

“ Breeders now have a much better knowledge of what to cross and what should come back as a result. ”

# A conventional approach

## Technical Rotational resilience

With conventional barley breeding techniques showing huge improvements, new types coming through look to be snapping at the heels of their hybrid counterparts. CPM looks into the most recent developments from the Elsoms Ackermann breeding programme.

By Charlotte Cunningham

**Back in June 2017, CPM reported the news that Elsoms Seeds had joined forces with German barley breeder, Ackermann, to form Elsoms Ackermann Barley (EAB).**

The new venture was set to focus on breeding varieties specifically for the UK market, aiming to combine strong disease resistance and yield characteristics with quality malting and feed barley varieties.

Ackermann was bringing to the party a breeding programme that at the time already produced two-row, six-row, spring, winter, feed, distilling and brewing barleys, as well as being part of Saaten Union's hybrid barley programme.

Looking back on that very article, the new EAB brand expressed that it expected products of this collaboration to follow Ackermann's own varieties onto the AHDB

Recommended List by 2020.

And now in 2021, it seems they did exactly that.

While interest grows in hybrid types, EAB are keen to prove there's still value in traditional, conventional varieties.

### Three key strands

According to George Goodwin, combinable crop and vining pea manager at Elsoms, there are three key strands to the breeding strategy — hybrid, conventional winter, and spring barley. “Hybrid barley is very much still in its infancy for us, meaning there are no registrations in the UK yet. Although Saaten Union (who head up the hybrid programme) have always been very advanced in their offerings, at this stage, we've not chosen to bring that through to the UK.

“But when it comes to our conventional winter types, we're really focusing on specialising in traditional two-row, high yielding, disease resistant barleys.

“It's important to stress that this doesn't mean we're knocking hybrids — we have a place for that — but at this stage of the breeding cycle, some of our inbred lines have really caught up yield wise and so we believe there's real value for growers.”

Most of the breeding is split between the partner companies two breeders. “There's a breeder for Ackermann called Claus Einfeldt and then there is Elsoms Ackermann's breeder, Miroslav Bukan. Miroslav does all of his selection work and some crossing in the UK and then the main body of the crossing

is done in Germany with Claus. The material is switched between each party.

“We use main sites in Suffolk, North Lincs and Scotland for our barley breeding work and selection, but then the material that is being tested in the UK will also be tested across continental Europe, in the hope of finding a pan-European variety that works well.”

According to George, the benefit of Ackermann to UK growers is that by partnering with a breeder and bringing material over, Elsoms Ackermann have a direct insight into the UK barley market. “We're a team of experienced seedsmen who know what is needed in the UK and so that can all be fed directly back into the breeding programme, shortening that chain of communication, meaning we can work ▶



There are three key strands to the breeding strategy – hybrid, conventional winter and spring barley, says George Goodwin.





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*When it comes to winter barley, the main thing Miroslav Bukan is looking for is yield.*

▶ on progressing varieties sooner.”

Jordan was the first product from the EAB programme, but now with a busy portfolio of varieties under its name, it looks like new two-row feed variety, Bolton, could take the spotlight this year.

“At the stage when a variety is selected, there are still a lot of unknown things about it,” says Miroslav. “However, when it comes to winter barley, the two main things I’m looking for are yield and yield stability — no question about it.

“So the important thing for me is to observe the line and see how that yield is achieved. By that, I mean yield stability.

“Our trials are drilled at a number of locations. Statistical analysis of trials enables us to determine not only which line is the highest yielding one, but also how this

high yield is achieved across different environments. I am looking for the lines which tend not to vary across locations — those which have stable yields.

This stability is often based around other factors than just yield itself, adds Miroslav, so traits like disease resistance and lodging are an important part of the strategy too. “We take a very strategic approach to breeding. We’re a small company with less resources than some of our bigger competitors, so we have to pay attention to how and what we are doing to ensure tangible solutions are brought to market for UK growers.”

## Huge uptake

And in conventional types, these higher yields are becoming easier to achieve thanks to improvements in breeding, he says. “There’s been a huge uptake in using genomics in breeding. Breeders now have a much better knowledge of what to cross and what should come back as a result.”

New variety, Bolton, is being launched to the market this year and promises high yields — particularly in the East — as well as a good agronomic package.

Derived from a KWS Cassia x California parentage, Bolton has UK treated yield of 106 and an eastern yield of 107 — firmly putting it at the top of the table yield-wise, says George. “Bolton is well adapted for growing across the whole of the UK, though growers in the East could obviously benefit from increased performance.

“Bolton also benefits from a decent untreated yield (83%).”

It has good standing ability, as well as BaYMV resistance, and on the disease front,

Bolton presents a pretty good score sheet with a 6 for mildew, 5 for brown rust and rhynchosporium, as well as a 5 for net blotch — though this is based on limited data. “A standard fungicide programme will cover all major diseases,” says George.

“With the launch of Bolton, it just widens the choice for growers when it comes to selecting a two-row feed.”

Harley Seeds’ Douglas Gordon says upcoming variety, Bolton, stuck out from the very beginning. “When any new variety comes through, you’re looking at the Candidate List to see how well it’s doing in trials across the country.

“For Scotland, the Scottish Agronomy trials have been particularly important, with trial sites in the Borders, Fife and Aberdeenshire.

“Bolton stuck out straight away because



*Growers are looking for varieties that yield well, have a high spec weight and agronomically are good on the disease front, says Douglas Gordon.*

## Why barley?

Though barley has been around for thousands of years, advances in breeding means it could be more beneficial in the rotation than ever before, reckons George. “Winter barley keeps its value because it’s an earlier harvested winter cereal. Although oilseed rape area figures have been dropping for a while, I don’t believe we’re ever going to get to a point where it’s eradicated from our fields and so barley offers a great rotational entry into OSR — particularly when looking at sowing something earlier when there’s a need to get it up and away quicker to minimise the risk from flea beetle.”

What’s more, with barley and wheat prices likely to be driven by export parity in 2021/22, barley’s discount to wheat is likely to be much less,” he adds. “Looking at spring barley and

there are a lot of varieties out there now which have a lot of weed suppression benefits too and are relatively easy to grow.”

When it comes to conventional winter barley, George says the main benefit is yield. “If you can get a hybrid-style yield from a two-row conventional barley, you can then start looking at costs. Generally, the seed cost of hybrids are double the cost of two-row conventionals.

“When input cost is constantly being looked at and monitored on-farm, conventional varieties give growers an opportunity to reduce that — but without compromising on yield.”

Looking further into the conventional vs hybrid debate and disease wise, there are no areas that any of the newly recommended

varieties lack behind significantly — when compared with hybrids — he adds. “What’s more, a lot of the agronomic features outweigh some of the hybrids. The advantages span further than just a yield benefit.”

Over the past few years, a lot more work and development has been done in breeding and George echoes the view that this is the key driver in helping put some conventional varieties on par with hybrids. “From an establishment point of view too, there’s no longer a huge amount of difference between conventional and hybrid barley.

“Again, it’s not about knocking hybrids, but more about ensuring there is flexibility for growers.”



## Key Elsoms Ackermann varieties at a glance

	Winter barley		Spring barley	
	Bolton	Lightning (candidate)	Firefoxx	Winston (candidate)
Variety type	Two-row feed	Two-row feed	Malting	Malting
<b>Yield (% treated controls)</b>				
Treated	106	107	103	101
Untreated	83	88	92	[92]
<b>Agronomy</b>				
Lodging (%)	8	[3]	7	[7]
Height (cm - without PGR)	[88]	86	71	73
Maturity (days +/- KWS Orwell/Concerto)	+1	-1	+1	0
Specific weight (kg/hl)	68.6	67.6	66.4	66.9
<b>Disease</b>				
Mildew	6	7	9	8
Brown rust	5	7	4	4
Rhynchosporium	5	8	[5]	6
Net blotch	[5]	8	-	-
BAYMV	R	R	-	-

Source: AHDB 2021/22 Recommended List and Candidate List; NOTE: Candidate varieties are from a separate dataset, so are not directly comparable with those on the RL. [ ] = limited data.

it was one of the highest yielding varieties coming through. Growers are looking for varieties that yield well, have a high spec weight, stiff straw and agronomically have a good all round disease package — and Bolton seems to tick all of the boxes.

Due to COVID-19, Douglas wasn't able to get out to any trials and so the decision to market it was based mainly on the datasheets, rather than its physical presence in the field. "That said, from what we have seen, it's right up there with the best available varieties.

"There are a lot of good winter barley varieties out there at the moment, but everyone is looking for that next step forward, and yield wise, this could be it."

Following behind Bolton is Lightning, which is currently looking very hopeful for the firm. "It's a Kathmandu x Surge cross, benefiting from a healthy disease resistance package from Surge, while the yield comes from the Kathmandu side," says George.

And that inherent disease resistance is certainly coming through, with Lightning scoring 7s for mildew and brown rust and 8 for rhynchosporium — according to the latest AHDB Candidate List. "If those scores hold up, we're certainly going to be incredibly pleased with it."

Yield-wise, at the moment the data shows that it's yielding at 107 for both the UK and East region and there don't seem to be any

real weaknesses, says George.

"Looking at its growth pattern, you can pick Lightning out in the field pretty easily as it's quite quick to establish. But for me, the real appeal is for growers in the North, where it boasts both good disease resistance and is slightly earlier to mature.

"We reckon it'll be that earliness that sways a lot of growers across to Lightning."

In terms of spring options, Firefoxx is currently going for full malt distilling approval this year, with a committee meeting due over the coming weeks, he adds. "Spring barley is much more a market-end focused product



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and there are a lot of great varieties in the market where, if you grow for the potential of getting malt quality but you miss it, you still end up with a reasonably high yielding feed variety — so it's a little bit more secure than alternative crops.

"The key benefit is that it's currently going forward for malt distilling approval and we're pretty confident it will get it. If this is the case, Firefoxx should boast not only quality from a distilling point of view but also it has consistently shown very low skinning figures in the years it has been trialled.

"If you get a bad year for skinning, banking on a variety like Firefoxx just gives you that extra bit of an edge to know that you're not going to have more deductions made against your premium."

Beyond that agronomically, George says it's still high enough yielding that it could be grown with the possibility of ending up in the distilling market or quite comfortably as a feed variety.

Coming through on the Candidate List is Winston, though this isn't commercially available for now, adds George. ■

## Rotational resilience

Less oilseed rape, spring cropping, a focus on improving soil health and building carbon all rely on a cropping rotation that is resilient. Each crop must deliver a profit on the year while the rotation as a whole should ensure the farming business remains sustainable for years to come.

In this series, CPM partners with Elsoms to look at the opportunities offered by cereals other than wheat and delves into the genetics behind them. Through privileged access to the company's staff and resources, these articles explore rotations that secure a reliable return today and offer bright prospects for the future.

Elsoms Seeds is the UK's leading independent

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