Improving feed conversion efficiency

Here, in the third of a series of articles looking at feed conversion efficiency, we explain why the parameter is set to become increasingly important for UK dairy businesses and how it can be improved.

Controlling and preventing disease can help to maximise milk from feed

Health and efficiency

There are many aspects of herd management that can influence feed conversion efficiency (FCE) and in this – the third in our series on improving this KPI – we take a close look at its close link with herd health and the important role played by vets.

text **Rachael Porter**

If you want high feed conversion efficiency you need healthy cows. So says vet Ed Powell-Jackson, from Somerset-based Synergy Farm Health.

"Equally achieving high feed conversion efficiency and rumen performance can help promote better health so the two are inextricably linked."

"Anything that affects a cow's health is likely to have an impact on feed intakes and milk yields. Sick or ailing cows don't perform as well and don't use feed as efficiently. And healthy cows will have higher dry matter intakes and so produce more."

Ed suggests this point is well illustrated by considering the impact of lameness. Lame cows are less inclined to walk and so are less likely to eat. And they will not want to spend time standing at the trough, or waiting for an opportunity to feed.

"Problems around calving can have a huge impact in intakes and feed use. Infections such as metritis and mastitis will put cows off their feed. A difficult calving will reduce appetite for a while and problems like LDAs have a detrimental impact on feed intakes.

Energy balance

Recent research by NML confirmed that cows with Johne's disease had considerable lower yields than uninfected cows. "It is also important to consider the impact on endoparasites, such as liver fluke. The liver plays a vital role in the utilisation of food and anything that affects the liver will reduce feed utilisation and FCE as feed is ingested, but not utilised," says Ed.

But in the same way that health can affect feed intakes, FCE and yield, so diet will have an effect on health. He stresses the importance of managing the impacts of negative energy balance and body condition score and suggests that the aim must be to limit the extent and duration of early lactation negative energy balance so that cows get settled into lactation and start cycling again.

Pasture perfect: cow health and FCE are inextricably linked

Ed Powell-Jackson: "Low FCE can be used as an indicator of health problems"

He also urges the need to avoid excess body condition in late lactation and dry cows as this increases the risk of body fat mobilisation, which can precipitate fatty liver problems.

"Perhaps the biggest impact of nutrition is on rumen health and the prevention of SARA and clinical acidosis. The rumen is the engine of dairy production and maintaining an optimal rumen environment is crucial. A well functioning rumen will digest feed more efficiently but can also play a role in prevent problems such as LDAs and laminitis. "Managing a herd to optimise FCE and maintain high health status should be seen as a single exercise as they are highly inter-related. Low FCE can be used as an indicator of health problems in the herd," stresses Ed.

Well-mixed ration

According to Keenan nutritionist Bruce Forshaw, there are two principle aspects of diet formulation that impact directly on rumen health and cow health and the objective must be to provide the correct chemical formulation in the optimal physical presentation.

"It is essential that the cow gets all the nutrients she wants whether energy, protein or the vital trace elements – minerals and vitamins," says Bruce. As well as ensuring adequate total energy and protein, it is important that the balance of rapidly and slowly digested feeds is supplied to ensure effective rumen fermentation.

"But it is just as important to get the physical presentation of the diet right. Physical aspects of the diet such as forage particle length and diet density are crucially important as they affect the way a diet is processed in the rumen and how well the ingredients are digested.

"The uniformity of distribution of different sized particles also has a huge effect. The better a diet is mixed before the cow eats it, the more quickly rumen fermentation will start. This is particularly important with small, dense particles."

Antony Edwards (left), his mother Caroline (right) and Bruce Forshaw (centre)

Improved intake

One farming family to benefit from a focus on herd health and FCE is the Edwards family from Howley, near Chard in Somerset. The farm carries a herd of 90 MRI cows and since son Antony came back to farm with his mother Caroline two years ago the focus has been on increasing production and this has involved working closely with both the nutritionist and vet.

They invested in a second-hand Keenan 140 diet feeder in 2008 and fitted the PACE system in May 2010. "We wanted to improve intakes and provide a more consistent feed," explains Antony who feeds wholecrop pea and barley silage, grass silage and a blend through the feeder.

"The other thing we have done is upgrade the parlour from a four-point abreast to an 11:22 herringbone. We have also stopped feeding concentrates in the parlour."

Ed Powell-Jackson now visits the herd monthly. "The changes to feeding have had big benefits, particularly the move away from slug feeding of concentrates and better diet presentation.

"Herd health has also improved and calving interval is now close to 365 days. By getting more control over feeding we are seeing fewer fat late lactation cows. We have also tackled the fluke problem, which will have improved FCE."

Overall average daily yield per cow has increased by five litres per cow with no impact on reproduction or cow health. And FCE has risen steadily during the past year as well leading to improved margins.

"There is no doubt that treating cow health and FCE as an integrated subject can lead to significant physical and financial benefits," concludes Bruce. |