Options for male calf rearing in 2021

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Achieving profitable returns from bull calf rearing is at the forefront of most dairy farmers minds after the release of the new Red Tractor dairy scheme standard for autumn 2021.

The standard has been created to ensure all calves are reared with care and ultimately eliminating the euthanasia of calves by 2023.

For some farmers, the new standard mean there are greater numbers of calves on the farm and this can result in increased management challenges and also disease burdens which lead to higher input costs. We also need to ensure the heifer calves are not adversely affected by the increase in calves reared.

Bonanza Calf Nutrition advises identifying key rearing objectives as the start point. These should include:

- Use of transition milk to help develop a calf's immune and digestive systems
- Protection against disease
- Reducing stressors
- Evaluating how feeding between 600-700g of milk replacer a day can be more effective than feeding higher amounts

Mollie Phipps, of Bonanza Calf Nutrition, says first and foremost, there should be no skimping on bull calf nutrition – they will need 10% of their birth weight of good quality colostrum ideally within the first two hours of life.

Thereafter, consider the value of transition milk: this is produced by the cow from day 2 – 4 and its function is to transition the digestive system or gut – that is the abomasum and small and large intestine - from a set of inert organs into the main sites of digestion for the young calf.

Bonanza Calf Nutrition has developed Transformula, a transition milk replacer to allow farmers to feed more transition milk before moving to milk or milk replacer.

Housing is another important factor to consider to reduce disease spread and stress.

A common management practice on farms throughout the UK and New Zealand is to keep the bull calves and heifer replacements separate. There are two key reasons for this;

- To reduce bullying among the calves, in particular closer to weaning when the bull calves will be predominantly larger, allowing them to easily push out the smaller heifers and resulting in uneven growth rates
- To reduce stress and labour when the heifer replacements are moved into separate groups for their next stage in life

Separating calves with a solid barrier will reduce disease spread between the groups.

Calf scour, caused by enteric pathogens that spread between the calves either animal-to-animal or faecal-oral, is one of the main causes of mortality in the rearing shed.

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During a visit to New Zealand, the Bonanza Calf Nutrition team noted various feeding methods that could be implemented to reduce disease spread and improve calf wellbeing. These simple and effective feeding methods included:

- A designated calf feeder to ensure feeding consistency among the calves, and to identify feeding problems at an early stage
- Limited access to the pens by the use of U-gates to ensure the wheels of a trailed feeder are not contaminating each pen. Although the use of a trailed feeder is not a common practice in the UK, a lot can be learnt from this practice
- Consider reducing the number of times a pen is entered each day, for example; feeding in troughs that are either easily accessible from the outside or are outside the pens. If needed use foot dips outside each shed or sick bay
- To reduce stress and bullying, group calves according to size and drinking speed

The housing environment is also a crucial consideration - identify the key factors that can improve the calf's environment such as ventilation, drainage and bedding.

Ventilation is an essential factor in a calf shed as it reduces the transmission of airborne pathogens from calf to calf.

Ms Phipps advises providing calves with a dry, comfortable environment with a nesting score of 3.

"They should be nestled deeply in the bedding and their legs not visible when they are laying down," she says.

"Calves that are comfortable in their environment are able to utilise the nutrients in their diet instead of using energy to keep warm."

Why feeding between 600-700g per day of milk replacer is advantageous for rumen development

Many farmers are taking advice on feeding higher amounts of milk replacer however, as intake increases above more than 800g/day the cumulative intake of starter feed is reduced and this delays rumen and gastrointestinal development.

When this happens, weaned calves lose condition as they cannot digest concentrates effectively, (see table 1) and are more prone to pneumonia and coccidiosis.

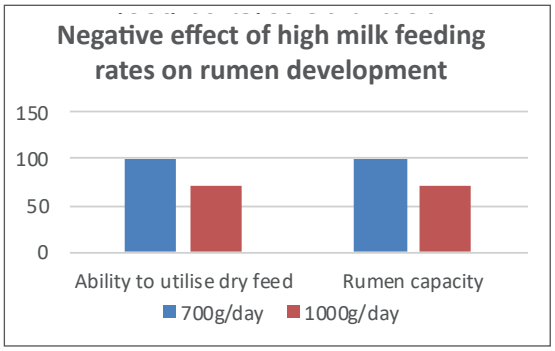

Table 1.

Lower quantities of a good quality skim-based replacer can be fed compared to a whey-based replacer due to the calf's nutrient absorption through the skim curd.

Feeding 600g of a good skim-based replacer calves will achieve comparable calf performance to feeding 700-800g or more of a standard milk replacer.

Shine Once a Day is a low heat skim-based milk replacer which forms a firm curd in the calf's stomach and is slowly digested throughout the day, this compares to whey protein which leaves the stomach with in 1 hour

Feeding Once-a-day to calves for at least 4 weeks before weaning will:

- Save about 1 hour /calf reared
- Increase feed intake before and after weaning
- Reduce weaning age by 5-7 days
- Reduce level of stress and disease in calves

See tables 2 and 3. For beef calves, 90%+ of their growth comes from their rumen, so it is vital for good growth after weaning that rumen and gastrointestinal development is maximised.

Table 2. Rumen development in calves fed Once-a-day (OAD) and Twice-a-day (TAD). INRA 2013

	OAD	TAD	SIG	Increase
Papillae Density	84.8	64.7	0.006	30%
Papillae Absorption Area	98.1	62.4	0.002	57%

Lightweight	OAD	TAD
Start	57kg	57kg
3 weeks	66kg	63kg
6 weeks	85kg	82kg
12 weeks	132kg	124kg

Table 3. Harper Adams trial on beef calves 2012

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There can be mixed messages on how much milk a calf should receive.

Some advice suggests as much as possible but Figure 1 shows that the suckler cow only increases her yield gradually, allowing the calf's digestive system to develop.

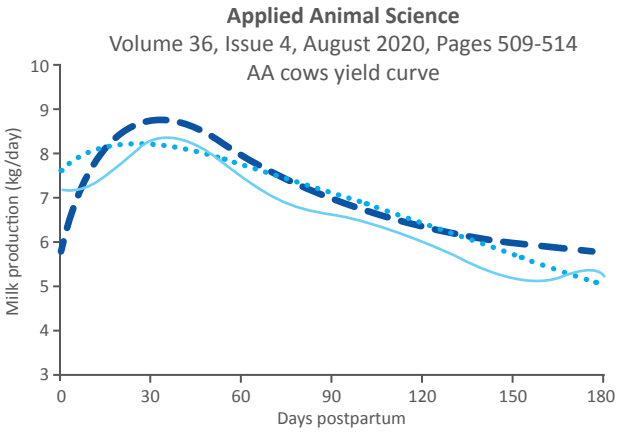


Figure 1.

The gut microflora is also critical in the development of the calf's immune system and overfeeding at this stage will undermine this process.

For this reason, veal calves are not offered the same amount of milk as some two week old rearing calves until they are eight weeks old otherwise the health and the efficiency of how the milk is digested would be impaired, says Emily Jones, of Bonanza Calf Nutrition.

"The cow's milk yield actually peaks at the same time as we would expect to start preparing calves for weaning," she says.

"We can do this because concentrate feed allows calves to consume enough nutrients to support their continued development from eight weeks of age, providing they have consumed enough dry feed during the milk feeding period."

Cumulative intake over the rearing period is now seen as key to preventing health and performance issues after weaning, not daily intake prior to weaning.

The more milk that is fed, the longer the milk feeding period should be (Figure 2).

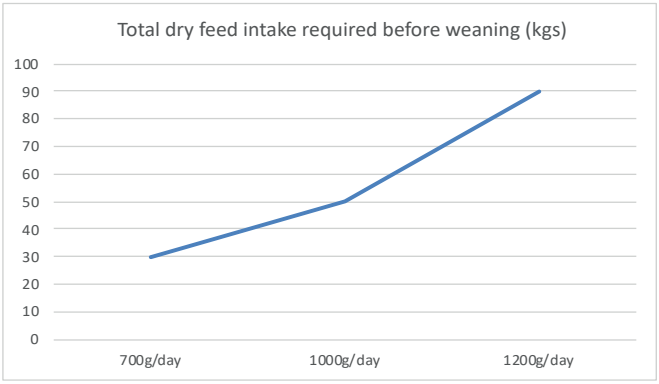
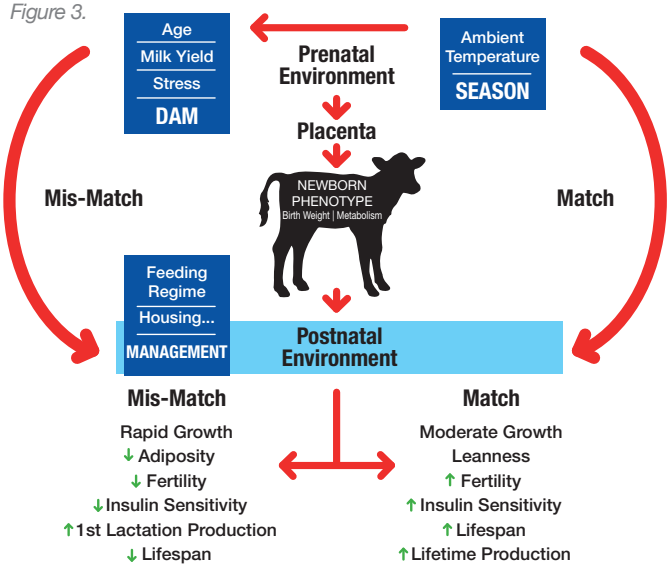


Figure 2.

More concerning for farmers trying to force calf growth with milk alone is the conclusion from the Faculty of Veterinary Medicine, Ghent University, this states that trying to accelerate growth could have a negative effect on long term health, fertility and longevity for the calf in adulthood (Figure 3).

Figure 3.

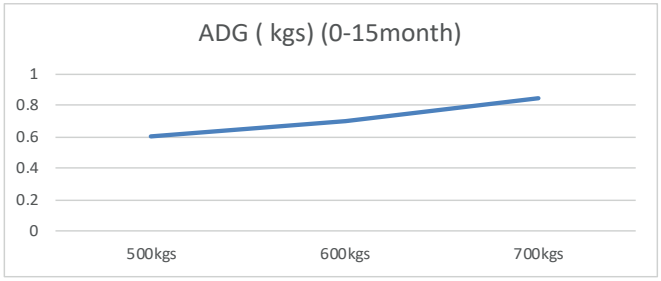


It is often quoted that the more calves grow, the better they will be as cows but it is birthweight, colostrum and transition milk intake and dry feed consumption at weaning that are the key drivers in individual calf performance, says Ms Jones.

"For groups of calves, it is their health, housing and management that is critical. We often find that as farmers push for extra growth, performance and health actually declines," she says.

How much growth do heifers need to achieve bulling weight in 15 months (see Figure 4)

Figure 4.



These weight gains are achievable and are about attention to detail at each stage, says Ms Jones.

"It is not about trying to force feed animals at any stage as we believe this is not effective so it is about quality over quantity. The secret is to keep calves, weanlings and maiden heifers happy and the rest will come.

"Our advice is to use a good quality skim-based milk replacer after your own transition milk, or Transformula, and encourage calves to consume dry feed whilst making sure clean water is always available.

"Our milk replacer formulas are used to rear hundreds of thousands of calves every year and the formulations don't change from year to year so a calf from a five year old cow is getting the same product as its mother and her grandmother did."

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