How to achieve high butter fats from grazed cows

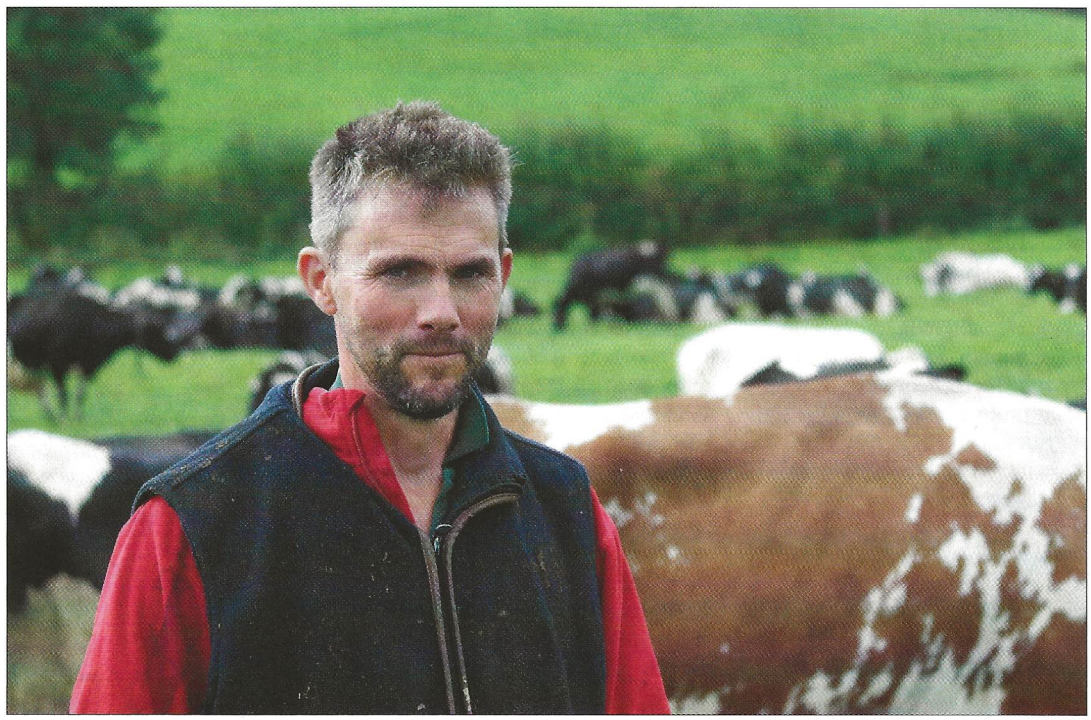
Increasing milk quality has been a core business strategy for a grazing herd in East Yorkshire – so how have they done it? British Dairying went along to find out.

Developing a system that maximises returns from an all-year-round calving herd on a contract that specifies cows are grazed has meant optimising milk quality.

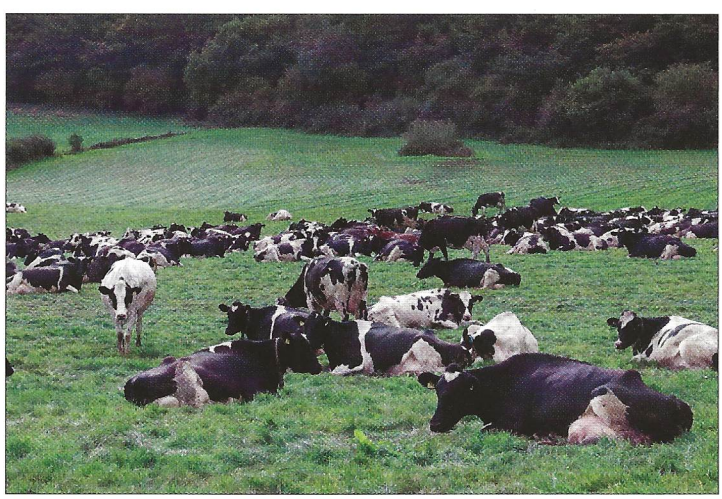
Roger Cook and his father John run a herd of 450 Holstein Friesians at Burgate Farm near Scarborough. In total they farm 263ha, which is part owned and part tenanted, one mile from the Yorkshire coast. The farm is generally heavy land with 30 inches of rainfall per year. It is predominantly down to grass, with 20ha of wholecrop grown per year, which provides a second forage and an entry for reseeding the silage block.

"The cows are averaging 8,000 litres, but we can't push for high yields as we have a long grazing season and cannot keep fresh calvers in for the first three months," Roger says. "We don't want 50-60 litre peaks and are happy with cows peaking at 40 litres. We will typically graze from mid-April to mid-October on a rotational system around the 65ha grazing block, grazing around 2ha/day."

The cows are housed when ground conditions require it or when grass quality tails off. "We leave heifers out for longer as they do better on November grass than the cows, but don't leave anything out too long as our priority is good quality early season grazing in the following year," he adds. "We are on an Arla Care contract which pays on fat and protein, so we have set out to maximise milk quality and maintain fats at grazing - and are currently averaging 4.75% fat and 3.48% protein. This means we are producing over 10,000 litres of fat corrected milk and around 660kg of fat and protein per cow."



Roger Cook and his father John, run a herd of 450 Holstein Friesians at Burgate Farm, near Scarborough



The all-year-round calving herd of Holstein Friesians graze for six months

The breeding focus has been on fat and protein percentage, and the family only select positive percent bulls.

They do not use high yield bulls and are not looking for extreme Holsteins as they do not fit the system. In the past they have crossbred to British Friesian.

While grass makes up a major proportion of the summer diet, the cows are buffer fed all year round and are topped up with a 16% dairy compound in the parlour. The buffer is fed at night and cows can come back inside whenever they want.

"We will usually put out 5-6t of buffer, depending on grass availability," Roger explains. "We always want a small amount left at morning milking; we don't want the cows running out or leaving so much we need to fork it out. We know the overall diet is not particularly rumen friendly, with a lot of grass and up to 8kg/day of parlour compound, so we look for the buffer to help address this. It helps to avoid milk fats falling, although in the summer fats would typically fall to around 3.8-3.9%."

Nutritionist Paul Robinson developed the buffer feed, which typically comprises grass silage, a fibre blend, caustic wheat and live and dead yeasts to promote rumen function. It used to contain 170g/cow per day of a C16/C18 protected fat mix which would pass through the rumen to improve milk fat, but the family still saw a fat decline at turnout.

Roger and Paul felt there was still potential to improve fats, and following discussions with Kirsty Farnan at Adisseo they agreed to include RumenSmart in the buffer. "The oils in fresh grass increase the rumen fatty acid load, which, in turn, can be toxic to rumen bacteria," Kirsty explains. "As part of the process of producing milk fat, the rumen bacteria have to convert the unsaturated oils in the grass and the rest of the diet into saturated oils.

"They use two different pathways to achieve this, one of which has a positive effect on milk fat production. If the activity in the beneficial pathway can be increased, it is possible to

boost the fatty acids available for butterfat production. RumenSmart specifically supports the rumen microbial population, favouring certain bacteria and protozoa to promote milk fat synthesis in the udder."

The buffer was modified and the fat replaced with 37.5g/cow per day of RumenSmart at a cost of around 15p/cow per day - less that the cost of the replaced fat. "In the summer of 2022 we averaged 4.3% fat during the grazing season, but this year, having added RumenSmart, we have had no tests under 4.5%," Roger notes. "So we now feed it all year round."

The winter diet comprises a mix of grass silage and fermented wholecrop, 3kg of caustic wheat, 1.5kg of a fibre protein blend, live and dead yeast and RumenSmart. Roger keeps all the clamps open and mixes silages to maintain a consistent diet.

Normally the wholecrop is peas and barley, but this year he experimented with growing beans, hoping to see an increase in both effective fibre and protein.

"We harvested the crop in early September and will be interested to see how it analyses and feeds," says Roger. "In the winter we usually feed an 18% parlour compound but might be able to step this back to 16%.

"We had been running at a rolling average of 4.1% fat for several years. Adding the protected fat had nudged this up to 4.35% but now we have a rolling average butterfat of 4.75% despite taking the fat out of the diet."

Despite the increase in milk quality, fertility has remained good, with a 370-day calving interval, a pregnancy rate around 27% and 46% conception to first service, ensuring a good supply of pregnancies.

The next challenge is to improve milk protein, and Paul and Roger will be considering adding protected methionine to the diet. As well as potentially increasing milk protein, supplementing with essential amino acids could allow a reduction in the total protein content of the diet, insulating the business from volatile protein prices.

"By paying close attention to the diet, we have been able to increase milk quality and milk price, which is essential given the limitations we have on yields," says Roger. "It shows that grazing does not mean you can't achieve high milk quality and make the best of contract opportunities."

Kirsty Farnan suggested including RumenSmart in the buffer feed

PUSH UP YOUR FEED EFFICIENCY

ANAEROBIC CONDITIONS
MICROBIOTA BALANCE
OPTIMISE RUMEN PH
FIBRE DEGRADATION

Levucell SC INCREASES FEED EFFICIENCY BY UP TO 6%

Levucell SC
Rumen Specific Yeast

Feeding Levucell SC contributes to sustainable milk production by helping **produce more milk from the same amount of feed.**

- Average increase of 1.1kg milk per cow per day
- Up to 6% increase in feed efficiency
- Return on investment of 6:1

Levucell SC Digestaid | Levucell SC Acidease | Levucell SC Toxisorb | Levucell SC Rumignition

Call our experts on 07827 228161 or visit LallemandAnimalNutrition.com

LALLEMAND ANIMAL NUTRITION ■ SPECIFIC FOR YOUR SUCCESS
www.lallemandanimalnutrition.com

100 YEARS OF YEAST PRODUCTION

LALLEMAND