What's the best type of milking liner for

It's hip to

Liner design is evolving with milking parlour technology and with increasing demands for faster milking, combined with better teat-end condition and improved udder health. We spoke to some milking technology specialists to find out more.

text **Rachael Porter**

Tim Evanson: "Choose liners that suit your herd"

Arnold Kuiper: "Square liners are compatible with robotic systems"

Square design: this shape increases milking speed

What shape are your parlour's milking liners? Probably round – still the liner of choice on the majority of dairy units, according to Dairy Spares' Tim Evanson. "Round-type are still the biggest seller and account for approximately 90% of the market, with the remaining 10% comprising triangular, oval liners and square designs," he says.

But which is the best option for your unit? Mr Evanson says it's hard to be precise: "There are 101 things that can impact on the choice and performance of a milking liner. These include the breed of cattle being milked, their genetics and teat shape, through to parlour design, cluster and teat-cup weight, vacuum level, pulsation settings and milk-tube length.

"What I can say for sure is that the round liners will suit the majority of herds and milking parlours."

There is a place for the other liners in other set ups and robotic milking systems are a case in point. Many producers in Northern Ireland with milking robots are using square liners. "And once they've tried them, they don't go back," says Pearson NI's Andrew Pearson.

Square barrel

He's been selling the square ProSquare liners to customers – predominantly producers with robotic milking systems – for the past two years. He also supplies the liners to around 40 producers who are milking through conventional parlours.

The liners are imported from Dutch dairy supplies company Heemskerk and were developed in the US 12 years ago. They have a square barrel and this means that, under vacuum, two corners collapse against each other. This creates three milk-carrying channels compared to four on a round barrel liner.

They've been on sale in The Netherlands and Belgium for the past decade and they are, indeed, in extensive use on units with robotic milkers. But why?

"It's down to the increased milking speed and, most importantly, improved teat-end condition. Users say that udder health also improves as a result," says the company's Arnold Kuiper. "The higher vacuum levels used by some robots can be tough on teat ends and this shaped liner seems to help to mitigate some of that while at the same time increasing milking speed."

Teat-end condition

In a US trial, involving a total of 12 herds – six milked using square liners and six milked with round-type liners – evaluated liner design for both keratinisation and cracking of cows' teat-ends.

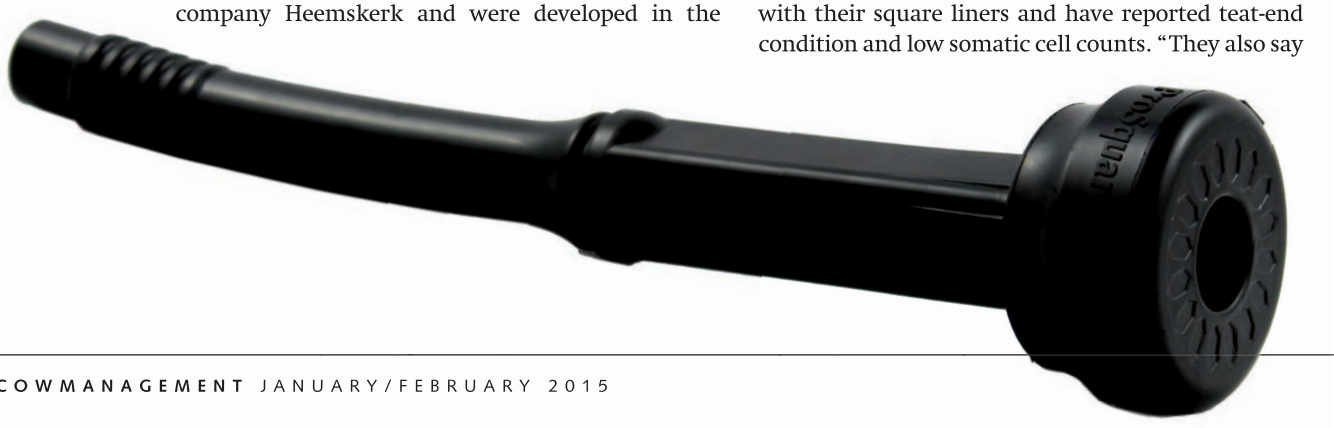
Four of the six herds that were milked with round liners were evaluated, again, three months later. Two of these four herds were switched to square liners immediately after the first evaluation. This study design provided two methods of evaluating the association between liner type and teat-end condition.

"Results indicated that herds that have been milking with square liners for some time have an average keratinisation score 0.43 less than herds being milked with round liners," says Mr Kuiper.

"Additionally, herds that use round liners had approximately 20% more cracked teat ends. In a three-month period, use of square liners reduced both keratinisation and cracking in herds that switched from traditional round-style liners. The average reduction in keratinisation score was estimated to be approximately 0.18, while the reduction in the proportion of cracked teat ends was 0.16."

The price of the square liners is also comparable to other shapes, at between £5.15 and £6.40 each.

Andrew Pearson's customers are certainly pleased with their square liners and have reported teat-end condition and low somatic cell counts. "They also say



your parlour and your herd's udder health?

be square!

that the liners hold their shaper better than convention round-type liners and that they last a little longer."

The only problem he's seen with the square liners so far was on a unit milking a cross-bred herd. "The square liners are narrow – either 20mm or 21mm in diameter – and cross-bred cows tend to have slightly wider teat ends, which can prove too big for this type of liner. So that's something to watch out for."

Greater durability

It's not just the shape of liners that's evolving – the material used to make them is also continually improving. "So producers should also think about what their liners are made from if they want to realise more milkings per set, without compromising on milk quality, teat condition and udder health," according to Mr Evanson.

"Liners typically last for around 2,500 milkings, if parlour maintenance and cleaning is geared to promote the life of the liners," he says. "But there is a new material on the market – TiMEPRO – which claims a 20% improvement on this industry standard, giving approximately 3,000 milkings (equivalent to 1,000 hours of use). That could be an extra 25 days on a 160-cow unit, milked twice a day through a 16-point parlour."

Mr Evanson says that Dairy Spares and Greenoak sell around 117 types of milking liners to ensure that all individual herd requirements are catered for. Dairy Spares' prices for more popular liners are: £4.75 for round, £4.25 for oval, and £4.75 for triangular. "Use a liner that suits the majority of your herd, to provide a 'clean' milking, and promote teat-end condition and general udder health. This liner is the one that works best with your parlour design and set up. It could be round, oval or triangular in design.

"The liner is the only part of the milking parlour that actually comes into physical contact with the cow."

With this in mind, he urges producers to ensure that they replace milking liners regularly and certainly at the manufacturer's recommended lifespan of 2,500 for some conventional rubber materials or 3,000 for TiMEPRO liners. "Producers understand that by maintaining their liners properly they can achieve a longer liner life and a better all round milking experience. And many recognise the early signs that liners need changing, such as extended milking times and cows not milking out properly, before they start to see deterioration in teat-end condition."

So the technology and expertise is improving and new shapes, designs and manufacturing materials mean that, in future, things will continue to evolve, with milking speed, teat-end condition and liner durability always at the top of the list. |