Correct diet feeder operation, which can reduce the impact of feed costs on margins whether you produce milk or beef, will be particularly important this winter with the prospects of higher feed costs, says **Mark Voss**, senior system specialist with Keenan.

Closer feeding management can improve margins

Cattle, or more specifically the rumen, require a consistently presented ration in terms of both nutrient value and physical structure, says Mark Voss, senior system specialist with Keenan.

"Research shows where a mixer wagon is operated effectively with optimal sized particles presented consistently day-to-day, the performance of cattle and consequently feed efficiency and margins will improve," he says.

"A considerable number of variables affect the effectiveness and consistency of diet mixing and the objective this winter should be to reduce variation to increase performance."

Mr Voss says the starting point is to understand what makes a good mixed diet. Effective physical nutrition delivers the correct distribution of particle sizes and fibre while also ensuring the optimum bulk density. The ration will have the same particle composition along the length of the trough and will not be subjected to sorting. The table *(right)* shows the characteristics of a good mixed diet.

> **"An over-mixed diet will become a mush, devoid of the essential physical structure**
> MARK VOSS

out. Not only does this alter the nutrient balance of the ration, it also fundamentally changes the physical nature. If cows are clearing all the feed, increase the amount fed by adding extra cows to the mix. For example, if you have 100 cows in a group feed for 103."

Mr Voss also advises farmers not to overfill the feeder as this will reduce the efficiency of mixing.

"The order of filling is significant and has a huge impact on the quality of the eventual mix. Loading in the wrong order can increase the risk of diet sorting, especially if longer fibres are not come a mush, devoid of the essential physical structure. Both will jeopardise rumen function and animal performance."

He believes there are three steps which can be taken to increase the accuracy and consistency of diet mixing. The first is to make sure all operators are trained to use the feeder, understand the importance of getting feeding right and that they are issued with clear standing procedures so all feed in the same way.

The second is to watch the animals. If they all feed from one end of the trough or burrow down into the feed it is very likely the diet is being sorted. It will be worth sieving the diet to understand the extent of the problem.

Performance

"Finally they have to really measure the physical and financial performance of the animals being fed to ensure the diet is delivering the results and allowing variances to be identified quickly.

"Our experience with the Keenan PACE system, which calculates feed efficiency and margins, is that where performance is closely managed, output and

Mark Voss advises farmers to monitor mixes and feeding behaviour more closely.

Characteristics of diet presentation

Good diet	Sub-optimal diet
Light, open mix	Dense mix
Cows eat evenly along entire face – evidence diet has been consistently mixed	Cows preferentially eating at different points along feed fence indicating mix is not consistent along the feed fence
No evidence of sorting	Cow digging down into feed and other evidence of sorting
Good mix of particle sizes with good physical structure and ingredients distinguishable	Ingredients indistinguishable and general lack of structure
Same diet mixed every day	Daily variations in the mix
Fibres presented with clean cut ends for optimum rumen conditioning	Fibres smashed/lacerated so losing function within the rumen

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table (right) shows the characteristics of a good mixed diet.

Starting point

The starting point is ensuring correct amounts of each individual ingredient are added. "You invest time developing a chemically balanced ration, yet all too often the amounts added to the feeder are incorrect and vary considerably from day-to-day. It does not help when many feeders are fitted with weight cells which require the operator to do a mental calculation to work out when enough has been added.

"We also see examples where 'a little extra silage' is added to make sure the cows don't run

especially if longer fibres are not chopped correctly."

He says the best filling order for paddle type mixers is long fibres first, followed by liquids and small particle sized ingredients finishing with the easily mixed ingredients such as forages. He advises checking with the manufacturer for the optimum loading order.

The final significant factor is the degree of mixing, which is determined by mixing speed and mixing duration and Mr Voss says this is the biggest cause of daily variation.

"If the diet is under-mixed it will be more prone to sorting, while an over-mixed diet will be-

is closely managed, output and cashflow are both improved. With current feed prices the cost of this system can be repaid many times over."