

Make measuring your mantra and improve replacement rearing efficiency

# 'Model' heifer rearing can improve performance

How precise is your calf and heifer rearing management? And could your bottom line benefit from a more measured approach to young stock feeding? We spoke to a leading calf rearing expert and a producer to find out more.

text **Karen Wright**



**M**anage what you can measure' is Jim Quigley's mantra when it comes to calf and heifer rearing. Cargill's technical research manager says that it is impossible for producers to make a good job of heifer rearing with limited information.

"Using the 'eyeball' method – for example just noting that 'she looks big enough' – might work sometimes, but it's pretty hit and miss," says Dr Quigley. "So often the extent of data recording on heifer rearing units is nothing more than a mark on the post, noting heifer heights."

He says that better heifer feeding and rearing protocols are the way forward. "This is key to improving dairy herd efficiency. There's too much money left on the table as a result of poor feeding and management decisions from birth until calving."

### Gene expression

Justifying his call for improved young stock rearing, Dr Quigley refers to data that shows that pre-weaning gain can alter gene expression. "Heifers will produce more milk in their first lactation and work has shown that every kilogramme of average pre-weaning daily weight gain resulted in an extra 850kg of milk in the heifer's first lactation.

"Age at first calving, rearing costs and first lactation yield are all good indications of heifer rearing efficiency," he adds. "For example, trials have shown that heifers should achieve 75% or more of the milk yield of mature cows in the herd. We also know that small heifers eat less, produce less milk and leave the herd earlier.

"And first lactation and lifetime milk production are optimised in heifers calving at between 22 and 24 months old. Heifers calving outside this range are associated with higher rearing costs, health problems, increased culling and lower lifetime profit."

Dr Quigley acknowledges that achieving the optimum age at first calving is management intensive. "But if producers take advantage of defined targets and monitor progress they can see where they're going. And using models to simulate the growth of young stock – from birth through to calving – will mean that they can see the impact that changes in management might have on their rearing system"

Cargill is already seeing the benefits of its Calf and Heifer Growth Prediction

System (GPS) on farms in the Netherlands, France and the US and more recently on UK units. These units can see the effects of changes on parameters like growth rates, efficiency and the economic costs of the heifer rearing programme.

Estimates – or predictions – are based on the animal, environment and ration details. "It takes account of data such as body weight, condition, age as well as the season, ambient temperature and grazing topography, plus all dietary details from dry matter, energy, protein concentrations to vitamins and minerals and the feeding methods used," explains Dr Quigley.

"From this, the model can estimate intakes and total feed cost," he adds. "It will predict growth and, by changing parameters, producers can see the effect on performance and profitability of changes in feeding, management and factors including weaning and age at first calving."

He says that using a model to predict rearing costs and monitor performance at each growth stage is giving heifer rearers the confidence they need to alter rations and improve diets that will help to achieve their targets.

"It can calculate the value of the heifers and make sure they are worth more than their rearing costs. And, even if it's not this extreme, it may show that improving the diet and adding a small cost at some stage in the programme actually reduces the overall rearing period and total rearing costs. Most importantly producers can use it to identify gaps in their heifer-rearing programme and improve management."

### Growth rates

Devon-based producer Jack Elliot is modifying his calf diets and management in a quest to calve mature, well-grown heifers at 24 months old, or less. As part of this, he's using Cargill's GPS to help him achieve higher growth rates, particularly in the pre-weaning phase.

"At the moment we're calving heifers at 26 months old," says Jack, who has increased cow numbers during the past five years from 120 to 250 at Hunshaw Farm, Little Torrington.

Output has increased too, with average yield standing at 10,500 litres on three-times-a-day milking. "Calving at between 22 and 24 months old will reduce rearing costs and free up space," he adds. "But we need to make sure we're achieving growth targets cost effectively."



Jack Elliot: "Growth must be cost effective"

Cargill's calf and heifer specialist Bianca Theeruth has used Jack's data and management criteria in the GPS to predict the increase in growth rates that could be achieved by increasing milk replacer from the current 600g/day fed in two feeds from day three to five weeks old, then halving rates and feeding once a day in week six prior to weaning.

"The pre-weaning phase is the most efficient for daily live-weight gain and we want to capitalise and make sure the gain is not lost post-weaning," she says. "So we looked at the effect of increasing milk replacer under the same feeding system and maintaining starter feed to appetite and straw. The target on his unit is to double calf birth weights in 60 days and keep to a six-week weaning system. Achieving this, and by maintaining post weaning growth rates, Jack should see bulling heifers reach between 55% and 60% of their mature body weight at between 13 and 15 months old – about 375kg."

Using the GPS predictions and keeping other feeds the same, Jack has increased milk replacer feeding to 680g of powder for the first five weeks, then 340g in week six. The model predicts an increase in daily live weight gain from 590g a day to 620g.

The model also predicts post weaning growth rates of 820g a day that gives an average rate of 720g a day during the first three months of life. Progress so far has been good and Jack has seen actual growth rates match the predictions. "We're not seeing any checks in growth at weaning either," adds Jack. "After five years of focussing on the milking herd, we're now improving heifer rearing through more accurate feeding, monitoring – including regular weighing – and management." |