Elsoms

The Seed Specialists

Agricultural Range 2016-17

Belgrade

Winter Wheat

- Excellent yield
- Early maturing
- Strong resistance to mildew, septoria and yellow rust

NEW

RECOMMENDED

AHDB

SAATEN UNION

Züchtung ist Zukunft

Introduction

Elsoms

Elsoms is the UK's leading independent agricultural and vegetable plant breeding and seed treatment business, based at Spalding in the heart of the Lincolnshire Fens.

A culture of investment, passion, expertise and integrity has ensured that the company continues to adapt to, and fulfil the changing demands of its customers, suppliers and partners by ensuring all are provided with competitive products and services.

Saaten Union

SAATEN UNION GmbH was founded in 1965 and is an association of seven independent family owned plant breeding businesses employing 780 across its European wide network of subsidiaries.

UK operations are based around the highly regarded plant breeding and trial station near Newmarket established and run by Technical Director, Dr Richard Jennaway where varieties are selected and developed for the UK market.

The company has one of the biggest and most advanced biotechnology laboratories for plant breeding in Germany, enabling it to make impressive strides in the use of hybrid and di-haploid technologies in the development of new varieties.

SAATEN UNION's breeding programme has successfully developed a comprehensive portfolio of varieties including hybrid and conventional wheat and rye, as well as barley, oats, triticale, and catch crops.

Contents

Plant Breeding Elsoms Wheat Ltd

Formed in 2013, Elsoms Wheat is a joint venture, combining the plant breeding resources of three independent companies, Elsoms, Nordsaat and Saaten Union Recherche, to produce a competitive wheat breeding programme focused primarily on developing Group 3 and 4 wheat varieties specifically for the UK.

The strength of Elsoms existing programme has been clearly demonstrated by the accession of four varieties, Bennington, Moulton, Dunston and Freiston, onto the AHDB's candidate list for 2015/16. All four varieties were bred in Spalding by Stephen Smith and combine impressive treated and untreated yields, underpinned by good grain quality and robust disease resistance.

The formation of Elsoms Wheat has enabled Stephen to triple the size of the programme, putting it on a par with competing breeders as well as providing him with access to the impressive state of the art plant breeding technical resources at Nordsaat, SU Biotec and SU Recherche.

BENNINGTON
Winter Wheat

NEW CANDIDATE AHDB

- High yielding soft wheat
- Export potential
- Excellent disease resistance

MOULTON
Winter Wheat

NEW CANDIDATE AHDB

- Impressive septoria tritici resistance
- High yielding soft wheat
- Export potential

DUNSTON
Winter Wheat

NEW CANDIDATE AHDB

- Pch1 eyespot resistance
- High yielding hard wheat
- Excellent disease resistance

FREISTON
Winter Wheat

NEW CANDIDATE AHDB

- High yielding hard wheat
- Excellent disease resistance
- High specific weight

Stephen Smith
Wheat breeder – Elsoms Wheat Ltd
Breeding Wheat for the UK market

Plant Breeding & Variety Development – Saaten Union

The combined, impressive breeding resources of seven independent German plant breeders are brought into focus for the UK market through the facilities at Saaten Union UK's research station at Rosalie, near Newmarket in Suffolk.

Established by Dr Richard Jennaway, the Rosalie research station takes a wide range of agricultural varieties at an early stage of development from the German breeders to identify those suitable for UK conditions. This local knowledge is vital in enabling the plant breeders to develop varieties suited to the UK market.

The breadth of material under development at Rosalie is impressive, encompassing Winter and Spring Wheat (milling and feed), Winter and Spring Barley (feed and malting), Spring Oats, Triticale, Hybrid Rye and Wheat, as well as Pulses and Catch & Cover Crops.

Belgrade
Winter Wheat

NEW RECOMMENDED AHDB

- Excellent yield
- Early maturing
- Strong resistance to mildew, septoria and yellow rust
- Ideal entry for Oilseed Rape
- Excellent mid to late drilled variety
- Very impressive spring vigour

Plant Breeding – Hybrid Cereals

Saaten Union is leading the development of commercially successful hybrid cereals across Europe with well-established Hybrid Rye and Wheat programmes, Hybrid Barley varieties nearing commercial release to the UK market and Hybrid Triticale varieties already in preliminary testing. This impressive portfolio of Hybrid Cereals will now be marketed under the HYSEED banner.

Breeding, developing and multiplying commercial quantities of high quality Hybrid Cereal seed is complex and can be problematic. Saaten Union have developed a highly skilled and professional operational team who have established an excellent reputation for efficiently supplying Hybrid Cereal varieties to farmers across Europe.

The impressive scale of the Saaten Union hybrid programme is demonstrated by its success in becoming the market leader in Hybrid Rye in Germany and the growth of its market share in the UK, whilst over 200k hectares of Saaten Union Hybrid Wheat varieties are now grown across Europe, with varieties being provided by breeding programmes at Nordsaat and Saaten Union Recherche.

HySEED

SAATEN UNION
Züchtung ist Zukunft

Plant Breeding & Variety Development – Elsoms Seeds

Elsoms has invested heavily in staff and resources in its plant breeding and research activities at the Spalding site, and now has state of the art laboratory facilities and modern glasshouse units for breeding work. The teams work on a range of vegetable and agricultural crops, and have joint breeding programmes with strategic partners.

The capabilities of the plant breeding team at Spalding underpin the long and strong relationship Elsoms has with other plant breeders across the globe such as Bejo Zaden, Crites and Van de Bilt.

Mark Nightingale and the team at Spalding bred and developed the impressive new Oilseed Rape variety, Elgar, which combines outstanding yield with a robust all round agronomic and disease resistance profile ideally suited for UK conditions. Working as part of a joint European program they were also responsible for identifying at an early stage, the potential of Trinity and Skye to deliver high performance levels in UK conditions and subsequently developing the varieties to make them available to UK farmers.

Oilseed Rape

ELGAR
Winter Oilseed Rape

NEW
RECOMMENDED
AHDB

- Outstanding gross output
- Early maturing
- Impressive disease resistance

TRINITY
Winter Oilseed Rape

RECOMMENDED
AHDB

- Proven and popular
- Excellent all-round variety
- High seed and oil yields

Elgar

Bred and developed in Spalding, Lincolnshire by Mark Nightingale and the Elsoms team, Elgar has the highest gross output and the highest yield, combined with an impressive oil content, on the AHDB's recommended list for Winter Oilseed Rape for the East/West region for 2016/17.

Whilst there will always be debate about the respective merits of conventional versus hybrid varieties, Elgar sits two percentage points clear of its nearest rivals, new hybrids Windoz and Wembley, four percentage points clear of established hybrid Incentive and even further ahead of established conventional varieties such as Charger, Picto and Campus. Combined with its impressive output, Elgar is early maturing with short stiff straw and robust all round disease resistance. The hard work put in by the dedicated breeding team at Spalding has produced a high performing, early maturing, easy harvesting, robust variety that is ideal for UK conditions.

Mark Nightingale
Elsoms Oilseed Rape Breeder

Trinity

Widely grown across England, Trinity is firmly established as a favourite with many growers, a fact endorsed by its selection as a control variety for the AHDB recommended list for the East/West.

As with Elgar and Skye, Trinity combines a solid agronomic package with a robust all round disease resistance profile to produce a variety that continues to provide impressive results in widespread commercial practice.

Winter Oilseed Rape 2016/17 - East/West Region

RECOMMENDED
AHDB

YIELD, QUALITY, AGRONOMY AND DISEASE RESISTANCE	Elgar	Windozz	Wembley	V316 OL ~	Alizze	Incentive	Arazzo	Charger	SY Harnas	Angus	Picto	Popular	Campus	Fencer	Mentor $	Harper	PT211	Trinity	PR46W21	Rivalda	Marathon	Avatar	Amalie ¥	DK Cabernet	Quartz	Troy #	Average LSD (5%)
	NEW	NEW	NEW		NEW			*		NEW							C*		C*	*	*	*	NEW	C*	*		
CONTROL VARIETIES																											
Variety type	Conv	RH	RH	RH	RH	RH	RH	Conv	RH	RH	Conv	RH	Conv	RH	RH	RH	RH	Conv	RH	Conv	RH	RH	Conv	Conv	Conv	RH SD	
Scope of recommendation	E/W	E/W	E/W	UK	UK	UK	E/W	E/W	UK	E/W	E/W	E/W	UK	E/W	Sp	E/W	UK	E/W	E/W	E/W	E/W	E/W	Sp	E/W	E/W	Sp	
GROSS OUTPUT (YIELD ADJUSTED FOR OIL CONTENT) AS % CONTROL																											
Fungicide-treated (5.3 t/ha)	111	109	109	108	108	107	106	106	105	105	105	105	105	104	102	102	101	101	101	101	101	100	99	99	97	97	4.0
SEED YIELD AS % CONTROL																											
Fungicide-treated (5.0 t/ha)	110	110	109	107	107	106	108	107	107	106	106	104	104	103	101	102	101	101	100	101	102	100	100	99	97	97	3.8
AGRONOMIC FEATURES																											
Resistance to lodging	[8]	[8]	[8]	8	8	8	8	8	8	[8]	8	8	8	8	8	8	8	[8]	8	8	8	8	8	8	8	8	0.2
Stem stiffness	9	8	8	8	8	8	8	9	7	8	8	8	8	8	9	8	8	8	8	7	8	7	8	9	7	9	0.4
Shortness of stem	6	7	7	6	6	6	6	7	7	6	6	6	6	6	7	6	6	7	6	7	7	7	7	7	7	8	0.2
Earliness of flowering	7	8	8	7	8	7	8	8	7	8	6	6	6	7	6	8	6	6	6	7	7	8	6	5	5	6	0.3
Earliness of maturity	6	6	5	5	5	5	5	5	5	6	5	5	5	5	5	6	5	5	5	5	5	6	5	5	5	5	0.4
SEED QUALITY (AT 9% MOISTURE)																											
Oil content, fungicide-treated (%)	45.3	44.6	45.0	45.7	45.7	45.5	43.5	43.9	44.1	44.7	44.1	45.8	45.3	45.8	45.9	45.0	45.3	45.1	45.6	44.4	43.8	45.1	44.5	44.7	44.8	44.4	0.3
Glucosinolate (µmoles/g of seed)	10.5	10.6	12.3	12.9	13.0	10.1	12.0	10.3	12.3	13.4	11.6	10.4	11.2	9.0	10.2	10.0	10.6	10.0	12.6	12.2	10.9	10.1	13.7	10.1	10.4	12.0	-
DISEASE RESISTANCE																											
Light leaf spot	7	5	6	6	7	6	6	4	6	5	6	6	6	5	6	6	6	6	4	5	5	4	6	6	5	6	0.7
Stem canker	6	5	5	6	5	4	4	4	5	8	5	4	5	8	3	8	5	6	3	5	3	4	5	6	9	4	1.1
ANNUAL TREATED GROSS OUTPUT (YIELD ADJUSTED FOR OIL CONTENT) AS % CONTROL																											
2012 (4.6 t/ha)	-	-	-	[102]	-	[108]	[101]	[114]	[99]	-	[103]	[104]	[98]	[98]	[101]	[96]	102	[97]	100	100	101	97	[100]	98	95	98	7.2
2013 (5.4 t/ha)	103	104	108	102	104	105	103	102	106	105	105	103	105	105	100	103	104	107	100	99	101	101	94	99	103	97	4.8
2014 (5.6 t/ha)	111	110	109	115	111	109	107	106	109	106	107	110	108	105	104	105	101	98	102	102	100	101	-	98	96	96	5.9
2015 (5.8 t/ha)	114	111	108	107	107	108	107	105	103	104	103	102	104	103	102	102	99	102	101	102	101	104	100	102	96	97	5.8
AGRONOMY																											
Plant height (cm)	149	148	148	157	152	153	150	139	147	155	153	150	155	151	148	150	154	144	151	145	143	147	147	147	139	132	2.7
HARVEST METHOD - GROSS OUTPUT (YIELD ADJUSTED FOR OIL CONTENT) AS % CONTROL																											
Swathed (5.7 t/ha)	[114]	[115]	[112]	[104]	[116]	[110]	[104]	[108]	[100]	[107]	[99]	[103]	[102]	[103]	[104]	[101]	[101]	[99]	102	[98]	[100]	[99]	[100]	97	[99]	92	7.6
Desiccated (5.2 t/ha)	112	110	109	111	109	107	107	105	106	106	106	106	106	105	103	102	102	102	101	101	101	101	100	99	97	97	3.5
STATUS IN RL SYSTEM																											
Year first listed	16	16	16	15	16	14	15	14	15	16	15	15	15	15	15	14	13	14	09	13	13	13	16	10	13	13	
RL status	P1	P1	P1	P2	P1	-	P2	*	P2	P1	P2	P2	P2	P2	P2	-	*	-	*	*	-	*	P1	*	*	-	

Varieties no longer listed in the East/West region: Compass, Cracker, DK Camelot, DK Expower, DK Imagine CL (Described variety), Fashion and Sesame.

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

The target (spring) plant population is 40 plants/m2 for RL trials. Maximum seedrate is 70 seeds/m2 and may be lower if conditions permit.

Glucosinolate contents are taken from the National List trials data.

For this table Vision was also a yield control but is no longer listed for the East/West region.

[ ] = limited data
C = yield control (for current table)
* = variety no longer in trial in region
Conv = conventional open-pollinated variety
UK = recommended for both the East/West and North regions
[ ] = limited data
RH = restored hybrid
E/W = recommended for the East/West region
SD = Semi-dwarf
Sp = specific recommendation
TdL = Terre de Lin, France

LSD = least significant difference
~ HOLL (high oleic, low linolenic) variety
$ Mentor is recommended for growing on land infected with common strains of clubroot; it may, however, be infected by some strains and infections that have been reported in some fields.
¥ = Amalie has a specific recommendation for its resistance to Turnip Yellows Virus (TuYV)
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

Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 5% confidence level.
P1 = first year of recommendation
P2 = second year of recommendation
Sp = specific recommendation significantly different at the 5% confidence level.

Source: AHDB Recommended List: https://cereals.ahdb.org.uk/varieties/ahdb-recommended-lists.aspx

SKYE
Winter Oilseed Rape

NEW CANDIDATE AHDB

- Impressive yield
- Short, stiff and early maturing
- Excellent polygenic disease resistance

Skye

Skye is the highest yielding conventional variety and the joint highest yielding variety overall on the AHDB's candidate list for the East/West 2015/16.

Developed by the team at Spalding, it is an ideal variety for UK conditions, combining early maturity with short, stiff straw, excellent standing power and robust all round disease resistance.

Katie Baxter & Bob Miles
Elsoms Seeds

Winter Oilseed Rape Trials Harvest 2016 – East/West Region – Candidate Varieties

CANDIDATE AHDB

	Variety ID	Variety type	Gross output (%)	Treated seed yield (%)	Oil content (%)	Resistance to lodging (1-9)	Stem stiffness (1-9)	Height (cm)	Earliness of flowering (1-9)	Earliness of maturity (1-9)	Resistance to light leaf spot (1-9)	Resistance to stem canker (1-9)	Breeder's claims	UK contact
CONTROL VARIETIES														
DK Cabernet	SW 05015 A	Canker (1-9)"	Breeder's claims	UK contact	102	45.1	9	8	152	4	6	7	6	DEKALB
PT211	X05W085C	2306	RH	101	100	45.8	8	8	156	5	5	6	5	DuPont Pioneer
PR46W21	MLCH149	1970	RH	99	99	45.7	8	8	156	6	6	4	3	DuPont Pioneer
Vision	X09W007C	1953	Conv	99	100	44.5	8	8	150	5	6	5	6	Senova
CANDIDATE VARIETIES														
Hawai	MH 11J32	2752	RH	Data cannot be published as variety has not completed National List testing.										KWS UK
Aquila	LE13/266	2669	RH	106	106	45.5	8	7	157	6	6	6	8	Limagrain UK
Skye	**SWO 3520**	**2731**	**Conv**	**106**	**106**	**45.0**	**9**	**8**	**146**	**6**	**6**	**6**	**6**	**Elsoms Seeds**
Flamingo	MH 08 FL 164	2745	Conv	Data cannot be published as variety has not completed National List testing.										KWS UK
Artic	LEL13/268	2671	Conv	105	103	46.5	9	8	148	4	5	7	7	Limagrain UK
DK Exception	DGC250	2660	RH	104	105	44.6	8	7	162	5	6	6	9	Monsanto UK
Hasting	MH 11M16	2754	RH	104	104	45.3	8	7	154	3	5	7	8	KWS UK
Harpege	MH 11J17	2704	RH	104	103	45.5	8	8	151	5	6	6	7	KWS UK
Dariot	DMH 294	2720	RH	104	103	45.4	8	7	163	5	6	6	9	DSV UK
SY Florida	RNX3233	2738	RH	104	104	44.8	8	7	158	7	7	6	8	Syngenta UK
DK Exclaim	CWH297	2657	RH	103	103	45.0	8	7	164	4	6	7	8	Monsanto UK
INV1030	RG21306	2728	RH	102	100	46.8	8	7	156	5	6	7	9	Bayer CropScience
CWH315D		2658	RH SD	Data cannot be published as variety has not completed National List testing.										Monsanto UK
SPECIALIST (DESCRIBED) VARIETY														
Ergo	SLM 1207	2677	RH	97	96	45.7	8	8	156	5	6	5	5	HEAR	LS Plant Breeding
Mean of controls (t/ha)				5.7	5.3	-	-	-	-	-	-	-	-		
Overall Mean				-	-	45.2	8.2	7.4	152	5.0	5.9	-	-		
LSD 5%				4.7	4.4	0.4	0.4	0.5	4.6	0.5	0.4	-	-		
No. of trials				14	14	13	9	19	16	19	19	-	-		

On the 1-9 scales, high figures indicate that a variety shows the character to a high degree (eg high resistance)
The 1-9 ratings are not comparable to those used on the Recommended List table.
Candidate varieties will be considered for the 2017/18 AHDB Recommended List
Conv = conventional open-pollinated variety **RH** = restored hybrid **SD** = Semi-dwarf **HEAR** = High Erucic Acid Rape
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 AHDB Recommended List for full data on control varieties
These summaries are derived from National List and BSPB trials. Acknowledgement is made to APHA and BSPB for the use of the data.

Source: AHDB Recommended List: https://cereals.ahdb.org.uk/varieties/ahdb-recommended-lists.aspx

Linseed

BRIGHTON
Spring Linseed

DESCRIBED AHDB

- Very high and consistent yields
- Established, proven and popular

van de Bilt ZADEN & VLAS BV

BATSMAN
Spring Linseed

DESCRIBED AHDB

- Exceptionally high yields
- Very early maturing

van de Bilt ZADEN & VLAS BV

BOWLER
Spring Linseed

DESCRIBED AHDB

- Good all round variety
- Shorter strawed – easier harvesting

van de Bilt ZADEN & VLAS BV

Wheat – Belgrade

BELGRADE
Winter Wheat

NEW RECOMMENDED AHDB

- Ideal entry for OSR
- Early maturing and impressive yield
- Strong resistance to septoria and yellow rust

SAATEN UNION Züchtung ist Zukunft

Spring Linseed Descriptive List 2016

DESCRIBED AHDB

	C	C							C								*	*	
	Juliet	Batsman	Brighton	Festival	Cumulus	Phoenix	Pilgrim	Bowler	Aries	Kaolin	Marquise	GK Emma	Altess	Duchess	Omegalin	Abacus	Serpent	Average LSD (5%)
SEED YIELD AS % CONTROL																		
UK without fungicide (1.8 t/ha)	109	**103**	**101**	100	100	99	98	**98**	97	97	96	96	96	95	95	94	92	10.9
Number of trials	17	**19**	**19**	16	14	14	14	**19**	19	19	16	19	19	19	14	18	19	
SEED QUALITY (AT 9% MOISTURE)																		
Oil content of seed (%)	42.5	**41.2**	**41.0**	43.3	41.2	41.0	41.2	**41.4**	41.7	42.2	41.3	40.2	39.8	40.6	44.1	40.8	41.6	0.6
AGRONOMIC FEATURES																		
Plant height (cm)	58	**58**	**58**	56	62	60	61	**54**	56	54	48	50	48	51	54	55	56	2.5
Earliness of flowering	4	**6**	**3**	4	4	5	3	**4**	4	4	8	7	7	7	6	5	3	0.9
Earliness of maturity	3	**6**	**5**	6	5	6	4	**5**	4	5	7	7	8	7	5	7	4	1.3
ANNUAL SEED YIELD (% CONTROL)																		
2010 (1.6 t/ha)	[117]	**105**	**98**	98	-	-	-	**99**	95	100	102	105	99	102	-	[99]	92	9.3
2011 (2.0 t/ha)	[118]	**[101]**	**[100]**	[97]	[93]	[100]	[95]	**[92]**	[99]	[88]	[88]	[88]	[95]	[82]	[88]	[90]	[92]	11.2
2012 (1.9 t/ha)	[88]	**[101]**	**[111]**	[103]	[100]	[105]	[96]	**[104]**	[99]	[109]	-	[92]	[105]	[107]	[95]	[97]	[100]	9.7
2013 (1.8 t/ha)	113	**106**	**100**	104	103	96	104	**97**	94	100	100	102	94	101	98	93	94	7.1
2014 #	-	**-**	**-**	-	-	-	-	**-**	-	-	-	-	-	-	-	-	-	-
2015 (1.8 t/ha)	[110]	**[103]**	**[96]**	-	[100]	[94]	[95]	**[101]**	[97]	[85]	[92]	[93]	[84]	[84]	[97]	[89]	[82]	13.9
BREEDER/ UK CONTACT																		
Breeder	GKI	**Bilt**	**Bilt**	LaS	JTSD	Pars	JTSD	**Bilt**	Lim	LaS	GIE	GKI	GIE	GIE	TdL	JTSD	JTSD	
UK contact	Agr	**Els**	**Els**	Dalt	JTSD	JTSD	JTSD	**Els**	Lim	Dalt	PC	Agr	PC	PC	PC	JTSD	JTSD	
STATUS IN DL SYSTEM																		
Year first listed	01	**12**	**11**	12	14	15	14	**13**	09	09	14	09	09	12	14	06	13	
DL status	-	**-**	**-**	-	P2	P2	P2	**-**	-	-	P2	-	-	-	P2	*	*	

Varieties no longer listed: Baladin, Birdseye and Zenith.

On the 1-9 scale, 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

C = yield control (for current table)

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

***** = no longer in trial

P2 = second year of listing

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

Bilt = van de Bilt, Netherlands

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

Els = Elsoms Seeds (www.elsoms.com)

GIE = GIE Linea, France

GKI = GK Kht, Hungary

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

LaS = Laboulet Semences, France

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

Pars = Parsons Seeds

PC = Premium Crops (www.premiumcrops.com)

TdL = Terre de Lin, France

LSD = least significant difference

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

Source: AHDB Recommended List: https://cereals.ahdb.org.uk/varieties/ahdb-recommended-lists.aspx

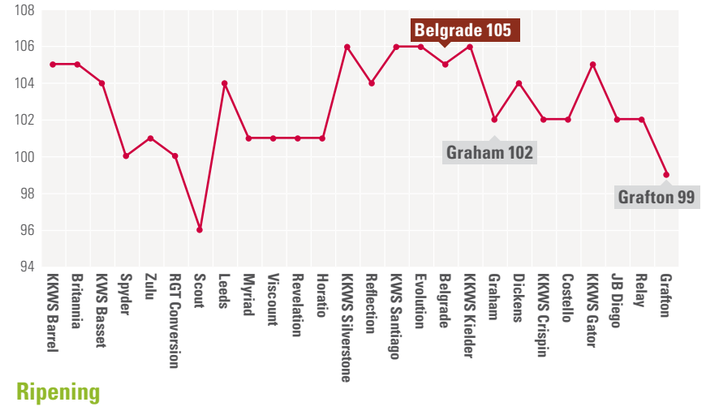
Belgrade is ideally suited for wheat/OSR rotations, combining early maturity with a very high yield, outyielding Graham and Grafton in second wheat situations (ref AHDB Recommended List Winter Wheat 2016/17).

With a very vigorous nature, Belgrade is ideal for mid to late drilling dates and its good resistance to septoria and impressive untreated yield has attracted a lot of attention from farmers and advisors looking for a reliable high performing variety.

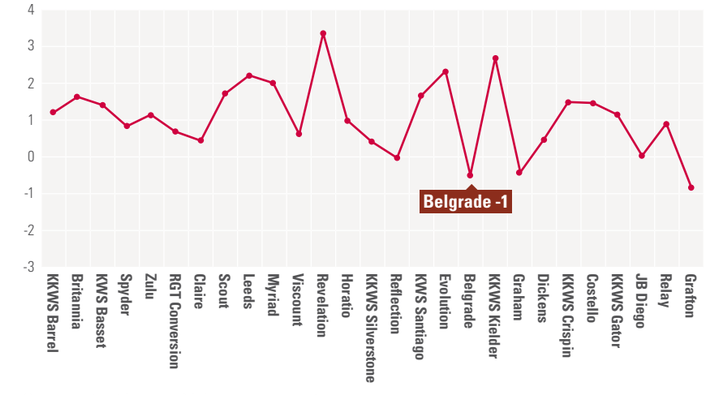
Bred by Sejet in Denmark, Belgrade's suitability for the UK was identified at an early stage by Dr Richard Jennaway at Saaten Union's research station at Rosalie in Suffolk.

In the Spring, Belgrade's vigour has been particularly impressive in trials across the country, making it one of the first October sown varieties to reach GS31 and laying the foundations for its impressive early maturity.

2nd Wheat – Treated Yield



Ripening



Source: Extract from AHDB Recommended List: https://cereals.ahdb.org.uk/varieties/ahdb-recommended-lists.aspx

Winter Wheat 2016/17

MARKET OPTIONS AND GRAIN QUALITY

RECOMMENDED

AHDB

	NEW KWS Barrel	Britannia	NEW KWS Basset	NEW Spyder	Zulu	RGT Conversion	Claire	Scout	Leeds	Myriad	Viscount	Revelation	* Horatio	NEW KWS Silverstone	Reflection	C KWS Santiago	Evolution	NEW Belgrade	* KWS Kielder	NEW Graham	Dickens	NEW KWS Crispin	Costello	* KWS Gator	C JB Diego	Relay	Grafton	Average LSD (5%)
END-USE GROUP	NABIM GROUP 3								SOFT GROUP 4					HARD GROUP 4														
Scope of recommendation	UK	UK	UK	E&W	UK	UK	UK	UK	UK	N	N	UK	UK	UK	UK	E&W	UK	E&W	UK	UK	UK	UK	UK	UK	UK	E&W	UK	
FUNGICIDE-TREATED GRAIN YIELD (% TREATED CONTROL)																												
United Kingdom (10.4 t/ha)	105	104	103	101	101	100	98	97	104	102	102	101	101	106	105	105	105	105	104	104	104	104	103	102	102	100	100	3.2
East region (10.3 t/ha)	104	104	104	102	101	98	98	94	104	101	101	101	101	106	104	105	105	105	103	103	102	104	103	101	101	100	100	2.0
West region (10.4 t/ha)	104	103	103	102	100	99	97	95	103	100	102	99	100	106	106	104	103	106	102	107	104	105	104	101	103	100	100	2.8
North region (9.5 t/ha)	[113]	106	[104]	[98]	105	105	-	98	107	106	105	103	104	[111]	107	107	107	[101]	108	[101]	108	[101]	103	107	102	102	101	3.9
MAIN MARKET OPTIONS (THE SPECIFIC ATTRIBUTES OF VARIETIES ARE DIFFERENT SO, WHENEVER POSSIBLE, VARIETIES SHOULD NOT BE MIXED IN STORE)																												
UK breadmaking	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
UK biscuit, cake-making	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
UK distilling	-	-	-	-	[Y]	Y	[Y]	-	[Y]	[Y]	Y	Y	[Y]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ukp bread wheat for export	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
uks soft wheat for export	[Y]	[Y]	[Y]	-	Y	-	Y	Y	Y	[Y]	[Y]	[Y]	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
GRAIN QUALITY																												
Endosperm texture	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	
Protein content (%)	10.8	11.4	11.0	11.6	11.2	11.2	11.4	11.6	11.0	11.1	11.0	11.1	11.1	10.9	10.8	11.0	10.7	10.9	10.6	11.1	11.1	11.2	11.5	10.9	11.1	11.2	11.5	0.3
Hagberg Falling Number	218	215	219	270	225	226	249	229	198	228	177	236	238	282	230	157	185	190	195	266	243	265	313	199	303	274	293	21
Specific weight (kg/hl)	76.7	76.7	77.5	76.3	75.9	76.2	76.3	77.9	77.8	76.7	76.2	76.2	76.0	78.6	77.6	75.3	74.5	75.4	74.1	76.5	76.3	77.0	80.4	75.5	77.8	76.7	77.9	0.8
Chopin alveograph W	103	100	97	[140]	96	60	-	87	81	102	[93]	82	83	[180]	-	-	198	-	-	141	[128]	-	205	-	-	-	-	31
Chopin alveograph P/L	0.5	0.3	0.4	[0.5]	0.3	0.2	-	0.3	0.3	0.3	[0.3]	0.3	0.3	[1.5]	-	-	1.4	-	-	0.6	[0.5]	-	1.0	-	-	-	-	0.2
FUNGICIDE-TREATED GRAIN YIELD (% TREATED CONTROL)																												
United Kingdom (10.4 t/ha)	105	104	103	101	101	100	98	97	104	102	102	101	101	106	105	105	105	105	104	104	104	104	103	102	102	100	100	3.2
East region (10.3 t/ha)	104	104	104	102	101	98	98	94	104	101	101	101	101	106	104	105	105	105	103	103	102	104	103	101	101	100	100	2.0
West region (10.4 t/ha)	104	103	103	102	100	99	97	95	103	100	102	99	100	106	106	104	103	106	102	107	104	105	104	101	103	100	100	2.8
North region (9.5 t/ha)	[113]	106	[104]	[98]	105	105	-	98	107	106	105	103	104	[111]	107	107	107	[101]	108	[101]	108	[101]	103	107	102	102	101	3.9
UNTREATED GRAIN YIELD (% TREATED CONTROL)																												
United Kingdom (10.4 t/ha)	80	85	84	91	82	82	76	80	78	80	77	87	79	87	88	75	87	94	72	94	84	95	92	79	84	85	80	5.8
AGRONOMIC FEATURES																												
Resistance to lodging without PGR	[8]	6	[7]	[6]	6	7	[7]	7	7	6	[7]	7	7	[5]	7	7	7	[6]	7	[7]	7	[6]	7	8	7	7	[8]	1.0
Resistance to lodging with PGR	8	7	8	7	7	8	8	8	8	7	7	8	8	6	8	7	7	6	8	8	7	6	8	8	8	8	8	0.7
Height without PGR (cm)	83	88	85	90	89	83	88	85	86	89	81	85	89	89	81	87	90	89	81	85	85	85	81	84	88	80	76	1.9
Ripening (days +/- JB Diego, -ve = earlier)	+1	+2	+1	+1	+1	+1	+0	+2	+2	+2	+1	+3	+1	+0	-0	+2	+2	-1	+3	-0	+0	+1	+1	+1	+0	+1	-1	0.7
Resistance to sprouting	[6]	[6]	[6]	[6]	6	[4]	[4]	6	6	[6]	4	5	6	[6]	[6]	5	5	[3]	6	[7]	5	[6]	[7]	6	7	6	5	0.9
DISEASE RESISTANCE																												
Mildew	7	6	4	9	7	8	4	6	3	6	[7]	6	7	8	7	4	6	9	5	8	8	9	8	6	6	6	7	1.8
Yellow rust	8	8	9	8	9	8	6	9	7	8	5	9	5	8	6	6	9	7	3	8	9	9	9	8	7	9	6	0.7
Brown rust	7	5	6	7	4	7	5	7	4	6	8	8	6	8	9	6	8	5	8	7	7	6	6	3	6	8	4	1.5
Septoria nodorum	[5]	[5]	[6]	[6]	[6]	[6]	[5]	6	[6]	[5]	[6]	[6]	[5]	[5]	[6]	5	[6]	[6]	[5]	[6]	[5]	[6]	6	[5]	6	[5]	[5]	0.7
Septoria tritici	5	6	5	6	6	5	5	6	5	5	5	6	5	5	5	4	6	6	5	7	5	6	6	5	5	6	5	0.6
Eyespot	[5]	3	[5]	[4]	4	5	5	6	4	5	5	9@	5	[5]	5	5	5	[3]	6	[4]	4	[5]	[4]	4	4	4	6@	1.7
Fusarium ear blight	6	6	6	6	6	6	6	6	7	6	6	7	6	6	6	6	6	6	6	7	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	-	-	-	
ANNUAL TREATED YIELD (% CONTROL)																												
2011 (10.2 t/ha)	-	-	-	-	103	-	[95]	95	105	107	101	105	102	-	-	105	109	-	109	-	107	-	-	102	100	101	95	2.6
2012 (8.8 t/ha)	-	105	-	-	101	107	[99]	94	108	101	108	99	103	-	114	106	104	-	98	-	103	-	107	102	102	97	102	3.1
2013 (9.8 t/ha)	[103]	[101]	[101]	[103]	101	[97]	-	-	103	100	101	101	100	[103]	[101]	106	105	[108]	108	[103]	107	[102]	[102]	103	102	102	[99]	3.5
2014 (11.5 t/ha)	103	103	103	100	101	98	99	96	103	102	99	101	101	106	104	103	104	103	102	106	102	105	102	102	102	99	102	2.6
2015 (11.6 t/ha)	106	105	104	101	101	99	[96]	[98]	103	103	103	101	99	106	103	105	104	103	106	103	103	103	103	[102]	102	102	[101]	3.1
ROTATIONAL POSITION																												
First cereal (10.8 t/ha)	105	103	103	102	101	100	98	96	104	102	102	101	101	106	106	105	104	105	104	105	104	105	104	101	102	100	100	3.4
Second and more (9.5 t/ha)	105	105	104	100	101	100	-	96	104	101	101	101	101	106	104	106	106	105	106	102	104	102	102	105	102	102	99	3.9
SOWING DATE (MOST TRIALS WERE SOWN DURING OCTOBER)																												
Early sown (before 15th Sept) (10.8 t/ha)	[102]	-	[105]	[102]	-	[101]	99	96	[103]	-	101	102	104	-	-	105	-	-	104	-	102	-	[104]	103	102	102	100	7.1
Late sown (mid Nov to end Jan) (9.9 t/ha)	-	[106]	-	-	[102]	[98]	-	-	105	106	-	[99]	[101]	-	[104]	106	104	-	104	-	105	-	[101]	103	[101]	[98]	-	5.3
SOIL TYPE (ABOUT 50% OF TRIALS ARE ON MEDIUM SOILS)																												
Light soils (9.7 t/ha)	[109]	105	[102]	[101]	103	104	98	97	106	104	104	102	103	[110]	106	106	107	[100]	106	[102]	106	[102]	104	104	103	101	99	5.0
Heavy soils (10.7 t/ha)	103	104	103	101	101	99	-	94	103	102	99	101	100	105	105	105	104	105	104	104	102	104	104	100	101	99	[99]	4.4
AGRONOMIC FEATURES																												
Lodging % without PGR	1	11	1	8	8	4	3	1	2	7	2	2	3	17	2	4	4	13	2	3	4	7	3	1	2	2	1	
Lodging % with PGR	2	7	2	6	4	2	2	1	2	4	3	1	2	15	1	3	3	8	1	2	3	8	1	1	2	1	1	
Latest safe sowing date #	[End Jan]	[Mid Feb]	[End Jan]	[End Jan]	[End Feb]	[End Jan]	End Feb	Mid Feb	End Feb	Mid Feb	Mid Feb	End Jan	Mid Feb	[End Jan]	[Mid Feb]	End Jan	[Mid Feb]	[End Jan]	End Jan	[End Jan]	End Jan	[Mid Feb]	[End Jan]	Mid Feb	End Jan	End Jan	End Jan	
SPEED OF DEVELOPMENT TO GROWTH STAGE 31 (DAYS +/- AVERAGE)																												
Early Sept sown	[+7]	[0]	[-1]	[+6]	0	[+3]	+2	+3	-4	+3	+4	+6	-1	[-3]	[0]	+6	-2	[+7]	+7	[+6]	-1	[+3]	[+4]	+3	+2	-2	+5	8.5
Early Oct sown	[+7]	[-2]	[-1]	[-2]	0	[+1]	+2	-1	-1	+6	+2	+4	-2	[-7]	[+1]	+3	-1	[-6]	+4	[+1]	-3	[-6]	[0]	+3	-1	+2	+4	6.0
Early Nov sown	[+5]	[+1]	[-2]	[-2]	+2	[+2]	+3	+2	0	+3	+3	+3	+1	[-4]	[-1]	+2	+1	[0]	+3	[-2]	-1	[-6]	[-3]	+1	-2	+1	0	4.4
STATUS IN RL SYSTEM																												
Year first listed	16	15	16	16	14	15	99	09	13	13	09	13	12	16	15	11	14	16	13	16	13	16	15	12	08	12	09	
RL status	P1	P2	P1	P1	-	P2	-	-	-	-	-	-	*	P1	P2	-	-	P1	*	P1	-	P1	P2	*	-	-	-	

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

C = yield control (for current table). For this table Invicta was also a yield control but is no longer listed

UK = recommended for the UK

E&W = recommended for the East and West regions

N = recommended for the North region

* = variety no longer in trials

[ ] = limited data

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

P1 = first year of recommendation

P2 = second year of recommendation

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)

R2n = RAGT, France (www.ragt.co.uk)

Sec = Secobra, France

Sej = Sejet, Denmark

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

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

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

SyP = Syngenta 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.

Source: AHDB Recommended List: https://cereals.ahdb.org.uk/varieties/ahdb-recommended-lists.aspx

Wheat – Candidate Varieties

Winter Wheat Trials Harvest 2016 – Candidate Varieties

CANDIDATE AHDB	Yield treated (T)	Yield untreated (UT) (as % treated controls)	Lodging % (UT)	Lodging % (T)	Height (cm) (UT)	Maturity (+/- JB Diego)	Mildew (1-9)	Yellow rust (1-9)	Brown rust (1-9)	Septoria tritici (1-9)	Eyespot (1-9)	OWBM resistance	Other claim	Endosperm texture	Protein content %	Hagberg falling number	Specific wt (kg/hl)
CONTROL VARIETIES																	
Gallant	97	60	1	1	82	-1	6	5	7	4	5			Hard	12.2	314	77.4
Crusoe	97	81	2	1	83	0	7	9	4	6	4			Hard	12.6	274	78.0
Invicta	99	79	1	1	89	+2	5	8	7	5	5			Soft	11.9	243	74.8
KWS Santiago	105	76	3	1	84	+1	4	6	5	4	5	R		Hard	11.5	157	75.4
JB Diego	102	81	2	0	87	0	6	7	5	5	4			Hard	11.6	290	77.5
SELECTED AS POTENTIAL BREADMAKING VARIETIES																	
KWS Zyatt	105	95	1	0	82	-1	8	6	7	6	[8]		Pch1	Hard	12.1	271	77.9
LG Cassidy	104	81	2	1	84	+1	7	9	5	5	[5]			Hard	11.5	232	78.0
SELECTED AS POTENTIAL BISCUIT-MAKING VARIETIES																	
LG Bletchley	102	90	2	1	84	0	6	9	9	5	[7]	R		Soft	11.6	189	76.7
SELECTED AS POTENTIAL FEED VARIETIES																	
KWS Kerrin	108	89	2	1	86	0	7	9	7	5	[7]	R		Hard	10.8	133	76.1
RGT Knightsbridge	107	82	4	2	84	+1	6	8	4	6	[5]	R		Soft	11.1	225	73.1
Shabras	107	86	5	2	86	-1	7	9	4	6	[5]			Hard	11.2	194	76.0
Marlowe	107	80	10	4	90	+1	8	7	5	5	[5]	R		Hard	11.4	214	76.0
Dunston	**107**	**95**	**2**	**1**	**93**	**+1**	**6**	**9**	**7**	**6**	**[7]**		**Pch1**	**Hard**	**11.4**	**229**	**76.6**
Freiston	**106**	**89**	**7**	**2**	**92**	**0**	**7**	**9**	**7**	**6**	**[3]**			**Hard**	**10.9**	**193**	**77.1**
Stratosphere	105	88	2	1	86	+1	7	8	5	5	[8]	R		Soft	11.2	201	73.3
Savello	105	85	3	2	89	0	8	9	5	5	[7]			Soft	11.3	210	74.3
RGT Westminster	105	85	3	0	84	+1	7	8	7	5	[7]			Soft	11.6	175	75.6
Bennington	**105**	**92**	**2**	**0**	**89**	**+1**	**8**	**8**	**6**	**6**	**[6]**			**Soft**	**11.4**	**239**	**77.2**
RGT Paddington	105	76	1	0	84	0	6	6	5	5	[7]		Pch1	Hard	11.6	200	76.6
LG Sundance	105	91	2	3	87	+2	7	8	6	7	[6]	R		Soft	11.3	184	74.6
LG Motown	104	92	4	2	84	-1	8	9	8	6	[8]	R		Soft	11.4	208	75.5
Marston	104	88	3	0	86	0	8	9	5	7	[4]			Hard	11.5	284	77.0
Moulton	**104**	**92**	**5**	**2**	**89**	**0**	**7**	**9**	**7**	**7**	**[3]**			**Soft**	**11.8**	**261**	**77.2**
Hardwicke	Data cannot be published as variety has not completed National List testing.																

Source: AHDB Recommended List: https://cereals.ahdb.org.uk/varieties/ahdb-recommended-lists.aspx

DUNSTON
Winter Wheat

NEW CANDIDATE AHDB

- Pch1 eyespot resistance
- High yielding hard wheat
- Excellent disease resistance

(Alchemy x Hereford) x Shepherd

Dunston is an impressive hard feed wheat with a very high (107) treated yield and an exceptional (95) untreated yield, producing high specific weight grain, all supported by a very strong and comprehensive agronomic and disease resistance package including Pch1 resistance.

Although relatively tall strawed, Dunston stands well and its excellent range of disease resistance scores (Mildew 6, Yellow Rust 9, Brown Rust 7, Septoria tritici 6, Eyespot (7)), contribute to a clean, consistently high performing crop. Dunston has also demonstrated good resistance to fusarium.

FREISTON
Winter Wheat

NEW CANDIDATE AHDB

- High yielding hard wheat
- Excellent disease resistance
- High specific weight

(Alchemy x Hereford) x Shepherd

Freiston is a hard feed wheat with a very high treated yield (106) of high specific weight grain and an impressive untreated yield (89). As with Dunston, Freiston has a very strong and comprehensive agronomic and disease resistance package.

Earlier maturing than Dunston, Freiston is a relatively tall variety that has good standing power and an impressive disease resistance profile (Mildew 7 , Yellow Rust 9, Brown rust 7, and Septoria tritici 6).

BENNINGTON
Winter Wheat

NEW CANDIDATE AHDB

- High yielding soft wheat
- Export potential
- Excellent disease resistance

(Alchemy x Batallion)

Bennington is a soft wheat with export potential producing very high treated (105) and untreated (92) yields of good quality grain (77.2kg/HL) supported by a strong and comprehensive agronomic and disease resistance package.

Shorter strawed than Dunston and Freiston, Bennington stands well and has an excellent disease resistance package (Mildew 8, Yellow Rust 8, Brown Rust 6, Septoria tritici 6 Eyespot (6)). As well as performing strongly nationally, Bennington has delivered particularly impressive results in the Eastern region.

MOULTON
Winter Wheat

NEW CANDIDATE AHDB

- Impressive septoria tritici resistance
- High yielding soft wheat
- Export potential

(Duxford x Hereford) x Shepherd

Moulton is a soft wheat with an excellent disease resistance package (Mildew 7, Yellow Rust 9, Brown Rust 7, and Septoria tritici 7) producing high treated and untreated yields of good quality grain (77kg/HL).

Shorter than Dunston and Freiston, Moulton has good standing power and is earlier maturing than Bennington. Moulton has demonstrated potential to be an export quality wheat and has also shown some promise as a possible distilling variety.

Hybrid Wheat

SAATEN UNION have pioneered the development of commercially successful Hybrid Wheat varieties for the UK and continental European market.

The extensive research and development programme has produced varieties to suit the varying conditions in individual countries, whilst major investment into the complex task of producing hybrid seed is now delivering impressive results, enabling a wider range of growers to have access to the impressive new varieties emerging from the unique breeding programme.

In the UK, CROPCO have carried out extensive agronomy and variety trials to successfully identify the varieties most suitable for the UK, as well as developing the specific agronomy packages required to realise the exciting commercial potential of Hybrid Wheat under UK conditions.

Hybrid Wheat is produced by crossing two, carefully selected, pure lines. Each hybrid variety therefore has genes from both parent varieties. The hybrid vigour or heterosis achieved by crossing two distinct varieties is expressed as the plant grows, producing the benefits listed below.

The benefits common to Hybrid Wheat varieties include:

- More developed root system
- Outstanding tillering
- Resistance to stress – cold, drought, waterlogging
- Good disease resistance
- Greater yield potential – especially in marginal conditions
- Higher specific weights

HYSEED

CROPCO growing together

HYTECK
Hybrid Wheat

- Medium early maturity
- Suitable for early drilling
- Proven over 4 seasons

HYSEED

SAATEN UNION Züchtung ist Zukunft

HYLUX
Hybrid Wheat

- High yielding new variety
- Very early maturity
- Excellent as a 2nd wheat

HYSEED

SAATEN UNION Züchtung ist Zukunft

HYGUARDO
Hybrid Wheat

- Excellent disease resistance
- Resistant to OWBM
- Very high yielding

HYSEED

SAATEN UNION Züchtung ist Zukunft

Alternative/Spring Wheat

Radical changes to rotational and drilling programmes in recent years have led to a resurgence in demand for alternative/ spring wheat varieties.

Lennox is well established with UK farmers, being marketed by Openfield through their contract with Warburtons. Kabot is an AHDB candidate variety, potentially a Nabim Group 2 variety that has so far demonstrated promising yields, good grain quality and a sound agronomic and disease resistance package.

LENNOX
Alternative Wheat

- Ideal late sown variety
- Excellent disease resistance
- Warbutons contract

SAATEN UNION Züchtung ist Zukunft

KABOT
Spring Wheat

NEW CANDIDATE AHDB

- Promising yield
- Good grain quality
- Sound agronomic and disease resistant package

SAATEN UNION Züchtung ist Zukunft

Wheat Anapolis

Bred by Saaten Union and widely grown across Northern Europe, Anapolis was selected by the 'Alliance Group of merchants' (Wynnstay, Woodheads, Pearce Seeds, Hutchinsons and Daltons) for the UK market as a result of its performance in their commercial agronomy trials.

Having established a reputation for excellent grain quality and good disease resistance, particularly to fusarium in National List Trials, Anapolis delivered impressive yields when grown using commercial agronomy programmes in the Alliance Group trials. Anapolis would appear to be particularly suited to following maize, making it a useful option following energy crops in the east and forage crops in the southwest.

ANAPOLIS
Winter Wheat

- Ideal after maize
- High yielding hard wheat
- Impressive disease resistance

SAATEN UNION Züchtung ist Zukunft

Anapolis Trials

YIELD	
Treated Yield % (Pearce Seeds SW Commercial Agronomy Trials)	119
QUALITY	
Specific Weight KG/HL	79.8
Protein %	12.3
HFN	165
DISEASE RESISTANCE*	
Mildew	9
Yellow Rust	8
Brown Rust	8
Septoria Tritici	6
Eyespot	(5)
Fusarium	(8)

Source UK NL1 & NL2 Trials 2011 & 2012

Spring Oats

Spring Oats 2016

RECOMMENDED AHDB				C	C	C								
				Aspen	Montrose	Canyon	Roznar	Firth	Conway	Atego	Average LSD (5%)	Yukon	Harmony	WPB Elyann	Symphony	WPB Valdez
VARIETY TYPE				**HUSKED VARIETIES**								**HUSKED VARIETIES**			**HUSKED VARIETIES**	
Scope of Recommendation				UK	UK	**UK**	UK	UK	UK	UK		**Candidate**	**Candidate**	Candidate	Not added to the RL	
UK YIELD (% TREATED CONTROL)																
Fungicide-treated (8.2 t/ha)				108	103	**102**	99	99	98	96	4.2	**105**	**105**	103	102	101
Untreated as % of treated control				91	87	**93**	82	86	87	77	5.6	**[97]**	**[95]**	[91]	86	92
GRAIN QUALITY																
Kernel content (%)				77.8	76.8	**75.9**	75.1	78.5	78.1	76.7	1.0	**[76.3]**	**[78.8]**	[81.0]	77.2	76.1
Specific weight (kg/hl)				55.2	56.0	**55.5**	54.0	54.2	54.7	54.0	0.8	**[54.6]**	**[52.7]**	[54.7]	53.9	52.2
Screenings % through 2.0 mm				1.8	1.2	**1.7**	3.5	2.9	1.9	4.0	1.5	**[2.6]**	**[1.1]**	[2.0]	1.8	4.4
AGRONOMIC FEATURES																
Resistance to lodging				7	7	**7**	6	7	8	7	0.9	**[8]**	**[8]**	[7]	7	8
Straw length (cm)				108	113	**119**	118	110	112	106	2.3	**[117]**	**[114]**	[109]	123	115
Ripening (days +/- Firth, -ve = earlier)				-1	-1	**-1**	-0	+0	+0	-2	1.1	**-1**	**-1**	-2	0	0
DISEASE RESISTANCE																
Mildew				6	4	**8**	5	7	7	3	0.7	**8**	**8**	7	5	7
Crown rust				4	3	**5**	8	5	4	4	1.5	**[6]**	**[3]**	[5]	[4]	[8]
ANNUAL TREATED YIELD (% CONTROL)																
2011 (7.8 t/ha)				[108]	[106]	**[105]**	[98]	[98]	[102]	[97]	5.6	**-**	**-**	-	-	-
2012 (7.7 t/ha)				[113]	[106]	**[98]**	[100]	[102]	[100]	[100]	10.4	**-**	**-**	-	[101]	[99]
2013 (8.1 t/ha)				[108]	[106]	**[99]**	[100]	[101]	[99]	[98]	5.3	**[101]**	**[101]**	[102]	[104]	[105]
2014 (8.6 t/ha)				[102]	[99]	**[105]**	[96]	[99]	[98]	[95]	6.4	**[105]**	**[108]**	[103]	[99]	[99]
2015 (8.5 t/ha)				[108]	[98]	**[101]**	[102]	[97]	[92]	[92]	6.2	**[105]**	**[101]**	[100]	[101]	[100]
ANNUAL TREATED YIELD (% CONTROL)																
Breeder				Bau	Lant	**Nord**	Selg	KWS	IBERS	Selg		**Nord**	**Nord**	Wier	Nord	Wier
UK contact				Sen	Sen	**SU**	Cope	KWS	Sen	Cope		**SU**	**SU**	KWS	SU	KWS
STATUS IN RL SYSTEM																
Year first listed				15	15	**11**	11	00	14	07		**-**	**-**	-	-	-
RL status				P2	P2	**-**	-	-	-	-		**-**	**-**	-	-	-

Once seen as a poor relation to other cereals, oats are becoming an increasingly popular choice with farmers as a low input cereal.

With oats now widely acknowledged for their health benefits, the continued growing demand for the human consumption market has been a major factor in driving the growth in the crop.

Spring oats provide an autumn window for controlling weeds and using catch and cover crops to improve soil quality, whilst benefiting the overall rotation by acting as a take all break.

Varieties no longer listed: Monaco, SW Argyle and Husky. Lennon has been removed (was a Described variety)

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

UK = recommended for the UK
C = yield control (for current table)
[ ] = limited data
P2 = second year of recommendation
Bau = Bauer, Germany
Cope = Trevor Cope Seeds (www.trevorcopeseeds.co.uk)
IBERS = Institute of Biological, Environmental & Rural Sciences (www.aber.ac.uk)
KWS = KWS UK (www.kws-uk.com)
Lant = Lantmannen SW Seed BV, Sweden
Nord = Nordsaat, Germany
Selg = Selgen, Czech Republic
Sen = Senova (www.senova.uk.com)
SU = Saaten Union UK (www.saaten-union.co.uk)
Wier = Wiersum BV, Netherlands
LSD = least significant difference

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

Source: AHDB Recommended List: https://cereals.ahdb.org.uk/varieties/ahdb-recommended-lists.aspx

CANYON
Spring Oats

RECOMMENDED AHDB

- High yield and good quality
- Excellent mildew resistance
- Tall strawed and stands well

SAATEN UNION Züchtung ist Zukunft

YUKON
Spring Oats

NEW CANDIDATE AHDB

- Excellent treated/untreated yields
- Stiff strawed
- Impressive resistance to mildew and Crown Rust

SAATEN UNION Züchtung ist Zukunft

HARMONY
Spring Oats

NEW CANDIDATE AHDB

- Excellent treated/untreated yields
- Stiff strawed
- High kernel content

SAATEN UNION Züchtung ist Zukunft

Durum & Spelt

ZOLLERNSPELZ
Spelt Wheat

- Niche market
- Good yields
- Stands well

SAATEN UNION Züchtung ist Zukunft

MIRADOUX
Durum Wheat

- Alternative/spring variety
- High yields and excellent quality
- Good agronomic package

FLORIMOND DESPREZ

ZOLLERNSPELZ is a modern winter sown spelt variety that combines traditional spelt grain quality with high yield, excellent standing power and good disease resistance.

Developed by SAATEN UNION and successfully grown in Northern Europe and the UK, ZOLLERNSPELZ's excellent agronomic characteristics have made it a popular choice for growers of this highly specialist cereal crop.

Durum wheat is a niche cereal crop that is again attracting attention as farmers look for alternatives to diversify their arable cropping. Elsoms supported the growth of durum wheat in UK in the 1980's and 1990's by working with French plant breeder, Florimond Desprez, to supply varieties suitable for use in the UK from their long standing and impressive durum wheat breeding programme.

Malting Barley

Saaten Union has a strong barley plant breeding capability producing a wide range of varieties, (two row, six row, feed, malting, winter and spring) that are successfully marketed across Europe. In addition to this, the company's Hybrid Barley programme has produced varieties that are shortly to be released into the market.

Varieties from the SU programme are screened at an early stage at SU UK's Rosalie research station, with promising material being progressed through the AHDB trialing system. Acorn and Chanson were selected by the AHDB to progress onto the current 'candidate' list with Acorn being selected primarily for its promising malting potential and excellent resistance to Rhynchosporium whilst Chanson represents a real step forward for yield from a Null-Lox variety.

ACORN
Spring Barley

NEW CANDIDATE AHDB

- Excellent resistance to Rhynchosporium
- Non GN variety
- Very good agronomic characteristics

SAATEN UNION Züchtung ist Zukunft

CHANSON
Spring Barley

NEW CANDIDATE AHDB

- Very high yielding – treated/untreated
- Null – Lox variety
- Good agronomic and disease resistance characteristics

SAATEN UNION Züchtung ist Zukunft

Spring Barley Trials Harvest 2016 – Candidate Varieties

CANDIDATE AHDB

		Variety ID	Yield treated (T)	Yield untreated(UT) (% treated controls)	Lodging % (UT)	Height (cm)	Maturity (+/- Concerto) (T)	Brackling % (T)	Mildew (1-9)	Yellow rust (1-9)	Brown rust (1-9)	Rhynchosporium (1-9)	Specific weight (kg/hl) (T)	UK contact
CONTROL VARIETIES														
Odyssey	NSL08-4556-A	2470	101	85	8	76	0	18	9	8	4	6	69.2	Limagrain UK
Propino	NFC 406-119	2336	101	84	2	77	-1	15	6	4	5	6	69.2	Syngenta UK Ltd
NFC Tipple	NFC-401-11	1966	97	81	3	70	-1	16	5	6	6	4	69.4	Syngenta UK Ltd
Concerto	NSL 03-5262	2288	96	81	8	80	0	13	8	8	6	4	69.8	Limagrain UK
Sanette	SY 409-226	2572	105	88	4	72	0	14	9	[7]	4	6	68.3	Syngenta UK Ltd
SELECTED AS POTENTIAL MALTING VARIETIES														
Chanson	**AC11/684/22**	**2841**	**108**	**91**	**[5]**	**78**	**[-1]**	**20**	**9**	**[7]**	**5**	**5**	**66.6**	**Saaten Union UK**
LGB12 2616 A	LG Opera	2845	107	90	[6]	73	[-1]	18	9	[9]	5	6	67.9	Limagrain UK
Dioptric	SY413372	Data cannot be published as variety has not yet completed National List testing												Syngenta UK
LG Okapi	LGB12-3064-A	Data cannot be published as variety has not yet completed National List testing												Limagrain UK
Acorn	**AC10/697/42**	**2838**	**103**	**90**	**[2]**	**81**	**[+1]**	**12**	**9**	**[9]**	**5**	**8**	**69.0**	**Saaten Union UK**
BREEDER / UK CONTACT														
Mean of controls (t/ha)			8.1	8.1	-	-	-	-	-	-	-	-	-	
Overall mean			-	-	-	76	-	17	-	-	-	-	68.6	
LSD 5%			3.1	4.3	-	7.1	1.1	7.2	-	-	-	-	0.7	
No. of trials			20	11	5	16	7	14	-	-	-	-	10	

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

The 1-9 ratings are not comparable to those used on the Recommended List table

Candidate varieties will be considered for the 2017/18 AHDB Recommended List

[ ] = limited data

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

T = data from trials treated with fungicide

UT = data from trials without fungicide or PGR

See the AHDB Recommended List for full data on control varieties

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

Source: AHDB Recommended List: https://cereals.ahdb.org.uk/varieties/ahdb-recommended-lists.aspx

Energy Crops

The growth of the UK biogas sector has arguably produced the most significant change in UK cropping since the expansion of the Oilseed Rape Crop over 25 years ago. The sector is still very new in the UK with many AD plants only having being commissioned in the last two years, whilst a significant number are still in the commissioning, building or planning process.

Working with Dr Joachim Moeser and the Bio Energy Team at Saaten Union, Elsoms' Heather Ayre and Jonathan Baxendale have established a strong reputation within the sector by taking the knowledge gained from the more mature European Bio Energy Market and adapting it successfully to the UK Agricultural sector.

Whilst maize remains the cornerstone of many Energy Rotations most growers have rapidly broadened their energy crop portfolios to include an increasing proportion of Hybrid Rye, augmented by other crops such as Energy Beet and Triticale as well as looking at the potential for double cropping using conventional ryes and catch & cover crops.

Hybrid Rye

HYSEED

SU PERFORMER
Hybrid Rye

- Very high yielding in UK and European trials
- Good resistance to lodging
- Robust disease profile

HYSEED
SAATEN UNION Züchtung ist Zukunft

SU COSSANI
Hybrid Rye

- Combining superior yield with earlier ear emergence
- Very good tillering in Spring
- Excellent disease resistance

HYSEED
SAATEN UNION Züchtung ist Zukunft

SU NASRI
Hybrid Rye

NEW FOR 2017

- 2-3 days earlier to harvest
- Robust disease resistance
- Exceptionally high yields

HYSEED
SAATEN UNION Züchtung ist Zukunft

With its excellent yield, flexible drilling dates, vigorous growth habit and very early maturity it provides growers with the opportunity for increased flexibility.

Hybrid Rye offers a unique opportunity in a rotation to wholecrop unwanted weeds, while achieving a high quality yield, which is financially attractive. Elsoms and SAATEN UNIONS understand that growers are seeking alternatives to maize. Hybrid Rye is an appealing option, both in terms of raw material security and digester performance.

SU SANTINI
Hybrid Rye

NEW FOR 2016

- Outstanding resistance to Brown Rust
- Excellent standing ability
- Very high yielding

HYSEED
SAATEN UNION Züchtung ist Zukunft

GENERATOR
Winter Rye

- Ideal for energy crops
- Very early wholecrop harvest

SAATEN UNION Züchtung ist Zukunft

Triticale

Triticale is a low maintenance cereal with an aggressive growth habit, good tolerance to drought and robust agronomic characteristics.

Popular as a whole crop cereal, triticale has attracted strong interest as a late Autumn or Spring sown energy crop as an alternative to Hybrid Rye whilst it also shows impressive potential as a raw material for bioethanol production.

Elsoms work in partnership with SAATEN UNION and Florimond Desprez to select and develop new varieties suitable for the UK.

TRIMOUR
Spring Triticale

- Excellent energy crop, spring rye alternative
- Ideal for whole crop or grain
- Popular game cover crop

FLORIMOND DESPREZ

TRIBECA
Winter Triticale

DESCRIBED AHDB

- Ideal whole crop
- Late sown energy crop
- Tall strawed and stands well

FLORIMOND DESPREZ

KEREON
Winter Triticale

NEW
DESCRIBED AHDB

- Excellent for grain production
- High yield and specific weight
- Shorter strawed and stands well

FLORIMOND DESPREZ

Maize

With its potential to produce very high energy yields at a low cost, maize has formed the backbone of the Energy Crop sector for many years.

As in Germany, UK farmers now understand that realising the potential of maize requires a more sophisticated approach in terms of variety selection, as well as using a combination of Energy Crops to balance the rotation, improve security of raw material supply and create a more efficient mix of raw material for use in the digester.

Experience has shown that later (by UK standards) maturing maize varieties (FAO 220-260) can produce significantly higher available dry matter yields than earlier maturing (FAO 150-210) forage types. Successfully growing a later maturing energy variety can make a massive difference to the total dry matter produced and hence energy yield, especially when a large area is being grown. Obviously, to choose the most appropriate variety, farmers need to assess their own circumstances in terms of drilling time, geographical location and typical harvest window.

The maize varieties chosen by SAATEN UNION and Elsoms for the UK market suit the climatic conditions faced by growers. They have been selected for their increased tolerance of heavier soils lending themselves to growers needs.

SULANO
Energy Maize

- Very high yielding
- FAO 220
- Tall but with good standing power

SUSETTA
Energy Maize

NEW FOR 2017

- Very high DM content
- FAO 220 – 230
- Good disease resistance and high stay green number

SUKON
Energy Maize

NEW FOR 2017

- High yielding biogas maize
- FAO 230 – 240
- Suitable for a range of soil types

SUMATRA
Energy Maize

NEW FOR 2017

- Excellent variety for biogas
- FAO 190 – 200
- Excellent stress tolerance – suitable for a wide range of soil types

SUPOD
Energy Maize

NEW FOR 2017

- Ideal for lighter soils
- FAO 240 – 250
- Good disease resistance and standing power

SURIGA
Energy Maize

NEW FOR 2017

- Very vigorous dual purpose variety
- FAO 190 – 200
- Ideal partner for SULANO

Beet

Strube and Elsoms work closely to bring the best beet for biogas to the UK market. With top selling varieties across Europe, Strube have a wealth of knowledge and a large range of varieties to choose from.

Energy Beet offers a combination of very high (consistently achievable) dry matter yields, excellent digestion efficiency and strong agronomic advantages. Elsoms and French plant breeding company, Florimond Desprez, continue to test and develop new varieties of Fodder Beet through their extensive breeding and trialing programme across the UK and Northern France.

Ideal for the UK's unique maritime and highly variable climate, Fodder Beet produces a consistent, reliable output, regarded by many as potentially the highest yielding forage crop. Fodder Beet has a robust and durable growth habit, combined with good resistance to disease, excellent ground cover, a broad drilling window and very long harvesting period. As a feed, Fodder Beet is highly palatable and can be grazed in situ or lifted, stored and then fed whole or chopped.

BARENTS
Energy Beet

- High dry matter yields of high quality substrate
- Clean well-shaped low-tare roots for easier harvesting
- Tried and tested successfully in UK

ARTUS
Energy Beet

NEW Spring 2016

- Very high yields of high quality substrate
- Well-shaped roots for easier, low-tare harvesting
- Leading variety in Germany for biogas

MERVEILLE
Fodder Beet

- Large red beet
- Good dry matter yields
- Strong early vigour

JAMON
Fodder Beet

- Excellent all round variety
- Consistent high root yields
- Very palatable

CAGNOTTE
Fodder Beet

- High dry matter
- Rhizomania resistant
- Good % of root out of ground

SPLENDIDE
Fodder Beet

- Excellent all round variety
- Good dry matter content
- High root yield

VIRIDIS
Fodder Beet

- Very high dry matter
- Excellent disease resistance
- Strong early vigour

Catch & Cover Crops

WICKROGGEN
Viterra Mixes

- Winter hardy whole crop blend
- Winter rye and vetch
- Ideal for late sowing

UNIVERSAL
Viterra Mixes

- Green manure – no cruficers
- Black oat, clover, phacelia
- Ideal for OSR rotations

INTENSIV
Viterra Mixes

- Recovery mix for intensive and potato crop rotations
- Black oat and multi-resistant oil radish

SAATEN UNION are a market leader in Europe for catch & cover crops and a leading specialist in biological control of nematodes and soil borne diseases.

Since 2013 Elsoms have been working closely with SAATEN UNION to make their wealth of specialist varieties and information available to UK farmers and growers.

Elsoms & Saaten Unions specialist team have worked closely with UK farmers and growers to identify varieties and mixtures that suit UK agricultural systems. The commercial farm trials carried out by Elsoms have attracted keen interest from growers and has assisted in the successful introduction of catch and cover crops into very significant agricultural and vegetable enterprises.

Benefits of catch & cover cropping

Soil nutrients
- Improve the content and management of nutrients
- Nutrient levels can be increased and released for the next crop

Soil structure
- Vigorous, extensive and deep rooting habits improve the structure and quality of the soil
- Reduce compaction and allow freer movement of water and air through the soil

Soil health
- Reduce pests and diseases such as Rhizoctonia, beet cyst nematode, root lesion nematode etc
- Prevent the build up of diseases such as Take All and Club Root

Water management
- Reduce soil moisture loss
- Water holding capacity can be considerably improved as a result of an increase in humus content that will improve the rate at which soil drains

Reduced risk of soil erosion
- Strong root structure and good ground cover can significantly reduce the risk of soil erosion

Weed control
- Suppress weeds and volunteers by smothering them with their dense canopies and vigorous growth
- Companion cropping can reduce the requirement for herbicides

Bees and insects
- Plentiful source of late fodder for bees and other beneficial insects

Biomass
- Provide an increase of organic matter to the soil
- Potential for biomass to be used as a feed for livestock and anaerobic digesters

Greening
Catch & Cover crops can assist in helping a grower comply with their EFA requirements depending on individual circumstances and regulations applicable at the time.

Vining Peas

TOMAHAWK
Vining Peas

- New semi leafless variety
- Very early maturing
- Impressive yield

SAVANNAH
Vining Peas

- Semi leafless variety
- Very high yielding
- Large seeded

SPAN
Vining Peas

- Fully leaved variety
- Outstanding yields
- Ideal for good quality land

IBIS
Vining Peas

- High yielding semi leafless variety
- Very good disease resistance
- Excellent taste (even at high TRs)

Elsoms work in association with specialist vining pea plant breeder, Crites Seeds, to develop a range of high performing full and semi leafless varieties for the UK market.

Crites are an impressive independent plant breeding business based in North Western United States. Their highly regarded breeding programme produces varieties of green pea, snap bean and sweetcorn that are successfully marketed in the USA and around the world through partner companies such as Elsoms in the UK.

Varieties are bred and developed at the two plant breeding stations in Quincy, Washington State and Moscow, Idaho by highly regarded breeders Jeff Safe and Bob Arthur. Elsoms screen varieties at an early stage through their trials at Spalding prior to entry into PGRO and commercial trials.

NACHES
Vining Peas

- Semi leafless variety
- Late maturing
- Very high yield

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