Robots convert run-off block

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'Automatic milking was a profitable way for us to increase our milking herd without buying more land'

Marcus and Zed Crowden at their robotic dairy on a converted run-off block

THE installation of robotic milking units has enabled the Crowden family to convert a run-off block into a highly profitable dairy farm. The 80-hectare property (50ha milking area) supports 205 spring-calving milkers, with the plan to increase to 240 cows next season. The operation involves less than a full-time labour equivalent (0.75 FTE). The family believes the key to the system running smoothly is the integrated herd management software that operates the robots, out-of-parlour feeders and cow traffic.

Marcus Crowden and his wife, Zed, dairy with his parents, Denis and Sheryl, operating two properties at Caveside near Launceston, Tasmania. When their home farm reached its milking capacity they looked at options for expansion.

"The run-off block is five kilometresm away from the home farm, so automatic milking was a profitable way for us to increase our milking herd without buying more land or employing more staff," Marcus said. "It allowed us to increase the combined herd from 320 to 450 (and 500 cows next year) and total milk production from 2.4 to 3.2 million litres."

In mid-2012 the Crowdens initially installed two DeLaval VMS robots and three-out-of parlour feeders but within a year added another robot and three more feeders to increase the herd size.

"We were pleasantly surprised at how quickly we adapted to the new system," Marcus said. "We expected it to take a full season to get used to the three-way grazing, working out a routine and learning the hardware and software associated with the robots. But after just four months, our system was running smoothly and we were enjoying the benefits of automated milking."

A key to its success for the Crowdens has been the ability to manage much of the operation remotely, through the computer at home, or a mobile phone.

"We can see what's happening through two web cams located at the dairy," Marcus said. "And we have remote control of the robots, smart gates and feeding system through Delpro, the herd management system that came with the robots. So even if we are in Melbourne on holiday we can keep track of what's happening and sort out most issues that arise. We really enjoy that flexibility."

Marcus is pragmatic about the amount of time he spends on the computer.

"DelPro records an enormous amount of data and there's a wide variety of report options," he said. "You could spend 10 hours a day on the computer if you wanted to, but it wouldn't necessarily make you more money. I spend about 15 minutes a day reviewing reports on production, milking frequency and feed intake. And about once a week I'll spend about an hour looking at records in more detail."

All of the herd data is recoded in Delpro so all the records are in the one place and easily accessible.

"Every time a cow does something, it is recorded," Marcus said. "Nearly all of it is automatic. The main data we enter manually is heat detection, inseminations and health treatments such as antibiotics for mastitis. The only one that takes time is the inseminations; I generally record that in a notebook and enter it into the computer on a rainy day."

On weekdays Marcus spends 2-3 hours at the robotic farm, but prefers to work longer on Friday and Monday to allow him to have most of the weekend off. "When I'm playing football, I can organise it so that I only need to spend 15 or 20 minutes a day at the farm on the weekends," he said.

Marcus has been particularly pleased with the out-of-parlour feeders that enable individual feeding.

"We installed them primarily to encourage cow flow - so the cows had a reason to want to leave the robots after milking," he said. "Individual feeding means we are getting much better value for our investment in concentrates by directing more feed to the higher producing cows."

Initially Marcus let Delpro determine the feeding level for individual cows but once he gained confidence he adjusted individual feeding levels according to his own specifications.

"DelPro is really user-friendly," he said. "And I liked the way we could run with the system settings in the early days but have the flexibility to customise settings to our own needs if we want."

With such a high stocking rate (currently 4.25 cows/ha and expected to reach 5 cows/ha next year), Marcus keeps a close eye on production per hectare. Now in its second season, Marcus is aiming to produce 2000 kilograms milk solids per hectare. While cows are fed an average of 2-2.5 tonnes concentrates per lactation, Marcus is also aiming for very high pasture utilisation at 20 tonnes/ha.

"We have to get our pasture allocation right to maintain voluntary cow movement around the system," he said. "It isn't as hard as I expected. But I am also keen to achieve high pasture utilisation because it has so much impact on our profitability."

The number of cows visiting the robots is relatively even throughout the day and night, although surprisingly, the busiest time of day for the robots is between midnight and 4am.

In pasture-based automatic milking systems, this is often a period when few cows present to the dairy to be milked. This is because pasture-fed cows typically rest from about 2am to about 5am following a grazing session around midnight.

Marcus has programmed his system allow access to fresh feed four times a day as follows:

- 1:40am-8:30am: 45% of daily pasture allocation;
- 8:30am-4:30pm: 35% of daily pasture allocation;
- 4:30pm-11:00pm: 20% of daily pasture allocation
- 11pm-1:40am:feedpad (brewers grain or silage)

At the peak of lactation, Marcus Crowden aims for cows to be milked three times a day on average, although the higher producing cows will be milked as often as four times a day.

"For example, in November we had a cow producing 70-80 litres a day and she was being milked 3.6 times a day," he said.

The FutureDairy team recently analysed the labour efficiency on the Crowdens' robotic farm. The team estimates that Mr Crowden has 0.75 labour units for 205 cows, which is equivalent to 270 cows per full time equivalent (FTE), more than double the Tasmanian average of 100 cows per FTE and well above the average of the top 25% (137 cows/FTE).

DeLaval AMS systems specialist, Anthony Baxter, said the Crowden family have the best performing AMS set up that he has seen in Australia.

"They have an amazing ability with DelPro software," hesaid. "They picked it up easily and use it to run their farm remotely - so the system works for them rather than them working for the system."

The irony is that Marcus still milks cows on the home farm.

"We'll be ready for a new dairy on the home farm in five to eight years and robots will be the first option we look at," Marcus said.

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