

HGCA Recommended List® Winter wheat 2015/16

MARKET OPTIONS AND GRAIN QUALITY



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

Varieties no longer listed: Chilton, Cocoon, Duxford, Panacea and Tuxedo
Comparisons of varieties across regions are not valid.
UK = recommended for the UK
E = recommended for the East region
E&W = recommended for the East and West regions
N = recommended for the North region
Sp = KWS Cashel is a specific recommendation for end-use as a corrective wheat with high gluten strength.
LSD = Least significant difference
Average LSD (5%): varieties that are more than one LSD apart are significantly different at the 5% confidence level.
® = "HGCA RECOMMENDED LIST" is a registered trademark of the Agriculture and Horticulture Development Board

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

Y = suited to that market
[Y] = may be suited to that market
P1 = first year of recommendation
P2 = second year of recommendation

HGCA Recommended List® Winter wheat 2015/16

YIELD, AGRONOMY AND DISEASE RESISTANCE



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

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

UK = recommended for the UK
 E = recommended for the East region
 E&W = recommended for the East and West regions
 N = recommended for the North region
 C = yield control (for current table)
 * = variety no longer in trials
 [] = limited data
 Sp = KWS Cashel is a specific recommendation for end-use as a corrective wheat with high gluten strength.

Comparisons of varieties across regions are not valid.

R = believed to be resistant to orange wheat blossom midge (OWBM) but this has not been verified in RL tests
 @ Skyfall, Revelation and Grafton are believed to carry the *Pch1* Rendezvous resistance gene to eyespot but this has not been verified in RL tests

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

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

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

UK = recommended for the UK

E = recommended for the East region

E&W = recommended for the East and West regions

N = recommended for the North region

C = yield control (for current table)

* = variety no longer in trials

[] = limited data

Sp = KWS Cashel is a specific recommendation for end-use as a corrective wheat with high gluten strength.

= Latest safe sowing date is the advised latest sowing time to give a sufficient cold period for flowering.

Key to Breeder and UK contact codes

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

BA = Blackman Agriculture

Bre = Saatzucht Josef Breun, Germany

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

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

Mom = Momont, France

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

Sec = Secobra, France

Sej = Sejet, Denmark

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

Syn = Syngenta UK Ltd (www.syngenta.co.uk)

SyP = Syngenta Participations AG (www.syngenta.co.uk)

LSD = Least significant difference

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

® = "HGCA RECOMMENDED LIST" is a registered trademark of the Agriculture and Horticulture Development Board