

Driving change with mechanical harvesters



From smash-and-grab bushwhacking to an altogether more refined and sophisticated process.

Sam Barnes went to the SITEVI show in France two years ago with a very specific aim – to visit every machine harvesting stand and ask about potentially operating such a machine in Britain.

“Some people were enthusiastic, some were indifferent – and some just laughed because they didn’t believe that English people even made wine,” recalls viticultural contractor Sam.

Undeterred, he spent three weeks earlier this year on a “self-funded study tour”, working with a contractor in New Zealand who runs 12 mechanical harvesters, getting a first-hand insight in to the process. “I made sure I got on every bit of kit they had and did every single harvest-related job,” he explains.

Further inspired, he took the plunge this autumn, bringing a Pellenc 890 to this country – marking a big step for his own Kent-based business, SJ Barnes Ltd, and for the whole sector.

“I originally set up a contracting service because I spotted a gap in the market to do everything from alleyway establishment and drilling to spraying and fertilising, but my ambition was always to get a harvester,” he says. “No one has ever offered contract harvesting in this country. It’s taken me three years to get to this point.”

Sam is convinced of the potential in the UK, citing the contract-harvesting model that’s “massively popular” in New Zealand, where

he estimates 95% of the crop is gathered mechanically.

He acknowledges there will be many scenarios in which using a machine such as his won’t be possible or desirable, but he’s bullish about the scope, particularly in the still wine sector.

“Bacchus is totally suitable, for example, and this is obviously one of the most widely grown varieties in Britain,” he says.

Location, the area to be picked, the row width and yield are among a host of factors which dictate the charge, but Sam says his rates equate to less than half the cost of handpicking.

“Buying one of these is a big investment. The trailed machine comes with a price tag of about £140,000 and, for a self-propelled version, you can expect to add about £100,000.

“There will always be a place for handpicking, so mechanisation is clearly likely to be of less interest in the sparkling sector and/or to those who have very much built their brand appeal and marketing niche on a very ‘traditional’ platform.

“But it absolutely doesn’t mean a lack of quality. In the last 15 years, the technology has changed beyond recognition – we’ve gone from smash-and-grab bushwhacking to an altogether more refined and sophisticated process, with grapes coming

out of the back of a machine looking as good – if not better – than handpicked.”

His early indications suggest the Pellenc, which he pulls behind a Fendt 210v tractor, might cover 0.75 hectares/hour in a crop yielding 4t/hectare, while in a 15-20t/hectares crop it would be nearer 0.5 hectares/hour.

“You need a minimum of 90hp, otherwise you’ll drink diesel like it’s going out of fashion. My biggest challenge in terms of scaling up my business is travel and logistics. I’ve got a JCB Fastrac and a low-loader that I move everything around with but, compared to other countries, vineyards are very spread out geographically. It’s not like driving into Alsace where you can roll from one to the next then to the next.”

Among the locations Sam worked this year was the award-winning Bolney Wine Estate in Sussex.

“This was the first time we’d done any mechanical harvesting, so we were very pleased to take part in a trial at our Pookchurch vineyard,” says Bolney director David Wood. “The results were definitely promising.” >>





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« The Pellenc was used across different sections of the vineyard, covering a range of still varieties, to give an insight into its potential and how it handles different conditions and grapes.

“Essentially, it operates by utilising a vibrating mechanism, so when you’re taking any machine to something as sensitive as a grape it’s easy to see how you could potentially damage it, but the technology did strike me as very advanced and sensitive,” says David.

“The key point with any complex piece of machinery is getting the set-up exactly right – whether that’s the positioning or the intensity at which it operates – then constantly reviewing that. In many ways, we weren’t just hiring the machine, we were hiring the expertise of the person who came with it.

“Our experience showed us we could harvest grapes really quickly, then get them to the winery in an arguably fresher condition than if we’d hand-picked them, which clearly has a value from a quality point of view. There are still understandable questions in growers’ minds about the condition of fruit derived from any form of mechanical harvesting, but we were very encouraged.”

David agrees such developments are more likely to get a foothold in the still wine sector, particularly among those growers looking to achieve economies of scale, while maintaining high levels of quality.

“The great thing about a machine like this is that it can run all day – indeed, potentially all night too – so it could extend your hours of operation. Mechanisation

of any kind works best when you’ve got a vineyard that’s properly set up for it, though, particularly from a trellising point of view.

“For a whole host of reasons, machine harvesting won’t be for everyone and I can’t ever see a time when we’d totally switch to it, but we will see more across the industry.”

Another key player on the scene could be Lukas Klein, who is bringing his experiences gained in Germany to the UK.

Using an ERO Grapeliner, he harvested about 6 hectares in the UK in 2019 as a trial – Pinot noir, Chardonnay, Bacchus, Pinot gris and Pinot blanc.

“I think it will be the future in the UK, partly because you need only four to five people for the harvest, but also because a bigger area can be harvested in a day which is important when the weather can change so fast.

“The machine can harvest about 1 hectare in 2 hours,” says Lukas, who is planning to offer a contacting service in the UK next year.

“With a selection table, you get the same quality as

handpicking, and we can unload into the same boxes – but it’s better when the boxes stay on a higher trailer for the unloading process.”

Meanwhile, Leon Jones at Buzzards Valley in Staffordshire was one of the first to go down this route in the UK, having brought a Braud self-propelled machine from France in 2010.

Prompted to acquire it by the expected spike in labour costs as a result of that year’s bumper crop, he paid 8,500 euros for the 1984-built machine, plus spent 4,500 euros shipping it to Tamworth from France.

“It’s been an absolute godsend,” says Leon, who uses it across all his 2.67 hectares.

“If you’re employing pickers, it can be tempting when you get to the end of a variety, to push on into the next, even if it’s not perfectly ready, just because the staff are on-site. We know we’ll ultimately get it done, so just leave the crop to get a bit more sun. We’re not at the mercy of booking staff – we can get the crop exactly when we want it.”

He’s the first to admit that his biggest original concern was the risk of damage, but has been delighted with its performance.

“The best way of picking a grape is by hand, you’ll never get round that, but the mechanisation route is cheaper, you need fewer people and, as a lot of people will say who are making wine, hygiene starts in the winery. Plus any damage

is minimal or non-existent – it’s all about setting the hydraulics correctly and I always have somebody walking with me, watching the crop, as I’m driving.

“I haven’t got to have 50 staff, 50 sets of scissors





and I haven't got to put 200 or 300 crates out in the morning."

The only change to the infrastructure at Buzzards Valley necessitated to accommodate the Braud was to the hopper so it could accept fruit from its two bucket tanks which each holds over 1 tonne.

"The harvester needed quite a bit of work when we bought it, but I've got an engineering background and the parts are still available for it. It looks a bit of monster – but it's been worth its weight in gold," concludes Leon.

Matthew Berryman of leading consultants CLM, suggests the drive to cut costs, the expanding acreage of vines and the changing – more unpredictable – weather which can tighten the harvest window are all factors likely to contribute to an increased uptake of the practice.

"There's also a big workforce availability issue. Whether it's been from Romania, Lithuania or Poland, there's been a massive pipeline of labour keen to come to this country over the last five to 10 years. That situation is changing. Post-Brexit, we'll be facing even more of a shortage of pickers.

"Employers will have to up the ante in terms of pay rates and accommodation – and harvest labour is already the biggest single cost that most vineyards incur. Last year's bumper crop meant that some people's picking costs went >>

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« through the roof and it really emphasised the need to control this element of expenditure. A mechanical contractor can pull in to a vineyard and pick as much as 50 people can in a day.”

In its attempts to strip out costs and become more competitive on the international stage, the viticulture industry can draw lessons from wider agriculture, suggests Matthew.

“This won’t mean adopting all new technology, but it does mean making the best use of any appropriate technology. People establishing vineyards need to be thinking about the automation and mechanisation they’ll use before they even start planting.

“The cost and specialist nature of these machines means vineyards might prefer not to actually own one, so the contracting model has many advantages. It’s a similar situation with dairy farmers – only the very biggest have their own foragers, the vast majority use a contractor to cut their silage.

“There’s a strong argument for letting another expert deal with the harvest process, allowing growers to focus even more of their attention on the myriad of other factors they need to get right to grow a great crop and make fantastic wine.

“You could envisage a situation, however, where the biggest vineyards have their own machine, then also do some contracting, as

happens in the cereals sector, where the larger farmers who own their own combine spread their costs across a bigger acreage by also cutting corn for their fellow farmers.

“One argument sometimes used against machine harvesting is the potential damage it could cause to the soil, but other agricultural activities demonstrate that this can be managed, even in wet conditions.

“Mechanical harvesting isn’t going to sweep across the industry overnight – and there will be plenty of good reasons why many don’t go down this route – but it’s the direction of travel and viticulture will definitely become more mechanised.

“The industry may well be on the cusp of a significant technological change,” says Matthew. “Our climate is getting better for winemaking and we’re becoming more skilled at the whole endeavour, but long term if we are going to have an economically viable industry in this country – and, indeed, an effective, commercially sustainable method of harvesting grapes – more mechanisation is an inevitability.

“Businesses such as Bolney are key in terms of influencing the speed of its uptake – they’ll be the ones that keep the industry on a path which combines the best of the available new technology with the strong sense of tradition and artisanal reputation which is so important.

“The viticulture industry has a proud track record of evolving and embracing change – more mechanical harvesting could well be the next piece of that jigsaw to be put in place.”

Back at his base in Kent, Sam agrees, suggesting the significance of this step-change is comparable with the one that saw scythes and bushel bags replaced by combines and tipping grain trailers in the arable sector.

“My family has got a vineyard which my grandparents planted, so I’ve been involved in vineyards all my life and I’ve grown up with romantic image of pickers walking through crops,” he says. “But if we are going to take our industry to the next stage, scaling-up with a consistently good, top-quality product that is priced at a level that appeals to consumers and still allows growers to make a decent margin, more mechanisation will have to happen.

“I can see why it might not be of interest to those producing really top-quality sparkling wines, so that immediately cuts out a massive chunk of my potential customer base, but I’d estimate as much as 40% of the total grape crop could be harvested by machine in 20 years’ time.

“We’re definitely at a turning point. I’m really excited about what I’m doing – and a little nervous. I suppose someone had to put their neck on the block first, though!”



> Bunch skeleton post harvest