



ENERGISE CALF GROWTH BY FEEDING THE RIGHT TYPES OF FAT

Despite a fixation on protein levels in milk replacers, calves also need the right energy for maintenance and growth especially in cold weather.

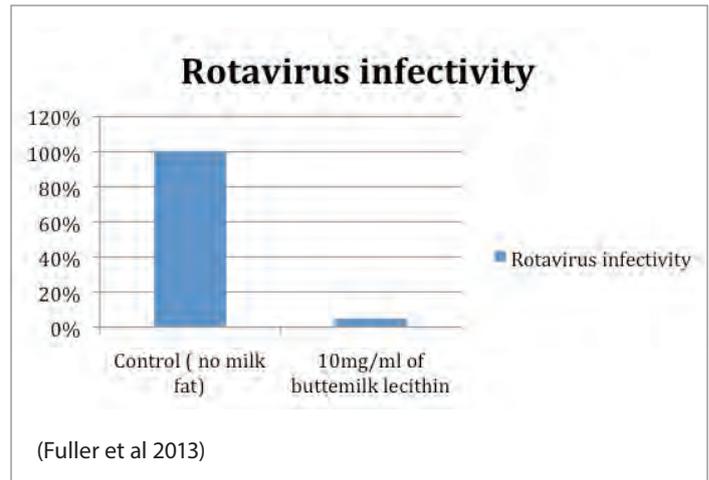
Milk replacer-fed calves are reared on plant fats instead of butterfat so it is important that the fats used are easily digested and don't discourage dry feed intake.

There has been much discussion on high protein levels, despite researchers in Europe failing to replicate the original American work with these diets. This discrepancy may be explained by the fact that the US products incorporated milk protein ingredients used only in sport and the body-building sector.

Even if these ingredients were available for use in calf milk, the milk replacer would cost over 40p/litre to feed. Using even a small amount of plant protein lowers this cost but substantially lowers the performance of these products (see table 1).

It has also been claimed that high protein milk replacer increases animal immune response but a

Figure 1: Effect of buttermilk fat on Rotavirus



number of trials in the US found that calves on high protein diets were more prone to scour; there were also higher mortality levels when exposed to disease.

So it is a paradoxical situation when it comes to high protein; we have neither the tools nor the economics to do it properly.

The alternative is to use good quality milk ingredients that provide protein, lactose and butter lecithin to increase growth rates and encourage dry feed intakes.

Table 1: Effect of plant protein on calf growth

Milk replacer	20% Protein (100% milk protein) 20% fat (A)	26% protein (100% milk protein) 17% fat (B)	26% protein (70% milk protein) 17% fat (C)
ADG kg/day	0.555	0.64	0.49
Hip width increase cm	2.8	3.6	3.0
Milk replacer intake kg/day	0.454	0.681	0.681
Abnormal fecal score days	4	10.8	11.1

Hill et al 2007 (treatment A was not a side by side treatment to B&C but is a valid comparison)

Once 18% fat is exceeded at high feeding levels, dry feed consumption is delayed. This extends the milk feeding period and delays rumen development. This is especially true when using only one or two sources of plant fats.



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The correct fat can also have significant health benefits. According to Tom Warren of Bonanza Calf Nutrition, they use buttermilk containing the outer skin of the milk fat globule throughout the SHINE range. This skin is removed in the churning process and is included at twice the level found in cow's milk. The skin or lecithin helps with the digestion of fat and has been shown to inhibit Rotavirus activity. (See figure 1)

When designing a fat blend, the Omega 6 to 3 levels are important to consider. Normal calf milk has a ratio of 100:1. The SHINE blend is 2.8:1. This latter formula has been shown to possibly help calves with pneumonia by reducing rectal temperatures and inflammation. (See figure 2)

Good instant properties are also important as over-mixing of semi-instant products breaks down the fat emulsification, leading to poorer digestion and greasy feeding utensils.

By feeding 600g of a high milk protein, highly digestible multi fat blend, calves will perform at an early age and weaning can be carried out earlier, allowing more time for calf management.

Feeding this type of diet in one milk feed while calves have adlib access to dry feed and water offers even more time for this vital task. It's also more sustainable because it requires less energy and water. In recent French trials, once-a-day milk feeding with Shine Once-a-day increased rumen development by 58% (see table 2). It is essential to ensure calf milk is a skim-based calf milk if feeding milk once a day.

For more information on feeding calves **freephone Bonanza Calf Nutrition on 0808 1781017**. You can also contact **Stuart Fry on 07917 210 737** or **Joe Murphy on 07500 944 581** or **Katie Hall on 07900 730275**



Figure 2: Effect of fat blend on reaction to *Pasteurella* vaccination

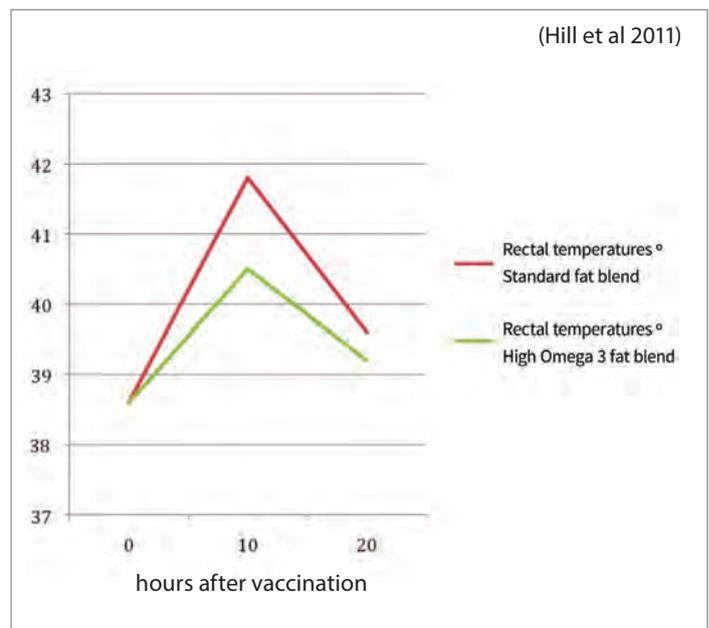


Table 2: Effect on milk feeding frequency on rumen development

Rumen papillae	OAD milk +adlib dry feed	TAD milk+ adlib dry feed
Density of papillae(n/cm ³)	84.8	64.7
Absorbing surface (cm ³ /mm ²)	98.1	62.4

(INRA 2013)



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