Accurate silage analysis is key to producing more milk from forage and winter rations

# Testing times at the clamp face

First-cut silage results bring some much-needed good news for producers, but regular analysis is essential if producers are to maximise efficiency this winter. We spoke to two nutritionists and a consultant to find out why.

text **Rachael Porter**

The latest analysis of more than 2,200 first-cut grass silage samples, from Trouw Nutrition GB, yielded some good news for UK producers. Diets this winter will, on the whole, be based on better quality first-cut silage, compared to 2014, and with that comes the possibility of better cow performance and lower feed costs.

"The initial analyses show marginally drier first cuts, with an average dry matter of 30.2% compared to 29% in 2014," says Trouw Nutrition GB's Adam Clay, stressing that there is a considerable range but, on the whole, the picture is positive.

"Typically lower grass covers deliver material with lower NDF content and higher digestibility. This is certainly true this year with NDF dropping from 48.3% in 2014 to 46.8%. This directly affects digestibility and, therefore, ME, which has increased from 10.7MJ/kg DM in 2014


*Figure 2: Grass silage dry matter percentage variation across the clamp face (Source: NIR4 Farm, 2014)*

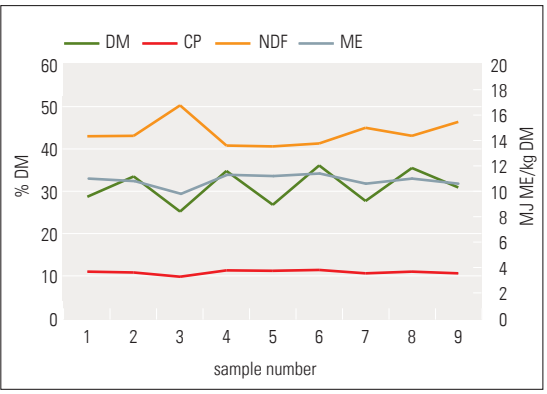



*Figure 1: Grass silage feed value variation across the clamp face (Source: Trouw Nutrition, 2013)*

to 10.9MJ/kg DM this year. Based on a daily dry matter intake of 10kg grass silage, this improvement in ME means cows will produce 0.4 litres per head per day more from grass silage.

"The really encouraging news is that so far this year 47% of silages have analysed out at more than 11MJ ME/kg compared to just 21% in 2014," he adds.

"Just 23% of forages have an ME lower than 10.5MJ/kg, compared to 54% in 2014. This suggests more producers will have better quality feed."

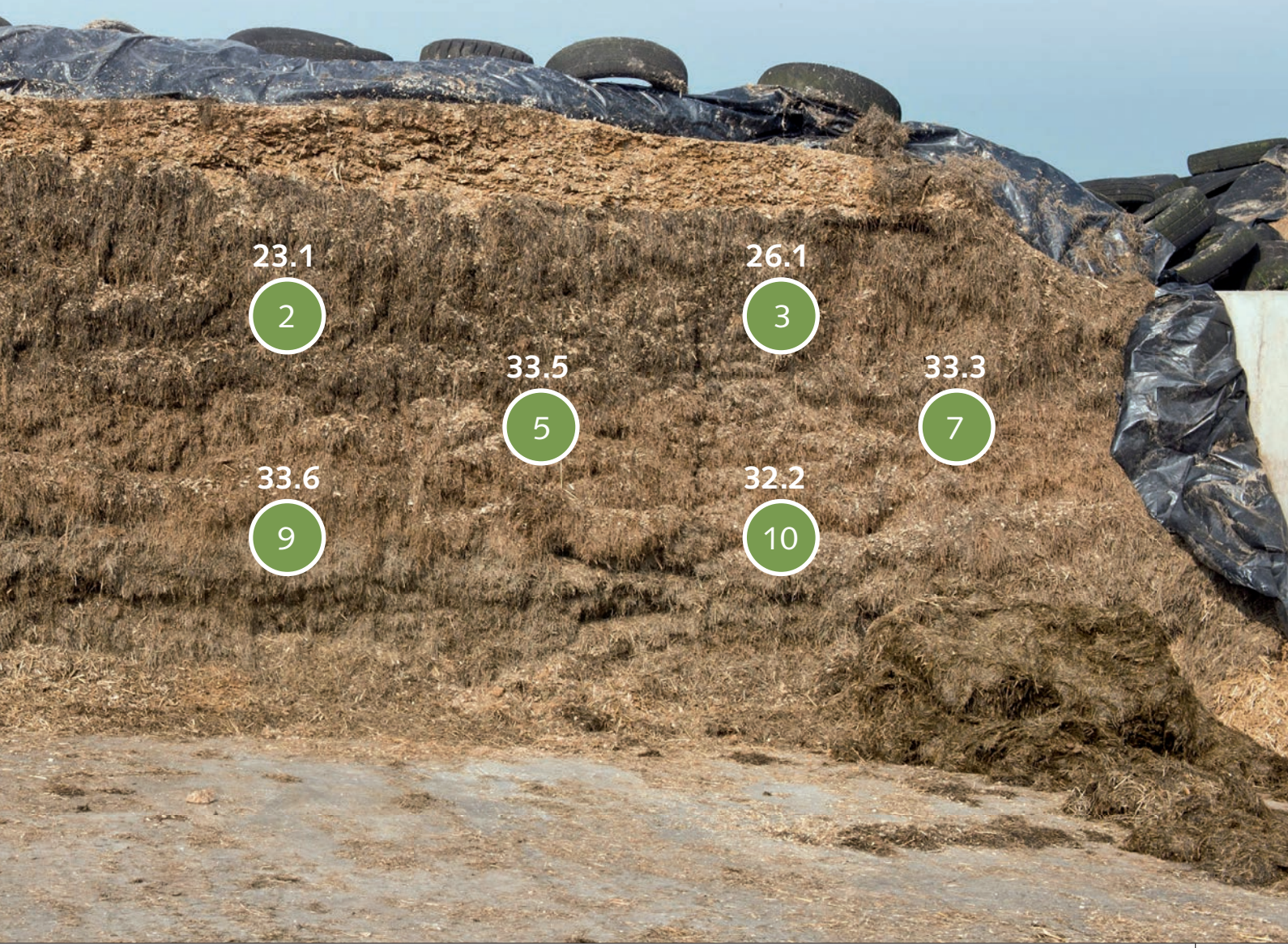
Protein content has also improved from 13.7% to 14.2%, sugars are slightly higher at 3.5% while the average pH is 3.9. Mr Clay says that these indicate that clamp stability should be good, reducing the risk of wastage and making more feed available during the winter.

"In addition to a better average nutritional analysis, intake potential has also increased from 96 to 99. This means cows will be more enthusiastic about eating larger quantities of silage which will be good for diet formulation.

"It will be important to take steps to optimise rumen health as the reduced NDF and higher sugars will affect acid loading on the rumen. The important thing is that producers get their forages analysed so they have a better indication of what is in their clamp, because the averages usually mask a range of results. Take a proper face sample and then resample monthly, at least, so you can fine tune the ration to reflect the silage actually being fed and exploit the potential of better quality forage."

## Accurate analysis

It's well recognised that silage quality can vary considerably from one year to the next, across the various cuts of grass silage and between different clamps. The challenge is getting a representative sample. The current approach to forage analysis relies primarily on composite, combined samples taken from several locations across the face and averaged results. This is certainly far more accurate than just taking a handful from



one place on the face but it will not demonstrate the substantial variation that can occur across even a single clamp face.

So says AB Vista's Derek McIlmoyle, adding that grass silage typically provides between 40% and 70% of the total feed intake when cows are on full winter rations. "Any unaccounted for variation in silage quality can have a huge impact on nutrient intake."

## Key parameters

Newly released data generated in winter 2014 using NIR4 Farm, a new portable NIR spectrometer designed to provide real-time on-farm feed value analysis, has shown that key parameters like dry matter (DM) can vary by as much as 10% from the top to the bottom of each clamp, and by as much as 8% from side to side (see Figure 1).

These are similar to the results from the Trouw Nutrition GB's study, which assessed feed value across the face of an open grass silage clamp in a traditional 'W' pattern of nine samples. Both DM and NDF content varied by up to 10%, while energy density differed by as much as 1.6MJ ME/kg DM and crude protein by 3% (see Figure 2).

According to his calculations, for a typical cow, producing 30 litres a day from 40kg fresh weight of grass silage, even a 2.5% reduction in silage dry matter can reduce DM intake by 1kg.

With an average silage energy level of between 10.5 and 11.5 MJ ME/kg DM, the resulting drop in energy intake would cut milk yield by around two litres per cow.

"Given that every aspect of silage quality that affects feeding value – such as levels of digestibility, crude protein, fibre, lactic acid and volatile fatty acids – can vary, the potential fluctuations in daily nutrient intakes are huge," he adds.

## Perform consistently

"What's needed is a move away from periodic sampling or daily adjustments based on yesterday's feed intake or milk yields – which are always at least one step behind the cows – toward feeding strategies that can account for these variations on a regular basis ahead of the cows.

"Only then can we expect cows to perform consistently, and the emergence of new portable NIR technology certainly makes that much easier to achieve."

Adam Clay agrees that regular and accurate analysis is vital and emphasises the importance of taking regular samples across the face. He recommends that producers take at least nine sub-samples, collected from a 'W' across the face, which are then mixed to provide a meaningful sample. To ration accurately, he says it is also important to get a full analysis of the silage, not a subset of just the headline figures. "Fermentation characteristics, acid load and rumen active starch can all significantly affect how a diet will be formulated, so you need to ensure that your analysis includes them. Don't build a diet based on a partial analysis."

He adds that there is still an assumption on some units that silage quality will remain relatively consistent throughout the clamp, but stresses this is simply not the case.

## Serious dent

Trouw Nutrition GB also carried out trials where a typical ration, formulated to supply maintenance plus 30 litres, was fed to herds from September onwards, without any tweaks or changes to take account of forage quality variation – so fresh weight, formulation and the mix stayed the same.

By March that same ration was only producing, on average, 26 litres. The gradual decrease in yield of four litres during the winter and into early spring, particularly in a large herd, adds up to a serious dent in the milk cheque."

Mr Clay adds that silage quality was an issue, but this trial highlighted that the main variation was in dry matter and the impact that had on intakes. "In this instance the silage was wetter, so dry matter intakes fell.

"But whatever the variation, it comes back to the fact that if cows are to eat the ration that's been formulated for them, silage must be analysed regularly. If it's not, the cows could be eating something very different from the ration that's written on the diet sheet."

The key to efficient winter feeding is consistency and regular silage analysis helps to avoid dramatic changes to the ration.

"It facilitates small but necessary tweaks to keep the ration – and the cows – on track. The trick, if silage DM varies, is to balance and maintain silage fresh weights to mitigate this and to keep the cereal and protein ingredients in the ration the same," explains Mr Clay.

The alternative to regular testing is to wait for the inevitable drop in milk yield before you then sit down with the nutritionist to review the ration. "It's a little late by then as feed efficiency and milk yield has been lost.

And any resulting changes in the ration, to get the cows back on track, will be much larger and that can also cause problems. The rumen likes consistency and digestive upsets can create more stress for the rumen, the cow – and the producer."

## Exploit forage

With silage quality looking good, Promar's Caroline Groves says this provides producers with a much-needed opportunity to get as much milk from their forage as possible.

"Make sure you feed a ration this winter that exploits the excellent forage that's available and take care when feeding concentrates to minimise substitution rates," she stresses.

"Look to make sure rations are balanced well and encourage high forage intakes – that shouldn't be too difficult given the high intake potential of many grass silages."

Miss Groves adds that data shows that, on some units with 'B' quota milk price tariffs, it may not be worth feeding for extra marginal litres. "That will vary from business to business. For producers who are not paid for 'B' litres and are paid the same price for all their milk, marginal litres could be worth looking at.

"But the milk price and the cost of extra feed have to be weighed up because the figures may not stack up."

And she reiterates that, to make the most of this year's top quality silage, regular analysis is vital.

## Group size

"As is checking that the cows are actually eating what you're putting in front of them and checking that there's enough feed. It's important to check group size to ensure that you're not feeding too much or too little of a ration.

"Producers often pull cows out of a feeding or group, or add a few cows in, and don't adjust the amount of ration that's being put in front of them accordingly.

"The result is that feed is either wasted or milk yields can drop off. Neither scenario is efficient. There's no room for inefficiency in the extremely tough challenges producers are facing at the moment." |