

# 2020 vision for beet

“Genetically high sugar content offers the best insurance.”



## Roots Sugar beet varieties

The latest additions to the BBRO/BPSB Recommended List provide seven new offerings but also herald the arrival of the first ALS-herbicide tolerant variety. *CPM* takes a closer look.

By Lucy de la Pasture

BBRO published its Recommended List of sugar beet varieties for 2020 and it packs a punch. The addition of seven varieties brings a host of desirable traits, with all the newcomers having the Rz1 gene giving them partial resistance to the standard strain of rhizomania.

The new RL reflects the continued improvement in yield in the varieties being put forward by breeders and also sees the introduction of the first ALS-herbicide tolerant ‘Smart Conviso’ sugar beet variety, which has been added to the special use category.

2018 was a difficult growing season for the commercial crop and trials alike, comments Mike May, chairman of the RL board. “Adverse weather delayed drilling

and this was followed by a prolonged drought, with a late burst of nitrogen when the drought finally broke in the autumn.

“Despite this, the control varieties in the trials still managed to achieve a mean yield of 112 adjusted tonnes/ha, with new varieties offering up to a 4.0% yield increase above that, highlighting the resilience of the crop in such conditions,” he says.

### ALS-herbicide tolerance

“In addition it’s also good to see the first ALS-herbicide tolerant variety (Smart Janninka KWS) on the list. The herbicides for use with this variety have now been approved and should be available for the 2020 sowings,” he adds.

One of the features of the 2020 RL is the number of additions of low bolting varieties, reflecting the efforts breeders have put into producing varieties specifically for UK conditions. Six of the new varieties didn’t bolt in any of the RL normal sown trials (sown after 15 March) throughout the three years of testing (2016-2018 inclusive).

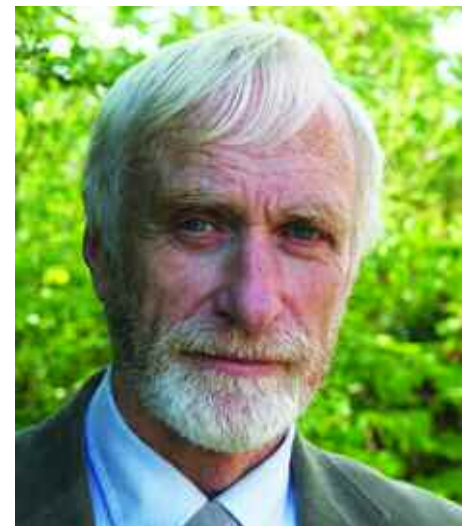
“These were Advena KWS, BTS4100, Vixen, Cougar, Puffin and Smart Janninka KWS, although the latter did bolt when sown early and is not recommended for sowing before the 15 March,” highlights Mike.

Four of the new sugar beet varieties — Lightning, Conger, Puffin and Vixen — have been developed by SESVanderhave

specifically for the UK.

“In total, these four varieties have been tested extensively in both the RL trials and our own UK trials network over the past three years,” says Ian Munnery of SESVanderhave.

Each variety offers advances in yield over existing varieties from the company and some have very low bolter counts from early sown bolter trials in addition to low bolter counts at the normal sowing time. The drive to minimise the risk of ▶



In spite of the tricky growing season, the varieties in RL trials performed well last year, says Mike May.

# Varieties that deliver



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# Sugar beet varieties



*Ian Munnery says the four SESVanderhave varieties added to the RL have been bred specifically for UK conditions.*

▶ early sown bolters has been a feature of SESVanderhave's breeding strategy for some years, explains Ian.

He teases out the differences between the new additions and suggests Lightning will suit growers looking for a variety to sow at the normal time (from 15 March). It's not recommended for sowing early owing to the high bolting in early-sown trials, though it had low bolters when sown at the normal time. The variety has a sugar yield of 103% plus a high score for rust tolerance of 7.1.

Vixen has one of the lowest bolter counts on the RL at the early sowing timing — just 1692/ha and zero bolting when sown after 15 March. Vixen also tops the list for its resistance to rust with a score of 7.6 making it a good robust choice for growers, he claims.

Conger and Puffin fall into the same early bracket as Vixen and also display a very low number of bolters when sown before 5 March, with 2776/ha and 2048/ha bolters respectively. There were no bolters in the RL trials from either Vixen, Conger or Puffin when sown after 15 March, providing flexibility at sowing time.

Conger also produces a high sugar yield combined with good resistance to rust, which positions it as another strong contender for growers to look at for the new

season, he believes. The four new varieties join the breeder's established varieties Cayman, Firefly and Hornet on the RL for 2020. "Cayman is celebrating its 11th year in RL trials which shows its durability and consistent performance in each of the past 10 years, where it's coped exceptionally with a wide variety of weather conditions," he adds.

"Our varieties endure as trusted favourites for growers. This reflects our approach to ensuring varieties are trialled using seed from commercial lots and extensive testing across the UK under a range of conditions," comments Ian.

## Highest sugar

The highest sugar content on the new RL is provided by newcomer BTS 4100, bred by Betaseed and marketed by Limagrain UK. At 18.4% sugar content, the new variety has performed consistently over the three years of RL trials and also produces a low number of bolters (2062/ha) when drilling before 5 March), making it suitable for early sowing, according to Ron Granger, sugar beet product manager at Limagrain.

"In 2016, BTS 4100 yielded 18%, whilst the average sugar percentage across the RL trials was 17.7%. In 2017 when the national average was 18.4%, BTS 4100 yielded 0.6% more at 19%. In 2018, the national average was 17.8% and BTS 4100 again yielded 0.6% more, at 18.4%," he says.

"Growers will recognise that on certain soil types or in difficult field conditions, a high sugar content can be hard to achieve. In these situations, a variety such as BTS 4100 with a genetically high sugar content offers the best insurance for maximising full yield potential, as expressed in adjusted tonnes," says Ron.

Along with these high sugar levels, BTS 4100 offers high adjusted tonne yields of



*One of the features of this year's RL is the number of additions with low bolting suitable for early sowing.*

101.8% — reflecting a step-up over some of the older varieties on the list, he points out.

But while yield and sugar content are the top criteria for choosing a new sugar beet variety, factors such as establishment and bolting tolerance are also very important — particularly when deciding which variety is best for your situation, adds Ron.

"For those looking to drill very early in an attempt to get crops up and away to combat virus yellows infection, BTS 4100 fits this drilling slot very well. It has good bolting tolerance and is one of only a few varieties on the RL that showed zero bolters when drilled in the normal sowing slot," he says.

"This is combined with good emergence characteristics and a good tolerance to rust. It's also rhizomania tolerant," highlights Ron.

The last of the conventional varieties added to the 2020 RL comes from breeder KWS and is another of the additions with very low bolting performance (2475/ha). The company positions Advana KWS as a variety suitable for every farm.

"Advana KWS has a yield of 104.0% of controls, putting it in the top four of varieties on the 2019 RL while its low number of bolters, the lowest of all top five varieties, ▶

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# Sugar beet varieties



Smart Janninka KWS is the first of a new generation of varieties with resistance to ALS-herbicides, says Ben Bishop.

► makes it suitable for drilling in both the early and normal sowing windows," says Ben Bishop, KWS sugar beet UK country manager.

"A sugar content of 18.2%, the second joint highest on the RL, supports a sugar yield of 103.9% of controls. While an adjusted yield of 104% of controls, combined with the best all-round bolting profile of any

recommended variety, will ensure Advena KWS appeals to all growers," he adds.

One characteristic of the new variety Ben is keen to highlight is its disease resistance. The RL only includes a score for rust because there's been too little powdery mildew disease data in recent years to support a meaningful score for the disease.

## Disease resistance

"Advena KWS has a score of 5, which is average for varieties on the RL," he says. "But it needs to be viewed in the context that disease resistance for all varieties has improved in recent years as breeders have succeeded in producing varieties with stronger resistance. That said, growers may wish to consider lifting Advena earlier," he comments.

Perhaps the most interesting of the new additions to the 2020 RL is the addition of the first sugar beet variety tolerant to ALS-herbicides.

"Smart Janninka KWS is the first of a new generation of varieties to feature tolerance to ALS herbicides for use in the Conviso Smart weed control system for sugar beet," explains Ben.

When to sow the innovative variety will be a decision best taken by growers in consultation with their advisers, he believes, but where it's considered suitable, growers can be confident that yields will be close to that of some established varieties.

Smart Janninka KWS has an adjusted yield of 90.1% and sugar content of 18% on the RL but this data was from using conventional herbicides rather than the Conviso Smart system.

"When grown using the dedicated herbicide, Smart Janninka KWS yields close to that of some established varieties on the RL. This should give those wishing to sow sugar beet where the weed burden would previously exclude sugar beet from that land, the

confidence to sow without suffering a significant yield penalty," he adds.

Mike suggests the new RL provides plenty of discussion points for growers before making their variety decisions for next year. "Before ordering BCN, AYPR partially resistant or ALS-tolerant varieties, growers should discuss options with their contract managers, agronomists or breeders, who will have more information on a variety's performance and use in the presence of a specific problem," he advises. ■



The highest sugar content variety added to the RL is BTS 4100 from Limagrain, which is listed at 18.4%.

## Recommended List of sugar beet varieties 2020

Rz1 rhizomania varieties			BTS 860	Sabalina KWS	Capitona KWS	Cayman	Hornet	Finilly	Haydn	Daphna	BTS1140	Kortessa KWS	Advena KWS	Lightning	BTS4100	Vision	BTS 3325	Conger	Purffin	Degas	Fluter	Gauguin	Philoa KWS	Smart Janninka KWS
Status: (C) = control variety <sup>1</sup>	Control Value		R	R(C)	R	R(C)	R(C)	R	R	PR3	PR2	PR2	PR1	PR1	PR1	PR3	PR1	PR1	PR1	PR3	PR2	PR2	PS2	PS1
AYPR/BCN/ALS (per Breeder Claim)			-	-	BCN	-	-	-	-	BCN	-	-	-	-	-	-	-	-	-	-	BCN	BCN	AYPR	ALS
<b>CROP YIELDS</b>	<b>MEAN</b>																							
Adj tonnes % of C=100% <sup>2</sup>	112.0 t/ha	100	102.1	102.0	101.8	99.4	99.3	97.9	97.9	105.4	104.9	104.7	104.0	102.6	101.8	101.6	101.5	101.3	100.9	100.1	99.1	99.0	102.7	90.1
Sugar yield % of C=100% <sup>2</sup>	17.1 t/ha		101.9	102.1	101.5	99.3	99.1	97.8	97.8	105.6	104.9	104.8	103.9	103.0	101.5	101.6	101.3	101.4	100.9	99.9	99.7	99.1	102.8	90.2
Root yield % of C=100% <sup>2</sup>	95.1 t/ha		100.5	102.8	100.0	99.0	97.9	97.6	97.3	106.6	104.8	105.4	102.4	105.2	98.8	102.1	99.8	101.7	101.1	98.6	102.8	99.8	102.9	90.1
Sugar content %	17.9%		18.2	17.8	18.2	18.0	18.2	18.0	18.1	17.8	18.0	17.9	18.2	17.6	18.4	17.9	18.2	17.9	17.9	18.2	17.4	17.8	17.9	18.0
<b>BOLTERS per 100,000 plants/ha</b>	<b>MEAN</b>	95% lsd	99.9% lsd																					
"X" Unsuitable for sowing BEFORE Mid March			X	X	X	-	-	-	-	-	X	-	-	X	-	-	-	-	-	X	-	-	X	X
Early sown, on or before 5 March <sup>3</sup>	2,141/ha	3,365	4,459	3,831	3,406	4,000	1,443	3,064	1,891	2,882	5,138	2,573	2,475	4,495	2,062	1,692	2,606	2,776	2,048	3,688	3,325	1,455	9,023	3,375
Normal sowing	16/ha	64	98	26	23	57	19	26	16	84	30	0	0	9	0	0	19	0	0	40	14	14	54	0
<b>PRE-GAPPING ESTABLISHMENT<sup>4</sup></b>																								
Control	100%		101.4	98.6	99.5	100.3	101.5	100.3	99.9	99.0	99.7	99.5	96.7	100.6	97.8	98.7	97.9	96.3	100.4	100.3	99.2	98.3	99.8	96.2
<b>DISEASE</b> 1 = high; 9 = very low (leaf infection) <sup>5</sup>																								
Rust	5.4		5.6	5.8	5.9	5.0	6.3	3.2	4.8	5.7	(4.7)	(7.9)	(5.0)	(7.1)	(4.9)	(7.6)	5.3	(5.8)	(3.5)	5.2	2.2	(3.4)	(4.1)	(4.8)
<b>RL SYSTEM</b>																								
Year first listed			2016	2015	2016	2011	2014	2016	2013	2017	2018	2018	2019	2019	2019	2019	2017	2019	2019	2017	2016	2018	2018	2019
<b>BREEDER/UK CONTACT<sup>6</sup></b>																								
Breeder			BTS	KWS	KWS	SV	SV	SV	STR	KWS	BTS	KWS	KWS	SV	BTS	SV	BTS	SV	SV	STR	MH	STR	KWS	KWS
UK Agent			LG	KWS	KWS	SV	SV	SV	STR	KWS	LG	KWS	KWS	SV	LG	SV	LG	SV	SV	STR	MH	STR	KWS	KWS

Source: BBRO/BSPB, 2019.





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\*2010 Sugar Beet Reference Book, 2015. <sup>†</sup>Based on a yield of 90 t/ha at the 2012 in-season beet price of £18.07/t.

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