

## How do you make a smooth transition from monogastric to ruminant?

Technology may have helped to ease the labour burden of calf rearing

for some producers, but are they getting the basics right? We spoke

to two nutritional experts from Northern Ireland to find out.

Computerised machines and specialist calf rearers have both eased the heavy labour burden of calf rearing on some units, but the importance of a clear understanding of the fundamentals of calf nutrition and management can never be underestimated. Everyone pays lip service to the importance of feeding colostrum to newborn calves. Colostrum is rich in antibodies, in the form of immunoglobulins, and these are essential for passive immunity.

"This is important as the calf is born into an environment high in pathogen activity. But colostrum also contains around three times the energy of mature milk. This is highly important to maintain body temperature and body glucose supply. A calf needs between six and eight litres of colostrum in its first 24 hours of life," says Thompsons Technical Specialist James Black.

health, particularly with replacement heifers. It seems practical to utilise waste milk – both antibiotic and mastitis milk – to feed calves. But this increases the risk of disease spread for Johne's disease, Salmonella Dublin and Mycoplasma bovis (BVD). Some recent thinking also suggests that feeding waste milk can also 'imprint' replacement heifers with mastitis susceptibility and antibiotic resistance," adds Mr Kelly.

### Milk options

Identifying the milk replacer type – skim or whey based – should be an informed decision for every herd. Understanding how each works should form the basis of this decision. To grasp this concept an understanding of milk replacer make-up is beneficial, particularly as milk industry products form the basis of most milk replacers.



Stephen Kelly of Nutreco underlines the need for remembering the fundamentals of calf rearing

within the calf is hugely important and is highly dependent on raw material selection and inclusion," he adds.

### CMR guidelines

All manufacturers issue guideline feed rates for their products, but calf breed, housing and environmental conditions need to be considered.

"If we look at a typical feed rate of 125g per litre of milk, this is fine for a thermo

neutral environment. However in cold conditions this could be increased to 150g per litre to compensate for increased energy requirements," says Mr Kelly.

be offered from the age of two weeks when the rumen is beginning to become functional. "If long fibre is not available, rumen acidosis and bloating can occur. The intake of straw should, however, be limited as supplying too much may be at the expense of concentrates and, therefore, the growth of the calf."

"Straw should be provided daily in a separate source from bedding material, to ensure adequate intakes of clean straw are possible," adds James Black.

"Hay is not as readily accepted by calves as straw because it absorbs the odours of the calf house more quickly, and may be rejected."

### Final transition

To achieve the final piece of the transition of our calf from monogastric to ruminant the calf starter feed influence is critical. Mr Kelly urges producers to ensure that the following aspects of rumen development take place.

"The presence of rumen flora is essential for the fermentation of feedstuffs and the synthesis of volatile fatty acids and microbial protein. These are the main energy and protein sources for ruminants. The absorption of the end products of

dependent on enzymatic digestion processes and more on bacterial fermentation.

The development of the rumen is primarily controlled by chemical means and not physical. "The difference between coarse feed and pellets for rumen development is not as important as the quality of the raw materials

that are in the feed," says Mr Black. Irrespective of the chosen system on any unit, he urges all producers to ensure adequate intakes of calf starter concentrates are being achieved as soon as possible to fast track rumen development.

Allison Matthews

## A seamless switch is the key to successful calf rearing

# Back to basics

"Colostrum should be bottle fed or delivered directly to calf's stomach to ensure consumption by the calf."

"The quality of this colostrum is also paramount and, if possible, should be assessed by visual and mechanical means," adds Nutreco's Stephen Kelly.

Whole Milk feeding (WM) versus Calf Milk Replacer (CMR) is a hot topic on many units at present with increased levels of waste milk available on farm.

"Producers must note that with increased milk yields, the mineral and vitamin content of whole milk is reduced. CMR is designed to address the calf's actual requirements," says Mr Kelly.

Perhaps the most important issue is herd

"Today, with the absence of subsidy and the rising cost of skim, it's a case of identifying a minimum level of skim to achieve optimum performance. Skim milks work by forming a clot in the abomasums. Forming a good clot means better milk digestion and a healthier calf. The quality of ingredients is critical to achieving this desired clot," says Mr Kelly.

"Whey based CMRs work slightly differently. No clot is formed and instead the key is abomasal emptying rates or rate of passage to the lower gut. This is largely dependent on whey protein type and quality, but also the mineral balance of the milk replacer. Osmotic function

neutral environment. However in cold conditions this could be increased to 150g per litre to compensate for increased energy requirements," says Mr Kelly.

Minimising growth checks in the early stages of a calf's life is crucial. A greater understanding of calf physiology can highlight the benefits of offering a roughage source and clean fresh water to calves.

"Fresh water is required from day four of a calf's life to ensure rumen stimulation and development. The absence of water delays dry feed intakes and our ultimate goal of achieving a healthy ruminant. Roughage is important and straw should

ruminal fermentation is through the papillae in the rumen.

"At birth, these papillae are small and non-functional. The primary stimulus for development of ruminal papillae are VFAs, which are produced by microbial digestion."

VFAs are produced as soon as bacteria fermentation starts in the rumen. This happens when the calf starts to consume a calf starter ration and water. As the fermentation rate increases this, in turn, stimulates further development of the rumen wall making the calf less

Colder conditions can increase calf feed requirements

