

DAIRY

Nicole and Bradley Davey have implemented several measures to reduce their farm's carbon footprint as part of Cornwall's Farm Net Zero project. **Wendy Short** finds out more.

Well prepared for future net zero targets

Having only just started milking last spring after converting the family beef and arable farm to a dairy unit, Nicole and Bradley Davey are keen to future-proof their business and be able to meet net zero targets going forward.

The couple, who farm at Parkhurst Farm, near Launceston, in Cornwall, explain that the farm used to be a dairy unit in the past, but the family came out of dairying in 1990 to establish a beef enterprise and arable rotation.

However, as the younger generation, Mr and Mrs Davey were

interested in milk production, and started out by rearing heifers and building up numbers as the beef enterprise was wound down.

Some freshly-calved heifers were sold to raise money for the installation of the parlour and cubicles, and milking started just over 12 months ago.

Project

The couple also joined Cornwall's Farm Net Zero project, as they were keen to work towards environmental goals and meet like-minded farmers, says Mrs Davey.

"Testing has shown that we have a carbon footprint of 780 tonnes

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NICOLE DAVEY

emitted," she says. "The figure is not expected to improve significantly in the short-term, as we need to invest in infrastructure, and this itself unfortunately carries a carbon load.

"However, our medium-term goal is to reduce emissions by working with the project. We are learning from other producers who are further on along their journey and will make progress as rapidly as possible."

The 120-cow herd is made up of 75 per cent heifers, which are predominantly British Friesian and Norwegian Red cross-breeds.

Mrs Davey says the focus is on maximising milk from forage, with a small quantity of concentrate feed offered in the parlour, as well as home-grown barley.

The average yield is 6,500kg at 4.8 per cent butterfat and 3.6 per cent protein.

Mrs Davey says: "Our mature females weigh around 500-600kg. We find that lighter, deep-bodied cows have the capacity to eat large quantities of grass and convert it into milk relatively cheaply without causing too much poaching of the land."

Changes

Two of the main changes implemented at Parkhurst Farm include a move to direct drilling/over-seeding, and the introduction of herbal leys on the heavy clay loam.

"After years of relying on the plough, we have turned to direct drilling and over-seeding, and it has been a success. It has proved to be more cost effective in terms of reduced costs in contractor charges and diesel, plus fewer man hours. It also produces a better quality soil structure, leading to better yields.

"Another benefit is that avoid-

Bradley and Nicole Davey



The cows relish the herbal leys, and the fact that they improve intakes has translated into a lift in yield

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ing leaving bare soils on our heavy land gives new seeds protection, and encourages germination, especially during extreme weather.

"A worm count in one of our fields that had not been ploughed

for more than 50 years produced 120-plus worms per half square metre. We are hopeful that worm numbers will be increased across the farm by leaving the plough in the shed for future grass establishments."

The farm operates a rotational grazing system, which includes herbal leys containing high levels of plantain and chicory, along with clover and other legumes. These require a longer resting period compared with grass in the rotational grazing system, and are given 28 days, while the grass is allowed 21 recovery days, says Mrs Davey.

Herbal leys

"The cows relish the herbal leys, and the fact that they improve intakes has translated into a lift in yield. The species are also more drought tolerant than grass mixes, and this factor was invaluable



To help meet environmental challenges, rainwater harvesting helps to utilise water efficiently.

DAIRY

Farm facts

- The farm comprises some 101 hectares (250 acres)
- The average yield is 6,500kg at 4.8 per cent butterfat and 3.6 per cent protein
- The herd somatic cell count is 120,000
- Calving is all year round

erable savings," says Mrs Davey.

"We may have to increase our nitrogen use in the future, but it is unlikely that we will return to standard levels as we are taking steps to increase soil fertility in other ways.

"In conjunction with previous projects with Duchy College, we have been undertaking regular soil testing to find out which nutrients may be lacking from specific fields, with the aim of improving the accuracy of application.

"The permanent pasture and grass re-seeds following arable crops have shown good fertility levels, but some of the mid-term leys were slightly deficient. This might be due to the decrease in fertiliser usage.

"A paddock rotation is operated

during last year's low rainfall periods."

The business has halved its fertiliser usage over the past 12 months. "This has brought consid-



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Innovation, Experience, Strength



Infrastructure investments have been made with cow welfare and comfort in mind.

Cows are grazed on a rotational system, with paddocks containing some herbal leys with high levels of plaintain and chicory, along with clover and other legumes.



and dirty water or slurry is applied to benefit the next grazing round as soon as the cows have been removed."

Other measures include rainwater harvesting, which utilises water from the recently covered open yards, along with the covered slurry pits and silage clamps. In addition, the stream which runs through the land has been fully



We would like to invest in sources of renewable energy when the opportunity arises

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fenced off from livestock to prevent the risk of pollution. The farm has its own borehole.

"We have also made smaller investments like the plate cooler, which redirects the water so that it can be used for washing down," says Mrs Davey. "Another feature is the LED lighting, which gives savings on electricity."

Mid-Tier

The farm's Mid-Tier Countryside Stewardship agreement includes a five-year bird seed ley, 10 hectares (25 acres) of low-input sites, and specific fields that are only grazed from April to October.

"The grazing fields were chosen because the land is sloping, and therefore the soil is comparatively shallow. The reduced stocking should help these areas to sequester a greater level of carbon over time."

Looking ahead, the couple con-

tinue to update their infrastructure, with cow comfort and ease of use as priorities.

Having already accomplished significant progress, they have yet more plans for the future.

"We would like to invest in sources of renewable energy when the opportunity arises," says Mrs Davey. "Nothing is set in stone, but we would consider solar panels and even a wind turbine at some point."

"Our milk goes to Davidstow Creamery via buyer, Saputo. At present, there are no compulsory environmental measures required to qualify as a supplier, but if they are introduced at some point, then the business will be well prepared."

Compatibility

Mrs Davey refutes any suggestion that profitable farming and environmental benefits are incompatible.

"There is always talk that anything carbon-efficient is not cost-effective. However, we have found that managing the land in a different way, learning from the Farm Net Zero project and taking relevant advice from well-informed producers are all factors that have benefited us immensely."

"We are also very grateful to have access to wonderful platforms such as AHDB, vet practices, Women in Dairy and the Farm Net Zero project. All of these organisations are taking the time to organise informative webinars, seminars and farm walks to edu-



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cate anyone trying to work the land. They are tools that we are very lucky to have. As the saying goes, 'every day is a school day'."

Farm Net Zero Cornwall

■ Farm Net Zero is a climate action project for Cornwall's farming community running to 2025. It is funded by the National Lottery Community Fund and is a partnership project between Duchy College's Rural Business School, Farm Carbon Toolkit, Westcountry Rivers Trust, Innovative Farmers and Innovation for Agriculture



Genetics used on the herd are predominantly British Friesian and Norwegian Red to produce a cross-bred cow.

MAKE THE MOST OF EVERY BITE.



High prices of feed, fertiliser and energy continue to put pressure on the dairy sector, with production costs at farm level remaining high as milk prices fall.

Depending on production systems, some herds may be at grass full time, while many will still rely heavily on purchased concentrate feed and high-quality silage to meet most of their nutritional and energy needs. Making the most of forage and feed will be key to controlling costs on dairy farms across the country.

Feed efficiency is a crucial element of dairy profitability and sustainability, and this is true for both grazing systems and housed herds. At the heart of this is the rumen, with its trillions of microbes that digest feed and forage, which means that nutrition and management have a significant role to play in driving feed efficiency.

It may be tempting to reduce levels of concentrate feeding to lower expenses. However, when you reduce feeding levels alone, this can negatively impact yields and constituents.

An essential fact to remember is that a cow in early lactation will always prioritise milk production over the maintenance of her own body reserves. Peak lactation yield dictates milk yield later on, so any setback here can lead to reduced overall production.

When the diet does not provide enough to cover demands for milk, she will mobilise energy from body reserves to make up this deficit. This results in excessive body condition score (BCS) loss which leads to poor health, fertility and higher rates of lameness later in lactation, meaning additional costs and inputs. Minimising BCS loss in early lactation is also critical to preparing cows for a successful breeding period.

We are increasingly coming to realise that over 50% of a cow's feed efficiency actually comes down to the make-up of the rumen microbes. Certain keystone species also seem to punch well above their weight in terms of converting feed into milk. Recent studies have even shown that the most efficient cows required 2.6kg DM less than their

counterparts to produce the same amount of milk.

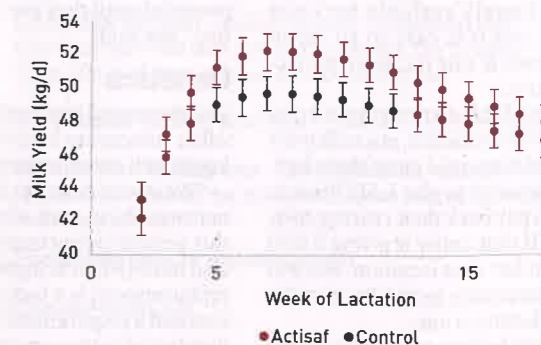
By supporting key microbes, we can optimise this process and make the most of every bite of feed, regardless of system, stage of lactation and time of year. It's helpful to think of the rumen like the engine of a car: a major power source for the cow that needs regular maintenance and care to keep everything else running smoothly.

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