Advance update

update
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A sister company to Kite, Advance focuses on supplying specifically formulated competitive products, with proven research, to deliver greater performance and profitability.

WHAT IS OSMOLALITY AND WHAT'S IT GOT TO DO WITH CALF HEALTH?

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No that's not a typo; osmolality (not osmolarity) is the latest factor you need to consider when choosing a calf milk powder. But what is it?

Other than being a mouthful to pronounce, osmolality is the measure of sugars and minerals (solute such as milk powder) in a kg of solvent (such as water). Measured in osmoles per kg, osmolality is responsible for the strength of the pull of water and nutrients from one cell to another through osmotic pressure. This is important to know for calf health because when the osmolality or 'pull' is too strong in the gut, the result is a scouring calf, numerous electrolyte feeds and a load of hassle that we could do without.

Lactose is the primary culprit for causing high osmolality values, with most calf milk replacers having between 400 and 600 osmoles/kg. Compare this to whole milk at levels between 300 and 330 osmoles/kg and it's clear we need to rethink calf milk powder formulations. Research has shown that calf mortality is increased with high osmolality milk replacers and calves will be at greater risk from gastrointestinal diseases (such as abomasal bloat).

Traditionally, lactose and fat are used as the primary energy sources in calf milk powders but in a bid to avoid nutritional cases of scour, the lactose content should not exceed 45%. The preferred option altogether is to choose a powder using fat (oil) as the primary energy source over lactose because it has a much higher energy density.

Check the ingredients list for which oils are being used as the digestibility of fats in the young calf will vary. For example, long chain fatty acids such as vegetable oils need pancreatic lipase to break them down but this is not produced by the calf until two weeks of age. Coconut oil is another common fat source used, which is digested directly in the small intestine at a rate of 95%. However, the price of coconut oil varies greatly and as a result, some milk powders will vary the inclusion rate of this ingredient depending on the market at the time of manufacture.

There is a wide variety of calf milk replacers on the market and they're not all created equal; interrogate the label to investigate what you're feeding your calves. Milk powder labels can be harder to solve than a cryptic crossword so always ask your rep if you're unsure of anything. But regardless of what the label says, if you see signs of sedimentation, coating on buckets or feeding equipment, blocked pipes or dirty backsides – something is wrong!

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Early life nutrition will have a huge impact on how your calves perform as replacements when they eventually enter the milking herd. Choosing the right milk powder to ensure optimal feed rates are achieved is an important step in a successful rearing programme. If you get it right, you'll reap the rewards of maximising organ development in the first 50 days of life as well as triggering epigenetic effects. These epigenetic benefits will be passed down to the next generation too, leaving a lasting impact on the herd's genetic potential.

A new category of milk replacer has recently been launched; called energized calf milk, it is formulated to mimic whole milk as close as possible. With an oil content of 25% and a protein content of 22.5%, OptiStart 25 has an osmolality value of 350 osmoles/kg. The advanced formulation enables high intakes from an early age to be achieved without any scouring according to our case study farmers. Don't be put off by the higher oil than protein content either; contrary to historical belief, it's energy that is limiting in young calves and not protein.

Simply feeding more won't cut it if you're using a poorly formulated milk powder. The target is to achieve 1.5kg dry matter intake a day without exceeding a milk powder concentration of 15% (150 grams in 1 litre of water). Doubling birth weights and more has been achieved by 8 weeks on our case study farms since switching to OptiStart 25.

Unfortunately, not many milk powders state their osmolality value but it's critical to the success of your calf rearing; the future of your milking herd depends on the quality of your replacements.

CASE STUDIES

Kite Consultant David Levick has been trialling OptiStart 25 with a selection of clients with encouraging results:

Trevor Lloyd - Anglesey

Trevor says:

We started using **OptiStart 25** at the end of August last year and with around 50 calves on milk at any one time, have probably reared 120-130 calves on the product so far. The powder has enabled us to take the calves to a higher plane of nutrition earlier, and we are seeing slightly less scouring in the very young calves. As you can see from the results, we are getting an 18% uplift in weight gain by feeding the same amount of powder - calves are going to the calf rearer at 10-12 weeks with no check in growth rates and are sailing through.

Feed	Weight gain
Skim powder to 3 weeks then to whey-based product	Weight gain – 0.64kg/day
Changeover / interim to **OptiStart 25**	Weight gain – 0.72kg/day
All **OptiStart 25**	Weight gain – 0.76kg/day

Helen Stanier - York

Helen says:

We are a pedigree Jersey herd and started using **OptiStart 25** milk replacer in September and have fed around 95 calves on it so far. The calves have 3-4 days on colostrum and then take about two weeks to get to full intakes of milk replacer, which is six litres per day, split morning and night, made up at 150g/litre. I've definitely noticed they are eating more and generally thriving and our calf losses are running at about 2% vs the 5% we'd usually expect. We've had no growth checks, scours or pneumonia since using the product and our 8-week average weight gain is now x2.36 of birthweight. When my father comes to collect them at 10-12 weeks he claims there is a remarkable difference to previous groups.

OptiStart 25 Nutritional breakdown	
Protein	22.5%
Oil	25%
Vitamin A	20000iu/kg
Vitamin D	4000iu/kg
Vitamin E	200iu/kg*
Ash	7%

*Vitamin E is provided from natural sources that have a higher level of bioavailability and therefore a lower level is required compared to other milk powders on the market.

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