

Crossbreeding with a modern twist futureproofs autumn calving herd

A two-way crossbred herd, combining Holstein and Norwegian Red genetics, is proving the ideal combination for one autumn calving Lancashire-based dairy unit, and has enabled business expansion with healthier and more fertile cows. British Dairying reports.

Father and son team, Richard and Will Clarke, have focused on establishing a uniform herd of cows to suit their semi-intensive system. Use of sexed semen has allowed them to establish strong dairy characteristics, and without diluting any of these benefits that can occur by using a third cross.

And the good fertility and health traits exhibited by these easy-care cows have made it possible for the two to expand the dairy business without any additional full-time help.

In-built cow longevity keeps replacement rates low, at 16%, in this 240-cow herd, with plenty of fifth



The crossbred cows are hardy, fertile, productive and very long-lived

lactation cows, which Will describes as 'gold dust', as they've paid for themselves numerous times. "These older cows have a very low carbon footprint because of their good yields, health, fertility and longevity – they don't owe us anything."

Will joined his father at Cinderbarrow Farm, near Carnforth, in 2018 after graduating from Harper Adams University and working in New Zealand in 2017. He also spent his placement year on a high production Holstein unit in South Wales.

"This gave me experience of two contrasting systems," he says. "I could see how bits of both would work,

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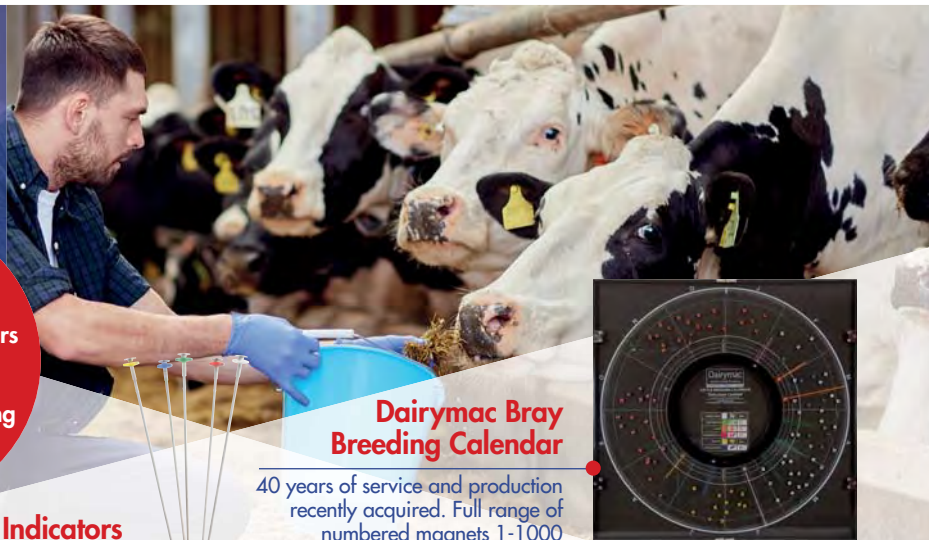
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Will Clarke worked in New Zealand and Wales before returning home

and so we've developed a crossbred system with a modern twist to suit our farm and which can maximise the potential of the hybrid cows."

The pair want cows that can perform well off grass and off concrete. Cows are housed in winter and fed high levels of parlour cake and grass silage to maximise milk output. They're then turned out from March onwards and expected to maximise yields from grass as concentrate feed is cut back.

At 575kg bodyweight, these lighter and more robust cows, which replaced the Holstein herd, cope well with an extended grazing season, without causing damage to the grass. "Dad decided to move to crossbreds in 2010 after finding that the pure Holstein had got too big for our

system, and were more suited to all year round housing. That wasn't what we wanted for our farm."

Richard tried various genetics in the crossbred programme, and for a while ran a three-way cross with the Friesian, but found that this took too much size and milk out of the cows.

"The herd has really blossomed now we've focused just on Holsteins and Norwegian Reds," notes Will. "We've doubled cow numbers since 2018, and we've improved our business resilience with healthier and more fertile cows. A reduced replacement rate means heifer rearing costs have gone down, and our vet and medicine costs, which

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are currently 0.26pppl, are much lower than they were five years ago. We're now more in control of our costs."

Their biggest input expense is parlour feed, using an average of 2.2t/cow per year. Cows are typically fed more through the winter, until turnout when rates are cut back, eventually to nothing in early to mid-summer just a month before drying off.

Balanced diet

"This suits our Muller Co-op contract," says Will. "We're paid a bonus for autumn and winter milk. We've costed the extra cake and it's a viable option for our system. We work closely with nutritionist Sam Wellock from Massey Feeds, who formulates a balanced diet."

A self-feed silage system and a new parlour with automatic feeders was introduced a few years ago, to update their operations and reduce labour input. The duo use contractors for silage making and reseed grassland.



A group of 10-month-old heifer calves; crossbred females are bred to a breed that's different to their own sire

"Extremes in either breed are avoided."

Average yields are 7,250 litres of milk at 4.59% fat and 3.37% protein, producing 577kg of fat and protein per year on twice-a-day milking. "We get these milk solids from the cows without selecting for them – it's the cows' natural ability, coupled with homegrown grass and parlour cake," says Will.

And they've a share of exceptional yielders, with two cows in the past two years achieving 100t of milk in their lifetime. Both Richard and Will agree that they couldn't manage the

herd between them with high input cows. "Time and resources spent on managing lame or ill cows is no good for man or beast," says Will.

"We want a healthy and trouble-free cow, with few calving issues. In 2023, we only assisted with two calvings and our calf mortality is minimal. Calving ease and calf survivability in these crossbreds is great."

Invisible cows

'Trouble free' 'invisible' animals are ideal from calf to cow. "I'm looking forward to a genomics service for crossbreds - I'd like to better identify the blueprint of these invisible cows and have a herd full of them," he adds.

Will selects two or three sires from each breed with help from Genus, whose technicians come straight

after morning milking so cows are served within 30 minutes of leaving the parlour and are back in the herd with minimum stress. "The good thing is that when it comes to strong feet, good fertility, high health status and good milk quality, that's a given with the Norwegian Red, with yield and type characteristic supported by the Holstein."

Each cow is bred with a sire that is a different breed to her own sire. "It's as simple as that," says Will. "And extremes in either breed are avoided. It's just fine-tuning and matching the best sires for each cow. There's now little difference between cow types and performance. We now have to freeze brand cows to identify them."

The first 120 straws used are sexed semen, on heifers and eligible cows. Beef is used on the rest, with Aberdeen

Angus the preferred breed. Beef cross calves are sold locally at three weeks old. "It's quite a cut-throat system, but we're breeding from the most fertile cows and raising the benchmark."

Game-changer

The addition of activity and rumination collars in 2021 has been a game-changer, says Will. "We can now track pre-mating heats more accurately. This has allowed us to identify non-cycling cows sooner and cows with quiet heats. Our cull cow numbers dropped markedly when we fitted collars and it has also reduced the replacement rate and allowed us to grow the herd."

Since investing in collars, the herd's average calving interval has fallen from 412 days to 375 days. And in 2023, just 1.34 straws per

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The cows are milked twice a day and average yields of 7,250 litres

successful insemination were used. Conception to first service currently stands at 42%.

This year, 60 heifers will join the herd to allow for growth, calving on average at 24.4 months old.

When it comes to forage, the grassland is prone to dry out, sitting on a gravel seam that runs from Kendal to Lancaster. The farm has only 1,600mm of rain a year so grass can be short in July and August, when cows are dry.

However, outside these times, maximum use is made of grassland. "It's the most profitable feed for cows," says Will. "We paddock graze for at least seven months a year and take



Activity collars help to track heats more accurately, reducing cull cow numbers and the farm's replacement rate

KEY FACTS

Farm size: 142ha

Replacement rate: 16%

Herd size: 240 cows - target

260 and 100 replacements

Calving interval: 375 days

Staff: Two full-time

Lifetime daily yield: 13.25 litres / cow per day

Breeding: Holstein and Norwegian Red two-way cross

three cuts of silage, making sure it contains at least 10.5-11MJ/kg of metabolisable energy with a D value of 65 to 66. It's no good using 'young' grass on our self-feed system; we need the fibre to prevent it going straight through the cows."

When it comes to herd health, the cows' average somatic cell count is 140,000 cells/ml and the mastitis rate is 22 cases per 100, with more

than 90% of cases occurring when cows are housed. Richard and Will expect these levels to improve when the move from deep bedding to mattresses and sawdust occurs.

With limited health issues, and only 7% lame cows thanks to the Norwegian Red's strong black feet, vet visits are rare and antibiotic use is minimal. The herd was ranked in the bottom 10% for antibiotic use among

those in the supplier milk pool group, says Will.

Sweet spot

"We're very proud of this. It's been a journey to find the sweet spot for us and to develop a herd of efficient cows to spread fewer costs over more litres. This must be the goal for all milk producers, but I think we've made good inroads into getting there."

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