

Dairy cows are happier and healthier producing lower sat fat milk

# Fine-tuning fat favours cow health

The UK dairy industry is making headway into monitoring and modifying the amounts – and types – of fat produced in milk to meet Government guidelines. And it looks like a win-win situation as the benefits of managing dietary fat appear to have cow-side benefits too.

text Karen Wright



Feeding and breeding play major roles in the range of saturated fatty acids in milk

Setting the ball rolling on the subject of saturated fat this year was National Milk Laboratories' director Ben Bartlett in his paper at the British Cattle Breeders' Conference. He looked at how saturated fat in milk might be influenced through genetics, cow nutrition and management.

Thanks to an investment in mid Infra Red (mIR) technology, which can establish fatty acid profiles at a fraction of the cost of gas chromatography, NML has been routinely generating fatty acid profiles for 50,000 milk samples a month for the past two years and identifying the groups of fatty acids, such as saturated fatty acids (SFA), in each sample.

"It is clear that there is a wide variation in saturated fats, which include a number of bad fats, between herds and in some cases between cows within a herd," he said. "In November 2011 the overall industry average %SFA in milk was approximately 69% but, at the extremes, some herds had a SFA% of less than 57% while others had a SFA% of more than 80%. The reasons for the range in SFA percentages are complicated but the two primary drivers are feeding and breeding."

NML data showed up that some cows in a herd can be seen to be producing more than 5.5% fat with SFA results below 60%, while others are showing much lower fat results with SFAs above 70%. "There is a need to understand relationships, such as cow health and productivity against the fatty acid profile and groups of fatty acids, such as saturated fatty acids," adds Mr Bartlett.

## Productivity vs. profile

While fatty acid production is a complex business – a cow will produce about 1.2kg of 400 different dairy fatty acids from 600g of 10 different dietary fatty acids – there is evidence that cows that produce higher levels of unsaturated fats, the ones that are good for the human diet, are healthier themselves. "We already have milk buyers requesting fatty acid profiles on bulk milk samples. But there's growing interest from feed companies who are becoming more aware of the role of fatty acid profiling as a tool that can enable them to make adjustments that will not only result in milk with less saturated fat but also lead to improvements in cow health, feed efficiency and profitability.

BOCM PAULS are using the NML fatty acid profiling service as part of its



NML has found a wide range in % SFA production between cows within a herd

Visiolac feed efficiency monitoring service that reports on the cow's energy and protein use and on her health and fertility. It also reports on the milk's Omega 3 status, saturated fat level and on methane production per litre of milk.

"We have more than 800 producers using this service," says BOCM PAULS' ruminant marketing manager David Forbes. "It gives an 'inside story' on their herd's feed efficiency and certainly helps them and their account managers improve performance."

And by using the extruded linseed product Lintec in cow diets, already

Robert Wytchard: "Using our fatty acid profiles for rationing has led to better fertility, more milk and improved cow condition"



known to have a positive effect on saturated fat levels in the milk and to help to reduce methane levels, they found that improvements could also be made to milk yield, fertility and overall cow health.

"By incorporating fatty acid profiles as part of our feed efficiency programme we can assess the nutritional status of the cow and adjust the ration. A carefully formulated diet that includes Lintec will increase the proportion of valuable Omega-3 fatty acids in the diet leading to less saturated fat in the milk."

On-farm trials have also shown improvements in cow condition and well-being and observed reductions in the risk of acidosis by improving acid flow through the rumen wall.

## Fertility increase

A further bonus of monitoring feed efficiency has been an increase in conception rates for The Mapledurham Trust near Reading. Estate manager Robert Wytchard recorded an increase in the 500-cow herd's three month conception rate moving from 30% to 40% following the introduction of Lintec at a rate of 0.5kg per cow per day and improved fertility protocols.

"We started using Visiolac to monitor feed efficiency and introduced Lintec into the partial mixed ration in October 2010, which includes maize and grass silage, lucerne bales, Intamix and minerals," he said. "We also feed an 18% Eco Elite ration in the parlour.

"During the past 15 months, alongside fertility improvements, we've seen an

## Fat monitoring projects

Two four-year projects are now underway that will monitor saturated fat profiles in milk using NML's mIR monitoring service.

The Optimir project will pool fatty acid profiles from five EU countries alongside phenotypic data to provide a European standard.

The second project is UK based and co-funded by the Technology Strategy Board. NML will provide fatty acid profiles on both bulk milk and individual cow samples and work with SAC and Marks and Spencer to establish links with genetic and management factors.

increase in yield of 500kg. Our NMR average is 11,237kg of milk at 3.78% fat and 3.15% protein with the current cow average at 37kg and a margin over purchased feed of 19.93ppl.

"Cows look healthier too – their coats really shine, and they're showing more bulling activity which is important to us in an all-year-round calving herd."

Saturated fat level for this herd, based on NML monthly bulk milk tests, was a rolling 70% during winter 2010/11 but has now dropped to 65% which is well below the M&S threshold level for their new healthy milk initiative.

Fine tuning the diet at Mapledurham did add to ration costs but according to their account manager, Richard Greasley, this was marginal and easily covered by the value of the extra milk. There are also savings attached to health and fertility improvements and the possibility of lower vet costs.

## Widespread profile use

Mr Bartlett can see a time, quite soon, where fatty acid profiling will be common place in nutritional planning in herds. "We are already planning industry events that will demonstrate the use and benefits of fatty acid profiles in practical dairy situations and the availability of results through Herd Companion.

"Also, it will soon be possible to provide fatty acid profiles from individual cow NMR samples. This could be used in management but would also have wide-reaching implications in genetic evaluations and breeding decisions."