

Beet varieties continue to deliver yield potential

The ten new varieties added to the 2016 Recommended (RL) and Descriptive (DL) Lists show the continued upward yield trend of new sugar beet varieties being put forward by breeders.

Dominic Kilburn rounds up the variety, and other developments, at the first of the BBRO's Summer Open Days.

Six new varieties have been added to the RL, three are from KWS; Sabatina, Salamanca and Tasmania; and three from Limagrain UK; BTS 340, BTS 470 and *BTS 515. The DL has four new beet cyst nematode (BCN) tolerant varieties for 2016: Leesha and Tabatha from KWS; BTS 755 from Limagrain and Aurora from SESVanderHave UK.

"While the weather is an important determinant of final commercial sugar beet yields each year, these results show that breeders are playing a major role and continue to produce varieties with ever higher yield potential," said RL Board chairman Mike May, speaking at the first of the BBRO's Summer Open Days, at Grimston in Norfolk last month. "The yield of the control varieties in 2014 trials was 111 adjusted t/ha and we saw the newer varieties achieving up to a 5 per cent increase over that."

The four new BCN tolerant varieties added to the DL also show good yield improvements. "The yield results are in the absence of BCN and, while yields are as good as some of the varieties on the RL, the varieties on the DL should only be used for the particular trait they are listed," advises Mr May.

Top yielder

KWS sugar beet manager Simon Witheford (right) said that top yielding Sabatina (105 per cent adjusted tonnes) had high performance in all the important characters including yield, bolting and disease resistance. "It's an all-round variety with no weaknesses and it brings a step change in UK sugar beet yields," he said, speaking just ahead of the BBRO's event.

Mr Witheford pointed out that Sabatina's yield meant a 3 per cent leap in yield per hectare compared with last year's top-listed variety Hornet and that, despite a reduction in overall area, growers still had the opportunity to increase yields with a variety like this.

In terms of bolting, he said that Sabatina was grouped with those varieties on the List that had good early sown bolter performance and it is one of only two varieties to have no normal sown bolters in trials.

The variety also has a very good all-round disease resistance profile, according to Mr Witheford, including a RL list-topping '8' for rust. "It's hugely important for crops to retain a healthy canopy throughout the growing season and an absolute



requirement when lifting late.

"Sabatina will help growers maintain this, further maximising yield and sugars," he added.

Labelled as partner varieties to Sabatina are KWS' other recommended varieties to the RL – Salamanca and Tasmania.

Salamanca comes in the top five varieties on the List with high yields (103.6 per cent adjusted tonnes), good sugar content (18.1 per cent) and is in the top six varieties for early sown bolting performance. In addition, the variety has a good rating for disease resistance.

Tasmania, which comes one place below Salamanca on the List (102.8 per cent adjusted tonnes) and a high sugar content of 18.1 per cent, offered growers a balanced variety, commented Mr Witheford.

BCN types

Referring to a KWS/British Sugar soil testing programme (2014/2015) across the sugar beet growing areas of the east of England, Mr Witheford said that there was a clear trend developing where beet cyst nematode (BCN) infestations were occurring.

"We targeted those that weren't using BCN resistant varieties and areas around Wissington, the Brecks, Peterborough and Newark all showed up as having concentrations – the programme reiterated where the main problems with BCN are occurring.

"We'll be doing the

same testing programme again next year, focusing on the hot spots and we'll be encouraging those specific growers with land affected to use some of the new resistant varieties," he added.

The company has two new entries onto the Descriptive List (varieties with specific traits) including BCN-resistant Leesha and Tabatha.

"In the past, BCN-resistant varieties didn't have the high yields of non-resistant ones and there was a yield penalty in the absence of BCN, but with 101.9 per cent adjusted tonnes for Leesha (on the DL) – higher than 50 per cent of varieties on the RL – it has all but closed the gap on the best non-resistant types," said Mr Witheford.

Leesha also has the highest sugar content out of all varieties on both Lists (18.6 per cent) and a top rating of 9 for rust resistance, he added.

Tabatha (101.2 per cent adjusted tonnes), like Leesha, has high sugar content (18.5 per cent) and very good resistance to rust (8).

Yield and sugar

Bred by Betaseed GmbH, Limagrain's BTS 470 features top line performance for yield and sugar content offering very high adjusted tonnes yield at 105 per cent of controls, positioning it joint top of the Recommended List in this category, said Limagrain UK sugar beet consultant Bram van der Have (left). The variety also offers consistently high sugar content at 18.2 per cent – one of the highest on the Recommend List, he added.

BTS 470 is rhizomania resistant and is one of the lowest bolters on the RL when sown at 'normal'.

Mr van der Have said that the variety has very good resistance for rust and powdery mildew, and will be welcomed by growers looking to spread the spraying workload among more susceptible varieties and those who like to lift later in the season.

The second new variety to be offered from Limagrain is BTS 340; a "good all-rounder variety" offering excellent yield potential. "Add to this its solid all-round agronomics and you have a variety that will suit most situations and needs," said Mr van der Have.

As one of the highest yielders

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Competitiveness will be key post 2017

Can the UK sugar beet industry compete? That was the question posed by KWS Northern Europe sugar beet manager, César Ruano Delgado, speaking ahead of the BBRO Summer Open Day held in Norfolk. He said that 2017 would see the end of sugar beet reform in the EU when there would be no more quotas. "At that stage there will be free competition with some protection from outside the EU, but no borders within," he stressed.

Looking at the market post-reform, César suggested that, initially, there could be an increase in sugar production across the EU and an extension of the sugar beet

growing area in certain regions, however, with an expected decrease in the sugar price it might then be a case of "last man standing" in terms of which sugar beet-producing countries could continue to compete. "There will be volatile markets ahead – very different to what we have seen in the past and, depending on how competitive the UK is, and its neighbouring countries, this will determine if we will see a further reduction in sugar beet acreage," he explained.

César highlighted the fact that the (estimated) cost of UK sugar beet production was €21–22/t; 6th from highest in a list of 18

KWS
Northern
Europe
sugar beet
manager,
César Ruano
Delgado.



EU sugar beet-producing nations. This compared with top placed France (€13.5/t), Belgium (€15.3/t) and Germany (€16/t), which had some of the lowest costs of production.

"Competitiveness of countries and political decisions on production aid schemes will be some of the key determining factors on the future of the industry," he concluded.

BBRO Recommended List 2016

Variety (ranked in sugar yield order)	Status (#)	Relative data Mean of (C) varieties = 100				Sugar content %	Bolters per ha		Rust Powdery mildew 1=susceptible 9=resistant	Year first listed	Agent		
		Sugar yield	Adjusted Tonnes	Root yield	Plant population(*)		Early sowing	Normal sow- ing					
Mean of controls		16.9/ha	111/ha	94t/ha	100%	18.0	1,358	27	3	4			
Sabatina KWS	PR1	105.0	105.0	105.3	100.1	17.9	1,109	0	8	-	2015	KWS	
BTS 470	PR1	104.8	105.0	103.4	99.0	18.2	2,999	2	6	-	2015	LIM	
BTS 515	PR1	104.8	105.0	103.4	97.3	18.2	4,470	50	7	-	2015	LIM	
BTS 340	PR1	103.6	103.7	103.8	99.9	17.9	1,844	2	1	-	2015	LIM	
Salamanca KWS	PR1	103.5	103.6	103.0	100.7	18.1	1,113	16	5	-	2015	KWS	
Tasmania KWS	PR1	102.7	102.8	102.2	99.4	18.1	1,512	9	1	-	2015	KWS	
Hornet	PR2	101.9	102.1	101.4	101.3	18.1	1,606	38	6	(1)	2014	SV	
Springbok	PR3	101.1	101.2	100.0	99.9	18.2	1,455	35	4	(5)	2013	SV	
Haydn	PR3	101.0	101.1	100.3	101.0	18.1	368	0	5	(5)	2013	STR	
Pasteur	R (C)	100.8	101.0	99.7	101.5	18.2	570	9	4	(4)	2011	STR	
Lipizzan	R (C)	100.8	100.9	100.7	99.5	18.0	1,404	23	3	(5)	2011	SV	
Stingray	PR3	100.8	100.8	100.4	97.7	18.0	816	33	6	(4)	2013	SV	
Cayman	R (C)	100.5	100.6	99.8	100.9	18.1	977	35	3	(4)	2011	SV	
SY Muse	R (C)	100.0	99.9	100.6	100.8	17.9	1,864	21	3	(4)	2012	SYN	
Special traits		Specific use											
Sandra KWS	PS2	AYPR	100.0	100.2	98.8	100.5	18.2	6,194	62	5	(5)	2013	KWS
BTS 755	PS1	BCN T	102.8	103.0	101.9	102.5	18.1	3,519	42	7	-	2015	LIM
Leesha KWS	PS1	BCN T	101.4	101.9	97.8	101.6	18.6	2,350	0	9	-	2015	KWS
Aurora	PS1	BCN T	100.9	100.5	103.1	101.5	17.6	1,773	130	5	-	2015	SV
Tabatha KWS	PS1	BCN T	100.8	101.2	98.2	103.4	18.5	4,248	38	8	-	2015	KWS
Maddox	PS2	BCN LT	98.9	98.5	100.7	99.5	17.7	1,547	5	4	(4)	2014	SYN
Thor	S	BCN T	98.4	98.4	98.6	101.5	17.9	476	0	4	(1)	2012	STR
Mongoose	PS3	BCN T	96.0	95.5	98.6	102.3	17.5	1,506	30	4	(3)	2013	SV

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on the list, BTS 340 offers a relative adjusted tonnes yield of 103.7 per cent, and a sugar content of 17.92 per cent. BTS 340 has one of the lowest bolting tendencies when sown at a normal time, however the flexibility of the variety to meet a range of situations is demonstrated by its ability to maintain this lower bolting tendency which allows for it to be sown anytime from reasonably early in March to the end of April, pointed out Mr van der Have.

The third newly listed variety from the company is BTS 755, which is the highest yielding variety on the 2016 BBRO Descriptive List to offer beet cyst nematode tolerance. Combined with its rhizomania resistance and agronomic package, it is likely to appeal to those with land confirmed with, or suspected of being infected with, BCN and with no compromise to performance, he suggested.

In official trials the variety has demonstrated its ability to produce in fields without BCN infestation yields of relative adjusted tonnes of 103 per cent, which is close to the top yielders on the 2016 BBRO Recommended List. "In other words, growers with a BCN problem no longer have to pay a yield penalty," he added.

This is a high sugar content variety that can be sown with confidence, notes Mr van der Have, as it is a fast emerger that produces a high final plant population with a very erect leaf canopy, and BTS 755 can be sown from late-March until late April. The variety also offers

a good yellow rust and powdery mildew resistance rating.

*Limagrains' BTS 515, which gained entry to the RL with an adjusted tonnes yield of 105 per cent, is not available for seed this year, pointed out the company.

Tried and tested

Aurora from SESVanderHave has been added to the BBRO Descriptive List. The variety offers exceptional root yield in the presence of BCN, points out the breeder.

"We are really pleased to see this variety gain recommendation," said SESVanderHave UK managing director Ian Munnery. "Crucially, our extensive UK testing programme has ensured the variety was rigorously tested in the presence of the pest.

"Aurora joins a strong line-up of our varieties including Hornet, Stingray, Springbok, Cayman, Lipizzan and Mongoose, having delivered some of the highest yields on record in 2014 and looking set to do the same in 2015. Our portfolio has been bred exclusively for UK conditions. Every variety has been fully trialed and tested in this country, which is why we are confident that growers can trust and depend on them in 2016."

Managing risk

With ten new varieties joining the RL and DL Lists, growers face a complex set of choices at a time when many have had to reduce their beet area and now need to maximise their returns from a smaller area of crop.

Breeder Strube's UK managing

director Richard Powell (right), advises growers to consider a balanced mix of the exciting new opportunities and proven reliable performers. "Variety selection is not necessarily all about yield; additional characters such as bolting, establishment and consistency of performance are all important factors.

"The six new varieties on the Recommended List show an impressive increase in average yield, but also very considerable variations in yield performance from year to year. The established varieties show markedly more consistent performance – notably Haydn, with differences of less than 0.5 per cent in relative performance across all three years of trials. This compares with some of the newer varieties varying by more than 8 per cent from year to year," he said.

Haydn made up more than 20 per cent of the last year's record-breaking crop and Strube claims that the variety combines proven reliability with the lowest bolting, which allows growers to take advantage of early drilling. A high sugar content helps to put the most value on every load of beet leaving the farm, added the firm, which also offers Pasteur on the RL and Thor on the DL.

Beet protection

Keep a good lookout for disease in crops this season, warned BBRO lead scientist Dr Mark Stevens (right),



speaking at the event. He said that rust has been the main threat over the past few seasons, rather than mildew, and he made it clear that growers should always kick off their fungicide campaigns at full rates, in order to manage disease appropriately thereafter.

With a reduction in area and the current price structure, Dr Stevens urged growers to drive the crops as hard as possible and be aware of the potential length of the growing season, as this will influence fungicide spray strategies.

"If lifting in September then it's a one-spray strategy for the season; October lifting onwards then a two-spray, with a potential benefit from a third spray for crops being lifted after Christmas.

"Be aware however of whether the third spray is needed," cautioned Dr Stevens. "There will be some indicators as to whether it is required and agronomists and area managers will advise. We've often seen benefit from a third spray for late lifted crops but it's all about understanding the season as to whether it's worthwhile," he added.

New fungicide

A new sugar beet fungicide, Armure (difenoconazole + propiconazole), will help growers and agronomists to tackle all the key foliar diseases this season, claims Syngenta.

Armure is approved for rust, powdery mildew, *continued over...*



Arable

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ramularia and cercospora, reported Syngenta field technical manager, Simon Roberts (right).

He advocated that the optimised formulation of two tried and tested triazoles, difenoconazole and propiconazole, will prove a direct replacement for one of the company's previous leading beet fungicides, Spyrale (difenoconazole + fenpropidin).

"Armure now has the added advantage of the stronger curative and protectant triazole activity," he advised. "It is recommended as the first spray when the crop reaches full ground cover (BBCH 40), to prevent early disease development.



"For later crops, it can be followed by the strobilurin, Priors Xtra (azoxystrobin + cyproconazole), to complete the green leaf enhancement through to lifting."

Syngenta advises that sugar and fodder beet growers can make up to two applications of Armure, at a rate of 0.6-litres/ha. Initial applications, at early canopy cover, should be applied in a water volume of 200-litres/ha, however later applications in dense crops may benefit from increasing water volume to 300-litres/ha, and using angled nozzles to improve penetration to lower leaves and root crown. The harvest interval is 21 days from application.



▲ The two right hand pots on both rows demonstrated the best control of cut-leaved cranesbill on UPL's stand where ethofumesate + metamiltron had been applied (top right), and ethofumesate + phenmedipham + desmedipham (bottom right).

► Pam Chambers of UPL.



Herbicide advice

UPL's technical manager Pam Chambers was at the event highlighting the issue of controlling cut-leaved cranesbill (*Geranium dissectum*) in sugar beet, which she said had become more of a problem where sugar beet and oilseed rape were grown in the same rotation. "Cranesbill is easier to control in cereals but not so in beet and OSR," she pointed out.

Using a pot demonstration on UPL's stand, Ms Chambers highlighted that, applied on its own, beet herbicide metamiltron (as in Bettix Flo) showed little difference in control of cut-leaved cranesbill compared with the untreated. Improvements in control were evident with an application of phenmedipham + desmedipham (as in Beetup Compact SC,) and a slight synergistic effect with the addition of metamiltron to these two actives.

"However, significantly better control of cut-leaved cranesbill was achieved with ethofumesate + metamiltron (as in Oblix MT), and the best was seen with ethofumesate + phenmedipham + desmedipham (as in Betasana Trio)," she commented.

"This was a pot demonstration, and control wouldn't be so good in the field, however adding in 30g/ha Debut (triflusalufuron-methyl) plus adjuvant oil to 1.75–2.5-litres/ha Betasana Trio would provide the best control.

"But this must be at the cotyledon stage of the cranesbill for the best results," she added.

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