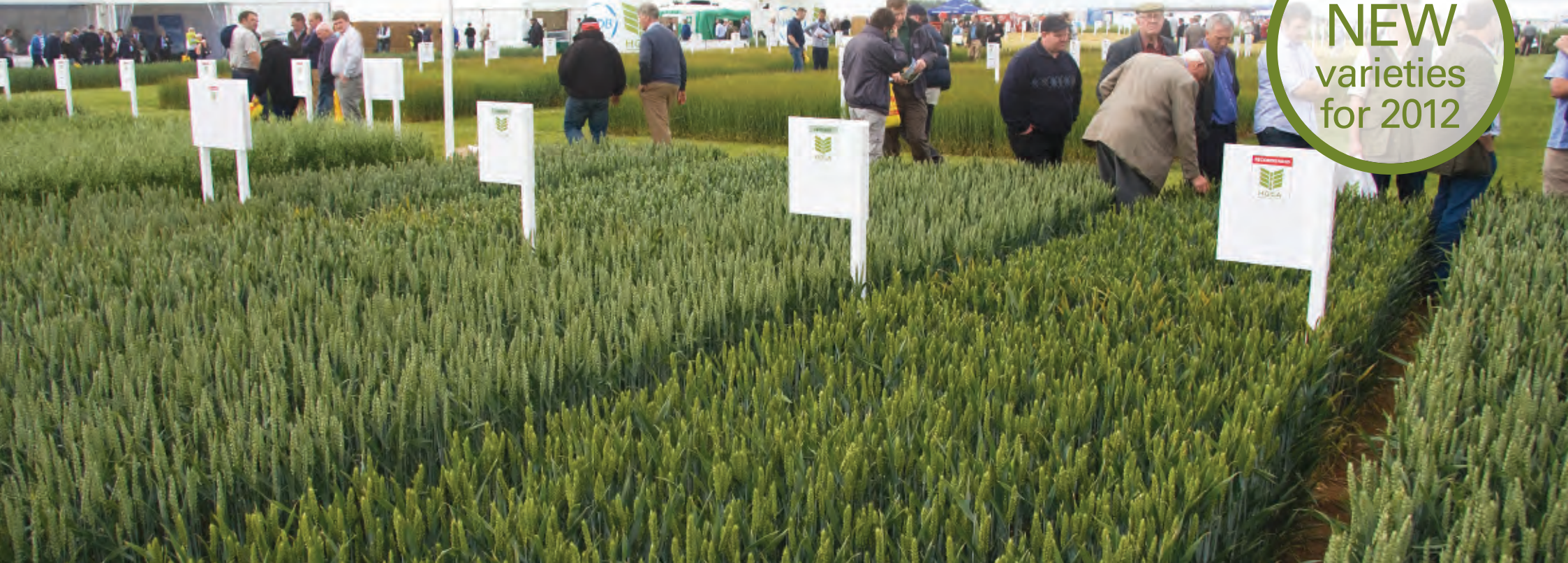


HGCA Recommended Lists 2012/13 for cereals and oilseeds

28
NEW
varieties
for 2012



Agriculture & Horticulture
DEVELOPMENT BOARD

Produced in
partnership by:



British Society of
Plant Breeders



Maltsters Association
of Great Britain



National Association of
British and Irish Millers

Updated April 2012

For more information, see
www.hgca.com/varieties/rl-plus

Using the HGCA Recommended Lists

1. Select a variety for or 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.

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). For more information on regional disease risks, see page 7.

Pages colour-coded by crop type

Varities ranked by UK treated yield

Yield data

Market options

Quality data

Key to symbols used in the table

Yield data

Agronomic features

Disease resistance

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

More detailed information is available in these tables, including the consistency of yield over several seasons, performance as first and second crops in the rotation, performance on light and heavy soils, speed of development and latest safe sowing date for winter cereals.

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.

Further information is available from the RL *Plus* tool at www.hgca.com/varieties/rl-plus. This web-based tool enables you to interrogate the Recommended Lists to suit your specific cropping requirements.



The HGCA Recommended Lists data is also available in a pocketbook format. Email publications@hgca.ahdb.org.uk for more information.



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HGCA Recommended Lists update 2012/13

NEW varieties for 2012/13

Winter wheat

Crusoe – Group 1
Torch – Group 3
Horatio – Group 4
KWS Gator – Group 4
Relay – Group 4

Spring wheat

KWS Alderon – Group 4

Winter barley

Archer – Two-row malting, under test by IBD
SYVenture – Two-row malting, under test by IBD
KWS Meridian – Six-row feed

Spring barley

Chronicle – Under test by IBD
Odyssey – Under test by IBD
Overture – Under test by IBD

Winter oilseed rape

Artoga – Restored hybrid
Cracker – Restored hybrid
DK Camelot – Conventional
DK Expower – Restored hybrid
Palace – Restored hybrid
Thorin – Restored hybrid, semi-dwarf

Spring oilseed rape

Makro

Spring linseed

Batsman
Rooster
Festival
Duchess
Libra

Winter triticale

Tribeca
Tulus

Winter rye

Agronom
Capitan

Additions to the IBD approved malting barley list

Propino and Winsome have been granted Full Approval for brewing.

Moonshine and Shuffle have been granted Provisional Approval 1 for brewing.

Yellow and brown rust in wheat

Yellow rust

In 2011, a new yellow rust race was detected that affects the variety Warrior (current rating 8). An increase in frequency of this new race will have an impact on the susceptibility of resistant varieties in the 2012 season.



The impact of the new race on the yellow rust ratings of all Recommended List varieties is currently under test and will be reported in an HGCA Topic Sheet in spring 2012.

Preliminary information suggests that if the new race is widespread in 2012, Warrior (current rating 8) is likely to be more severely affected and Grafton (8) and Cordiale (7) are likely to be more commonly infected. KWS Sterling (9) may be susceptible at the seedling stage but it is not known if it is resistant as an adult plant. Stigg (9) and Crusoe (9) appear to be resistant to the new race.

Brown rust

A new race of brown rust was detected in 2011 that can affect Stigg (current rating 9) and Warrior (current rating 8). If this new race is widespread in 2012, these two varieties are likely to be more susceptible. Cocoon (9) and Tuxedo (8) are likely to be susceptible to the new race at the seedling stage but show resistance at the adult stage.



A brown rust race known to affect the variety Robigus also became more common in 2011. Other varieties known to be susceptible to this race, including Scout (current rating 9), Viscount (8), Gravitas (7) and Invicta (7), may be more susceptible to brown rust in 2012. KWS Sterling (current rating 8) may also be more susceptible to brown rust if a different race which attacks this variety were to become more common – but at the moment there is no evidence that this is happening.

All varieties should be monitored closely in the 2012 season, particularly in regions with a high risk of infection (see page 7). This information is from the UK Cereal Pathogen Virulence Survey (UKCPVS).

More variety information from HGCA

RL Plus

This web-based tool allows you to interrogate the RL data to suit your specific cropping requirements. Sort varieties by the characteristics most important to you, inspect individual trial results and see how varieties might perform under your conditions.

Visit www.hgca.com/varieties/rl-plus



Harvest Results

Throughout the 2012 harvest, yield data from HGCA Recommended List trials are made available through the Harvest Results service, delivered by fax or email.

Email subscriptions@hgca.ahdb.org.uk or phone 024 7647 8730 to sign up



Variety Plots

Visit the HGCA stand at Cereals 2012 to see plots of all the Recommended List varieties.

Variety information will also be available at a number of other events throughout the year.

Visit www.hgca.com/events for more information



CropMonitor

Get in-season information on emerging disease threats from www.cropmonitor.co.uk



Markets for wheat

Wheat



Flour milling

The largest single market for quality wheat is for flour production with almost 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. Providing 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.

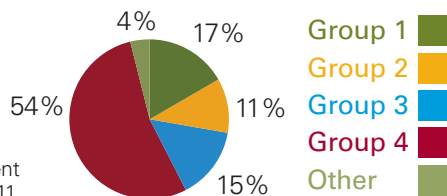
Group 2 varieties are also mainly used for breadmaking but, because of either their inherent inconsistency or specific characteristics, are not suited to all grists. These varieties are likely to attract varying market prices. Lower protein Group 2 wheats are also widely used by millers but will attract 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.

2011 GB wheat crop by end-use category

Source: Agriculture and Horticulture Development Board Variety Survey 2011



Cereal foods

The UK is the largest producer and consumer of cereals for breakfast cereals, cereal snacks and similar foods within the EU27. Although most requirement is focused on maize and oats, a significant amount of wheat and barley (often malted) is also required. Much of the wheat that is used consists of Group 3 and 4 varieties. Quality requirements vary and premiums may be available depending on markets and usage. At least two manufacturers operate a 'club' arrangement for their preferred suppliers.

Distilling

Varieties for distilling are defined with assistance from the Scotch Whisky Association and the Scotch Whisky Research Institute who test new varieties and rate them as either good or moderately good for distilling. The potable ethanol industry's needs are well defined: soft wheat of low protein (high starch) content with easy processing characteristics.






Biofuels

Wheat is becoming a major UK biofuel crop. Processors require grain giving good alcohol yields and high processing efficiency. The industry does not currently specify preferred varieties.

Starch production

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

Typical specifications

	 Group 1	 Group 2	 Group 3		
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)
Ad mix	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	80-120
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.

Export

The UK exports around 2.5 million tonnes of wheat per year (based on a five-year average) accounting for approximately 15% of the UK wheat market. Exports help to prevent oversupply of the domestic market which in turn helps to uphold base prices across the UK relative to world prices. Growers located within 50 miles of a port should consider growing quality milling wheat to meet the requirements for export as this gives additional grain marketing opportunities.

HGCAs export team tests new wheat varieties to determine their suitability for overseas customers. Suitable varieties are classified as *ukp* or *uks* and this information is included in the Recommended Lists to enable the right varieties to be selected for this market.

ukp varieties are typically used for breadmaking in overseas markets and *uks* varieties are soft biscuit types used for blending into bread grists or for biscuits and patisserie. These varieties should be managed to achieve the specifications shown in the table below.

Some overseas markets, particularly in North Africa, prefer lower moisture and growers should consider aiming for a moisture content, through careful drying and storage, of 14% or less if intending to market their grain for export.

For more information on supplying the export market, please visit www.hgca.com/exports

Markets for barley, oats and oilseed rape

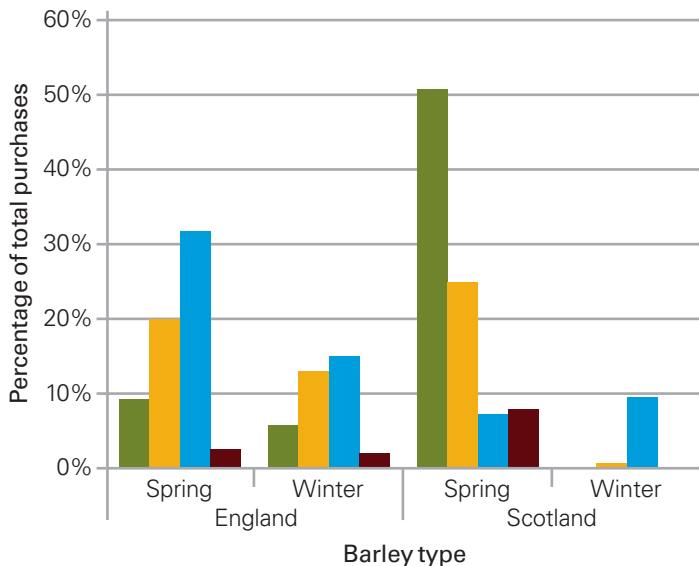


The UK produces around 5.7Mt of barley a year (based on a five-year average). The main markets are for human and industrial uses such as malting, brewing and distilling, which account for 30% of barley available on the UK market, and animal feed, which accounts for 55%.

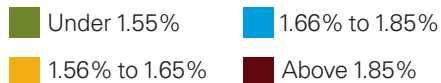
The Maltsters' Association of Great Britain (MAGB) is the trade association of the UK malting industry and represents over 98% of UK malt production. MAGB anticipates barley crop purchases at 1.95 million tonnes from England and Scotland from the 2012 crop.



The graph below shows MAGB members' wish list for 2012 barley crop purchases from England and Scotland

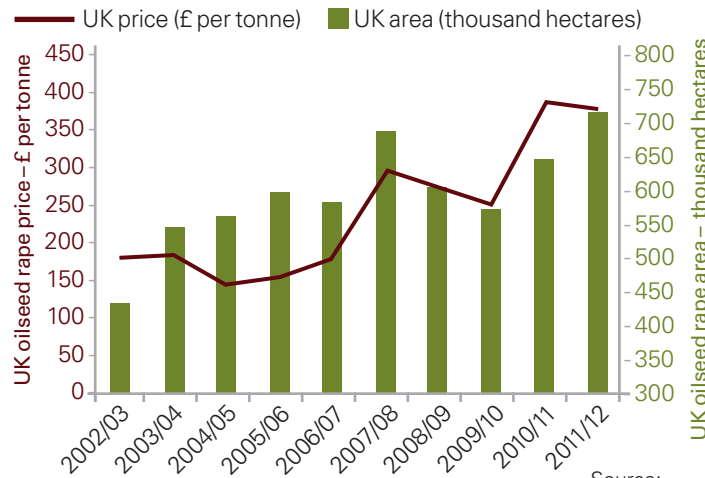


Grain nitrogen band



Over recent years, oilseed rape production in the UK has taken greater prominence with increases in both area and total production. Oilseed rape area planted in the UK has increased by 56% in the last decade to reach a new record of 705 thousand hectares for harvest 2011.

UK arable farmers respond to price incentive: As prices increase, so has area of oilseed rape grown



The markets for oilseed rape include:

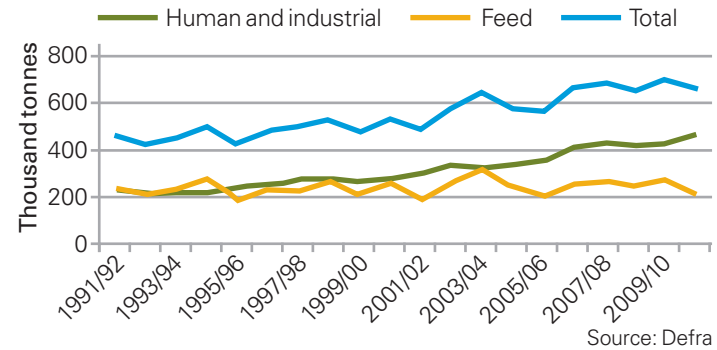
- Edible oil
- High oleic, low linolenic (HOLL) oilseed rape
- High erucic acid (HEAR) oilseed rape
- Biodiesel

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 gap of three years is recommended between standard and HOLL rapeseed crops. HOLL should not be grown on land previously used for HEAR rape.

HEAR oilseed rape has a relatively small market which does not justify a specific category of recommendation.



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 are differentiated between conventional husked varieties and huskless (naked) varieties. Naked oats will yield approximately 30% less than conventional husked varieties.



More market information from HGCA

Newsletters (email or fax)

Market Report – a weekly overview of the main stories, prices and exchange rates

MI Prospects – a fortnightly newsletter with a more in-depth look at the latest market analysis and outlooks

Email subscriptions@hgca.ahdb.org.uk or phone 024 7647 8730 to sign up.

Twitter

Follow HGCA on Twitter for the latest market developments [Twitter.com/HGCA_tweet](https://twitter.com/HGCA_tweet)



Website

Keep up to date with the latest prices and news at www.hgca.com/markets

Mobile website

Access market information on your mobile phone at www.hgca.com/mobile



Regional information

Wheat and barley

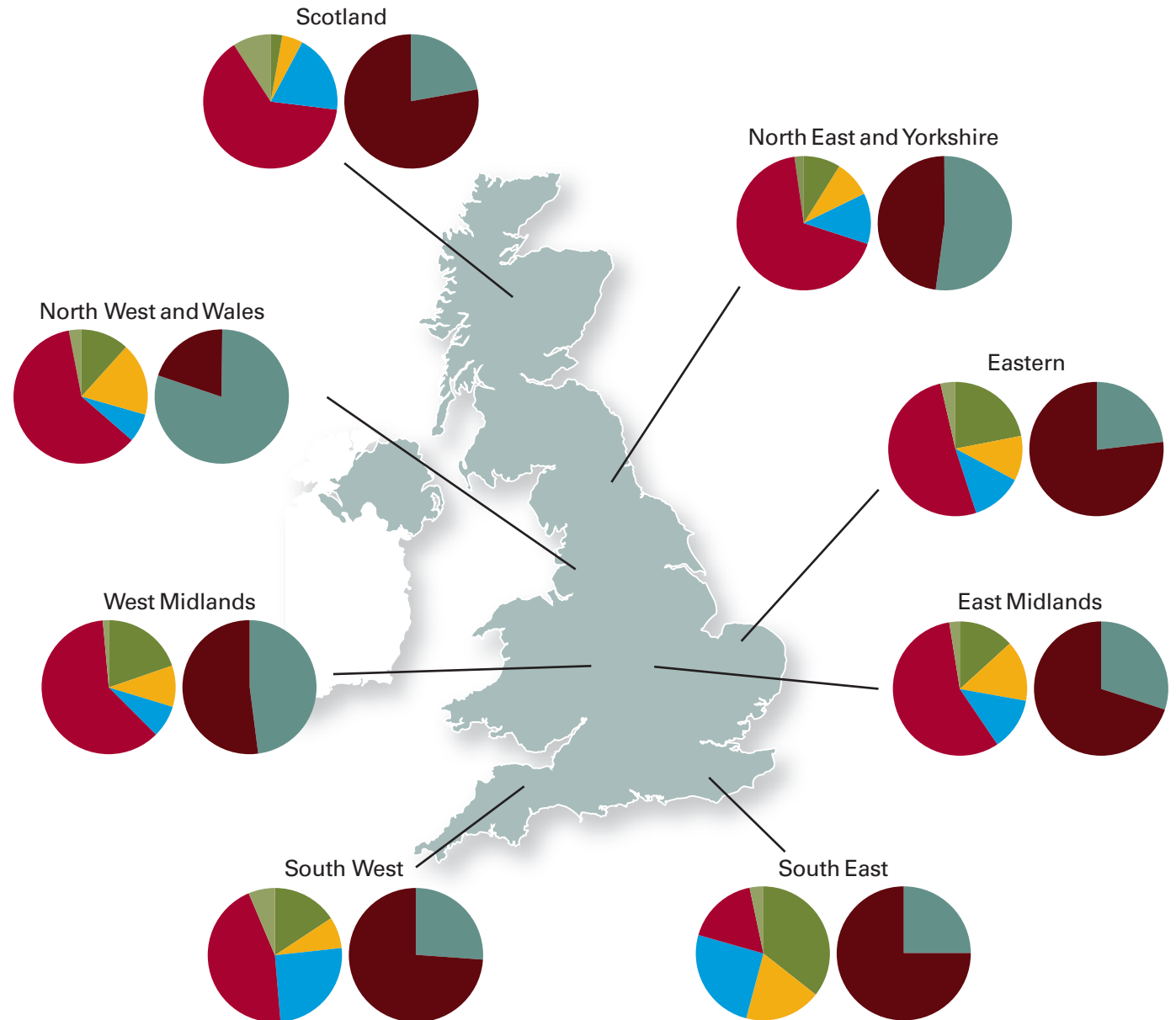
Market selection

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

Feed markets will be appropriate in all regions. On pages 9, 23 and 29, 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 variety choice



More regional information

For more information on selecting varieties on a regional basis, use RL *Plus* at www.hgca.com/varieties/rl-plus. This is the most flexible way to obtain regional information that takes account of the specific agronomic features relevant in that 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 risk levels

High Moderate Low

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 risk levels

High Moderate Low

Septoria tritici



Septoria nodorum



Yellow rust



Brown rust



Powdery mildew



Light leaf spot risk levels



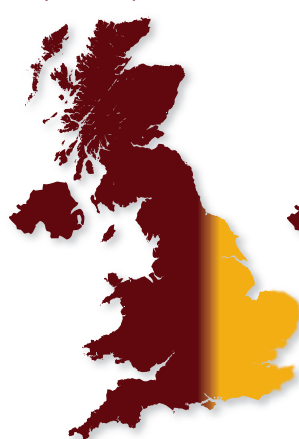
Phoma risk levels



Barley risk levels

High Moderate Low

Rhynchosporium



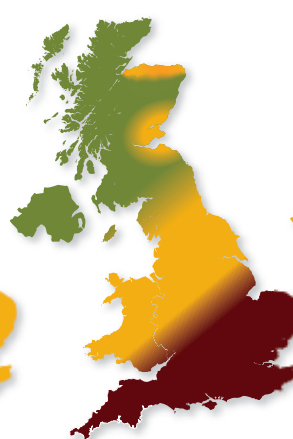
Ramularia



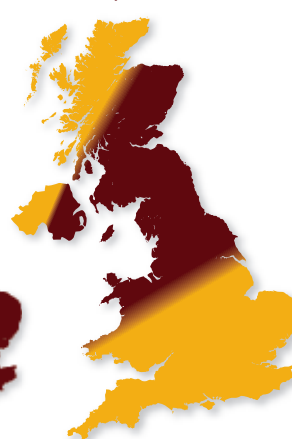
Net blotch



Brown rust



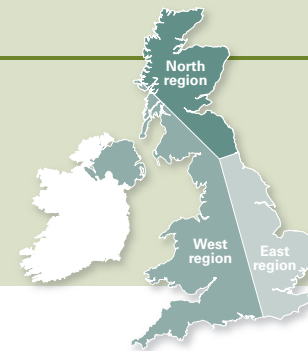
Powdery mildew



Emerging disease threats

The disease ratings on the Recommended List 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. CropMonitor (www.cropmonitor.co.uk) can help to give an early warning of such changes. In 2011, for example, new fungal races of yellow rust and brown rust were identified by the UK Cereal Pathogen Virulence Survey. These new races may attack varieties which currently have a high disease resistance rating.





Winter wheat 2012/13

Market options and grain quality



	RECOMMENDED			NEW						NEW						NEW						NEW NEW												
	Crusoe	Gallant	Solstice	KWS Sterling	Ketchum	Panorama	KWS Podium	Cordiale	Battalion	Einstein	Torch	Cocoon	Invicta	Tuxedo	KWS Target	Warrior €	Scout	Claire	Gravitas	Horatio	Beluga	Denman	Viscount	Alchemy	KWS Santiago	Conqueror	KWS Gator	Relay	JB Diego	Duxford	Stigg	Grafton	Humber	Average LSD (5%)
Variety type	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	UK	UK	E&W	UK	UK	UK	Sp	UK	UK	UK	UK	UK	UK	UK	UK	E&W	UK	UK	E&W	UK	UK	UK	UK	UK	
Fungicide treated grain yield (% treated control)																																		
United Kingdom (10.3 t/ha)	99	99	97	103	102	101	99	98	98	97	105	104	104	103	102	101	99	98	105	105	104	104	103	100	108	107	106	105	104	102	102	101	100	2.5
East region (10.4 t/ha)	99	99	96	104	101	102	99	99	98	97	106	105	105	104	103	103	98	99	105	105	104	103	104	100	108	108	105	105	104	103	102	101	100	1.8
West region (10.3 t/ha)	101	100	97	103	103	102	97	98	99	97	103	104	104	103	101	101	99	97	104	104	105	104	102	101	108	106	106	106	106	101	103	102	100	2.9
North region (10.3 t/ha)	-	97	96	102	100	99	99	97	95	99	[101]	100	102	102	102	98	98	98	104	[104]	103	104	104	100	106	108	[106]	[103]	101	101	96	102	96	3.5
Main market options (The specific attributes of varieties are different so, whenever possible, varieties should not be mixed in store)																																		
UK breadmaking	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UK biscuit, cake making	-	-	-	-	-	-	-	-	-	-	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UK distilling	-	-	-	-	-	-	-	-	-	-	-	-	[Y]	[Y]	-	-	-	[Y]	[Y]	[Y]	Y	Y	Y	[Y]	-	-	-	-	-	-	-	-	-	-
ukp bread wheat for export	[Y]	Y	Y	[Y]	-	[Y]	[Y]	Y	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
uks soft wheat for export	-	-	-	-	-	-	-	-	-	-	[Y]	[Y]	[B]	[Y]	[Y]	-	Y	Y	[Y]	[B]	[Y]	[B]	[B]	B	-	-	-	-	-	-	-	-	-	-
Grain quality																																		
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	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard
Protein content (%)	12.2	12.0	11.9	11.1	11.3	11.4	12.2	12.2	12.1	11.9	10.6	10.9	10.8	10.9	11.2	11.2	11.4	11.2	10.4	10.9	10.7	10.7	10.7	11.0	10.8	10.6	10.6	11.0	11.0	10.8	11.3	11.5	11.5	0.3
Hagberg Falling Number	266	307	266	280	261	257	279	318	219	278	248	234	243	283	214	207	234	244	214	238	159	212	172	246	146	200	182	269	305	274	306	287	308	17
Specific weight (kg/hl)	78.1	77.9	78.0	76.4	78.0	77.7	78.7	79.5	75.6	77.8	76.4	76.2	75.7	75.4	76.9	75.5	78.7	77.1	77.0	76.4	75.7	75.9	76.1	77.5	75.0	75.5	75.6	77.1	77.8	76.7	74.7	78.8	77.2	0.7
1000 grain weight (g)	-	54.0	50.0	[49.5]	53.1	49.2	-	46.4	[48.3]	51.2	-	-	[46.9]	-	-	[45.2]	46.6	46.6	-	-	[55.7]	-	49.6	49.2	-	46.6	-	-	50.5	47.5	-	50.4	47.0	2.3
Chopin alveograph W	232	242	200	223	208	210	[266]	[269]	[178]	176	98	107	80	104	99	134	100	102	93	[78]	95	[69]	90	[71]	-	-	-	-	-	[182]	-	[146]	-	27
Chopin alveograph P/L	[0.6]	0.7	0.6	0.8	0.8	0.7	[0.6]	[0.7]	[0.7]	0.5	0.5	[0.4]	0.3	[0.4]	[0.3]	0.4	0.3	0.3	[0.4]	[0.3]	0.4	[0.3]	0.3	[0.6]	-	-	-	-	-	[0.8]	-	[0.8]	-	0.2
Status in RL system																																		
Year first listed	12	09	02	10	09	09	11	04	07	03	12	11	10	11	11	10	09	99	11	12	10	11	09	06	11	10	12	12	08	08	11	09	07	
RL status	P1	-	C	-	*	-	P2	-	*	C*	P1	P2	-	P2	P2	-	C	-	P2	P1	-	P2	-	C	P2	-	P1	P1	-	-	P2	-	*	

Varieties no longer listed: Cassius, Gladiator, Glasgow, Istabraq, Kingdom, Oakley and Robigus.

Varieties sorted by UK treated yield within end-use groups.

€ = Warrior is a specific recommendation for growers wanting a variety with good disease resistance	Y = suited to that market	[] = limited data	* = variety no longer in trials	Average LSD (5%): Varieties that are more than one LSD (least significant difference) apart are significantly different at the 5% confidence level.
UK = recommended for the UK	[Y] = may be suited to that market	C = yield control (Oakley was also a control but is no longer on the Recommended List)	P1 = first year of recommendation	
E&W = recommended for the East and West regions	B = suitable for blending into export cargoes		P2 = second year of recommendation	
Sp = specific recommendation	[B] = may be suitable for blending into export cargoes			

Winter wheat 2012/13

Yield, agronomy and disease resistance



	RECOMMENDED			NEW							NEW							NEW							NEW		NEW		NEW		NEW		NEW		NEW		NEW		NEW		NEW		NEW	
	Crusoe	Gallant	Solstice	KWS Sterling	Ketchum	Panorama	KWS Podium	Cordiale	Battalion	Einstein	Torch	Cocoon	Invicta	Tuxedo	KWS Target	Warrior €	Scout	Claire	Gravitas	Horatio	Beluga	Denman	Viscount	Alchemy	KWS Santiago	Conqueror	KWS Gator	Relay	JB Diego	Duxford	Stigg	Grafton	Humber	Average LSD (5%)										
Variety type	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	UK	UK	E&W	UK	UK	UK	Sp	UK	UK	UK	UK	UK	UK	UK	UK	UK	E&W	UK	UK	E&W	UK	UK	UK	UK	UK	UK									
Fungicide treated grain yield (% treated control)																																												
United Kingdom (10.3 t/ha)	99	99	97	103	102	101	99	98	98	97	105	104	104	103	102	101	99	98	105	105	104	104	103	100	108	107	106	105	104	102	102	101	100	2.5										
East region (10.4 t/ha)	99	99	96	104	101	102	99	99	98	97	106	105	105	104	103	103	98	99	105	105	104	103	104	100	108	108	105	105	104	103	102	101	100	1.8										
West region (10.3 t/ha)	101	100	97	103	103	102	97	98	99	97	103	104	104	103	101	101	99	97	104	104	105	104	102	101	108	106	106	106	106	101	103	102	100	2.9										
North region (10.3 t/ha)	-	97	96	102	100	99	99	97	95	99	[101]	100	102	102	102	98	98	98	104	[104]	103	104	104	100	106	108	[106]	[103]	101	101	96	102	96	3.5										
Untreated grain yield (% treated control in comparable trials)																																												
United Kingdom	89	83	79	84	87	89	83	83	88	84	85	87	90	90	87	94	88	82	91	92	85	90	90	87	87	87	90	91	91	84	98	90	83	4.7										
Agronomic features																																												
Resistance to lodging without PGR (1-9)	7	7	8	7	6	8	8	7	7	6	7	5	7	8	8	7	8	7	5	6	9	5	7	7	7	6	7	7	7	7	8	8	9	9	1.6									
Resistance to lodging with PGR (1-9)	7	8	8	8	7	9	8	8	8	7	8	7	7	8	8	8	8	7	7	8	8	7	7	7	7	7	7	9	8	8	9	8	9	9	1.1									
Height without PGR (cm)	85	84	93	79	93	90	82	80	85	86	91	96	91	84	84	84	88	89	90	89	80	83	83	93	88	86	87	83	89	91	82	77	81	1.8										
Ripening (days +/- Solstice, -ve = early)	+1	-2	0	0	+1	+2	0	-2	0	-1	0	+5	+3	+2	+1	+1	+2	0	+2	+1	0	0	+1	+3	+2	+2	+2	+1	0	+2	+2	-2	0	0.9										
Resistance to sprouting (1-9)	-	6	7	5	7	7	-	6	5	6	-	-	6	-	-	5	6	5	-	-	4	-	4	6	-	6	-	-	7	7	-	5	6	1.4										
Disease resistance (1-9)																																												
Mildew	9	5	4	7	8	7	6	6	8	6	3	7	4	7	4	8	6	4	7	7	4	5	7	7	5	3	6	6	6	6	8	7	5	1.1										
Yellow rust †	9	5	4	9	5	9	7	7	7	6	4	8	8	9	9	8	9	9	7	8	9	7	4	8	6	7	9	9	8	5	9	8	8	[1.2]										
Brown rust †	7	4	4	8	5	5	6	3	8	5	9	9	7	8	5	8	9	5	7	6	4	5	8	5	5	6	3	5	4	3	9	3	5	[2.1]										
Septoria nodorum	-	5	5	6	5	6	5	5	7	6	[6]	6	6	8	7	6	8	6	6	[6]	5	7	7	6	[6]	7	[6]	[6]	6	5	6	6	5	2.9										
Septoria tritici	7	5	5	4	6	6	5	5	5	5	6	5	5	6	6	7	5	5	6	6	5	5	5	6	5	4	5	6	5	5	7	5	6	0.7										
Eyespot	5	5	4	6	5	4	4	4	7@	5	5	6	4	6	6	6	8	5	6	5	7	5	6	6	3	4	4	5	4	5	6	8@	7	1.8										
Fusarium ear blight	6	5	6	6	6	7	6	6	6	6	5	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	6	6	6	5	6	-									
Orange wheat blossom midge	-	-	-	-	-	-	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.

€ = Warrior is a specific recommendation for growers wanting a variety with good disease resistance
 UK = recommended for the UK
 E&W = recommended for the East and West regions
 Sp = specific recommendation
 [] = limited data

† = for information on the impact of new yellow rust and brown rust races, please see page 3
 @ = Battalion and Grafton are believed to carry the *Rendezvous Pch1* resistance gene to eyespot but this has not been verified in RL tests
 R = believed to be resistant to orange wheat blossom midge (OWBM) but this has not been verified in RL tests

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

Winter wheat 2012/13 – Supplementary data

	RECOMMENDED			NEW							NEW							NEW							NEW NEW										
	Crusoe	Gallant	Solstice	KWS Sterling	Ketchum	Panorama	KWS Podium	Cordiale	Battalion	Einstein	Torch	Cocoon	Invicta	Tuxedo	KWS Target	Warrior €	Scout	Claire	Gravitas	Horatio	Beluga	Denman	Viscount	Alchemy	KWS Santiago	Conqueror	KWS Gator	Relay	JB Diego	Duxford	Stigg	Grafton	Humber	Average LSD (5%)	
Variety type	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	UK	UK	E&W	UK	UK	UK	Sp	UK	UK	UK	UK	UK	UK	UK	UK	UK	E&W	UK	UK	E&W	UK	UK	UK	UK	UK	
Breeder/UK contact	Lim	Syn	Lim	KWS	Syn	Lim	KWS	KWS	RAGT	Lim	RAGT	Sec	Lim	RAGT	KWS	RAGT	Sen	Lim	Lim	Lim	Sen	Syn	KWS	Lim	KWS	KWS	KWS	RAGT	Breun	Syn	Lim	KWS	KWS		
UK contact	Lim	Syn	Lim	KWS	Syn	Lim	KWS	KWS	RAGT	Lim	RAGT	Agr	Lim	RAGT	KWS	RAGT	Sen	Lim	Lim	Lim	Sen	Syn	KWS	Lim	KWS	KWS	KWS	RAGT	Sen	Syn	Lim	KWS	KWS		
Annual yield (% control)	-	103	96	102	98	100	-	98	[91]	98	-	-	102	-	-	98	99	97	-	-	105	-	104	99	-	104	-	-	104	100	-	102	96	3.8	
2007 (9.8 t/ha)	-	102	98	103	101	102	100	101	98	99	-	100	102	102	104	101	98	99	104	-	105	106	102	100	108	106	-	-	105	103	104	103	99	2.9	
2008 (11.6t/ha)	98	93	96	101	102	101	101	95	99	96	105	106	104	106	104	101	99	[100]	106	105	[104]	103	103	100	110	106	105	107	102	102	103	101	100	3.2	
2009 (10.7 t/ha)	100	99	97	103	104	102	100	[98]	[100]	98	106	104	102	102	101	103	99	[96]	104	104	105	103	103	99	106	108	107	106	104	102	101	101	[103]	2.7	
2010 (9.8 t/ha)	100	97	96	106	-	[99]	97	98	-	95	104	108	107	105	102	102	98	[99]	107	105	103	103	105	102	110	111	106	105	105	103	101	99	-	3.2	
2011 (9.5 t/ha)																																			
Rotational position	99	99	96	103	101	101	99	98	97	97	105	104	104	103	103	101	98	98	105	105	104	104	103	100	108	107	105	105	104	101	102	101	99	2.6	
First cereal (10.7 t/ha)	98	98	98	103	104	102	98	99	101	99	103	105	102	103	100	101	99	96	103	103	105	101	104	99	108	106	108	106	104	103	100	103	100	3.4	
Second and more (9.0 t/ha)																																			
Sowing date (most trials were sown during October)	100	99	96	103	101	101	100	98	97	97	105	102	104	103	102	102	99	99	105	104	104	104	104	101	108	108	104	105	104	102	103	102	99	2.5	
Before 6 Oct (10.6 t/ha)	-	100	96	[102]	[105]	101	-	[96]	100	-	-	-	[104]	-	-	[101]	99	-	-	-	[103]	-	104	100	-	109	-	-	105	101	-	[96]	104	6.9	
Late autumn (8.9 t/ha)																																			
Soil type (about 50% of trials are on medium soils)	-	97	96	102	100	100	99	98	95	98	[102]	103	103	103	101	100	99	96	104	[107]	104	103	104	100	105	108	[108]	[105]	105	101	99	101	100	3.8	
Light soils (10.0 t/ha)	100	99	97	103	101	102	99	99	99	97	106	105	105	103	103	102	99	98	105	104	105	103	104	100	109	107	105	105	104	102	103	103	99	2.8	
Heavy soils (10.7 t/ha)																																			
Agronomic features	4.2	4.6	2.0	2.9	12.3	2.2	2.5	3.3	5.1	13.2	4.6	179	4.3	2.4	2.5	3.4	1.7	4.9	15.6	8.7	0.4	179	5.0	4.5	6.0	10.8	3.7	4.6	4.9	1.1	2.4	0.4	0.8		
Lodging % without PGR	7.2	4.5	2.2	1.9	10.2	1.4	3.5	2.7	2.5	10.7	2.1	12.2	5.3	2.5	2.5	4.3	1.9	6.3	8.2	4.4	2.4	5.5	8.7	5.4	6.7	5.4	1.4	3.4	5.0	1.5	1.8	0.6	1.3		
Lodging % with PGR	-	End Jan	End Jan	End Jan	End Feb	End Feb	[Mid Feb]	End Jan	End Jan	End Jan	-	[End Jan]	Mid Feb	[Mid Feb]	[Mid Feb]	Mid Feb	End Jan	End Feb	[End Feb]	-	End Jan	[Mid Feb]	End Jan	End Jan	[End Jan]	Mid Feb	-	-	End Jan	End Feb	[End Jan]	End Jan	End Jan	-	
Latest safe sowing date #	-	-4	+1	+1	-4	-2	-2	-4	-1	-6	-	+5	0	+2	-3	-1	+4	+6	-1	-	0	+2	0	0	+8	-3	-	-	0	-3	0	+3	-3	7.2	
Early Sep sown	-	-7	-2	-5	0	-2	-9	-9	0	-7	-	+7	0	0	-4	+3	-1	+4	-7	-	-1	0	+1	+3	+1	-5	-	-	-1	+1	-5	+1	-2	8.6	
Early Oct sown	-	-4	-1	-2	+1	0	-1	-3	-1	-2	-	+4	+2	+1	-3	+3	+2	+4	+3	-	+1	+1	+3	+3	0	-2	-	-	+1	+2	-1	+1	-1	4.0	
Early Nov sown																																			

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

= latest safe sowing date is the advised latest sowing time to give a sufficient cold period for flowering. A dash indicates that there are insufficient data to give a comment and NOT that the variety does not have a vernalisation requirement.

UK = recommended for the UK
 E&W = recommended for the East and West regions
 Sp = specific recommendation
 [] = limited data

Agr = Agrii (www.agrii.co.uk)
 Breun = Saatucht Josef Breun, Germany
 KWS = KWS UK (www.kws-uk.com)
 Lim = Limagrain UK (www.limagrain.co.uk)
 RAGT = RAGT Seeds (www.ragt.co.uk)

Sec = Secobra, France
 Sen = Senova (www.senova.uk.com)
 Syn = Syngenta Seeds (www.newfarmcrops.co.uk)

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

Winter wheat trials harvest 2012 – Candidate varieties



Variety ID	Yield treated (T)	Yield untreated (as % treated controls) (UT)	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)	Other claim	Endosperm texture	Protein content %	Hagberg Falling Number	Specific wt (kg/hl)	UK contact	
Control varieties																		
Oakley	1658	109	86	1	1	77	+2	6	1	7	5	3	OWBM	Hard	10.7	168	76.0	
Alchemy	1564	100	100	4	2	82	+3	7	8	5	6	6		Soft	11.2	233	77.2	
Scout	1787	99	101	0	0	80	+3	6	9	9	5	8	OWBM	Soft	11.4	229	78.9	
Solstice	1282	96	93	0	0	85	0	4	4	4	5	4		Hard	12.0	267	78.5	
Einstein	1376	96	96	6	0	80	-2	6	6	5	5	5		Hard	11.8	288	78.0	
Selected as a potential breadmaking variety																		
Torphins (SY109056)	2044	100	99	0	0	76	+3	9	9	[3]	6	6	SBCMV	Hard	11.8	301	78.2	Syngenta
Selected as potential biscuit-making varieties																		
KWS Granta (KWS W187)	2072	108	109	7	2	82	+1	8	9	5	6	4	OWBM	Soft	10.9	204	77.2	KWS
ELS 09-50 (Weaver)	2029	Data unavailable as variety has not completed National Listing										OWBM	Soft				Elsoms	
KWS Rowan (KWS W193)	2078	105	105	2	0	81	+3	6	8	8	6	8	OWBM	Soft	11.1	202	77.4	KWS
Selected as a potential feed varieties																		
KWS Kielder (KWS W191)	2076	113	105	2	0	76	+5	4	8	[6]	6	7	OWBM	Hard	10.7	220	75.3	KWS
Cougar (RW40967)	2040	110	113	2	0	79	+5	7	9	9	7	4	OWBM	Soft	10.9	181	74.7	RAGT
KWS Cleveland (KWS W194)	2079	110	107	17	22	83	+1	8	4	9	6	6	OWBM	Hard	11.0	249	75.1	KWS
Myriad (NAWW41)	2062	109	108	3	2	84	+4	6	9	6	6	6	OWBM	Soft	11.0	231	76.6	Limagrain
Dickens (SC WW071195)	2031	109	108	4	2	80	0	7	9	9	6	3	SBCMV	Hard	10.9	226	76.9	Agrii
Havana (BA W15)	2085	109	108	3	1	77	+2	9	8	7	6	5	OWBM	Hard	11.1	251	74.9	Senova
Revelation (NAWW39)	2059	109	109	0	1	80	+5	8	9	9	6	6@	-	Soft	10.9	216	76.0	Limagrain
KWS Yaris	2082	109	106	0	0	83	+4	6	8	3	7	5	OWBM	Hard	10.6	204	77.2	KWS
Chronicle (RW40940)	2036	108	108	2	1	81	0	6	9	9	5	8@	-	Hard	11.2	201	76.3	RAGT
Leeds (MH 09-28)	2081	108	104	2	1	82	+3	4	9	8	6	6	OWBM	Soft	11.1	222	77.8	KWS
Coronation (NAWW37)	2058	Data unavailable as variety has not completed National Listing										-	Hard				Limagrain	
Q1 (RW40932)	2033	108	102	1	1	84	0	7	3	8	6	5	-	Soft	10.9	223	75.3	RAGT
Mean of controls (t/ha)	9.9	9.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LSD 5%	4.4	8.5	-	-	5.6	2	-	-	-	-	-	-	-	0.4	32.7	0.8	-	
Number of trials	26	9	6	3	13	4	-	-	-	-	-	-	-	10	10	10	-	

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

- @ = believed to carry the *Rendezvous Pch1* resistance gene to eyespot but this has not been verified in RL tests
- T = data from trials treated with fungicide and PGR
- UT = data from trials without fungicide or PGR
- OWBM = believed to be resistant to orange wheat blossom midge
- SBCMV = believed to be resistant to soil-borne cereal mosaic virus

Candidate varieties will be considered for the 2013/14 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 Fera and BSPB for the use of the data.

Winter wheat varieties grown in RL trials in 2011 but not added to the HGCA Recommended List



	Control varieties					Other varieties							
	Oakley	Alchemy	Scout	Einstein	Solstice	KWS Solo	Trident	Monterey	Delphi	Chilton	SY Epsom	KWS Saxtead	Average LSD (5%)
Fungicide treated grain yield (% treated control)													
United Kingdom (10.3 t/ha)	108	100	99	97	97	107	104	103	103	102	102	101	2.5
East region (10.4 t/ha)	108	100	98	97	96	107	104	103	103	102	103	100	1.8
West region (10.3 t/ha)	106	101	99	97	97	106	103	103	101	102	100	102	2.9
North region (10.3 t/ha)	108	100	98	99	96	[105]	[101]	[103]	[102]	[103]	-	[101]	3.5
Untreated grain yield (% treated control in comparable trials)													
United Kingdom	79	87	88	84	79	87	86	92	89	85	89	87	4.7
Grain quality													
Endosperm texture	Hard	Soft	Soft	Hard	Hard	Soft	Soft	Soft	Soft	Hard	Soft	Hard	
Protein content (%)	10.3	11.0	11.4	11.9	11.9	10.7	11.4	11.2	11.3	11.4	11.4	11.8	0.3
Hagberg Falling Number	161	246	234	278	266	195	152	235	275	287	276	311	17
Specific weight (kg/hl)	76.2	77.5	78.7	77.8	78.0	76.8	77.9	79.2	75.7	78.9	77.0	78.9	0.7
Agronomic features													
Resistance to lodging without PGR	7	7	8	6	8	8	9	6	7	6	9	8	1.6
Resistance to lodging with PGR	7	7	8	7	8	7	8	6	8	7	9	9	1.1
Height without PGR (cm)	86	93	88	86	93	88	84	93	88	90	88	85	1.8
Ripening (days +/- Solstice, -ve = early)	+1	+3	+2	-1	0	+3	+1	+1	+2	+2	+1	-1	0.9
Resistance to sprouting	5	6	6	6	7	-	-	-	-	-	-	-	1.4
Disease resistance													
Mildew	6	7	6	6	4	7	6	6	5	5	6	9	1.1
Yellow rust	1	8	9	6	4	9	3	9	9	7	8	9	[1.2]
Brown rust	7	5	9	5	4	3	9	6	7	4	6	8	[2.1]
Septoria nodorum	7	6	8	6	5	[6]	-	[6]	-	[6]	[6]	-	2.9
Septoria tritici	5	6	5	5	5	4	6	6	6	5	6	6	0.7
Eyespot	3	6	8	5	4	7	8	5	5	4	6	4	1.8
Fusarium ear blight	5	6	6	6	6	7	6	5	7	6	6	6	-
Orange wheat blossom midge	R	-	R	-	-	-	R	R	R	-	R	-	-

This table should be read in conjunction with the HGCA Recommended List of Winter Wheat for 2012/13.

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



nabim Group 1 varieties

NEW Crusoe

Quality: Added to the HGCA Recommended List for 2012/13 as a **nabim** Group 1 variety. It has a good specific weight and tends to give slightly higher proteins than Solstice. The variety is also classified for the *ukp* export category.

Agronomy: Has a similar yield to Gallant but with better resistance to septoria tritici, mildew, yellow rust and brown rust.


nabim comment: This variety has consistently demonstrated good protein content and quality. The bread crumb structure has been equal to that of Solstice. Over the three years of trials the baking performance has been good.


Gallant

Quality: An early-maturing **nabim** Group 1 variety. Its popularity is increasing with a 6% market-share of provisional 2011 certified seed production weights. It is classified as a *ukp* bread wheat for export, has support from end users, gives good Hagbergs and specific weights and tends to give protein contents similar to Solstice.

Agronomy: 2% higher yielding than Solstice, but susceptible to brown rust.

nabim comment: This variety has milling and baking qualities which, over the past three years since it achieved RL status, have consistently been good and this is a popular variety with millers.

 = classified as a *ukp* bread wheat for export

 = classified as a *uks* soft wheat for export

Solstice

Quality: A popular **nabim** Group 1 variety giving good specific weights. It is classified as *ukp* bread wheat for export and has support from end users. It has the strong support of UK millers and remains very popular with growers, maintaining around an 8% share of provisional 2011 certified seed production weights.

Agronomy: Has long but stiff straw but is susceptible to mildew, yellow rust, brown rust and eyespot. Solstice's yield potential is 3% below Gallant and Crusoe.

nabim comment: This variety is the most widely used Group 1 variety. It is popular with both farmers and millers. It is favoured by millers because it has a good balance of protein content, milling characteristics, gluten properties and baking performance.

A 'breeder's toolkit' to improve Hagberg Falling Number

HGCA is one of the funders of a project to develop a 'toolkit' that will help wheat breeders to exploit new knowledge of the wheat genome to produce varieties with consistently higher Hagberg Falling Number. It is hoped that this will lead to the development of new varieties with improved and more stable Hagbergs and a reduced environmental impact.

HGCA Project: RD-2009-3659



Improving the sustainability of UK-grown wheat for breadmaking

This project, of which HGCA is one of the funders, is investigating the relationship between high yield and high protein content and dissecting the seasonal and varietal variation in quality parameters. Research so far has identified a gluten protein that is particularly nitrogen-responsive and it is expected that detailed studies of varieties that make more efficient use of applied nitrogen will facilitate the development of new wheat varieties with high quality but low nitrogen requirement.

HGCA Project: RD-2007-3409



nabim Group 2 varieties

Battalion

Quality: A **nabim** Group 2 variety that tends to give low Hagbergs. It is no longer in RL trials.

Agronomy: Has a similar treated yield potential to Cordiale and Einstein; some 5% lower yielding than KWS Sterling. It has above average resistance to eyespot, carrying the 'Rendezvous' *Pch1* resistance gene and tends to give its best relative performance as a second wheat. It has high resistance to mildew and brown rust.

nabim comment: Among the Group 2 wheats, this variety has a weaker gluten quality and most millers will only be able to use restricted proportions in breadmaking grists.

Cordiale

Quality: A **nabim** Group 2 wheat, classified as a *ukp* bread wheat for export and with support from end users.

Agronomy: Early maturing with short, stiff straw and has good grain characteristics. It is susceptible to eyespot and very susceptible to brown rust. It has a treated yield potential around 5% lower than KWS Sterling.

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

Winter wheat 2012/13 – Variety comments

Einstein *ukp*

Quality: A **nabim** Group 2 variety, classified as a *ukp* bread wheat for export, with good specific weights. Einstein is no longer in RL trials.

Agronomy: Has no major disease weaknesses and moderate resistance to stem lodging but is prone to the less common root lodging.

nabim comment: Einstein continues to be used by most millers. However, it has a tendency to produce lower protein levels with lower water absorption. For this reason, the variety requires careful agronomic management. Most millers will only be able to use restricted proportions of this variety in breadmaking grists.

Ketchum

Quality: Specific weights have been good but proteins and Hagbergs have been moderate. It is no longer in RL trials.

Agronomy: Ketchum has given its best relative performance when late-sown and as a second wheat. It has high resistance to mildew and moderate straw strength.

nabim comment: This variety has a tendency to produce a lower level of protein. Sometimes, it also has a tendency to produce bread that is less resilient and with a greater variability in crumb structure than some other varieties. It is not widely available and unlikely to be a preferred Group 2 variety.

KWS Podium *ukp*

Quality: A **nabim** Group 2 variety, classified as a *ukp* bread wheat for export.

Agronomy: KWS Podium has a treated yield 4% below KWS Sterling but is the only available winter wheat breadmaking variety with resistance to orange wheat blossom midge. It has good lodging resistance but is susceptible to eyespot.

nabim comment: So far, limited commercial quantities have been available. Over the three years of testing, this variety has performed better than Einstein and meets the intake criteria. However, flour extraction rates may sometimes be lower than expected.

KWS Sterling *ukp*

Quality: A **nabim** Group 2 variety, classified as a *ukp* bread wheat for export. It tends to give low proteins.

Agronomy: A high-yielding variety with high resistance to the rust diseases but is susceptible to septoria tritici.

nabim comment: Although high yielding, it has a tendency to produce a lower level of protein. So far, only limited commercial quantities have been available. Over the three years of testing, the variety exhibited some variability but baking performance was acceptable. Good agronomic management may be required to attract higher premiums.

Panorama *ukp*

Quality: A **nabim** Group 2 variety, classified as a *ukp* bread wheat for export. Panorama gives high specific weights but moderate proteins.

Agronomy: Stiff-strawed and has good resistance to yellow rust and above average resistance to fusarium ear blight but is susceptible to brown rust and eyespot.

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



HGCA's Wholegrain Goodness consumer marketing campaign promotes the nutritional value of wholegrain foods and the use of wholegrains in meals beyond breakfast. For more information, visit www.wholegraingoodness.com

nabim Group 3 varieties

Claire *uks*

Distilling: Medium

Quality: A **nabim** Group 3 variety, classified as a *uks* soft wheat for export, with support from end users and rated 'medium' for distilling.

Agronomy: Has a moderate treated yield potential but is a slow developing variety which has proved useful for very early drilling. It has good resistance to yellow rust but is susceptible to mildew.

nabim comment: This early-sowing biscuit wheat continues to be the benchmark for Group 3 varieties. It is preferred by millers because of its milling qualities, bright white flour colour and its gluten characteristics which result in high dough extensibility.

Cocoon *uks*

Quality: A variety for the East and West regions, classified as a *uks* soft wheat for export but rated 'poor' for distilling.

Agronomy: A high-yielding variety with high resistance to yellow rust and brown rust and above average resistance to fusarium. Cocoon performs well as a second wheat but is late-maturing and has moderate resistance to lodging.

nabim comment: Only small volumes of this variety have been seen commercially. In the three years of trials, it has shown variability across the years for both grain hardness and rheological analysis. It is unlikely to be a preferred Group 3 variety for all millers.

Invicta *uks*

Distilling: Medium

Quality: A **nabim** Group 3 variety, classified as *uks* for blending and rated 'medium' for distilling. It gives a low specific weight.

Agronomy: High yielding with high resistance to yellow rust and tends to be late maturing.

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

Winter wheat 2012/13 – Variety comments

KWS Target

Quality: A Group 3 variety, classified as a *uks* soft wheat for export but rated as 'poor' for distilling.

Agronomy: Has stiff straw, high resistance to yellow rust and eyespot and is resistant to orange wheat blossom midge.

nabim comment: This variety has given consistent test results and its performance is similar to Scout.

Scout

Quality: A soft-milling *nabim* Group 3 wheat, classified as a *uks* soft wheat for export but rated as 'poor' for distilling. It gives a good specific weight.

Agronomy: Scout has a moderate treated yield potential but is stiff-strawed and has high resistance to yellow rust, brown rust, septoria nodorum and eyespot, with no major disease weaknesses; it is also resistant to orange wheat blossom midge. Like Claire and Grafton, Scout has slow primordial development and a range of other characters that can make it a useful candidate for early drilling.

nabim comment: This is now the most popular Group 3 variety with growers and millers, exhibiting similar quality attributes to those of Claire.

NEW Torch

Quality: Added to the HGCA Recommended List for 2012/13 as a *nabim* Group 3 variety. It is also classified for the *uks* export category but is rated as 'poor' for distilling.

Agronomy: It is the highest yielding of the Group 3 and soft-milling Group 4 varieties, has good resistance to brown rust and is resistant to orange wheat blossom midge but it is susceptible to yellow rust and very susceptible to mildew.

nabim comment: This variety has a tendency to produce a slightly lower level of protein but this is not considered to be an issue for most soft wheat applications. The dough rheology meets the biscuit criteria.

Tuxedo

Distilling: Medium

Quality: A *nabim* Group 3 variety, rated as 'medium' for distilling and classified as a *uks* soft wheat for export. Has a low specific weight.

Agronomy: High yielding with high resistance to yellow rust, septoria nodorum and septoria tritici.

nabim comment: Over the three years of testing there was evidence of variability between years for dough extensibility. It is unlikely to be a preferred Group 3 variety for all millers.

Warrior

A specific recommendation for growers wanting a Group 3 variety with high disease resistance.

Quality: Does not meet the specification for export and is rated as 'poor' for distilling; its inclusion in loads delivered to distillers could lead to processing problems and low distillery efficiency. It has a low specific weight.

Agronomy: Has a high untreated yield with an excellent spectrum of disease resistance: high resistance to mildew, yellow rust, brown rust and septoria tritici and no major weakness to the other main diseases. It is also resistant to orange wheat blossom midge.

nabim comment: This variety has routinely met the biscuit wheat criteria and shown consistency in its rheology.

Studying flowering time to improve yield stability in a changing climate

Studying flowering time allows a better understanding of its impact on yield and may lead to varieties in which grain fill can be manipulated to escape the worst effects of drought. This project provides breeders with novel material, allowing them to access genetic variation from wild wheat relatives. New varieties based on this project could begin to appear on UK farms within the next ten years.

HGCA Project: RD-2006-3278

Group 4 varieties

Alchemy

Distilling: Medium

Quality: A soft-milling feed wheat classified as *uks* for export blending but depending on the *uks* export market, it is recommended that inclusion of Alchemy in *uks* cargoes should be restricted to a maximum of 25%. Rated as 'medium' for distilling, it has a high specific weight.

Agronomy: Has high resistance to yellow rust.

nabim comment: This variety may be used by some millers but not where they require good gluten extensibility characteristics, which differentiates the soft Group 3 from the soft Group 4 varieties.

Beluga

Distilling: Good

Quality: A soft-milling feed variety rated as 'good' for distilling and classified as a *uks* soft wheat for export.

Agronomy: High yielding with short, very stiff straw and has performed well on a range of soil types, sowing dates and as a second wheat. It has high resistance to yellow rust and eyespot but is susceptible to brown rust and rather susceptible to sprouting.

Conqueror

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

Agronomy: Very high yielding, it has performed well on a range of soil types, sowing dates and as a second wheat and has high resistance to septoria nodorum and is resistant to orange wheat blossom midge. It has moderate straw strength, is susceptible to eyespot and septoria tritici and very susceptible to mildew.

Denman

Distilling: Good

Quality: A soft-milling Group 4 variety rated as 'good' for distilling and classified as a *uks* export wheat for blending. It tends to give low specific weights.

Agronomy: High yielding, with moderate straw strength and above average resistance to septoria nodorum and resistance to orange wheat blossom midge.

Winter wheat 2012/13 – Variety comments

Duxford

Quality: A hard-milling feed variety which has very stiff straw.

Agronomy: Very susceptible to brown rust.

nabim comment: This variety has a stronger gluten quality than other Group 4 varieties and is worthy of being kept separate.

Grafton

Quality: An early maturing, hard-milling feed variety. It has short, very stiff straw and gives good specific weights.

Agronomy: Grafton has good resistance to yellow rust but is very susceptible to brown rust. It has high eyespot resistance and is believed to carry the 'Rendezvous' *Pch1* resistance gene. Like Claire and Scout, Grafton appears to have slow primordial development and so may be useful for early drilling.

Gravitas

Distilling: Medium

Quality: A soft-milling Group 4 variety rated as 'medium' for distilling and classified as a *uks* wheat for export.

Agronomy: It has moderate straw strength but is high yielding and has high resistance to brown rust and septoria tritici. It is resistant to orange wheat blossom midge.

NEW Horatio

Quality: Added to the HGCA Recommended List for 2012/13 as a soft-milling feed variety which has distilling potential and is also classified as a *uks* soft wheat for export blending.

Agronomy: High yielding, with good resistance to brown rust and resistance to orange wheat blossom midge.

Humber

Quality: A hard-milling feed variety that is no longer in RL trials.

Agronomy: High yielding when late sown, it has short, very stiff straw and high resistance to yellow rust and eyespot.

JB Diego

Quality: A hard-milling feed variety with a good specific weight. It is a popular choice for feed growers with a provisional market share of 12%, based on 2011 certified seed production estimates.

Agronomy: Has high treated yields, has performed well on a range of soil types and sowing dates and has above average resistance to septoria nodorum but is susceptible to brown rust.

NEW KWS Gator

Quality: Added to the HGCA Recommended List for 2012/13 as a very-high yielding hard milling feed variety. It tends to give moderate specific weights.

Agronomy: Has given high yields in both first and second wheat situations and is resistant to orange wheat blossom midge. It has good resistance to yellow rust but is susceptible to eyespot and very susceptible to brown rust.

KWS Santiago

Quality: Recommended for the East and West regions as a hard-milling feed variety. It is a popular choice for feed growers with a provisional market share of 10%, based on 2011 certified seed production estimates, but tends to give low specific weights.

Agronomy: A very high-yielding variety that has performed well in both first and second wheat trials and on a range of soil types. It is rather late ripening and is susceptible to eyespot.

NEW Relay

Quality: Added to the HGCA Recommended List for 2012/13 as a hard-milling feed variety for the East and West regions. It tends to give good specific weights.

Agronomy: It is high yielding in both first and second wheat situations and has good resistance to yellow rust.

Stigg

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

Agronomy: Stigg has a treated yield potential that is somewhat lower than the best feed types but it has a range of characters that compensate for this. It has an untreated yield that is similar to the treated yield of Claire due to excellent disease resistance, especially to yellow rust, brown rust and septoria tritici. It should be a good choice for growers in wetter areas where spraying opportunities are limited.

Viscount

Distilling: Medium

Quality: A high-yielding soft-milling feed variety rated as 'good' for distilling and classified as a *uks* soft wheat for export blending. It may not consistently meet export specifications for Hagberg Falling Number and, as such, should only be blended into a cargo.

Agronomy: Has a high treated yield potential and high resistance to brown rust and septoria nodorum but is susceptible to yellow rust. It is resistant to orange wheat blossom midge but is rather susceptible to sprouting.

nabim comment: This variety may be used by some millers but not where they require good gluten extensibility characteristics, which differentiates the soft Group 3 from the soft Group 4 varieties.

Varieties no longer on the Recommended List

Hereward – nabim comment: This is the oldest breadmaking variety, but is now outclassed in terms of yield and no longer on the Recommended List. Hereward can still perform well although it has a higher degree of variability than in the past. The variety remains popular with some millers who may offer contract growing schemes.

Soissons – nabim comment: This variety was removed from the 2010 Recommended List because it has been overtaken in yield by more recently developed varieties. However, it continues to offer unique quality characteristics in specialist bread grists and some millers may offer specific contracts.

Late autumn-sown wheat 2012/13



	RECOMMENDED													NEW										Average LSD (5%)					
	Gallant	Mulika +	Solstice	Paragon +	KWS Willow +	Ketchum	KWS Sterling	Panorama	Tybalt +	Battalion	Einstein	Cordiale	Ashby +	Invicta	Warrior	Scout	Viscount	Beluga	Alchemy	Conqueror	KWS Alderon +	JB Diego	Belvoir +	Humber	Duxford	Grafton	Zircon + \$	Average LSD (5%)	
Variety type	nabim Group 1				nabim Group 2									nabim Group 3			Soft Group 4			Hard Group 4					Other				
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	Sp	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	Sp	
Fungicide treated grain yield (% treated control)																													
United Kingdom (9.0 t/ha)	104	[102]	100	95	[110]	108	[105]	104	104	102	[101]	[101]	100	[108]	[105]	103	107	[106]	102	113	[[110]]	107	106	106	104	100	100	77	
Grain quality																													
Endosperm texture	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	
Protein content (%)	[11.7]	[12.2]	[11.9]	12.4	[11.6]	[11.5]	[11.4]	[11.7]	11.8	[12.1]	[12.3]	[12.1]	12.4	[10.7]	[11.6]	[11.9]	[11.3]	[10.6]	11.3	[11.1]	[12.0]	[11.1]	11.1	[11.3]	[11.2]	[11.6]	12.3	0.8	
Hagberg Falling Number	[287]	[301]	[246]	293	[251]	[210]	[259]	[213]	288	[204]	[283]	[343]	272	[214]	[174]	[230]	[147]	[132]	237	[200]	[302]	[298]	222	[313]	[246]	[251]	169	70	
Specific weight (kg/hl)	[77.0]	[77.6]	[76.0]	78.3	[79.3]	[76.5]	[75.5]	[75.8]	76.3	[73.6]	[76.3]	[78.5]	78.5	[74.3]	[73.8]	[77.1]	[74.4]	[73.6]	75.4	[73.8]	[77.5]	[75.6]	76.9	[75.6]	[73.6]	[76.6]	79.1	1.9	
Agronomic features																													
Lodging % (with PGR)	-	-	-	8	-	-	-	-	11	3	-	-	14	-	-	-	-	-	8	-	-	5	11	1	3	-	5	1.6	
Straw height with PGR (cm)	76	[94]	81	100	[92]	[81]	[76]	[80]	89	[77]	[79]	[73]	88	[84]	[78]	78	74	[75]	81	75	[81]	80	81	[76]	81	[68]	85	5.5	
Ripening (+/- Paragon, -ve = earlier)	[-1]	-	[-1]	[0]	-	[-1]	[-1]	[0]	[-1]	[-1]	-	[-1]	[0]	[+1]	[0]	[+2]	[0]	[0]	[+1]	[+1]	-	[-1]	[-1]	[0]	[0]	[-1]	[0]	2.4	
Latest safe sowing date #	End Jan	-	End Jan	-	-	End Feb	End Jan	End Feb	-	End Jan	End Jan	End Jan	-	Mid Feb	Mid Feb	End Jan	End Jan	End Jan	End Jan	Mid Feb	-	End Jan	-	End Jan	End Feb	End Jan	-		
Disease resistance																													
Mildew	5	[7]	4	8	[8]	8	7	7	8	8	6	6	6	4	8	6	7	4	7	3	[5]	6	[7]	5	6	7	[7]	-	
Yellow rust	5	9	4	9	6	5	9	9	7	6	6	7	9	8	8	9	4	9	8	7	8	8	9	8	5	8	9	-	
Brown rust	4	9	4	8	7	5	8	5	9	8	5	3	6	7	8	9	8	4	5	6	8	4	8	5	3	3	7	-	
Septoria tritici	5	6	5	6	6	6	4	6	6	5	5	5	5	5	7	5	5	5	6	4	6	5	5	6	5	5	6	-	
Orange wheat blossom midge	-	R	-	-	-	-	-	-	-	-	-	-	-	-	R	R	R	-	-	R	-	-	R	-	-	-	-		
Status in RL system																													
Year first listed	09	11	02	99	11	09	10	09	03	07	03	04	03	10	10	09	09	10	06	10	12	08	03	07	08	09	07		
RL Status	-	P2	-	C	P2	*	-	-	C	*	*	-	C	-	-	-	-	-	-	-	P1	-	-	*	-	-	*		

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

Data for winter wheat varieties are given for comparison only and do not constitute a Recommended List but the data are directly comparable with those for spring wheat.

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

+ = spring wheat

\$ = Zircon is specifically recommended as a white-grained wheat. nabim do not class it as a breadmaking variety

UK = recommended for the UK

Sp = specific recommendation

= latest safe sowing date is the advised latest date to give sufficient cold for flowering. Spring wheats have no vernalisation requirement

[] = limited data

[[]] = very limited data

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

P1 = first year of recommendation

P2 = second year of recommendation

C = yield control

* = variety no longer sown in late autumn-sown trials

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

Spring wheat 2012



	RECOMMENDED						NEW			
	Mulika	Paragon	Tybalt	KWS Willow	Granary	Ashby	KWS Alderon	Belvoir	Zircon \$	Average LSD (5%)
Variety type	nabim Group 1		nabim Group 2			Group 4		Other		
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	Sp	
Fungicide treated grain yield (% treated control)										
United Kingdom (6.9 t/ha)	[103]	95	106	[105]	104	99	[108]	107	99	4.3
Grain quality										
Endosperm texture	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	
Protein content (%)	13.6	13.9	12.9	12.9	13.8	13.6	13.4	12.6	13.7	0.5
Hagberg Falling Number	294	273	280	224	228	282	309	208	169	40
Specific weight (kg/hl)	77.1	77.7	75.6	78.5	78.0	78.1	76.8	76.1	78.0	0.9
Agronomic features										
Resistance to lodging with PGR	-	{6}	{[3]}	-	-	{7}	-	{[7]}	{[6]}	3.7
Straw height without PGR (cm)	80	86	77	79	81	80	[73]	77	80	2.7
Ripening (+/- Paragon, -ve = earlier) @	-	-	-	-	-	-	-	-	-	-
Resistance to sprouting	[7]	6	7	[7]	7	7	-	7	3	1.1
Disease resistance										
Mildew	[7]	8	8	[8]	7	6	[5]	[7]	[7]	1.6
Yellow rust	9	9	7	6	6	9	8	9	9	[1.7]
Brown rust	9	8	9	7	6	6	8	8	7	[1.4]
Septoria tritici	6	6	6	6	7	5	6	5	6	1.0
Orange wheat blossom midge	R	-	-	-	-	-	-	R	-	
Breeder/UK Contact										
Breeder	BA	RAGT	Wier	KWS	KWS	KWS	KWS	KWS	KWS	
UK contact	Sen	RAGT	Lim	KWS	KWS	KWS	KWS	KWS	KWS	
Status in RL system										
Year first listed	11	99	03	11	09	03	12	03	07	
RL Status	P2	C	C	P2	-	C	P1	-	-	

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

\$ = Zircon is specifically recommended as a white-grained wheat. nabim does not classify it as a breadmaking variety

{ } = historical data; no recent trials data

@ = no data available

[] = limited data

P1 = first year of recommendation

P2 = second year of recommendation

C = yield control

BA = Blackman Agriculture

KWS = KWS UK (www.kws-uk.com)

Lim = Limagrain (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 (least significant difference) apart are significantly different at the 5% confidence level.

Spring wheat 2012 – Variety comments



nabim Group 1 varieties

Mulika

Quality: A nabim Group 1 variety recommended for both late autumn and spring sowing. From limited data it would appear to be capable of delivering good proteins, Hagbergs and specific weights.

Agronomy: Has high resistance to yellow rust and brown rust and (unverified) resistance to orange wheat blossom midge; the only Group 1 variety to have this resistance. From late autumn sowings it has given yields around 7% higher than Paragon and from spring sowing its advantage is around 8%.

nabim comment: This variety will be seen in commercial quantities from the 2012 harvest. It appears to be similar to Paragon in most aspects of performance.

Paragon

Quality: Remains a very popular variety because of its high quality and suitability for milling and baking. In late autumn-sown trials it has given a protein content 0.7% higher than the winter wheat Group 1 variety Gallant. In spring-sown trials it has given 1% higher protein content and 2.1kg/hl higher specific weight than Tybalt.

Agronomy: Has long straw and moderate lodging resistance. It has high resistance to mildew, yellow rust and brown rust. In late autumn-sown trials it has given yields around 9% below the winter wheat Group 1 variety Gallant and in spring-sown trials it has given yields around 11% below Tybalt.

nabim comment: This is a spring variety whose performance in breadmaking has been excellent. It remains the choice of most millers when buying spring wheats.



nabim Group 2 varieties

Ashby

Quality: A nabim Group 2 variety that has given higher proteins than the winter wheat Group 2 varieties in late autumn-sown trials with good specific weights. In spring-sown trials it has given higher protein content and specific weight than Tybalt, although with a lower yield.

Agronomy: Has given yields 10% below the highest winter wheat Group 2 variety in late autumn-sown trials and around 7% below Tybalt in spring-sown trials. 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, with higher protein content and specific weight than Tybalt. It tends to give low Hagbergs.

Agronomy: In spring-sown trials it has given yields around 3% below Tybalt.

nabim comment: Relatively small quantities of this variety have been seen by millers.

KWS Willow

Quality: A nabim Group 2 variety that has given specific weights and proteins that compare well with the best Group 2 varieties in both late autumn and spring sowings.

Agronomy: Has given very high yields, especially from late autumn sowings and has high resistance to mildew.

nabim comment: This variety has HFNs which tend to be low and, overall, it has shown variability across the years of testing especially with baking performance. As a result, it is more likely to be suited to uses in blends.

Tybalt

Quality: A nabim Group 2 spring wheat variety with lower specific weight and protein content than Ashby.

Agronomy: Around 6% lower yielding than the highest yielding Group 2 variety in late autumn-sown trials and around 7% higher yielding than Ashby in spring-sown trials. It has a generally high disease resistance, especially to mildew and brown rust but has weak straw.

nabim comment: This variety has a tendency to low protein content and softer grain. It shows fair baking performance and will be used at low grist inclusion levels by most millers.

Spring wheat 2012 – Variety comments

Group 4 feed varieties

NEW KWS Alderon

Quality: Added to the HGCA Recommended List 2012/13 for both late autumn and spring sowing as a hard feed variety with a better specific weight than the winter wheat variety Conqueror in late autumn-sown trials and Belvoir in spring-sown trials.

Agronomy: A high-yielding variety with high resistance to yellow rust and brown rust. From late autumn sowings it gives a yield 3% below the winter wheat variety Conqueror and from spring sowings it has a comparable yield to Belvoir.

Belvoir

Quality: A hard feed wheat with a better specific weight than Tybalt when spring-sown.

Agronomy: Has high resistance to yellow rust and brown rust and little lodging has been recorded in trials treated with PGR. It is believed to be resistant to orange wheat blossom midge but this has not been verified in RL tests. It has given very high yields from late autumn sowings and is competitive with the high-yielding winter wheat feed varieties. When spring-sown it is also very high yielding but its advantage is less marked: it out-yields Tybalt by 1%.

Specific recommendation (white-grained wheat)

Zircon

A white-grained variety specifically recommended for the production of white grain for specialist markets: it is not classified by **nabim**. In late autumn-sown trials its yields are around 4% below Tybalt and with little lodging recorded in trials treated with PGR. In spring-sown trials its yields have been around 7% lower than Tybalt. Zircon has high resistance to yellow rust and gives high proteins but low Hagberg Falling Numbers. White-grained wheats are prone to sprouting in the ear with a resulting loss of Hagberg, so it is important that the variety is given priority at harvest to reduce the sprouting risk.

nabim overview

Flour is almost the universal food and is used for making bread, biscuits, cakes, batters, coatings and as a versatile food ingredient. Many flours are milled to meet the specific requirement of customers, often in the large-scale food manufacturing sector. Specifications are exact and flours must consistently perform to the stated level. This performance depends on the quality and characteristics of the wheat being used to make the flour.

One of the features of the food market is that demand is consistent even when raw material prices fluctuate. Bakers and food manufacturers still require wheat flour even when the grain market is firm. They may be more demanding in terms of quality but this consistency of demand is of great value, allowing growers to capture the benefit of higher prices when they occur. Other wheat users are more price sensitive meaning that demand is reduced as they switch to alternative materials as prices rise.

Major food producers show an interest in wheat variety development and some are already involved in variety-specific flour supply. Wheat buy-back schemes have also been developed with selected growers, with the wheat supplied via merchant contracts to flour millers.

Home-grown wheat is increasingly important to UK flour millers. Because of this, along with the HGCA, they invest much time, energy and money to assist breeders in identifying the end-use potential of new varieties at the earliest possible stage. Each year, members of nabim's Varieties Working Group test candidate varieties from the National and Recommended List (RL) trials using a range of milling and baking systems. The information obtained is then conveyed to the British Society of Plant Breeders and by the nabim members of the HGCA RL Wheat Committee as part of the selection process.

nabim

New varieties

For millers, consistency of milling and baking performance is an essential criterion for any wheat variety. The supply chain requirement for yield improvements and the constant threat of new strains of disease, mean that wheat varieties tend to have a relatively short life-cycle in agronomic terms. Therefore, it is essential that there is a constant supply of new varieties that show benefits in agronomic and yield terms but which also have 'improved' quality and consistency in milling and flour performance.

This year, nabim are pleased to see another Group 1 winter wheat variety, Crusoe, join the RL. There is also a very promising new winter Group 3 variety – Torch. Of those varieties which joined the RL in 2010, none have been seen in sufficient commercial quantities for us to be able to confirm our initial comments from the 3-year test programme but all remain promising.

Milling Wheat Challenge

Variety is an important factor in determining wheat quality but others also play their part such as the standard of crop husbandry, effective use of nitrogen and good storage. For the past two years, nabim has run a competition – the 'Milling Wheat Challenge' – to find the best grower of consistently high-quality milling wheat. Winners Andrew Ponder from Essex (2010) and James Price from Oxfordshire (2011) demonstrated to the judges a clear understanding of both growing the crop and marketing it. The competition will be run again in 2012. Full details of how to enter will appear on the nabim website. Entries will close in early April.

Wheat and Flour testing

In order to assess the characteristics of individual wheat parcels and the resulting flours or doughs, millers carry out a range of tests. These are used throughout the industry and act as comparative performance standards. An understanding of these tests and how they are performed is useful to both farmers and others in the wheat supply chain.

nabim has produced a booklet 'Wheat and Flour testing' which is available free from nabim or can be seen on the website (www.nabim.org.uk).

Mycotoxins

Harvest 2011 proved to be the third successive low year for DON mycotoxin levels. It would be easy for the grain supply chain to become complacent to this ever-present threat. Working with the NFU, AIC and others in the supply chain, millers have developed a robust strategy to limit problems associated with mycotoxins in grain.

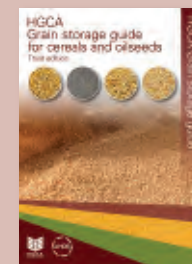
Most millers are content with suppliers stating the risk assessment value with each load of grain arriving at intake. Others, for commercial reasons, may still require DON (and in some cases ZON) values also to be supplied. Milling wheat should only be marketed when a reliable risk assessment has been made or where levels of mycotoxins present have been quantitatively determined prior to delivery.

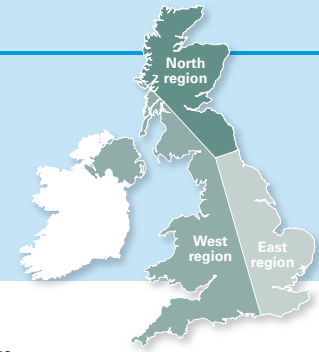
This control strategy has worked well and, for the 2012 harvest, will be the same as that used in 2011. From the start of harvest, all wheat being sent to a flour mill (and some other primary processors) will have to be accompanied by both the DON risk assessment score and a statement of the actual level of DON present in a representative sample of grain. This requirement may be relaxed once the overall mycotoxin threat for the year has been determined.

Visit www.hgca.com/mycotoxins for the risk assessment.

Grain storage

At the end of 2011, HGCA produced a revised version of the 'Grain Storage Guide for Cereals & Oilseeds'. Many of the changes resulted from a very successful Defra LINK research project. The major innovation of the new guide is the introduction of the HACCP process for wheat producers. HACCP has been an approach used by food processors for a number of years. Hopefully the guide will lead to primary producers using the same approach in their businesses so that it will become a "way of life" for the entire food supply chain.





Winter barley 2012/13

Market options and grain quality

	NEW		NEW										NEW							
	SY Venture	Archer	Winsome	Flagon	Cassata~	Pearl	Retriever	KWS Cassia	Florentine	Saffron	Suzuka	Purdey	Volume \$	Element \$	KWS Meridian	Pelican	Escadre	Sequel	Average LSD (5%)	
Variety type	Two-row malting						Two-row feed						Six-row feed							
Scope of recommendation	UK	UK	UK	UK	Sp	UK	UK	UK	UK	UK	UK	East	UK	North	UK	UK	UK	UK		
Fungicide treated grain yield (% treated control)																				
United Kingdom (8.5 t/ha)	104	102	99	99	99	96	109	107	106	103	102	98	112	110	110	107	106	103	2.9	
East region (8.4 t/ha)	105	103	100	100	99	96	109	107	105	103	103	100	111	108	107	105	105	101	3.6	
West region (8.8 t/ha)	[104]	[101]	99	98	99	95	107	107	106	104	100	97	112	109	[111]	108	106	103	4.6	
North region (8.5 t/ha)	103	101	100	99	98	95	111	107	105	100	103	95	116	115	114	111	108	105	4.2	
Main market options																				
IBD malting approval for brewing use	T	T	F	F	F	F	-	-	-	-	-	-	-	-	-	-	-	-		
Overseas malting	-	-	-	[Y]	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-		
Grain quality																				
Specific weight (kg/hl)	69.3	68.5	69.2	69.7	68.1	70.2	66.8	70.5	68.1	70.1	69.1	70.1	68.4	67.9	65.6	63.5	69.6	69.2	0.7	
Screenings % through 2.25 mm	1.2	1.1	1.2	1.3	0.9	1.0	-	1.1	1.3	1.1	-	1.2	2.8	1.2	1.5	-	1.3	2.3	0.7	
Screenings % through 2.5 mm	4.2	3.9	4.6	4.1	3.3	3.3	-	3.6	5.2	4.5	-	4.2	12.7	4.5	5.0	-	6.6	10.9	2.4	
Nitrogen content (%)	1.67	1.79	1.61	1.61	-	1.64	-	-	-	-	-	-	-	-	-	-	-	-	0.13	
Status in RL system																				
Year first listed	12	12	10	05	07	99	07	10	11	05	07	10	09	11	12	07	11	03		
RL Status	P1	P1	-	C	-	C	-	-	P2	C	*	*	-	P2	P1	*	P2	C		

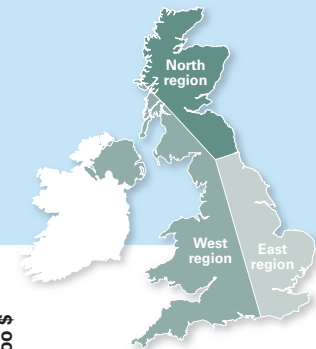
SY Bamboo \$	Matros	Sinatra	California
Six-row	Two-row		
Varieties not added to RL			
110	108	108	106
110	109	108	106
[107]	[106]	[107]	[107]
112	110	107	[106]
-	-	-	-
-	-	-	-
68.6	67.5	69.9	68.4
1.6	1.7	1.1	[0.6]
6.8	5.3	4.2	[2.7]
-	-	-	-
-	-	-	-

Variety no longer listed: Boost.

~ = Cassata has a specific recommendation for growers wanting a BaYMV-resistant variety for malting
 \$ = Element, Volume and SY Bamboo are hybrid varieties
 [] = limited data
 UK = recommended for the UK
 East = recommended for the East region
 North = recommended for the North region
 Sp = specific recommendation
 F = full IBD approval
 T = under test for IBD approval
 Y = suited to that market
 [Y] = may be suited to that market
 P1 = first year of recommendation
 P2 = second year of recommendation
 C = yield control
 * = variety no longer in trials
 Average LSD (5%): Varieties that are more than one LSD (least significant difference) apart are significantly different at the 5% confidence level.

Winter barley 2012/13

Yield, agronomy and disease resistance



	NEW		NEW										NEW						
	SY Venture	Archer	Winsome	Flagon	Cassata~	Pearl	Retriever	KWS Cassia	Florentine	Saffron	Suzuka	Purdey	Volume \$	Element \$	KWS Meridian	Pelican	Escadre	Sequel	Average LSD (5%)
Variety type	Two-row malting						Two-row feed						Six-row feed						
Scope of recommendation	UK	UK	UK	UK	Sp	UK	UK	UK	UK	UK	UK	East	UK	North	UK	UK	UK	UK	
Fungicide treated grain yield (% treated control)																			
United Kingdom (8.5 t/ha)	104	102	99	99	99	96	109	107	106	103	102	98	112	110	110	107	106	103	2.9
East region (8.4 t/ha)	105	103	100	100	99	96	109	107	105	103	103	100	111	108	107	105	105	101	3.6
West region (8.8 t/ha)	[104]	[101]	99	98	99	95	107	107	106	104	100	97	112	109	[111]	108	106	103	4.6
North region (8.5 t/ha)	103	101	100	99	98	95	111	107	105	100	103	95	116	115	114	111	108	105	4.2
Untreated grain yield (% treated control in comparable trials)																			
UK without fungicide	84	86	84	85	82	81	86	90	87	85	86	80	94	89	91	91	88	84	4.3
Agonomic features																			
Resistance to lodging	8	7	6	6	8	7	7	7	8	8	7	8	6	6	7	6	6	6	-
Straw height (cm)	82	85	91	94	85	94	81	85	85	85	87	85	98	101	102	100	95	98	3.0
Ripening (+/- Pearl, -ve = earlier)	0	0	-2	-1	0	0	-1	-1	-2	0	-2	+1	-2	-3	-2	-1	-2	-2	0.9
Winter hardiness #	-	-	4	5	6	5	6	5	[5]	5	6	6	6	[5]	-	5	[6]	6	1.1
Disease resistance																			
Mildew	6	6	6	7	4	6	6	5	6	3	6	4	6	6	9	7	5	5	1.2
Yellow rust	[7]	[5]	[7]	8	2	7	9	[6]	[8]	7	9	[6]	7	[7]	[7]	6	[8]	7	2.3
Brown rust	6	5	6	7	7	6	5	7	6	7	6	5	6	4	7	8	5	5	1.3
Rhynchosporium	6	7	8	7	8	6	6	4	7	4	7	8	8	6	6	8	8	8	1.7
Net blotch	[4]	[5]	6	4	4	5	5	7	7	8	7	8	6	7	[8]	6	8	6	2.8
BaYMV	R	R	-	-	R	-	R	R	R	-	R	R	R	R	R	R	R	R	-

SY Bamboo \$	Matros	Sinatra	California
Six-row	Two-row		
Varieties not added to RL			
110	108	108	106
110	109	108	106
[107]	[106]	[107]	[107]
112	110	107	[106]
92	95	90	93
6	8	7	8
97	91	83	86
-2	0	0	-1
-	-	-	-
6	7	7	6
[7]	[5]	[8]	[6]
5	7	6	6
7	7	7	6
[7]	[4]	[4]	[5]
R	-	R	R

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

~ = Cassata has a specific recommendation for growers wanting a BaYMV-resistant variety for malting
 \$ = Element, Volume and SY Bamboo are hybrid varieties
 # = the winter hardiness scores are taken from extreme tests in the Jura mountains of France

UK = recommended for the UK
 East = recommended for the East region
 North = recommended for the North region
 Sp = specific recommendation

[] = limited data
 R = resistant to barley mild mosaic virus (BaMMV) and to barley yellow mosaic virus (BaYMV) strain 1

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

Winter barley 2012/13 – Supplementary data

	NEW		NEW												NEW										
	SY Venture	Archer	Winsome	Flagon	Cassata	Pearl	Retriever	KWS Cassia	Florentine	Saffron	Suzuka	Purdey	Volume	Element	KWS Meridian	Pelican	Escadre	Sequel	Average LSD (5%)	SY Bamboo	Matros	Sinatra	California		
Variety type	Two-row malting						Two-row feed						Six-row feed							Six-row	Two-row	Varieties not added to RL			
Scope of recommendation	UK	UK	UK	UK	Sp	UK	UK	UK	UK	UK	UK	East	UK	North	UK	UK	UK	UK							
Breeder/UK contact																									
Breeder	Syn	Lim	Syn	Syn	Lim	Lim	Sej	KWS	Sen	KWS	Syn	Syn	Syn	Syn	KWS	SU	KWS	Syn		Syn	Lim	Sen	Lim		
UK contact	Syn	Lim	Syn	Syn	Lim	Lim	Lim	KWS	Sen	KWS	Syn	Syn	Syn	Syn	KWS	SU	KWS	Syn		Syn	Lim	Sen	Lim		
Annual yield (as % treated control)																									
2007 treated yield (8.3 t/ha)	-	-	[100]	100	98	97	106	[108]	-	103	101	[102]	[111]	-	-	107	-	100	4.3	-	-	-	-		
2008 treated yield (8.8 t/ha)	-	-	100	97	100	98	107	106	105	102	101	100	113	114	-	105	106	103	4.7	-	-	-	-		
2009 treated yield (8.7 t/ha)	107	102	100	99	98	95	110	107	106	102	101	96	-	109	109	108	108	104	3.5	112	108	106	105		
2010 treated yield (8.9 t/ha)	103	100	97	101	99	94	109	105	103	102	100	95	111	109	106	109	106	104	3.9	111	107	109	106		
2011 treated yield (7.9 t/ha)	104	104	101	99	99	95	113	110	109	103	106	100	116	111	116	110	105	103	4.4	110	112	109	109		
Soil type (about 50% of trials are medium soils)																									
Light soils (8.0 t/ha)	104	101	100	99	99	95	111	107	105	102	104	99	112	110	110	104	107	104	4.0	110	108	107	107		
Heavy soils (8.3 t/ha)	106	101	98	100	98	96	109	105	104	104	103	100	109	106	110	106	103	100	5.5	109	108	108	[103]		
Agronomic characteristics																									
Lodging % without PGR	3	2	21	19	3	4	9	3	1	2	3	2	13	11	10	17	11	21	-	35	0	13	0		
Lodging % with PGR	2	4	9	12	2	2	5	3	1	2	2	1	11	7	5	6	9	10	-	9	3	3	1		
Malting quality																									
Hot water extract (l deg/kg)	309.6	307.4	311.7	307.6	304.5	307.0	-	-	-	-	-	-	-	-	-	-	-	-	1.6	-	-	-	-		

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

[] = limited data

UK = recommended for the UK
 East = recommended for the East region
 North = recommended for the North region
 Sp = specific recommendation

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 UK (www.saaten-union.co.uk)
 Syn = Syngenta Seeds (www.newfarmcrops.co.uk)

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

Winter barley trials harvest 2012 – Candidate varieties



	Variety ID	Yield treated (T)	Yield untreated (UT) (% treated controls)	Lodging % (UT)	Lodging % (T)	Height (cm)	Maturity (+/- Pearl)	Mildew (1-9)	Yellow rust (1-9)	Brown rust (1-9)	Rhynchosporium (1-9)	Net blotch (1-9)	BaYMV	Variety type	Specific weight (kg/hl)	UK contact
Control varieties																
Sequel	1717	103	87	-	-	95	-3	5	7	5	8	6	R	6-row	70.4	
Saffron	1880	102	89	-	-	82	-1	3	7	7	4	8	-	2-row	71.2	
Flagon	1910	100	90	-	-	93	-2	7	8	7	7	4	-	2-row	71.1	
Pearl	1318	94	85	-	-	95	0	6	7	6	6	5	-	2-row	71.7	
Selected as potential malting varieties																
Talisman (SJ063643)	2517	109	[96]	-	-	[86]	-2	7	8	7	8	7	R	2-row	69.1	Senova
KWS Joy (KW 2-832)	2521	106	[89]	-	-	[79]	+1	5	5	6	[5]	6	R	2-row	69.5	KWS
Mezmaar (SY209-72)	2514	106	[90]	-	-	[88]	-2	6	5	5	8	[5]	R	2-row	69.2	Syngenta
Soloman (SY209-71)	2513	104	[93]	-	-	[78]	-3	7	[7]	7	8	[4]	R	2-row	68.5	Syngenta
Selected as potential feed varieties																
KWS Discovery (KWS B99)	2522	Data unavailable as variety has not completed National Listing												2-row	68.8	KWS
KWS Glacier (KWS B100)	2523	111	[96]	-	-	[72]	-2	3	8	7	8	7	R	2-row	70.9	KWS
Mean of controls (t/ha)		8.4	7.4	-	-	-	-	-	-	-	-	-	-	-	-	-
LSD 5%		3.9	7.7	-	-	6.3	1.4	-	-	-	-	-	-	-	0.9	-
No. of trials		16	6	-	-	2	7	-	-	-	-	-	-	-	10	-

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

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

Candidate varieties will be considered for the 2013/14 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 Fera and BSPB for the use of the data.

Winter barley 2012/13 – Variety comments

Two-row malting varieties

NEW Archer

Quality: Added to the Recommended List for 2012/13 as a high-yielding variety with brewing potential.

Agronomy: Higher yielding than Winsome and Cassata with shorter, stiffer straw and resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

MAGB comment: Under test by IBD for brewing.

Cassata

Brewing

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, producing malt of a similar quality to Pearl. Cassata is now a popular variety with a 13% provisional market share, based on 2011 certified seed production estimates.

Agronomy: Stiff-strawed with high resistance to rhynchosporium but is susceptible to mildew and very susceptible to yellow rust. Cassata is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV) with a treated yield some 2% higher than Pearl.

MAGB comment: Cassata again increased its UK share from 15% in 2009 to 27% in 2010.

Flagon

Brewing

Quality: A malting variety fully approved by IBD for brewing use.

Agronomy: Flagon is higher yielding than Pearl, similar to Cassata. It has a good spectrum of foliar disease resistance with high resistance to yellow rust but it is susceptible to net blotch and has moderate straw strength, requiring careful management.

MAGB comment: Flagon showed a slight drop in its UK share of the winter malting barley market to 25% in 2010. It offers the maltster higher extracts than Pearl with good processing characteristics.

Pearl

Brewing

Quality: A malting variety fully approved by IBD for brewing use that remains popular with maltsters. It has a high specific weight.

Agronomy: No major disease weaknesses, but has comparatively moderate yields.

MAGB comment: Pearl's UK share of the winter variety market dropped by a further 4% in harvest 2010 to 40%.

NEW SY Venture

Quality: Added to the Recommended List for 2012/13 as a very high-yielding variety with brewing potential.

Agronomy: Higher yielding than Winsome and Cassata with shorter, stiffer straw and a good specific weight. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV) but is susceptible to net blotch.

MAGB comment: Under test by IBD for brewing.

Winsome

Brewing

Quality: Has a good specific weight.

Agronomy: High yielding with early ripening characteristics and high resistance to rhynchosporium.

MAGB comment: Fully approved by IBD for brewing use.

Two-row feed varieties

Florentine

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

Agronomy: Has very stiff straw, good resistance to foliar diseases 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 good specific weight. It has become very popular, accounting for around 38% of the provisional certified seed production weights in 2011.

Agronomy: Very high yielding, it is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV) but susceptible to rhynchosporium.

Purdey

Quality: A two-row feed variety recommended for the East region. Grain yield is lower than other recommended feed varieties.

Agronomy: Purdey has good lodging resistance and a high specific weight; it also has high resistance to rhynchosporium and net blotch but it is susceptible to mildew. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

Retriever

Quality: A two-row feed variety that has performed particularly well in the North region, Retriever tends to give moderate specific weights.

Agronomy: It is very high yielding, with high resistance to yellow rust and is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

Saffron

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

Agronomy: It has stiff straw and high resistance to net blotch but is susceptible to rhynchosporium and very susceptible to mildew.

Suzuka

Quality: An early-maturing two-row feed variety with a good specific weight.

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

Winter barley 2012/13 – Variety comments

Six-row feed varieties

Element

Quality: A very high-yielding hybrid six-row feed variety of the North region with a relatively good specific weight.

Agronomy: It is particularly high yielding in the North region, is early ripening, has long straw with moderate lodging resistance and is susceptible to brown rust. As is the case with all currently recommended six-row varieties, it is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

Escadre

Quality: A non-hybrid six-row feed variety with a similar specific weight to KWS Cassia.

Agronomy: Very high yielding with high resistance to yellow rust, rhynchosporium and net blotch and is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV). Escadre has long straw with moderate lodging resistance. It is 4-6% lower yielding than the best hybrid six-rows but gives a similar yield to KWS Cassia with earlier ripening characteristics.

NEW KWS Meridian

Quality: A non-hybrid six-row feed variety added to the 2012/13 Recommended List.

Agronomy: KWS Meridian has long straw with medium high lodging resistance. It has a good disease package with high resistance to mildew and net blotch and it is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV). It is the highest yielding non-hybrid six-row variety, giving UK and regional treated yields similar to the hybrid variety Element and 3% higher than Pelican. Specific weights have been lower than Escadre but higher than Pelican.

Pelican

Quality: A non-hybrid six-row feed variety with a high treated yield but tending to give a very low specific weight.

Agronomy: It has long straw with moderate lodging resistance and has high resistance to brown rust and rhynchosporium. It is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV).

Sequel

Quality: A non-hybrid six-row feed variety which produces relatively high specific weights.

Agronomy: It has high resistance to rhynchosporium and is resistant to the common strains of barley mosaic viruses (BaYMV strain 1 and BaMMV). Sequel has long straw with moderate lodging resistance.

Volume

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

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

Preventing mycotoxin risks in barley

HGCA is one of the funders of a project to improve the resistance of barley and wheat to fusarium head blight and reduce the risk of mycotoxin contamination of grain. New sources of resistance are being identified and made available for introduction into UK varieties using wheat and barley materials from the recent HGCA-funded projects REFAM and AGOUEB.

HGCA Project: RD-2007-3453



Spring barley 2012

Market options and grain quality



	NEW		NEW		NEW																
	Odyssey	Chronicle	Propino	Overture	Shuffle	Quench	Concerto	Moonshine	NFC Tipple	Belgravia	Optic	Oxbridge	Summit	Gamer	Waggon	Westminster	Average LSD (5%)	SY Aboynne	Bogart	SY Barrell	SY Universal
Variety type	Malting varieties												Feed varieties								
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	NE	UK	NE	UK	UK	UK	UK	UK	UK					
Fungicide treated grain yield (% treated control)																					
United Kingdom (7.3 t/ha)	108	106	105	105	104	104	102	101	101	100	95	94	105	105	104	99	2.4				
East region (7.1 t/ha)	[108]	[103]	105	[106]	[104]	105	104	[102]	100	101	92	93	[105]	106	102	99	3.5				
West region (7.9 t/ha)	[109]	[107]	104	[105]	[105]	105	100	[102]	101	101	96	98	[106]	105	104	98	3.0				
North East region (7.2 t/ha)	108	107	105	104	105	104	101	101	101	100	96	94	105	104	106	99	2.2				
North West region (6.7 t/ha)	-	-	106	-	[105]	103	103	[100]	99	101	94	92	[106]	[108]	105	101	5.4				
Main market options																					
IBD malting approval for brewing use	T	T	F	T	P	F	F	P	F	-	F	-	-	-	-	-					
IBD malting approval for distilling use	T	T	-	T	P	-	F	P	-	F	F	F	-	-	-	-					
IBD malting approval for grain distilling use	T	T	-	T	-	-	-	-	-	F	-	-	-	-	-	-					
Overseas malting	-	-	Y	-	-	Y	[Y]	-	Y	-	Y	-	-	-	-	-					
Grain quality																					
Specific weight (kg/hl)	67.8	67.5	66.9	67.7	66.9	67.6	68.1	67.1	68.1	68.2	69.7	69.4	67.0	66.1	67.4	70.0	0.6				
Sieving % through 2.25 mm	[1.1]	[1.4]	1.0	[1.2]	1.0	1.5	1.0	1.0	1.3	1.2	1.4	1.0	[1.6]	1.1	-	1.0	0.3				
Sieving % through 2.5 mm	[3.7]	[3.8]	2.7	[3.4]	2.9	4.5	2.8	3.1	3.5	3.7	4.7	2.7	[4.7]	4.1	-	3.0	0.9				
Nitrogen content (%)	1.47	1.47	1.52	1.53	1.54	{1.55}	1.51	1.47	1.48	1.54	1.52	1.51	-	-	-	-	0.05				
Status in RL system																					
Year first listed	12	12	10	12	11	07	09	11	05	08	95	05	11	10	05	05					
RL status	P1	P1	-	P1	P2	C	C	P2	C	-	C	*	P2	-	-	C					

Varieties not added to RL			
-	-	-	-
104	104	103	103
[105]	[102]	[103]	[101]
[103]	[104]	[103]	[104]
105	105	105	105
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
67.7	67.1	67.0	66.4
[1.0]	[1.3]	[1.4]	[1.1]
[2.9]	[3.6]	[4.0]	[3.1]
1.53	1.56	1.56	1.56
-	-	-	-
-	-	-	-

Varieties no longer listed: Forensic, Panther, Publican and Scout.

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

UK = recommended for the UK
NE = recommended for the North East region

F = full IBD approval
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
{ } = historical data

P1 = first year of recommendation
P2 = second year of recommendation
C = yield control
* = variety no longer in trials

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

Spring barley 2012

Yield, agronomy and disease resistance



RECOMMENDED	NEW	NEW	NEW													Average LSD (5%)		
	Odyssey	Chronicle	Propino	Overture	Shuffle	Quench	Concerto	Moonshine	NFC Tipple	Belgravia	Optic	Oxbridge	Summit	Garner	Waggon		Westminster	
HGCA	Malting varieties													Feed varieties				
Variety type	Malting varieties													Feed varieties				
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	NE	UK	NE	UK	UK	UK	UK	UK	UK	UK	
Fungicide treated grain yield (% treated control)																		
United Kingdom (7.3 t/ha)	108	106	105	105	104	104	102	101	101	100	95	94	105	105	104	99	2.4	
East region (7.1 t/ha)	[108]	[103]	105	[106]	[104]	105	104	[102]	100	101	92	93	[105]	106	102	99	3.5	
West region (7.9 t/ha)	[109]	[107]	104	[105]	[105]	105	100	[102]	101	101	96	98	[106]	105	104	98	3.0	
North East region (7.2 t/ha)	108	107	105	104	105	104	101	101	101	100	96	94	105	104	106	99	2.2	
North West region (6.7 t/ha)	-	-	106	-	[105]	103	103	[100]	99	101	94	92	[106]	[108]	105	101	5.4	
Untreated grain yield (% treated control in comparable trials)																		
UK without fungicide	96	94	94	97	92	92	92	89	89	91	79	83	95	94	92	90	3.3	
Agronomic features																		
Resistance to lodging	[6]	[8]	8	[6]	[9]	8	6	[6]	8	7	8	8	[8]	8	8	6	2.2	
Straw height (cm)	73	74	76	75	77	71	78	71	69	76	75	73	69	74	73	82	2.1	
Ripening (+/- Optic, -ve = earlier)	+1	+1	0	+1	+1	+1	+1	0	0	+1	0	0	+1	0	-1	+2	0.7	
Resistance to brackling	8	8	8	8	8	8	8	8	8	8	4	7	9	8	8	7	1.1	
Disease resistance																		
Mildew	9	8	8	8	9	9	8	8	7	9	5	7	8	9	9	9	0.9	
Yellow rust	7	7	3	6	5	5	7	6	4	7	8	5	5	7	6	7	2.5	
Brown rust	5	5	5	5	4	4	6	4	6	6	7	6	4	5	6	6	1.6	
Rhynchosporium	7	7	7	7	6	8	4	4	4	8	4	7	7	7	3	8	1.7	

SY Aboyne	Bogart	SY Barrell	SY Universal
Varieties not added to RL			
-	-	-	-
104	104	103	103
[105]	[102]	[103]	[101]
[103]	[104]	[103]	[104]
105	105	105	105
-	-	-	-
93	91	88	93
[8]	[7]	[7]	[8]
77	73	72	76
0	-1	0	0
8	5	8	7
9	8	9	8
7	5	6	5
5	6	5	4
7	5	6	6

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

UK = recommended for the UK
 NE = recommended for the North East region
 [] = limited data

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

Spring barley 2012 – Supplementary data



NEW **NEW** **NEW**

	Odyssey	Chronicle	Propino	Overture	Shuffle	Quench	Concerto	Moonshine	NFC Tipple	Belgravia	Optic	Oxbridge	Summit	Garner	Waggon	Westminster	Average LSD (5%)	SY Aboyne	Bogart	SY Barrell	SY Universal
Variety type	Malting varieties												Feed varieties					Varieties not added to RL			
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	NE	UK	NE	UK	UK	UK	UK	UK	UK		-	-	-	-
Breeder/UK contact																					
Breeder	Lim	Lim	Syn	Lim	Syn	Syn	Lim	RAGT	Syn	Lim	Syn	Lim	Syn	Syn	Syn	Lim		Syn	Sen	Syn	Syn
UK contact	Lim	Lim	Syn	Lim	Syn	Syn	Lim	RAGT	Syn	Lim	Syn	Lim	Syn	Syn	Syn	Lim		Syn	Sen	Syn	Syn
Grain yield as % treated control																					
2007 treated (7.0 t/ha)	-	-	104	-	-	103	103	-	101	100	93	92	-	105	105	101	3.1	-	-	-	-
2008 treated (7.4 t/ha)	-	-	104	-	103	102	103	100	100	101	94	96	106	103	106	101	3.2	-	-	-	-
2009 treated (7.4 t/ha)	[106]	[105]	108	[105]	[106]	106	101	[102]	101	99	96	95	[106]	107	105	97	3.4	[103]	[104]	[105]	[106]
2010 treated (7.0 t/ha)	[106]	[105]	104	[105]	103	105	102	102	101	102	96	93	104	104	103	95	3.0	[105]	[104]	[101]	[102]
2011 treated (6.9 t/ha)	111	107	104	104	106	105	99	100	100	98	97	-	105	106	103	99	2.7	105	105	105	103
Malting quality																					
Hot water extract (l deg/kg)	313.8	315.1	314.0	315.5	313.0	{313.1}	316.8	313.4	312.2	312.1	312.5	313.8	-	-	-	-	1.4	313.3	311.9	312.4	312.4

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

UK = recommended for the UK
 NE = recommended for the North East region
 [] = limited data
 { } = historical data

Lim = Limagrain UK (www.limagrain.co.uk)
 RAGT = RAGT Seeds (www.ragt.co.uk)
 Sen = Senova (www.senova.uk.com)
 Syn = Syngenta Seeds (www.newfarmcrops.co.uk)

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

Spring barley trials harvest 2012 – Candidate varieties



Variety ID	Yield treated (T)	Yield untreated (UT) (% treated controls)	Lodging %	Height (cm) (UT)	Maturity (+/- Optic) (T)	Brackling % (T)	Mildew (1-9)	Brown rust (1-9)	Rhynchosporium (1-9)	Specific weight (kg/hl)	UK contact	
Control varieties												
Quench	2121	105	98	-	69	+1	15	9	4	8	69.6	
Concerto	2288	101	96	-	75	+2	16	8	6	4	69.6	
NFC Tipple	1966	101	94	-	65	0	18	7	6	4	69.9	
Optic	1188	96	85	-	71	0	45	5	7	4	71.2	
Westminster	1939	97	91	-	79	+1	22	9	6	8	71.1	
Selected as potential malting varieties												
Sanette (SY 409-226)	2572	110	[103]	-	68	[+1]	[18]	9	5	8	[68.9]	Syngenta
Acclaim (AC09/2)	2552	107	[99]	-	67	[0]	[28]	9	6	7	[69.4]	Saaten Union
Pinocchio (SJ 095045)	2563	107	[101]	-	73	[0]	[21]	8	6	[4]	[70.7]	Syngenta
Sparkle (SY 409-221)	2568	106	[102]	-	70	[+1]	[23]	9	5	[4]	[67.9]	Syngenta
Glassel (SY 409-224)	2570	Data unavailable as variety has not completed National Listing									Syngenta	
Tesla (LAN0848)	2541	108	[102]	-	71	[+1]	[25]	9	6	8	[67.7]	Limagrain
KWS Orphelia (KWS 09-328)	2573	107	[103]	-	67	[0]	[19]	8	[4]	8	[67.9]	KWS
Montoya (AC 09/1)	2551	106	[99]	-	66	[+1]	[17]	9	4	8	[69.3]	Saaten Union
Natasia (SJ 071152)	2575	106	[102]	-	68	[0]	[32]	9	[4]	[6]	[68.6]	KWS
Momentum (NSL07-8136-A)	2542	Data unavailable as variety has not completed National Listing									Limagrain	
Magellan (SJ095043)	2554	105	[97]	-	69	[0]	[29]	9	5	9	[71.1]	Senova
Selected as potential feed varieties												
Kelim (SY409-202)	2566	108	[100]	-	75	[+1]	[12]	9	6	[3]	[69.8]	Syngenta
Crooner (SC75028)	2560	107	[101]	-	62	[+1]	[13]	8	7	8	[69.7]	Agrii
Rhyncostar (SC75280)	2562	107	[99]	-	66	[0]	[15]	9	6	8	[68.9]	Agrii
Mean of controls (t/ha)	7	6.5	-	-	-	-	-	-	-	-	-	
LSD 5%	3.2	4.2	-	2.1	1.0	10	-	-	-	0.8		
No. of trials	20	10	-	14	10	8	-	-	-	10		

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

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

Candidate varieties will be considered for the 2013/14 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 Fera and BSPB for the use of the data.

Spring barley 2012 – Variety comments

Malting varieties

Belgravia

Malt distilling Grain distilling

Quality: A malting variety fully approved by IBD for both malt and grain distilling and recommended for the North East region.

Agronomy: Has high disease resistance, especially to mildew and rhynchosporium.

MAGB comment: Promoted to Full Approval for malt and grain distilling in 2009, purchased in Scotland its share of the market has increased to 4% in 2010.

NEW Chronicle

Quality: Added to the 2012/13 Recommended List as a variety with brewing and distilling potential.

Agronomy: A very high-yielding variety with good resistance to mildew and limited data suggest the variety has high resistance to lodging.

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

Concerto

Brewing Malt distilling

Quality: Fully approved by IBD for brewing and malt distilling.

Agronomy: Has high resistance to mildew but is susceptible to rhynchosporium.

MAGB comment: Having gained Full Approval for brewing and malt distilling use in 2009, it achieved a 7% share of the UK market in 2010.

Moonshine

Brewing Provisional Malt distilling Provisional

Quality: A variety provisionally approved by IBD for brewing and distilling.

Agronomy: High yielding with short straw of moderate strength and high resistance to mildew but is susceptible to brown rust and rhynchosporium.

MAGB comment: Has now been granted Provisional Approval 1 for brewing and malt distilling.

NFC Tipple

Brewing

Quality: A malting variety fully approved by IBD for the production of malt for brewing and suitable for export malting markets.

Agronomy: Has short straw and good lodging resistance but is susceptible to yellow rust and rhynchosporium.

MAGB comment: Tipple's share of the UK spring market decreased by 8% from 36% in 2009 to 28% in 2010. It provides malt of good all-round quality suitable for brewing and export.

NEW Odyssey

Quality: Has been added to the 2012/13 Recommended List as a variety with potential for brewing and malt distilling.

Agronomy: Very high yielding with high resistance to mildew and has given high yields in untreated trials. Limited data suggest Odyssey has medium lodging 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.

NEW Overture

Quality: Has been added to the 2012/13 Recommended List as a high-yielding variety with potential for brewing and malt distilling.

Agronomy: Has high resistance to mildew and has given high yields in untreated trials. Limited data suggest Overture has medium lodging 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.

Optic

Brewing Malt distilling

Quality: Fully approved for both brewing and malt distilling and also suitable for export as a malting variety. Optic has a good specific weight and remains an important malting variety, especially in Scotland.

Agronomy: Its yield potential is now significantly lower than newer introductions. It has high resistance to yellow rust but is susceptible to rhynchosporium and has a tendency to brackle.

MAGB comment: Purchases of UK Optic from the 2010 crop have shown a slight increase to 30%, up 3% on 2009. Very useful to maltsters as it makes malt suitable for UK brewing, export brewing and malt distilling.

Oxbridge

Malt distilling

Quality: Fully approved by IBD for malt distilling, it has a good specific weight. It is no longer in RL trials.

Agronomy: It has good lodging resistance.

MAGB comment: Oxbridge's UK share of the spring barley market dropped again in 2010 by 6% to 11%. It provides malt of good quality for malt distilling use.

Propino

Brewing

Quality: A malting variety which is fully approved by IBD for brewing and is suitable for export malting markets.

Agronomy: Very high yielding with high resistance to mildew but is very susceptible to yellow rust.

MAGB comment: Has now gained Full Approval for brewing.

Spring barley 2012 – Variety comments

Quench

Brewing

Quality: Fully approved by IBD for brewing and is suitable for export malting markets.

Agronomy: Has a high treated yield with short, stiff straw and high resistance to mildew and rhynchosporium but is susceptible to brown rust.

MAGB comment: Since gaining Full Approval in 2009, its share of the English spring barley market has increased by a further 5% in 2010 to 12%. It provides malt of good all-round quality for brewing use.

Shuffle

Brewing
Provisional

Malt distilling
Provisional

Quality: A variety with malting potential for brewing and malt distilling, provisionally approved by IBD for brewing and distilling.

Agronomy: High yielding with high resistance to mildew but it is susceptible to brown rust. Limited data suggest the variety has high resistance to lodging.

MAGB comment: Provisional Approval 1 for brewing and malt distilling has now been gained for this high-yielding variety.

Two-row feed varieties

Garner

Quality: A feed variety that gives moderate specific weights.

Agronomy: Has given very high yields in both fungicide-treated and untreated trials, with short, stiff straw, high resistance to mildew and rhynchosporium and a low risk of brackling.

Summit

Quality: A very high-yielding feed variety.

Agronomy: Has short straw and little lodging has been seen in trials. It has high resistance to mildew but is susceptible to brown rust. It has given very high yields in both fungicide-treated and untreated trials.

Waggon

Quality: A high-yielding feed variety.

Agronomy: Has stiff straw and high resistance to mildew but is very susceptible to rhynchosporium.

Westminster

Quality: A medium-tall feed variety with a good specific weight.

Agronomy: It remains popular with feed growers due to its combination of longer than average straw and good disease characteristics. It has high resistance to mildew and rhynchosporium with a treated yield potential around 8% below the highest yielding varieties.

Winter oats 2012/13



	Balado	Dalguise	Gerald	Tardis	Brochan	Mascani ~	Hendon	Fusion	Grafton	Average LSD (5%)	Mason
Variety type	Conventional husked varieties						Naked varieties				Candidate
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK		-
UK yield as % treated control (8.2 t/ha)											
Fungicide treated	106	101	101	101	99	98	79	78	74	5.0	71
Grain quality											
Kernel content (%)	73.7	76.0	73.2	72.9	78.2	78.3	-	-	-	0.8	-
Specific weight (kg/hl)	50.0	53.9	52.5	49.5	50.2	53.6	62.1	63.6	64.8	1.4	[62.4]
Screenings % through 2.0mm	-	-	-	-	-	-	-	-	-	-	-
Agronomic features											
Resistance to lodging	9	4	6	7	7	6	8	9	6	0.9	[7]
Straw length (cm)	87	116	114	105	104	112	81	88	115	5.9	111
Ripening (days +/- Gerald, -ve = earlier)	+2	-2	0	-2	0	-1	+2	+2	-2	1.8	0
Disease resistance											
Mildew	4	4	3	8	4	6	5	3	4	4.9	5
Crown rust #	-	-	-	-	-	-	-	-	-	-	-
Breeder/UK contact											
Breeder	IBERS	Sen	IBERS	IBERS	Sen	IBERS	IBERS	IBERS	IBERS		IBERS
UK contact	Sen	Sen	Sen	Sen	Sen	Sen	Sen	Sen	Sen		Sen
Status in RL system											
Year first listed	10	03	93	07	07	04	03	10	00		-
Status in RL system	-	C	C	*	*	C	*	-	-		-

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

~ = 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

* = variety no longer in trial

= no recent data for crown rust - see variety comments, page 35

IBERS = Institute of Biological, Environmental & Rural Sciences

Sen = Senova (www.senova.uk.com)

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

Winter oats 2012/13 – Variety comments

Conventional husked varieties

Balado

A short, very stiff-strawed conventional husked variety with a high treated yield, around 5% higher than Dalguise, and a good untreated yield. It has a rather low specific weight and kernel content and is susceptible to mildew. Crown rust infections have been low in recent years and there are now insufficient data to give a rating but it was previously rated as susceptible.

Brochan

A conventional husked variety. It has relatively short straw with above average lodging resistance but is susceptible to mildew. It has a high kernel content but a low specific weight. It is no longer in RL trials.

Dalguise

A conventional husked variety and one of the three most popular winter oat varieties, taking a provisional 21% share of certified seed production in 2011. It is early maturing with good kernel content. It is very susceptible to mildew and has low lodging resistance. Crown rust infections have been low in recent years and there are now insufficient data to give a rating but it was previously rated as susceptible.

Gerald

A conventional husked variety. Its treated yield is 5% below the highest yielding variety but it remains one of the three most popular winter oat varieties, taking a provisional 25% share of certified seed production in 2011. It remains popular with millers due to its consistent grain quality. Gerald is very susceptible to mildew. Crown rust infections have been low in recent years and there are now insufficient data to give a rating but it was previously rated as susceptible.

Mascani

A conventional husked variety which, with a provisional 51% share of certified seed production in 2011, has overtaken Gerald as the most popular winter oat variety both with millers and growers. It has a fungicide-treated yield 3% below Gerald but has better quality characteristics: high kernel content and good specific weight. Its straw stiffness is similar to Gerald and it is less susceptible to mildew. Crown rust infections have been low in recent years and there are now insufficient data to give a rating; previously it had shown good resistance to the common crown rust races.

Tardis

A conventional husked variety. It is early maturing and has short straw with above average resistance to lodging. Tardis has high resistance to mildew but tends to give low specific weights and kernel contents. It is no longer in RL trials.

Naked varieties

Hendon

A dwarf huskless (naked) oat variety. It has very short, very stiff straw which may not require PGR. Naked oats yield 27-32% below the highest yielding conventional husked varieties. Crown rust infections have been low in recent years and there are now insufficient data to give a rating but it was previously rated as susceptible. It is no longer in RL trials.

Fusion

A huskless (naked) oat variety with short, very stiff straw which may not require PGR. Naked oats yield 27-32% below the highest yielding conventional husked varieties. Fusion has given yields similar to Hendon with better specific weights. It is very susceptible to mildew. Crown rust infections have been low in recent years and there are now insufficient data to give a rating but it was previously rated as susceptible.

Grafton

A huskless (naked) variety with a yield potential 5% below Hendon. It has a specific weight that is relatively higher than other naked varieties. It is relatively early maturing but is susceptible to mildew.

Spring oats 2012



	Canyon	Ascot	Rozmar	SW Argyle	Husky	Firth	Atego	Average LSD (5%)	Lennon
Variety type	Conventional husked varieties								Naked varieties
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK		-
UK yield as % treated control (7.6 t/ha)									
Fungicide treated	105	103	100	100	99	98	98	4.9	[75]
Untreated as % of treated	94	86	86	86	85	85	78	5.5	[65]
Grain quality									
Kernel content (%)	75.8	76.9	75.1	76.1	77.5	78.3	75.3	1.0	-
Specific weight (kg/hl)	53.7	51.9	52.5	52.6	54.0	53.0	52.1	1.0	63.7
Screenings % through 2.0mm	[0.1]	0.2	[0.2]	0.2	0.1	0.1	0.2	2.1	[15.6]
Agronomic features									
Resistance to lodging	8	7	6	7	8	6	6	1.1	[7]
Straw length (cm)	112	110	108	106	105	102	100	3.0	99
Ripening (days +/- Firth, -ve = earlier)	-3	+1	-3	+1	-4	0	-3	1.5	[-3]
Disease resistance									
Mildew	8	6	6	6	7	7	3	3.4	6
Crown rust	-	-	-	-	-	-	-	-	-
Breeder/UK contact									
Breeder	Nord	Wier	Selg	LSW	Nord	KWS-L	Selg		IBERS
UK contact	SU	Lim	Cope	Sen	SU	KWS	Cope		Sen
Status in RL system									
Year first listed	11	07	11	03	08	00	07		-
RL status	P2	C*	P2	-	C	C	-		-

Varieties no longer listed: Drummer and Leven.

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

Lennon is a naked variety that is not eligible for recommendation.

UK = recommended for the UK
 [] = limited data
 P2 = second year of recommendation
 C = yield control
 * = variety no longer in trial

Cope = Trevor Cope Seeds (www.trevorcopeseeds.co.uk)
 IBERS = Institute of Biological, Environmental & Rural Sciences
 KWS = KWS UK (www.kws-uk.com)
 KWS-L = KWS Lochow, Germany
 Lim = Limagrain UK (www.limagrain.co.uk)
 LSW = Lantmännen SW Seed, Sweden

Nord = Nordsaat, Germany
 Selg = Selgen, Czech Republic
 Sen = Senova (www.senova.uk.com)
 SU = Saaten Union UK (www.saaten-union.co.uk)
 Wier = Wiersum, Netherlands

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

Spring oats 2012 – Variety comments

Conventional husked varieties

Ascot

A conventional husked variety. It has a treated yield some 5% higher than Firth but with a lower specific weight.

Atego

A conventional husked variety that is early maturing but very susceptible to mildew and a moderate specific weight.

Canyon

A conventional husked variety and the highest yielding variety on the Recommended List. It is relatively long-strawed but little lodging has been seen in trials. It is early ripening, has high resistance to mildew and a good kernel content.

Firth

A conventional husked variety that remains popular and widely used by millers. It has a high kernel content and above average resistance to mildew.

Husky

A conventional husked variety. It is early maturing and relatively stiff-strawed. Husky has a good specific weight and kernel content. It has above average resistance to mildew. Crown rust infections have been low in recent years and there are now insufficient data to give a rating but it was previously rated as susceptible.

Rozmar

A conventional husked variety with early ripening. It has a treated yield some 2% higher than Firth but with a lower kernel content and specific weight.

SW Argyle

A conventional husked variety. Crown rust infections have been low in recent years and there are now insufficient data to give a rating but it was previously rated as resistant.

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 conventional types; in this case its yield is 30% below that of the conventional husked variety Canyon. It is early maturing and has a high specific weight.



HGCA's All About Oats consumer marketing campaign aims to raise awareness of the benefits of oats as part of a healthy balanced diet. For more information, visit www.allaboutoats.com

WWW.QUOATS.ORG

HGCA is one of the funders of a five-year research project to develop and apply state-of-the-art tools for oat genetic improvement. Three years into the project, molecular markers for key traits are now routinely used in oat breeding programmes and the high value of oats as an animal feed, with the potential to reduce greenhouse gas emissions, has been demonstrated. Visit the HGCA stand at Cereals 2012 for more information.

HGCA Project: RD-2007-3453





Winter oilseed rape 2012/13 – East/West region

Yield, quality and agronomic data



	PR46W21	DK Cabernet	Sesame	DK Camelot	Compass	DK Expower	Rhino	Fashion	Thorin #	Dimension	Excalibur	Palace	Vision	DK Sequoia #	Flash	Cash	Expert	Lioness	PR45D05 #	Es Astrid	Hammer	Cracker \$	PR45D03 #	Castille	Mendel \$	Average LSD (5%)	Eraton @	V141OL ~
Variety type	RH	Conv	Conv	Conv	RH	RH	RH	Conv	RH	RH	RH	RH	Conv	RH	RH	Conv	Conv	Conv	RH	Conv	RH	RH	RH	Conv	RH		Other varieties	
Scope of recommendation	E/W	E/W	E/W	E/W	UK	E/W	E/W	UK	Sp	E/W	UK	UK	E/W	Sp	UK	E/W	E/W	UK	Sp	E/W	E/W	Sp	Sp	E/W	Sp		RH	Conv
Gross output (yield adjusted for oil content) as % control																												
Fungicide treated (5.3 t/ha)	109	108	107	106	106	105	105	104	104	103	103	102	102	101	101	100	100	100	99	98	98	97	97	94	94	4.1	100	90
Seed yield as % control																												
Fungicide treated (5.0 t/ha)	106	105	106	104	103	104	103	103	103	100	102	101	102	101	100	98	100	97	100	100	96	97	97	96	94	3.6	95	89
Agronomic features																												
Resistance to lodging	8	8	8	[7]	8	[7]	7	8	[8]	8	7	8	8	8	7	[8]	8	8	9	8	8	8	9	8	[8]	0.4	[8]	[8]
Stem stiffness	9	9	8	7	8	7	7	8	9	8	7	8	8	9	7	8	7	8	9	8	8	8	9	7	9	0.6	8	6
Shortness of stem	6	7	6	8	6	6	7	6	9	6	7	6	7	8	6	7	6	7	9	8	6	6	9	8	6	0.3	6	7
Earliness of flowering	7	5	6	6	6	7	7	7	7	7	8	8	6	4	6	7	6	6	6	4	6	7	5	8	6	0.4	8	6
Earliness of maturity	5	4	4	6	5	6	6	5	5	5	6	5	5	6	4	6	4	5	5	6	5	6	5	6	6	0.6	6	6
Seed quality (at 9% moisture)																												
Oil content, fungicide treated (%)	46.7	45.9	44.6	46.4	46.7	45.6	45.6	45.2	45.3	46.6	45.1	45.4	44.5	44.7	45.0	45.9	44.5	46.5	44.4	43.4	46.2	44.8	44.5	43.2	44.1	0.4	47.6	45.5
Glucosinolate (µmoles/g of seed)	12.6	10.1	12.8	10.5	9.7	11.8	10.0	11.9	11.2	12.1	17.4	11.4	13.8	11.5	13.0	13.1	11.5	8.5	10.1	14.0	12.1	10.4	11.2	13.6	12.3		11.0	17.7
Disease resistance																												
Light leaf spot	5	6	6	6	6	6	6	6	6	5	6	7	6	6	5	5	5	5	6	5	5	9	5	5	5	0.8	5	7
Stem canker	4	5	5	[5]	4	[9]	5	4	[5]	5	4	5	6	5	4	7	6	5	4	7	6	4	4	6	5	1.1	[5]	6
Status in RL system																												
Year first listed	09	10	11	12	11	12	11	10	12	09	06	11	09	11	08	11	04	05	11	05	09	11	09	05	02		-	-
RL status	-	-	P2	P1	P2	P1	P2	-	P1	*	C*	P2	C	P2	C*	P2	*	*	P2	*	*	P2	*	C*	*		*	*

Varieties no longer listed in the East/West region: DK Secure, Excel and NKBravour.

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

Hybrids are sown in trials at 70 seeds/sqm, conventional varieties at 120 seeds/sqm. Glucosinolate contents are taken from the National List trials data.

RH = restored hybrid
 Conv = conventional open-pollinated variety
 @ = Eraton is a high erucic acid (HEAR) variety
 ~ = V141OL is a high oleic, low linolenic (HOLL) variety

= Thorin, DK Sequoia, PR45D05 and PR45D03 are 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
 \$ = Cracker and Mendel 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

UK = recommended for both the East/West and North regions
 E/W = recommended for the East/West region
 Sp = specific recommendation

[] = limited data
 P1 = first year of recommendation
 P2 = second year of recommendation
 * = variety no longer in trial in region
 C = yield control

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

Winter oilseed rape 2012/13 – East/West region

Supplementary data



	PR46W21	DK Cabernet	Sesame	NEW DK Camelot	NEW Compass	DK Expower	Rhino	Fashion	NEW Thorin #	Dimension	Excalibur	Palace	Vision	DK Sequoia #	Flash	Cash	Expert	Lioness	PR45D05 #	Es Astrid	Hammer	Cracker \$	PR45D03 #	Castille	Mendel \$	Average LSD (5%)
Variety type	RH	Conv	Conv	Conv	RH	RH	RH	Conv	RH	RH	RH	RH	Conv	RH	RH	Conv	Conv	Conv	RH	Conv	RH	RH	RH	Conv	RH	
Scope of recommendation	E/W	E/W	E/W	E/W	UK	E/W	E/W	UK	Sp	E/W	UK	UK	E/W	Sp	UK	E/W	E/W	UK	Sp	E/W	E/W	Sp	Sp	E/W	Sp	
Breeder/UK contact																										
Breeder	Pion	DK	LSPB	DK	DSV	DK	KWS	LSW	LSPB	DSV	DK	LSPB	LSW	DK	DSV	KWS	Mom	DSV	Pion	Eur	DSV	LSPB	Pion	DK	NPZ	
UK contact	Pion	DK	LSPB	DK	DSV	DK	KWS	Sen	LSPB	DSV	DK	LSPB	Sen	DK	DSV	KWS	Lim	DSV	Pion	GSd	DSV	LSPB	Pion	DK	KWS	
Annual treated gross output (yield adjusted for oil content) as % control																										
2008 (4.8 t/ha)	107	[114]	[115]	-	[111]	-	[109]	[110]	-	103	98	[105]	104	[103]	101	[108]	98	103	[97]	96	98	[98]	93	97	[91]	7.9
2009 (5.5 t/ha)	107	105	112	107	106	101	103	104	104	102	99	104	103	99	102	100	101	98	96	98	98	98	95	96	[93]	5.0
2010 (5.2 t/ha)	111	106	105	105	106	106	106	104	101	104	105	105	101	101	100	99	99	98	104	100	98	97	101	94	[94]	5.8
2011 (5.8 t/ha)	110	110	104	106	105	108	105	104	107	103	109	100	101	104	101	100	-	-	101	-	-	99	-	89	-	6.3
Agronomy																										
Plant height (cm)	166	157	161	146	167	160	153	161	132	166	158	165	157	135	167	158	161	154	126	144	164	164	124	143	159	3.1
Harvest method - gross output (yield adjusted for oil content) as % control																										
Swathed (5.2 t/ha)	109	107	108	109	105	108	106	103	103	105	104	103	101	101	101	102	104	99	96	102	101	99	96	94	[94]	5.6
Desiccated (5.2 t/ha)	108	109	107	105	107	104	105	105	108	103	102	102	103	102	100	99	99	101	102	97	98	97	97	95	93	4.3

Other varieties

RH	Conv
HEAR	HOLL

LSPB	DK
KWS	DK

-	-
101	90
102	90
96	-

161	157
-----	-----

102	91
98	90

RH = restored hybrid
 Conv = conventional open-pollinated variety
 @ = Eraton is a high erucic acid (HEAR) variety
 ~ = V141OL is a high oleic, low linolenic (HOLL) variety

= Thorin, DK Sequoia, PR45D05 and PR45D03 are 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
 \$ = Cracker and Mendel 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
 [] = limited data

UK = recommended for both the East/West and North regions
 E/W = recommended for the East/West region
 Sp = specific recommendation

DK = DEKALB (www.dekalb.co.uk)
 DSV = DSV United Kingdom (www.dsv-uk.co.uk)
 Eur = Euralis, France
 GSd = Grainseed (www.grainseed.co.uk)
 KWS = KWS UK (www.kws-uk.com)
 Lim = Limagrain UK (www.limagrain.co.uk)
 LSPB = LS Plant Breeding (www.lspb.eu)
 LSW = Lantmännen SW Seed AB, Sweden
 Mom = Momont, France
 NPZ = NPZ Lembke, Germany
 Pion = Pioneer Hi-Bred (www.pioneer.com)
 Sen = Senova (www.senova.uk.com)

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



Winter oilseed rape 2012/13 – North region

Yield, quality and agronomic data



NEW **NEW**

NEW

	Compass	Cuillin	Fashion	Palace	Artoga	Catana	Excalibur	Flash	Lioness	Cracker \$	Temple	PR45D05 #	Mendel \$	Average LSD (5%)
Variety type	RH	RH	Conv	RH	RH	Conv	RH	RH	Conv	RH	Conv	RH	RH	
Scope of recommendation	UK	North	UK	UK	North	North	UK	UK	UK	Sp	North	Sp	Sp	
Gross output (yield adjusted for oil content) as % control														
Fungicide treated (5.3 t/ha)	107	105	104	104	103	103	103	103	103	103	101	99	94	7.5
Seed yield as % control														
Fungicide treated (5.0 t/ha)	104	103	102	103	103	101	103	102	99	102	99	99	[94]	6.7
Agronomic features														
Resistance to lodging	8	8	8	8	[7]	7	7	7	8	8	[8]	9	[8]	0.4
Stem stiffness	8	8	8	8	7	7	7	7	8	8	8	9	9	0.6
Shortness of stem	6	6	6	6	6	7	7	6	7	6	7	9	6	0.3
Earliness of flowering	6	8	7	8	7	7	8	6	6	7	6	6	6	0.4
Earliness of maturity	5	5	5	5	7	5	6	4	5	6	5	5	6	0.6
Seed quality (at 9% moisture)														
Oil content, fungicide treated (%)	46.3	45.5	45.0	44.8	44.3	45.5	44.1	44.6	46.4	44.4	45.4	44.0	44.0	1.79
Glucosinolate (µmoles/g of seed)	9.7	11.4	11.9	11.4	11.6	14.3	17.4	13.0	8.5	10.4	15.5	10.1	12.3	
Disease resistance														
Light leaf spot	6	9	6	7	7	7	6	5	5	9	7	6	5	0.8
Stem canker	4	4	4	5	5	4	4	4	5	4	5	4	5	1.1
Status in RL system														
Year first listed	11	09	11	12	12	08	06	08	05	12	08	11	02	
RL Status	P2	-	P2	P1	P1	-	C*	C*	*	P1	-	P2	*	

	PT206	DK Expower	DK Cayenne	Boheme	Raptor	Pendulum	Thorin #	Abaco	DK Camelot
Candidates									
RH	RH	Conv	Conv	RH	Conv	RH	Conv	Conv	Conv
-	-	-	-	-	-	-	-	-	-
107	107	106	105	104	104	104	103	103	
[104]	[106]	[106]	[103]	[100]	[102]	[103]	[103]	[101]	
[8]	[7]	[8]	[7]	[8]	[8]	[8]	[7]	[7]	
9	7	8	7	8	8	9	7	7	
6	6	7	6	6	7	9	7	8	
5	7	6	8	6	6	7	8	6	
4	6	6	6	5	4	5	6	6	
45.5	44.7	44.1	45.4	46.6	45.2	44.6	44.0	45.3	
10.5	11.8	12.8	11.2	9.2	11.1	11.2	10.9	10.5	
6	6	6	6	6	6	6	7	6	
[5]	[9]	[7]	[5]	[6]	[4]	[5]	[4]	[5]	
-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	

Varieties no longer Listed for the North region: DK Secure, Emerson, Hornet, NKBravour and NK Grace.
 On the 1-9 scales, high figures indicate that a variety shows the character to a high degree (eg high resistance).
 Hybrids are sown in trials at 70 seeds/sqm, conventional varieties at 120 seeds/sqm.
 Glucosinolate contents are taken from the National List trials data.

The above varieties are candidates for the 2013/14 HGCA Recommended List.
 Data taken from trials grown in 2009, 2010 and 2011.

RH = restored hybrid	# = PR45D05 and Thorin are semi-dwarf varieties that are believed to carry the <i>Bzh</i> dwarfing gene in the heterozygous state but this has not been verified in RL tests	UK = recommended for both the East/West and North regions	[] = limited data	Average LSD (5%): Varieties that are more than one LSD (least significant difference) apart are significantly different at the 5% confidence level.
Conv = conventional open-pollinated variety	\$ = Cracker and Mendel 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	North = recommended for the North Region	P1 = first year of recommendation	
		Sp = specific recommendation	P2 = second year of recommendation	
			C = yield control	
			* = variety no longer in trial in region	

Winter oilseed rape 2012/13 – North region

Supplementary data



	Compass	Cuillin	Fashion	Palace	Artoqa	Catana	Excalibur	Flash	Lioness	Cracker \$	Temple	PR45D05 #	Mendel \$	Average LSD (5%)
Variety type	RH	RH	Conv	RH	RH	Conv	RH	RH	Conv	RH	Conv	RH	RH	
Scope of recommendation	UK	North	UK	UK	North	North	UK	UK	UK	Sp	North	Sp	Sp	
Breeder/UK contact														
Breeder	DSV	KWS	LSW	LSPB	Lim	DK	DK	DSV	DSV	LSPB	Els	Pion	NPZ	
UK contact	DSV	KWS	Sen	LSPB	Lim	DK	DK	DSV	DSV	LSPB	Els	Pion	KWS	
Annual treated gross output (yield adjusted for oil content) as % control														
2008 (5.0 t/ha)	[105]	[111]	[110]	[117]	[103]	[105]	[105]	[109]	[103]	[107]	[101]	[97]	[93]	12.5
2009 (5.1 t/ha)	[106]	[98]	[100]	-	-	[98]	[101]	[107]	[94]	-	[93]	[89]	[86]	11.4
2010 (5.5 t/ha)	[111]	[105]	[104]	[100]	[106]	[103]	98	101	[108]	[99]	[104]	[101]	[98]	7.1
2011 (5.8 t/ha)	[104]	[104]	[102]	[101]	[101]	[104]	[107]	[97]	-	[104]	[101]	[103]	-	9.2
Agronomy														
Plant height (cm)	167	161	161	165	167	158	157	166	154	164	154	127	159	3.5
Harvest method - gross output (yield adjusted for oil content) as % control														
Swathed (5.3 t/ha)	[104]	106	[102]	[98]	[106]	101	105	104	[101]	[101]	97	[100]	[92]	12.1
Desiccated (5.2 t/ha)	110	106	105	[109]	[102]	105	105	102	[101]	[105]	103	100	[93]	7.3

	PT206	DK Expower	DK Cayenne	Boheme	Raptor	Pendulum	Thorin #	Abaco	DK Camelot
Candidates									
	RH	RH	Conv	Conv	RH	Conv	RH	Conv	Conv
	-	-	-	-	-	-	-	-	-
	Pion	DK	DK	SSG	DSV	Lim	LSPB	Desp	DK
	Pion	DK	DK	NK	DSV	Lim	LSPB	Els	DK
	-	-	-	-	-	-	-	-	-
	[101]	[107]	[104]	[102]	[105]	[104]	[89]	[105]	[95]
	[112]	[96]	[106]	[106]	[100]	[103]	[108]	[97]	[108]
	[104]	[111]	[105]	[104]	[104]	[103]	[105]	[104]	[101]
	161	159	150	160	165	158	131	154	146
	[106]	[110]	[104]	[104]	[102]	[102]	[104]	[100]	[99]
	[106]	[111]	[107]	[107]	[107]	[106]	[103]	[108]	[103]

The above varieties are candidates for the 2013/14 HGCA Recommended List. Data taken from trials grown in 2009, 2010 and 2011.

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

= PR45D05 and Thorin are 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
 \$ = Cracker and Mendel 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

UK = recommended for both the East/West and North regions
 North = recommended for the North Region
 Sp = specific recommendation

Desp = Maison Florimond Desprez, France
 DK = DEKALB (www.dekalb.co.uk)
 DSV = DSV United Kingdom (www.dsv-uk.co.uk)
 Els = Elsoms Seeds (www.elsoms.com)
 KWS = KWS (www.kws-uk.com)
 Lim = Limagrain UK (www.limagrain.co.uk)
 LSPB = LS Plant Breeding (www.lspb.eu)
 LSW = Lantmännen SW Seed AB, Sweden
 NK = NK-Syngenta Seeds (www.oilseedrape.com)
 NPZ = NPZ Lembke, Germany
 Pion = Pioneer Hi-Bred (www.pioneer.com)
 Sen = Senova (www.senova.uk.com)
 SSG = Syngenta Seeds, Germany

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



Winter oilseed rape trials harvest 2012 – East/West region

Candidate varieties



	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)	UK contact
Control varieties													
Excalibur	1684	RH	106	105	45.1	7	7	154	7	7	6	6	
Flash	1907	RH	101	100	44.7	8	7	164	5	5	6	6	
Vision	1953	Conv	101	101	44.4	8	7	153	5	6	5	6	
Castille	1608	Conv	92	94	42.6	7	7	142	7	6	5	7	
Candidate varieties													
Avatar (SLM 0804)	2272	RH	111	108	46.1	7	7	158	7	6	6	5	LS Plant Breeding
Marathon (WRH 354)	2265	RH	110	110	44.5	8	8	153	7	5	5	4	DSV
DK Excellium (DMH144)	2293	RH	110	107	45.9	7	7	164	5	6	6	9	DEKALB
Patron (RG2905)	2316	Conv	109	106	46.4	8	8	148	6	5	4	4	Saaten Union
PT211 (X09W007C)	2306	RH	109	107	45.7	8	8	160	4	5	7	7	Pioneer
Quartz (MH 04 AQ 015)	2341	Conv	108	106	45.5	7	7	146	4	6	5	9	KWS
Troy (RAP 0928Z)	2278	SD RH	108	107	44.8	8	8	138	6	6	6	5	DSV
SY Fighter (RNX3827)	2281	RH	108	107	44.4	7	7	153	6	5	5	8	Syngenta
PX104 (X08W830C)	2309	SD RH	107	105	45.8	8	8	124	4	5	6	7	Pioneer
DK Exstorm (DGC142)	2296	RH	107	105	45.3	7	7	163	5	6	6	9	DEKALB
PT213 (X09W010C)	2315	RH	107	105	45.1	8	7	158	4	6	6	8	Pioneer
Bronze (MH 04 BR 132)	2329	Conv	105	102	46.0	7	6	152	6	6	7	7	KWS
PX106 (X09W030C)	2310	SD RH	104	102	45.6	8	8	122	5	5	6	6	Pioneer
PX105 (X09W028C)	2311	SD RH	103	102	44.5	8	8	123	5	5	6	8	Pioneer
DK Imagine CL (CWH158D)	2302	SD RH	102	102	44.5	8	8	130	3	6	6	6	DEKALB
Cruze (NPZ-0909)	2273	RH	101	101	44.1	8	7	159	5	6	6	4	LS Plant Breeding
Mean of controls (t/ha)			5.6	5.2	44.7	7.5	7.1	155	5.1	5.6	-	-	
LSD 5%			4.1	3.9	0.4	0.6	0.6	3.8	0.5	0.5	-	-	
No. of trials			17	17	17	8	18	21	18	15	-	-	

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 in the Recommended List

Candidate varieties will be considered for the 2013/14 HGCA Recommended List

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

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 Fera and BSPB for the use of the data.

Winter oilseed rape trials harvest 2012 – North region

Candidate varieties



	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)	UK contact
Control varieties													
Excalibur	1684	RH	104	103	44.1	7	7	154	7	7	6	6	
Vision	1953	Conv	103	103	43.5	8	7	153	5	6	5	6	
Flash	1907	RH	97	97	43.5	8	7	164	5	5	6	6	
Castille	1608	Conv	95	97	42.1	7	7	142	7	6	5	7	
Candidate varieties													
Troy (RAP 0928Z)	2278	SD RH	110	108	44.5	8	8	138	6	6	6	5	DSV
Anastasia (NSL 09/194)	2287	Conv	108	107	44.4	8	8	150	5	5	6	7	Limagrain
PX106 (X09W030C)	2310	SD RH	108	106	45.1	8	8	122	5	5	6	6	Pioneer
PT211 (X09W007C)	2306	RH	106	104	45.2	8	8	160	4	5	7	7	Pioneer
PT208 (X08W718C)	2307	RH	106	103	45.4	7	7	162	5	6	6	7	Pioneer
Shot (WRH 362)	2269	RH	106	103	46.0	8	8	163	5	6	7	6	DSV
SY Motive (RNX3824)	2279	RH	106	105	44.2	8	7	156	6	5	6	5	Syngenta
DK Excellium (DMH144)	2293	RH	106	103	45.1	7	7	164	5	6	6	9	DEKALB
Cruze (NPZ-0909)	2273	RH	105	106	43.4	8	7	159	5	6	6	4	LS Plant Breeding
PX104 (X08W830C)	2309	SD RH	104	103	44.8	8	8	124	4	5	6	6	Pioneer
DK Imagine CL (CWH158D)	2302	SD RH	104	104	43.5	8	8	130	3	6	6	6	DEKALB
DK Exstorm (DGC142)	2296	RH	103	101	44.5	7	7	163	5	6	6	9	DEKALB
SY Alister (RNX3921)	2282	RH	103	104	42.6	8	7	157	6	6	6	4	Syngenta
Bronze (MH 04 BR 132)	2329	Conv	101	97	45.9	7	6	152	6	6	7	7	KWS
Mean of controls (t/ha)			5.2	5.0	44.1	7.5	7.1	155	5.1	5.6	-	-	
LSD 5%			7.4	6.9	0.9	0.6	0.6	3.8	0.5	0.5	-	-	
No. of trials			4	4	4	8	18	21	18	15	-	-	

Data taken from trials grown in 2010 and 2011 and not directly comparable to candidate data on pages 40 and 41. 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 in the Recommended List
 Candidate varieties will be considered for the 2013/14 HGCA Recommended List
 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
 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 Fera and BSPB for the use of the data.

Winter oilseed rape varieties grown in RL trials in 2011 but not added to the HGCA Recommended List – East/West region



	Control varieties				Other varieties			Average LSD (5%)
	Excalibur	Vision	Flash	Castille	Rivalda	PT206	Rascal	
Variety type	RH	Conv	RH	Conv	Conv	RH	Conv	
Gross output (yield adjusted for oil content) as % control								
Fungicide treated (5.3 t/ha)	103	102	101	94	106	105	103	4.1
Seed yield as % control								
Fungicide treated (5.0 t/ha)	102	102	100	96	105	103	104	3.6
Agronomic features								
Resistance to lodging	7	8	7	8	[8]	[8]	[8]	0.4
Stem stiffness	7	8	7	7	7	8	8	0.6
Shortness of stem	7	7	6	8	7	6	7	0.3
Earliness of flowering	8	6	5	8	7	5	6	0.4
Earliness of maturity	6	5	4	6	4	4	6	0.6
Seed quality (at 9% moisture)								
Oil content, fungicide treated (%)	45.1	44.5	45.0	43.2	45.1	46.4	44.0	0.4
Glucosinolate (µmoles/g of seed)	17.4	13.8	13.0	13.6	12.2	10.5	10.5	
Disease resistance								
Light leaf spot	6	6	5	5	5	6	5	0.8
Stem canker	4	6	4	6	[5]	[5]	[7]	1.1
Harvest method – gross output (yield adjusted for oil content) as % control								
Swathed (5.2 t/ha)	104	101	101	94	108	104	102	5.6
Desiccated (5.2 t/ha)	102	103	100	95	107	107	105	4.3

This table should be read in conjunction with the HGCA Recommended List of Winter Oilseed Rape for 2012/13.

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

Winter oilseed rape varieties grown in RL trials in 2011 but not added to the HGCA Recommended List – North region



	Control varieties				Other varieties					Average LSD (5%)
	Excalibur	Flash	Vision	Castille	Oracle	Sesame	Rhino	DK Camella	DK Sequoia #	
Variety type	RH	RH	Conv	Conv	Conv	Conv	RH	Conv	RH	
Gross output (yield adjusted for oil content) as % control										
Fungicide treated (5.3 t/ha)	103	103	99	95	104	103	103	100	97	7.5
Seed yield as % control										
Fungicide treated (5.0 t/ha)	103	102	99	96	103	102	101	99	98	6.7
Agronomic features										
Resistance to lodging	7	7	8	8	[8]	8	8	[8]	9	0.5
Stem stiffness	7	7	8	7	9	8	7	8	9	0.7
Shortness of stem	7	6	7	8	7	6	7	7	9	0.3
Earliness of flowering	8	6	6	8	5	6	7	5	4	0.5
Earliness of maturity	6	4	5	6	5	4	6	4	6	0.6
Seed quality (at 9% moisture)										
Oil content of seed, fungicide treated (%)	44.1	44.6	43.6	42.7	44.1	44.3	45.2	44.8	43.1	1.8
Glucosinolate (µmoles/g of seed)	17.4	13.0	13.8	13.6	13.8	12.8	10.0	11.1	11.5	-
Disease resistance										
Light leaf spot	6	5	6	5	6	6	6	6	6	0.9
Stem canker	4	4	6	6	6	5	5	5	5	1.0
Harvest method – gross output (yield adjusted for oil content) as % control										
Swathed (5.3 t/ha)	105	104	[95]	96	[102]	[101]	[103]	[97]	[94]	12.1
Desiccated (5.3 t/ha)	105	102	101	92	[102]	[101]	[104]	[100]	[99]	7.3

This table should be read in conjunction with the HGCA Recommended List of Winter Oilseed Rape for 2012/13.

Conv = conventional open-pollinated variety
 RH = restored hybrid
 [] = limited data
 # = DK Sequoia is a 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

Winter oilseed rape 2012/13 – Variety comments

Conventional varieties

Cash

Is a conventional, open-pollinated variety for the East/West region. It is stiff-stemmed, has high resistance to lodging and excellent resistance to stem canker. It is relatively early flowering and early maturing.

Castille

Is a conventional, open-pollinated variety recommended for the East/West region. It is short-stemmed and has high lodging resistance. Castille is early flowering and relatively early maturing. It is no longer in RL trials.

Catana

Is a conventional, open-pollinated variety recommended for the North region. It has a high treated gross output in the North region, has high resistance to light leaf spot and is relatively early flowering. It is susceptible to stem canker.

DK Cabernet

Is a conventional, open-pollinated variety recommended for the East/West region. It has a very high treated gross output, is stiff-stemmed and has high resistance to lodging. It is rather late maturing.

NEW DK Camelot

Is a conventional, open-pollinated variety that was added to the HGCA Recommended List for 2012/13 for the East/West region. It is short-stemmed, relatively early maturing and has a high gross output in the East/West Region. DK Camelot is under test in the North and is a candidate for the 2013/14 HGCA Recommended List in that region.

Es Astrid

Is a conventional, open-pollinated variety recommended for the East/West region. It is short, stiff-stemmed and has high resistance to lodging. Es Astrid has good resistance to stem canker and is relatively early maturing despite late flowering. It is no longer in RL trials.

Expert

Is a conventional, open-pollinated variety recommended for the East/West region. It has good lodging resistance and is rather late maturing. It is no longer in RL trials.

Fashion

Is a conventional, open-pollinated variety recommended for the East/West and North regions. It has a high treated gross output for all regions. It is stiff-stemmed and has high resistance to lodging but has low resistance to stem canker.

Lioness

Is a conventional, open-pollinated variety that is recommended for both the East/West and North regions. It is stiff-stemmed and has high resistance to lodging. It is no longer in RL trials.

Sesame

Is a conventional, open-pollinated variety recommended for the East/West region. It has given a very high treated gross output, is stiff-stemmed and has high resistance to lodging. It is rather late maturing.

Temple

Is a conventional, open-pollinated variety recommended for the North region. It has stiff stems, high resistance to lodging and high light leaf spot resistance.

Vision

Is a conventional, open-pollinated variety recommended for the East/West region. It is very stiff-stemmed and has high resistance to lodging.

Restored hybrid varieties

NEW Artoga

Is a restored hybrid variety that was added to the HGCA Recommended List for 2012/13 for the North Region. It has high treated gross output. It is a very early maturing variety with good lodging and stem stiffness. It has good light leaf spot resistance.

Compass

Is a restored hybrid variety recommended for both the East/West and North regions. It has a high treated gross output, is stiff-stemmed and has high resistance to lodging. It is susceptible to stem canker.

NEW Cracker

Was added to the HGCA Recommended List 2012/13 as a specific recommendation for the North region as well as for the East/West. It is a restored hybrid with resistance to the common strains of clubroot but, like Mendel, may be susceptible to the strains found in some fields. It is around 9% higher yielding than Mendel in the North region and has high light leaf spot resistance; in the East/West region, it is 3% higher yielding than Mendel. It is susceptible to stem canker.

Cuillin

Is a restored hybrid recommended for the North region. It has a high treated gross output, is stiff-stemmed and has high resistance to lodging when sown at the hybrid seed rate. It has excellent resistance to light leaf spot but is susceptible to stem canker. Cuillin tends to be early flowering.

Dimension

Is a restored hybrid variety recommended for the East/West region. It has a high gross output, is stiff-stemmed and has high resistance to lodging when grown at the hybrid seed rate. Dimension is early flowering. It is no longer in RL trials.

Winter oilseed rape 2012/13 – Variety comments

NEW DK Expower

Is a restored hybrid variety that was added to the HGCA Recommended List for 2012/13 for the East/West region. It has a high treated gross output with early flowering characteristics and early ripening and has very high stem canker resistance. DK Expower is under test in the North and is a candidate for the 2013/14 HGCA Recommended List in that region.

DK Sequoia

Is a semi-dwarf variety (believed to carry the OGU/INRA dwarfing gene in the heterozygous state) recommended for the East/West region. It is very short and stiff-stemmed and has very high resistance to lodging. It is relatively early maturing despite late flowering.

Excalibur

Is a restored hybrid variety recommended for both the East/West and North regions. It is early flowering and relatively early maturing but is susceptible to stem canker. It is no longer in RL trials.

Flash

Is a restored hybrid variety recommended for both the East/West and North regions. It has a high treated gross output in the North region but is relatively late maturing and susceptible to stem canker. It is no longer in RL trials.

Hammer

Is a restored hybrid variety 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 no longer in RL trials.

Mendel

Is a restored hybrid with a specific recommendation for use on land infected with common strains of clubroot but may be susceptible to the strains found in some fields. It has below average gross output in the absence of clubroot. Mendel is early maturing, stiff-stemmed and has high lodging resistance when sown at the hybrid seed rate. It has below average resistance to light leaf spot. It is no longer in RL trials.

NEW Palace

Is a restored hybrid variety which is now recommended for the North region as well as for the East/West. It has a high treated gross output, is stiff-stemmed and has above average resistance to light leaf spot. It tends to be early flowering.

PR45D03

Is a specific recommendation as a restored hybrid, semi-dwarf variety (believed to carry the OGU/INRA dwarfing gene in the heterozygous state) for the East/West region. It is very short and stiff-stemmed and has very high resistance to lodging. It is no longer in RL trials.

PR45D05

Is a restored hybrid, semi-dwarf variety (believed to carry the OGU/INRA dwarfing gene in the heterozygous state) recommended for the East/West and North regions. It is very short and stiff-stemmed and has very high resistance to lodging. It is susceptible to stem canker.

PR46W21

Is a restored hybrid 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 when grown at the hybrid seed rate. It is susceptible to stem canker.

Rhino

Is a restored hybrid variety recommended for the East/West region. It has a high treated gross output, is stiff-stemmed and has high resistance to lodging when grown at the hybrid seed rate. It is early flowering and relatively early ripening.

NEW Thorin

Is a restored hybrid semi-dwarf variety that was added to the HGCA Recommended List for 2012/13 for the East/West region. It has high treated gross output, is very short and stiff-stemmed and has very high lodging resistance. Thorin is under test in the North and is a candidate for the 2013/14 HGCA Recommended List in that region.

HOLL and HEAR varieties

The following two varieties are examples of HOLL and HEAR types. They are not on the Recommended List but have been included in RL trials to allow information to be presented here.

Eraton

Is a high erucic acid rape (HEAR) variety; data on this variety are given for information only and it is not on the HGCA Recommended List. HEAR varieties are used in industrial processes, such as inks, lubrication and as a slip agent in the production of polythene. Eraton is a restored hybrid variety.


V141OL

Is a high oleic, low linolenic (HOLL) variety; data on this variety are given for information only and it is not on the HGCA Recommended List. HOLL varieties are suited to some food uses, notably frying oil, and also possibly for biolubricants. V141OL is a conventional, open-pollinated variety.



HGCA is helping raise awareness of the nutritional and culinary benefits of rapeseed oil through its consumer marketing campaign. For more information, visit www.hgca.com/nutrition

Spring oilseed rape descriptive list 2012

	NEW													
	Makro	Tamarin	Amulet	Carnival	Delight	Belinda	Kumily	Heros	Larissa	Ability	Colossus	James	Earlybird	Average LSD (5%)
Variety type	RH	Conv	Conv	Conv	RH	RH	Conv	Conv	Conv	Conv	Conv	Conv	Conv	
Gross output (yield adjusted for oil content) as % control (2.6 t/ha)														
UK without fungicide	[109]	102	102	102	101	101	100	99	98	98	95	[94]	86	6.9
Number of trials	8	14	11	11	17	13	18	17	17	18	14	10	11	
Seed yield as % control (2.5 t/ha)														
UK without fungicide	[107]	102	101	100	101	101	102	98	98	97	95	93	87	6.4
Seed quality (at 9% moisture)														
Oil content (%)	[44.5]	43.4	44.1	44.1	43.9	43.3	42.3	44.2	43.2	44.2	43.5	44.3	42.1	0.7
Glucosinolate content (µmoles/g)	14.7	11.9	12.1	13.7	14.2	14.5	12.5	13.3	14.0	12.4	12.8	14.8	-	-
Agronomic features														
Standing ability	[8]	8	[9]	[8]	8	8	9	8	9	7	9	[9]	7	1.1
Shortness of stem	[4]	6	5	6	6	7	7	6	6	6	5	7	5	1.1
Earliness of flowering	5	7	6	6	8	8	7	6	6	7	5	6	6	1.0
Earliness of maturity	[3]	7	5	5	6	6	7	5	6	6	4	6	7	1.7
Breeder/ UK contact														
Breeder	DSV	LSW	LSW	LSW	Raps	Raps	LSW	Raps	Raps	DSV	UG	UG	Pick	
UK Contact	DSV	Sen	Sen	Sen	SU	SU	Sen	SU	SU	DSV	JTSD	JTSD	Pick	
Status in RL system														
Year first listed	12	10	11	11	09	10	07	02	09	07	10	11	06	
RL status	P1	-	P2	P2	C	-	C	C	-	-	-	P2	*	

Varieties no longer listed: Campino, Haydn, Hunter, Mozart and Quebec.

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 on list
 P2 = second year on list
 * = variety no longer in trials
 C = yield control

DSV = DSV United Kingdom (www.dsv-uk.co.uk)
 JTSD = John Turner Seed Developments (www.jtsd.co.uk)
 LSW = Lantmännen SW Seed, Sweden
 Pick = Mike Pickford (mpickford1@btinternet.com)
 Raps = Raps, Germany
 Sen = Senova (www.senova.uk.com)
 SU = Saaten Union UK (www.saaten-union.co.uk)
 UG = University of Guelph, Canada

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

Spring linseed descriptive list 2012



		NEW		NEW		NEW						NEW		NEW												
	Juliet	Batsman	Brighton	Rooster	Aries	Festival	Valoa	Atess	Abacus	Bilton	GK Emma	Kaolin	Duchess	Baladin	Libra	Talon	Dragon	Gemini	Taurus	Sunrise	Meteor	Birdseye	Lagoon	Average LSD (5%)		
Variety type	Seed colour brown																									
Seed yield as % control (1.8 t/ha)																										
UK without fungicide	116	110	110	107	106	104	103	102	101	101	101	101	100	100	100	99	99	98	97	96	94	93	89	9.0		
Number of trials	13	11	13	11	14	11	13	14	16	16	14	14	11	13	11	9	14	15	11	9	10	13	7			
Seed quality (at 9% moisture)																										
Oil content of seed (%)	42.5	40.8	40.8	41.0	41.5	43.1	42.8	39.6	40.7	41.4	40.3	42.0	40.3	42.3	43.6	40.0	44.1	40.3	41.3	41.3	40.2	38.7	41.5	0.5		
Agronomic features																										
Plant height (cm)	55	[54]	54	[57]	53	[53]	49	46	53	56	49	49	[48]	55	[53]	51	53	52	55	52	47	53	46	3.2		
Earliness of flowering	[4]	[6]	3	[3]	4	[4]	6	8	5	4	8	4	[7]	4	[4]	[5]	4	3	5	[6]	5	4	[8]	1.3		
Earliness of maturity	3	7	5	4	5	7	7	8	7	5	8	6	7	6	6	[4.9]	7	5	7	[7.6]	5	5	7	1.4		
Breeder/UK contact																										
Breeder	GKI	Bilt	Bilt	JTSD	Lim	LaS	LaS	GIE	JTSD	Bilt	GKI	LaS	GIE	LaS	Lim	JTSD	Lim	Lim	Lim	Sask	JTSD	JTSD	Agrf			
UK contact	Agr	Els	Els/RApp	PC	Lim	PC	PC	PC	Sen	Els/RApp	Agr	Dalt	PC	Dalt	Lim	Bost	Lim	Lim	Lim	Sax	RApp	JTSD	Bost			
Status in RL system																										
Year first listed	01	12	11	12	09	12	11	09	06	03	09	09	12	11	12	02	10	04	00	02	08	11	01			
RL Status	-	P1	P2	P1	-	P1	P2	-	C	C	-	-	P1	P2	P1	-	-	C	-	-	-	P2	-			

Varieties no longer listed: Biltstar and Windermere.

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 on list

P2 = second year on list

* = variety no longer in trials

C = yield control

Agr = Agrii (www.agrii.co.uk)

Agrf = Agrifusion

Bilt = van de Bilt, Netherlands

Bost = Boston Seeds (www.bostonseeds.co.uk)

Dalt = Dalton Seeds (www.dalmark.co.uk)

Els = Elsoms Seeds (www.elsoms.com)

GIE = GIE Linea, France

GKI = GK Kht, Hungary

JTSD = John Turner Seed Developments (www.jtsd.co.uk)

LaS = Laboulet Semences, France

Lim = Limagrain UK (www.limagrain.co.uk)

PC = Premium Crops (www.premiumcrops.com)

RApp = Robin Appel (www.robin-appel.com)

Sask = University of Saskatchewan, Canada

Sax = Saxon Agriculture (www.saxon-agriculture.co.uk)

Sen = Senova (www.senova.uk.com)

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

Winter triticale descriptive list 2012/13



	NEW		NEW										
	Tribeca	Agostino	Tulus	Grenado	Benetto	Amarillo	Tremplin	Constant	Borwo	Agrano	Bellac	Average LSD (5%)	
UK yield as % untreated control													
Untreated (7.9 t/ha)	[107]	104	[101]	100	100	99	99	99	96	95	95	7.7	
Number of trials	5	7	5	11	11	9	11	9	11	9	11		
Agronomic features													
Lodging (%)	-	[0]	-	[1]	[1]	[32]	[28]	[11]	[1]	[13]	[0]	2.4	
Straw length (cm)	[119]	[107]	[108]	101	120	116	109	109	106	121	108	6.0	
Earliness of ripening (days +/- Benetto, -ve = earlier)	[0]	[0]	[0]	+3	0	[0]	+1	[0]	+5	[-1]	+2	2.6	
Grain quality													
Specific weight (kg/hl)	[70.2]	[74.0]	[69.7]	71.9	71.3	72.4	74.6	74.0	73.2	72.8	69.6	1.6	
Protein content (%)	[10.5]	[10.9]	[10.7]	10.0	10.9	11.1	10.9	10.7	11.6	11.6	10.6	0.6	
Breeder/UK contact													
Breeder	Desp	LSW	Nord	Dank	Dank	Hege	Ser	Lem	Hodo	Saka	RAGT		
UK contact	Els	Sen	SU	Sen	Sen	Soya	Lim	Pick	Sen	Lim	Pick		
Status in RL system													
Status in RL system	P1	P2	P1	C	C	-	-	-	-	-	*		

Variety no longer listed: Gringo.

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

[] = limited data

P1 = first year on list

P2 = second year on list

* = variety no longer in trials

C = yield control

Dank = Danko, Poland

Desp = Maison Florimond Desprez, France

Els = Elsoms Seeds (www.elsoms.com)

Hege = Hege, Germany

Hodo = Hodowa Roslin Strzelce, Poland

Lem = Lemaire, France

Lim = Limagrain UK (www.limagrain.co.uk)

LSW = Lantmännen SW Seed, Sweden

Nord = Nordsaat, Germany

Pick = Mike Pickford (mpickford1@btinternet.com)

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

Saka = Saka, Germany

Sen = Senova (www.senova.uk.com)


Ser = Serasem, France

Soya = Soya UK (www.soya-uk.com)

SU = Saaten Union UK (www.saaten-union.co.uk)

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

Winter rye descriptive list 2012/13

	NEW		NEW	Average LSD (5%)
	Agronom	Askari	Capitan	
Variety type	Hybrid		Conventional	
UK yield as % untreated control				
Fungicide treated (7.9 t/ha)	[101]	100	[100]	4.7
Number of trials	6	9	6	
Agronomic features				
Lodging (%)	[2]	[10]	[5]	
Straw length (cm)	[127]	128	[129]	3.0
Earliness of ripening (days +/- Askari, -ve = earlier)	[-3]	[0]	[-2]	4.2
Grain quality				
Protein content (%)	[9.6]	9.4	[9.6]	0.6
Hagberg Falling Number	[163]	124	[159]	19
Specific weight (kg/hl)	[75.7]	75.8	[77.1]	0.8
Breeder/UK contact				
Breeder	Hybro	Hybro	Dieck	
UK contact	SU	SU	Dalt	
Status in RL system				
RL Status	P1	C P2	P1	

Varieties no longer listed: Evolo, Carotop, Matador, Picasso.

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

[] = limited data
 P1 = first year on list
 P2 = second year on list
 C = yield control
 Dalt = Dalton Seeds (www.dalmark.co.uk)
 Dieck = Dieckmann, Germany
 Hybro = Hybro, Germany
 SU = Saaten Union UK (www.saaten-union.co.uk)

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

Acknowledgements

The HGCA Recommended Lists 2012/13 are managed by a project consortium consisting of BSPB, HGCA, MAGB and nabim.



Preliminary data

The selection of which 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 Fera for the use of these data.



Processors

HGCA is grateful for the valuable contributions made by member companies of BBPA, BOBMA, MAGB, nabim and SWA 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 List trials.



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

For specific Recommended Lists enquiries call 024 7647 8746 or email rl@hgca.ahdb.org.uk

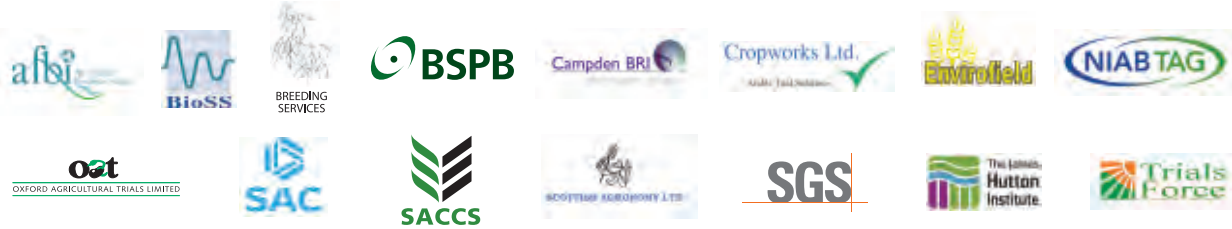
HGCA

Stoneleigh Park
Warwickshire
CV8 2TL

Publication orders
T 0845 245 0009
E hgca@cambertown.com

Test and trials contractors

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



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