

Automated systems are taking the pain out of sourcing and retaining reliable milking staff

Robotic solution to large-herd labour crisis

Robotic milking systems are no longer the preserve of the smaller, compact herd. More and more large herds – some with as many as 2,500 cows – are taking the plunge and investing in automatic milking systems. We spoke to two leading robotic milking experts and a producer to find out.

text **Rachael Porter**

It makes sense really, with skilled and reliable labour increasingly difficult to find and retain. And it seems that the scarcity of labour is the main reason why many large herds are opting for the robotic option, rather than rotaries and rapid exit parlours, according to DeLaval's Kieran Fitzgerald.

"Among our larger-herd customers limited labour is often the driving – and deciding – factor. Not only are they



Robot revolution for rotaries

Another milking solution that DeLaval is offering to customers abroad is the AMR – an automatic milking rotary. Basically, this is a robot that milks cows through a rotary and so far there are systems on units in Sweden, Australia and Germany. The system, which is not yet available in the UK, is a cost effective option for herds above 600 cows. “Below that and the more ‘traditional’ robotic system is more suitable,” says the company’s Kieran Fitzgerald.

The company markets a robotic rotary system: “And producer feedback and experiences in the countries with the system is very good so far. UK producers are still getting to grips with the standard voluntary milking system, so we believe that it’s a case of one step at a time.”

Robotic rotary: systems are working in Germany, Sweden and Australia



struggling to source reliable labour, but the cost of labour can also be considerable. With some large herds – say 600-head or more – milking through a conventional rotary can become a 24-hour job. They’d typically need at least eight staff to cover three milkings a day. That compares to just two or three staff to manage the herd if a robotic system is in place. So there are labour savings to be made, not to mention the reduction in hassle and stress if milking staff are unreliable.”

The largest DeLaval voluntary milking system (VMS) in the UK has six units and is milking 300 cows. Looking to Europe, there’s a German herd with 18 units and in Russia there is a 33-unit installation. This is expanding to 49, which will make it the largest fully automated dairy set up in the country. In New Zealand there’s a herd that’s milked using 24 robotic units and in the US there’s a unit with 20 robots and plans for expansion. “We say 60 cows can be milked by each robot unit – that’s our benchmark,” says Mr Fitzgerald.

He adds that fewer than 5% of UK herds are milked through robotic systems – this compares to more than 30% in The Netherlands and Denmark. “The smaller average herd size in these countries – and the fact that many producers are ‘part-time’ dairy producers – has accelerated the adoption of the technology. But the UK is catching up as more and more producers – with a

wide range of herd sizes – recognise the benefits that robotic milk has to offer.”

Herd manager David Hastings knows first hand all about the benefits of robotic milking. He runs Andrew Griffith’s 400-cow pedigree herd, based at Bulls Green Farm near Nantwich, which is milked through six Lely robots.

“We installed the first three robots 12 months ago,” explains Mr Hastings. “We’d started milking the higher yielding half of the herd three times a day and milking staff were letting us down. It was costing the business money and we were working longer and longer hours. So a robotic system – one large enough to milk just half of the herd – was the ideal solution.”

The other half of the herd continued to be milked twice a day through the unit’s existing conventional 24:48 swing-over parlour. But when cows from the higher yielding group were moved to the lower yielding as their lactation progressed, there was a significant – and undesirable – drop in milk yield.

“That was the clincher, along with the staffing issues, that led us to install a further three robots in May. And now all the cows are milked through robots, visiting the units an average of 3.4 times a day.”

The labour requirement on the farm has fallen from five full-time staff and six relief milkers to just three full-time and one part-time member of staff.

The conventional parlour has gone – it’s been sold. There are now eight second-hand milking units in its place to milk freshly calved cows for two days, before they join the milking herd.

Today, the herd’s average milk yield is around 10,500 litres, at 3.9% butterfat and 3.07% protein, compared to between 8,500 and 9,000 litres a year ago. “The robots were installed in the existing cow housing. We have two cubicles sheds, each with space for 172 cows, and there are three robots in each one. And we’re extremely pleased with our new set up,” adds Mr Hastings.

Serious consideration

So the system is working for Mr Hastings, but robotic milking is not for everyone – some large units are better suited to rotary or rapid-exit parlours. “It’s always a case of individual preference too, but we do find that ‘seeing is believing’,” says Lely’s Bas van Santen. “If we take producers, who are looking to upgrade their parlours, to see one of our large herds milking through 21 robots in Germany they tend to come home pretty convinced that it’s the way to go.”

Mr van Santen says that there’s been a surge in the number of large herds taking the robotic milk route and that he thinks it will continue to grow as more and more producers give it a serious – and closer – look.

Lely’s largest robotic set up has seven

units and is about to install an eighth. In Scotland there's a herd with five units that's now expanding to 10. And there are several large herds in Germany with the company's robotic milking system in place.

One German dairy unit is set to install 44 robots, to milk 2,500 cows, in 2015. Installation at Osterland Agrar, in Frohburg, will start in October and continue until June 2015.

Mr van Santen says that there are not just the obvious labour saving benefits to be had – there's much more to it than that. "For example, if you have automatic segregation, on a timer, you can get the robotic system to single out and direct cows to a holding pen ready for the vet or AI man to look at first thing in the morning. There's no need to wander through the cows, sorting out the ones you need. This saves time, hassle and stress – on staff and the cows."

It all depends on what the producer wants to do. "Do they just want to

milk cows, or do they want to manage them too? Automatic milking systems do much more than just milk. They have the technology to help to improve the health of the cow too.

Optimum number

"Up to four different types of concentrate can be fed through the robot, as can liquid feed. Early mastitis detection comes as standard, with the inclusion of a sensor for milk conductivity and temperature. There's also a somatic cell count option, which can band cows according to their score and flag up any cows that need attention."

Just how many robots are needed to milk a herd depends on the cows being milked. "Breed of cow and milking speed plays a role here," says Mr van Santen. "A robot unit can complete between 150 and 180 milking a day, producing as much as 2,500kg per day but typically around 1,800kg. So it's important not to guess how many robot units are required and to look at the individual herd.

"In theory, a unit should be able to milk

60 cows, but if they're to be milked three times a day and they're slow milkers then this is not possible. If cows milk at a rate of 3kg/minute, that's 1,200kg per day for the robot. If they milk more slowly at a rate of 2kg/minute then one robot won't be enough. It's important that you do your research and any robotic milking system supplier worth their salt will look at these figures and work out how many units you need to milk your herd."

If the calculations are correct and the optimum number of robots are installed, most producers can look forward to an 18% increase in milk yield during the first 12 months post installation, according to Lely's calculations.

"I'm always surprised at how few large herds are milking three times a day, but then with labour constraints it's hardly surprising. So installing a robotic system and increasing milking frequency has considerable additional milk yield benefits, as well as the obvious labour saving ones. That's true whatever the herd size." |

