

It is a well-known problem that as milk yield increases, so does the risk of rumen health issues. And this can then have a knock-on effect on the fitness and health of the cow if not resolved quickly enough.

This was precisely the case on Tredinney Farm, at St Buryan, near Land's End in Cornwall, where the Warren family's pedigree herd of Guernsey and Jersey cattle was delivering large quantities of milk under a relatively high input system.

With average production exceeding 7,000 litres – with 600kg combined fat and protein for the Guernsey portion and one cow even breaking breed records by exceeding 1,000kg CFP – a lot was being asked of this high performing herd. But owner James Warren – who runs the farm with his parents Dennis and Rosemary – was not entirely happy.

“The cows were performing well, but not quite as well as they should be,” he says. “I originally had a suspicion that they might have SARA [Sub-Acute Ruminant Acidosis] as yields were not quite as high as I would have liked considering their ration, and they were not cudding as they should be. It was difficult to pinpoint, but something was not right.”

It was at this point that Matthew Jenkin, a young trainee nutritionist with Cornwall Farmers, suggested the idea of rumen taps.

“I was starting to see quite a bit of rumen tap work being done by vets in the area and it was proving to be a useful tool to indicate whether there actually were acidosis issues,” he says.

“The rumen tap involves withdrawing fluid from the cow's rumen using a needle through the body wall,” explains James's vet Matthew Berriman from the XLVets Rosevean Veterinary Practice, who undertook the task. “A local anaesthetic makes it a painless procedure. A variety of observations and

measurements can then be made from the rumen fluid, including, most importantly, pH and microflora motility.”

James was keen to give the procedure a go, and decided to use the opportunity to undertake a small farm trial. Taking his first readings from a small group of early lactation cows, he found their initial pH to average 5.34 (see table 1).

“This is too acidic for healthy digestion,” says Matthew Jenkin. “The optimum pH is over 5.8, which will give significantly better digestion and more efficient production of milk from forage.”

As part of the trial, the team at Cornwall Farmers suggested the use of a yeast product, which was known to reduce acidity in similar situations. “We tried a Rumenco product called XP yeast, which is a pre-fermented yeast culture,” says Matthew Jenkin.

“He opted for the pre-fermented product as it’s easy to store and handle, there are no issues with stability and it’s been shown to produce consistent results.”

On 1 March 2010, almost two months after the first rumen taps were undertaken, Matthew Berriman returned to repeat the rumen taps. Randomly choosing six cows, at the same stage of lactation as the previous group, the average pH was found to have increased to 5.87, with a high of 6.37 in one of the Jersey cows (see table 2).

“This was very good news,” says James. “But the improved rumen health came through to me even more clearly when we looked at the bugs under the microscope, which we’d set up on the farm.

“The change was really pronounced,” he says. “When we looked at the rumen flora at the beginning of the trial, the bugs were slow and lethargic – hardly moving at all. But at the end of the trial, they seemed to be flying around on the slide. I was amazed to see the difference.”

The bugs he saw were protozoa and their previous inactivity was a clear sign that they were not working well in the rumen. “Once the rumen pH was optimised, they were highly active, giving a clear indication of improved rumen health,” Matthew Berriman points out. James also noticed that the dung was of a far better consistency,” he says.

Now opting to retain XP yeast as part of the regular ration, James explains how other lines of enquiry also yielded some worthwhile results. “We are on our own water supply and when we had it tested, we found its pH to be 5.5. It should have been closer to a neutral pH of seven, so this was clearly another area that needed to be addressed and we are now installing a treatment plant,” he says.

Similarly, last year’s maize silage was found to be too acidic, at worst having a pH of 3.5 where the crop had been green at harvest.

As the herd now increases in size to 230 head and adjusts to the recently introduced complete diet feeding, James has every intention of closely monitoring water and feed before it goes into his cows and regularly checking their rumen health.

“Doing these rumen taps was far easier and less stressful than I’d imagined and I wouldn’t hesitate to do use the procedure on an annual basis if it’s recommended by the vet,” says James.

Matthew Jenkin from Cornwall Farmers agrees with the use of the tool and says: “Although people are becoming more aware of acidosis, too often it remains undiagnosed, so in our role as nutritionists, we are keen to use the latest technology to help in the process of diagnosis and cure.

“This particular study not only illustrates the importance of using the technology available from the R&D based suppliers, but also the importance of teamwork and interaction between the farmer, vet and nutritionist,” he says.

**Table 1: Rumen tap samples taken 12<sup>th</sup> January 2010**

<b>Cow</b>	<b>pH</b>	<b>Protozoal Activity</b>
530	5.3	None
562	5.0	None
433	5.7	None
438	5.0	None
39	5.5	Minimal
341	5.2	None
801	5.7	Medium
<b>Average</b>	<b>5.34</b>	

**Table 2: Rumen tap samples taken 1<sup>st</sup> March 2010 (after XP Yeast feeding period)**

<b>Cow</b>	<b>pH</b>	<b>Protozoal Activity</b>
812	5.4	Good
15	6.37	Good
741	5.61	Good Plus
769	5.85	Very Good
612	6.11	Good
414	5.88	Very Good
<b>Average</b>	<b>5.87</b>	

Notes:

1. Dung on 1<sup>st</sup> March was very consistent across the cows.