

# HGCA Recommended List® winter wheat 2010/11

## MARKET OPTIONS AND GRAIN QUALITY

	RECOMMENDED		P2	*	C	*	P1	P2	P2	P1	C	*	P2	P1	*	C*	P1	P2	P1	P2	*	P2	*	C	C*	P1	P2	*	Average LSD (5%)				
	Gallant	X119	Solstice	Hereward	KWS-Sterling	Panorama	Ketchum	Kingdom	Cordiale	Einstein	Battalion	Marksman	Qplus \$	Invicta	Zebedee	Robigus #	Warrior-€	Scout	Claire	Beluga	Viscount	Glasgow	Cassius	Istabraq	Alchemy	Oakley #	Conqueror	JB-Diego	Duxford	Grafton	Humber	Gladiator	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	East	UK	UK	UK	UK	UK	E&W	UK	UK	UK	E&W	Sp	UK	E&W	UK	Sp	UK	UK	UK	UK	North	North	UK	UK	UK	UK	UK	UK	UK	UK	UK	2.8
UK treated yield (% controls, 10.6 t/ha)	100	99	97	88	102	102	101	100	98	98	98	97	97	103	101	100	100	99	97	105	103	102	102	101	100	106	105	103	103	102	100	99	2.8
<b>Main market options (The specific attributes of varieties are different so, whenever possible, varieties should not be mixed in store)</b>																																	
UK bread-making	Y	Y	Y	Y	[Y]	Y	Y	[Y]	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UK biscuit, cake-making	-	-	-	-	-	-	-	-	-	-	-	-	-	[Y]	Y	Y	[Y]	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UK distilling	-	-	-	-	-	-	-	-	-	-	-	-	-	[Y]	Y	[Y]	-	-	Y	Y	Y	[Y]	Y	[Y]	-	-	-	-	-	-	-	-	-
ukp bread wheat for export	[Y]	Y	Y	Y	[Y]	[Y]	[Y]	[Y]	Y	B	[B]	[B]	[Y]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
uks soft wheat for export	-	-	-	-	-	-	-	-	-	-	-	-	-	[B]	[Y]	Y	-	[Y]	Y	-	[Y]	[Y]	[Y]	B	B	-	-	-	-	-	-	-	-
<b>Grain quality</b>																																	
Endosperm texture	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Soft	Hard	Hard	Hard	Hard	Hard	Hard	Hard	Hard	0.4
Protein content (%)	12.1	11.5	12.1	13.0	11.4	11.7	11.4	12.2	12.4	12.1	12.3	12.4	12.2	11.0	11.4	11.4	11.5	11.8	11.6	11.0	11.0	11.1	11.2	10.9	11.4	10.7	11.1	11.1	11.0	11.7	11.7	11.8	0.4
Hagberg falling number	294	271	266	241	278	251	246	271	305	265	226	243	234	237	267	204	201	229	249	158	183	186	173	206	242	159	199	294	267	282	299	259	22
Specific weight (kg/hl)	77.7	76.5	78.0	79.4	76.5	77.5	77.6	78.7	79.4	77.6	75.9	77.4	77.6	75.5	74.9	76.8	75.3	78.5	77.0	75.9	76.3	77.0	75.2	78.3	77.5	75.9	75.1	77.6	76.4	78.6	77.1	77.3	0.7
1000 grain weight (g)	[53.4]	-	50.0	-	[50.2]	[48.9]	[53.9]	[47.2]	46.8	50.9	[48.2]	[48.2]	[50.5]	[48.3]	49.3	43.8	[45.9]	[46.5]	46.2	[56.2]	[49.5]	44.5	[51.2]	47.5	49.1	48.0	[45.6]	[51.1]	[48.0]	[50.5]	47.6	44.8	2.9
Zeleny volume	[44.8]	[52.2]	51.2	[60.9]	[47.7]	[37.8]	[40.1]	[48.9]	[52.2]	42.3	[47.5]	[55.8]	[48.1]	[18.8]	20.5	22.3	[29.2]	[24.8]	21.8	-	18.2	-	[19.1]	-	13.6	[36.5]	[28.1]	[37.0]	[47.2]	[31.8]	[25.7]	-	8.0
Chopin alveograph W	245	-	197	-	228	206	212	218	246	171	177	290	225	68	87	96	125	92	93	[75]	82	87	95	[68]	61	[121]	-	[214]	172	[151]	[103]	-	28
Chopin alveograph P/L	0.8	-	0.6	-	0.8	0.7	0.8	0.6	0.8	0.5	0.8	1.0	0.9	0.3	0.3	0.3	0.4	0.3	0.3	[0.5]	0.3	0.2	0.4	[0.3]	0.5	[0.5]	-	[1.7]	1.0	[0.7]	[1.0]	-	0.2
Year first listed	09	02	02	91	10	09	09	10	04	03	07	08	09	10	07	03	10	09	99	10	09	05	09	04	06	07	10	08	08	09	07	04	-

P1, P2 = first and second year of recommendation

\* = variety no longer in trials

C = yield control

[ ] = limited data

Y = suited to that market

[Y] = may be suited to that market

B = suitable for blending into export cargoes

[B] = may be suitable for blending into export cargoes

UK = recommended for the UK

East = recommended for the East Region

Sp = specific recommendation

North = recommended for the North region

E&W = recommended for the East and West regions

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

\$ = Qplus is a specific recommendation for growers wanting a bread-making variety with resistance to orange wheat blossom midge

€ = Warrior is a specific recommendation for growers wanting a variety with good disease resistance

# = Oakley and Robigus are no longer in trial as they are now very susceptible to yellow rust

**Varieties no longer Listed:** Ambrosia, Consort, Deben, Gatsby, Malacca, Mascot, Soissons and Timber

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# HGCA Recommended List® winter wheat 2010/11

## YIELD, AGRONOMY AND DISEASE RESISTANCE

	RECOMMENDED		P2	*	C	*	P1	P2	P2	P1	C	*	P2	P1	*	C*	P1	P2	P1	P2	*	P2	*	C	C*	P1	P2	*	Average LSD (5%)				
	Gallant	Xi19	Solstice	Hereward	KWS-Sterling	Panorama	Ketchum	Kingdom	Cordiale	Einstein	Battalion	Marksman	Qplus \$	Invicta	Zebedee	Robigus #	Warrior €	Scout	Claire	Beluga	Viscount	Glasgow	Cassius	Istabraq	Alchemy	Oakley #	Conqueror	JB-Diego	Duxford	Grafton	Humber	Gladiator	Average LSD (5%)
<b>End-use group</b>	nabim Group 1				nabim Group 2								nabim Group 3				Soft Group 4				Hard Group 4												
<b>Scope of recommendation</b>	UK	East	UK	UK	UK	UK	UK	E&W	UK	UK	UK	E&W	Sp	UK	E&W	UK	Sp	UK	UK	UK	UK	UK	North	North	UK	UK	UK	UK	UK	UK	UK	UK	UK
<b>Fungicide treated grain yield (% treated control)</b>																																	
United Kingdom (10.6 t/ha)	99.7	99.3	96.5	87.8	101.9	101.6	101.1	99.6	98.4	98.3	98.1	96.8	96.7	102.7	100.5	100.1	99.8	99.2	96.7	104.5	102.8	102.0	101.7	100.5	99.6	105.5	105.3	103.3	102.5	101.6	99.9	99.2	2.8
Dry (East) region (10.6 t/ha)	100	100	96	89	102	102	101	99	99	98	99	98	97	103	102	100	101	99	97	105	104	102	103	100	99	106	106	104	103	102	101	100	3.3
Wet (West) region (10.6 t/ha)	101	97	97	86	102	101	102	102	97	98	98	97	97	103	98	100	99	100	96	105	101	102	99	101	101	105	104	104	102	102	99	99	3.8
North region (10.7 t/ha)	96	[98]	95	-	[100]	99	99	[94]	96	99	95	91	92	[100]	100	100	[95]	98	96	[103]	104	100	102	101	100	106	106	99	100	101	98	100	4.5
<b>Untreated grain yield (% treated control in comparable trials)</b>																																	
United Kingdom	78	77	76	73	79	85	84	77	77	81	84	84	82	85	75	74	91	85	75	80	86	79	84	79	83	80	80	84	79	86	77	80	4.2
<b>Agronomic features</b>																																	
Resistance to lodging without PGR	7.2	4.3	8.0	8.3	6.7	8.1	5.6	6.4	7.7	6.0	6.9	6.9	8.6	7.2	6.6	7.3	7.2	7.7	6.8	8.5	7.3	6.3	6.7	6.4	6.9	7.0	6.0	6.9	8.6	8.8	8.9	5.9	1.7
Resistance to lodging with PGR	7.7	6.0	8.6	8.4	8.3	8.9	6.6	7.6	8.3	7.2	8.3	8.1	9.1	7.5	6.5	7.3	7.4	8.7	7.4	8.7	7.3	7.3	7.8	7.1	7.7	7.5	7.6	7.6	8.9	9.4	8.9	7.2	1.1
Height without PGR (cm)	86	97	97	89	80	92	95	92	83	89	88	88	92	93	88	91	87	91	92	82	85	87	88	97	95	88	89	92	94	80	83	85	1.5
Ripening (days +/- Solstice, -ve = early)	-2	0	0	0	0	+1	0	-1	-2	0	0	-2	+2	+3	-1	+1	+1	+2	0	0	+1	0	+1	+2	+2	+1	+2	0	+1	-2	0	-1	0.9
Resistance to sprouting	[6]	[7]	7	[5]	-	[7]	[6]	-	6	6	5	[5]	[6]	-	6	5	-	[6]	5	-	[4]	5	[5]	5	6	5	[6]	7	7	[5]	6	6	1.4
<b>Disease resistance</b>																																	
Mildew	5.6	6.3	4.2	5.2	6.5	7.2	8.0	5.8	6.2	6.2	7.6	7.6	4.9	5.7	6.2	5.7	7.4	5.9	4.1	4.6	6.3	4.5	6.3	5.1	7.1	5.0	4.1	5.9	5.5	6.8	4.8	6.6	0.9
Yellow rust	4.4	9.0	3.9	5.0	9.0	8.9	3.9	6.4	6.1	5.4	5.7	5.3	6.0	7.6	8.9	2.2	8.9	8.9	8.6	8.6	4.3	4.6	8.8	8.8	8.7	2.0	4.8	6.1	4.5	7.1	7.6	8.9	0.9
Brown rust	4.0	5.5	2.9	4.5	7.0	4.4	4.7	3.9	3.4	4.9	8.0	7.8	6.6	7.3	3.1	5.5	8.8	8.5	4.8	2.9	8.7	3.2	8.0	4.0	3.5	5.8	5.5	4.2	3.6	3.3	4.9	5.3	[1.4]
<i>Septoria nodorum</i>	[5]	5.2	5.3	6.1	[6]	[6]	[6]	[7]	5.4	6.1	7.1	7.1	[7]	[7]	4.9	6.9	[7]	[8]	6.8	[5]	[8]	4.2	[8]	7.4	7.1	7.2	[8]	6.5	5.5	[6]	5.5	6.2	2.9
<i>Septoria tritici</i>	4.8	4.9	5.1	5.4	4.7	5.9	5.8	5.2	5.0	5.2	5.4	5.6	6.1	6.3	5.5	6.1	7.1	6.1	5.9	5.4	5.8	5.1	5.3	5.4	6.7	5.5	5.1	5.6	4.7	5.9	5.4	5.3	0.8
Eyespot	6.1	5.0	4.9	3.9	6.0	5.2	5.4	4.9	5.3	6.0	7@	7@	5.3	5.4	3.9	5.3	5.8	8.0	6.3	7.2	6.2	5.3	6.7	6.7	6.5	4.4	4.7	5.6	6.1	8@	7.1	4.8	1.3
<i>Fusarium</i> ear blight	[6]	6.0	6.0	5.5	[6]	[7]	[8]	[7]	6.0	5.9	5.0	5.0	[6]	[6]	[6]	6.4	[5]	[6]	6.5	[6]	[6]	5.7	[6]	6.8	6.1	5.2	[6]	[6]	6.1	[5]	5.5	5.1	0.6
Orange wheat blossom midge	-	-	-	-	-	-	-	-	-	-	-	-	R	-	-	R	R	R	-	-	R	R	-	-	-	R	R	-	-	-	-	-	-

P1, P2 = first and second year of recommendation \* = variety no longer in trials C = yield control [] = limited data

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

Comparisons of varieties across regions are not valid

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

@ = Battalion, Grafton and Marksman are believed to carry the Rendezvous resistance gene to eyespot but this has not been verified in RL tests

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# HGCA Recommended List® winter wheat 2010/11

## SUPPLEMENTARY DATA

	P2		*	C	*	P1	P2	P2	P1	C	*	P2	P1	*	C*	P1	P2	P1	P2	*	P2	*	C	C*	P1	P2	*	Average LSD (%)						
	Gallant	Xi19	Solstice	Hereward	KWS-Sterling	Panorama	Ketchum	Kingdom	Cordiale	Einstein	Battalion	Marksman	Cplus	Invicta	Zebedee	Robigus	Warrior	Scout	Claire	Beluga	Viscount	Glasgow	Cassius	Istabraq	Alchemy	Oakley	Conqueror	JB-Diego	Duxford	Grafton	Humber	Gladiator	Average LSD (%)	
<b>End-use group</b>	nabim Group 1				nabim Group 2				nabim Group 3				Soft Group 4				Hard Group 4																	
<b>Scope of recommendation</b>	UK	East	UK	UK	UK	UK	UK	E&W	UK	UK	UK	E&W	Sp	UK	E&W	UK	Sp	UK	UK	UK	UK	North	North	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	
<b>Breeder/UK contact</b>	Syn	Nick	Nick	RAGT	KWS	Nick	Syn	Syn	KWS	Nick	RAGT	RAGT	Nick	Nick	Nick	KWS	RAGT	Sen	Nick	Sen	KWS	SU	Nick	Nick	Nick	KWS	KWS	Breun	Syn	KWS	KWS	RAGT		
<b>UK contact</b>	Syn	Nick	Nick	RAGT	KWS	Nick	Syn	Syn	KWS	Nick	RAGT	RAGT	Nick	Nick	Nick	KWS	RAGT	Sen	Nick	Sen	KWS	SU	Nick	Nick	Nick	KWS	KWS	Sen	Syn	KWS	KWS	RAGT		
<b>Annual yield (% control)</b>																																		
2005 treated (10.7 t/ha)	-	100	96	[85]	-	-	-	-	97	99	100	97	-	-	99	100	-	-	94	-	-	102	-	101	100	105	-	101	103	-	101	100	2.5	
2006 treated (10.6 t/ha)	103	102	99	[91]	-	105	106	-	100	102	101	100	101	-	103	98	-	103	98	-	105	104	103	103	100	102	107	105	105	103	104	104	2.4	
2007 treated (9.8 t/ha)	102	96	95	[85]	101	100	98	99	97	97	[91]	93	96	101	98	100	97	98	97	104	104	97	104	101	99	108	104	103	99	102	96	95	3.5	
2008 treated (11.5 t/ha)	101	101	96	[89]	102	101	100	101	101	98	97	96	94	101	101	101	100	97	98	104	102	104	101	99	99	105	105	105	102	102	98	99	2.9	
2009 treated (10.5 t/ha)	93	-	95	-	101	100	101	96	96	96	99	97	96	103	-	102	100	99	[99]	[104]	103	102	101	-	101	107	106	102	102	100	99	98	2.8	
<b>Rotational position</b>																																		
First cereal treated (11.0 t/ha)	99	100	96	87	102	101	100	99	98	98	96	96	96	103	100	101	100	99	97	104	103	101	101	100	100	106	106	103	101	101	99	99	2.9	
Second and more treated (9.7 t/ha)	101	99	98	[89]	[101]	103	105	[101]	100	101	103	101	98	[102]	101	98	[100]	100	96	[105]	103	103	104	103	99	104	103	105	105	105	102	102	4.1	
<b>Sowing date (most trials were sown during October)</b>																																		
Before 6 Oct treated (10.7 t/ha)	98	99	96	87	102	101	100	97	98	98	97	95	96	103	100	100	99	99	97	103	103	102	102	100	100	106	106	103	102	101	99	100	2.1	
Late autumn treated (9.2 t/ha)	[100]	98	96	-	-	[101]	[104]	-	[97]	[98]	100	95	[95]	-	99	[100]	-	[99]	[87]	-	[104]	105	[101]	[101]	99	106	[107]	105	101	[95]	104	[100]	5.1	
<b>Soil type (about 50% of trials are on medium soils)</b>																																		
Light soils treated (10.3 t/ha)	97	98	96	87	[101]	101	100	[97]	97	99	97	97	93	[102]	99	100	[99]	99	95	[104]	101	101	101	100	99	106	107	104	101	100	100	101	3.9	
Heavy soils treated (11.1 t/ha)	100	101	97	-	101	102	101	102	99	98	100	98	98	103	101	100	100	100	97	105	104	103	101	101	100	105	106	104	103	103	100	99	3.2	
<b>Agronomic features</b>																																		
Lodging % without PGR	3.3	22.8	1.7	2.2	4.5	1.5	9.5	5.9	2.2	7.6	4.1	4.0	0.8	3.2	5.0	3.0	3.1	2.1	4.3	0.9	2.9	6.3	4.5	5.8	4.0	3.9	7.6	4.1	0.8	0.6	0.6	8.0		
Lodging % with PGR	4.3	18.9	1.6	2.0	2.5	1.2	11.6	4.6	2.2	6.8	2.4	2.9	0.8	5.2	12.1	6.4	5.6	1.5	5.7	1.4	6.2	6.1	4.0	7.1	4.1	5.0	4.8	4.8	1.1	0.3	1.1	6.6		
Latest safe sowing date #	[End Jan]	End Feb	End Jan	End Jan	-	[End Feb]	[End Feb]	-	End Jan	End Jan	End Jan	End Jan	[End Jan]	-	End Jan	End Feb	-	[End Jan]	End Feb	-	[End Jan]	End Feb	[End Jan]	End Feb	Mid Feb	Mid Feb	-	End Jan	End Feb	-	End Jan	End Jan		
<b>Speed of development to growth stage 31 (days +/- average)</b>																																		
Early Sep sown	-3	-5	+3	-1	-	0	-2	-	-2	-5	+1	-1	+1	-	+1	-3	-	+8	+5	-	0	-1	+5	-2	+2	+4	-1	1	-1	+7	0	+1	7.8	
Early Oct sown	-4	+2	0	-6	-	+2	+1	-	-8	-5	-1	-4	+2	-	-2	+1	-	+1	+5	-	+2	-4	+4	+2	+4	+3	-1	+2	+2	+1	+3	-1	7.1	
Early Nov sown	-5	3	-1	-2	-	-1	0	-	-3	-4	-2	-1	-2	-	0	0	-	0	2	-	2	-2	1	0	2	1	0	-1	0	1	-1	-2	3.6	

All yields on this table are taken from treated trials receiving a full fungicide and PGR programme  
 - = See RL Plus for late-autumn data on Hereward  
 [] = limited data

### Key to breeder/UK contact codes:

Breun = Saatucht Josef Breun

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

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

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

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

Syn = Syngenta Seeds (www.newfarmcrops.co.uk)

Nick = Nickerson (www.nickersonseeds.co.uk)

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

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