

Tips on feeding young calves pre-weaning to maximise their early growth potential and to 'light up genetic pathways' to future productivity

And they're off...

Maximising early pre-weaning growth is the key to rearing productive and long-lasting heifers. And a fresh approach to feeding calves in this period can pay dividends. We spoke to the experts to find out more.

text Rachael Porter

Producers can significantly increase lifetime performance and profits worth £148 per cow per year by feeding calves to exploit their genetic potential in the first few weeks of life. So says Frank Wright Trouw Nutrition International, which launched its metabolic programming approach to pre-weaning feeding at this year's Dairy Event.

"Research shows that a brief period of enhanced nutrition in the perinatal period switches on the metabolic pathways that lead to better lifetime performance," explains the company's John Twigge. "This is a once in a lifetime opportunity and if these pathways are not activated in the first few weeks then the opportunity is missed. They are not activated later in life."

Nutritional stimulus

The clues were in human nutrition. Studies following WWII showed that poor nutrition in humans during pregnancy and post partum had a significant effect on birth weight and then on growth and size in adulthood. "If nutrition was poor then growth never really caught up – there was no compensatory growth."

"So scientists wondered if that would be the same for heifer calves and, if so, what level of nutritional stimulus would be needed, and for how long, to maximise genetic potential," says Mr Twigge. He adds that it's not an issue in the late dry period, but more to do with early post-calving milk feeding.

Metabolic programming is a feeding system geared to 'light up the genetic

pathway' and exploit early potential. It involves feeding to achieve higher growth rates in calves. But he stresses that it's not a substitute for good overall calf management, such as feeding adequate amounts of colostrum.

"We see it very much as 'the next stage' for producers who have got the basics right and want to move on to the next level – it's a natural progression. And some of the UK's best dairy producers will be doing much of what we're advocating already – like feeding calves more milk in cold weather."

"They look at their best cows and then look back and see that those were their best calves – they make the connection without any need for scientific research. Our work and system just backs up what they already know, which is that extra time and money invested in calves today will be rewarded later on – with more milk, better health and fertility, and more lactations," says Mr Twigge.

More milk

The system involves feeding higher levels of a more concentrated milk replacer for the first six weeks, followed by a gradual weaning period.

"We recommend six litres/day of milk replacer, made up with 150g of milk powder per litre of water. More typically, calves are fed four litres/day at a rate of 125g/litre and, particularly in cold weather, that can be close to starvation and I have seen calves on farm that have literally starved to death," says Mr Twigge. "We're saying feed between 800 and 900g of powder per day – not the usual rate of 600g."

Provimi's Norman Downey agrees. The company has been an advocate of feeding

higher rates of milk replacer until weaning for the past eight years, as part of its heifer rearing programme. And it's milk replacer – Elevator – is designed to unlock early growth potential in dairy heifers and enhance lifetime performance. It contains 17% oil and 26% protein.

"Calves should be fed milk replacer balanced with the correct source of energy and protein with the optimum amino-acid profile, to improve 'lean' daily live weight gain, for the first six weeks of life," says Mr Downey.

"Our milk replacer combines 26% protein with essential amino acids and 17% fat content – the ideal level to maximise lean gain and minimise fat deposition. We recommend a protein level of at least 22%."

Cold weather

He too says that many producers are not aware that calves need more milk replacer in cold weather: "Particularly those that are less than three weeks old – they have very little in reserve to generate body heat and, as a rule of thumb, once temperatures fall below 10°C, every 5°C drop in temperature requires an additional 100g of milk powder per day to maintain weight gain."

"Much of the problem is down to the system that producers use. Some don't alter feeding rates as temperatures fall as they're simply not aware of the impact on calves."

John Twigge says that producers are sometimes fearful of feeding more milk or 'richer' milk because they think the calves will develop scours. "But if the calf is fed skimmed milk-based replacer, it forms a clot in the calf's abomasum and breaks down slowly. Products without skimmed milk don't do that and feeding more could increase the risk of digestive upset."

"Our Lifestart milk replacer includes skimmed milk powder and comprises 18% oil and 23% protein. Typically, growth rates exceed 750g/day and there is no effect on dry feed intakes."

"The cost of additional milk replacer is

recovered in better performance. Volac's Jessica Cooke also stresses that calves should be fed to maximise early growth.

"The amount of milk replacer powder, fed each day is key to growth. For example, increasing the amount of solids from 500g per day, that's four litres per day at a rate of 125g/litres, to 900g per day, or seven litres at 125g/litre, will increase growth, as long as the protein content is not limiting," she says.

Good quality

"When it comes to feeding milk replacer, it's also about quality – not just quantity.

"It is essential to use a milk replacer, with a high protein content, low fat content and low mineral content," adds Dr Cooke.

For producers who are looking to maximise early pre-weaning growth, Dr Cooke recommends Heiferlac.

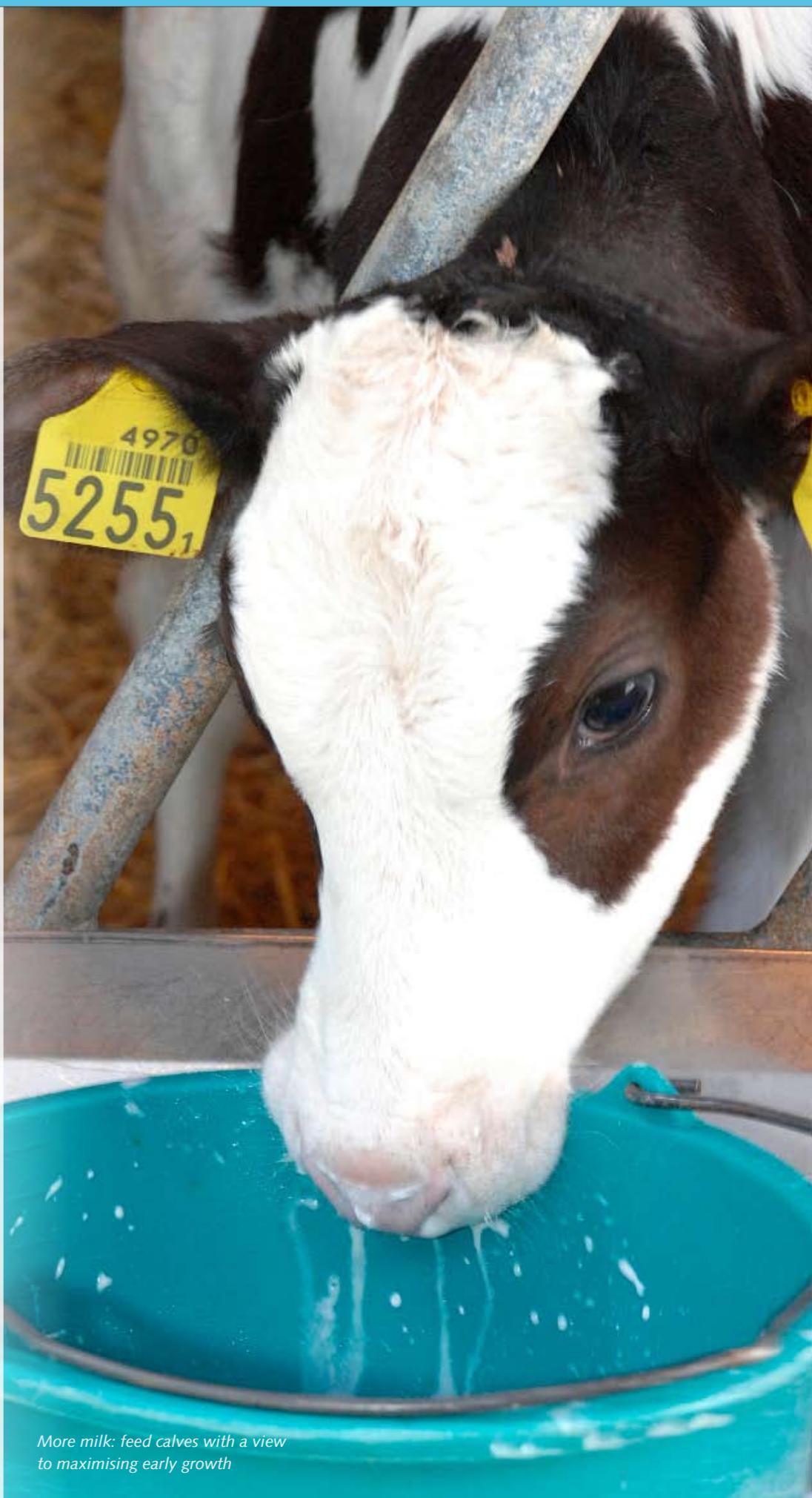
"It contains 16% fat and 26% protein. It's slightly lower in fat to prevent fat deposition and contains more protein to fuel lean growth."

But what about concerns that feeding more milk would depress concentrate intake and rumen development. "We found that more milk actually increases the calf's appetite for concentrate," says John Twigge.

"Calves fed on the programme grow better, exhibit optimal rumen development, have reduced incidence of scours and have better mammary development. In trials, calves fed on the metabolic programming approach were served younger and entered the herd sooner," he says.

On average they produced 8% more milk in the first two lactations and there was a 47% reduction in the culling rate in the first two lactations. The financial benefit adds up to an extra profit of £148 per cow per year.

"So it's well worth the additional milk replacer cost and minimal effort required to slightly change your pre-weaning calf feeding system."



More milk: feed calves with a view to maximising early growth