

It's not a 20/20 World Anymore!

Introducing...

***Professional
Calf RanchTM
Milk Replacer
Formula
Recommendations***

Optimum Calf Development Milk Replacer

Scientifically Shown To:

- ◆ Dynamically Increase Average Daily Gain & Improve Feed Efficiency
- ◆ Promote Early Weaning - Successful At 28 - 35 Days
- ◆ Reduce Health Problems & Costs
- ◆ Shorten Duration To Estrus & Conception
- ◆ Provide Greater Energy For Tissue Growth & Immune Reserve
- ◆ Allow Higher Feeding Rates To Newborn Calves

Designed and Developed for:

- ◆ Low Cost of Gain
- ◆ Excellent Calf Performance
- ◆ Simple and Easy Use
- ◆ Professional Calf Growers



"Solutions Through Science"

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Get The Facts

Quantity, Quality & Technology

Surprisingly, 8 oz. of typical milk replacer dry powder per feeding barely provides calves (100 lb body weight) with enough energy to meet their maintenance requirements. Calves fed below maintenance requirements experience greater morbidity, higher mortality and thymus gland atrophy versus calves fed adequate amounts of nutrients. Immune system response is impaired as one would expect, since the thymus gland is an important immune system component.

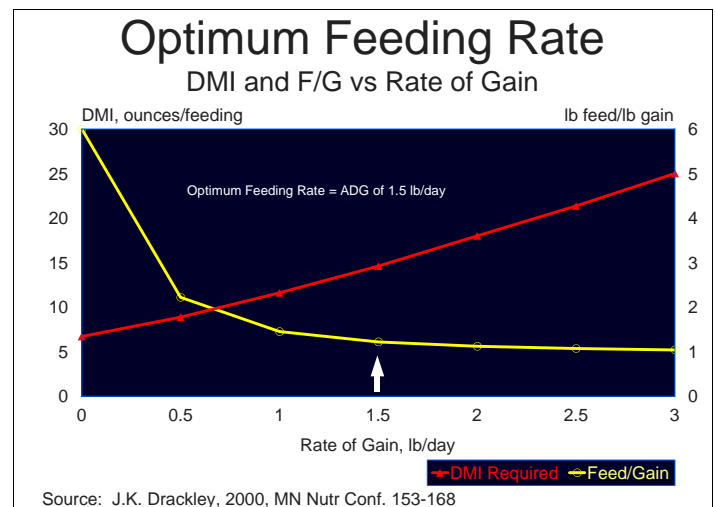
First Few Weeks Most Critical

Nature intended calves to consume more than 8 oz of dry matter, provided that the composition is balanced and easily digestible. Research has shown that baby Holstein calves allowed to nurse their dams will nurse 6-10 times daily and consume 2-3 lb dry milk solids per day while gaining 2.1 – 3 lb per day (Hafez and Lineweaver, 1968). Newborn calves should receive 2 - 4 quarts of high quality colostrum within 30 min of birth and 4 - 6 quarts within the first 24 hours. Colostrum contains about twice as much solids as milk or milk replacer, meaning that a calf which consumes 4 quarts of colostrum consumes the equivalent of 34 oz of dry matter during the first day of life!

ingredient technology, and improved nutrient balance and digestibility. Feeding 8 oz per feeding is barely sufficient to maintain the calf. Higher nutrient levels are needed for improving the performance and immune system development of calves which represent the future of the dairy operation.

New Ideas - Better Performance

The recent research conducted at Cornell University, the University of Illinois, and others have reexamined nutrient requirements of young calves with the goal of improving health and performance. This research clearly shows that the amount of milk replacer fed to the calf determines the potential growth rate, and determines the nutrients required by the calf to sustain growth and performance.

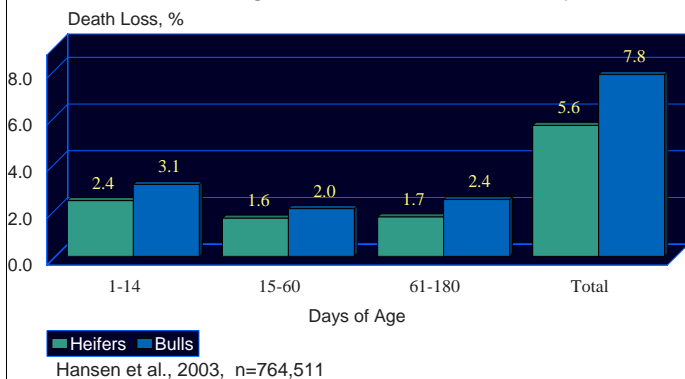


Goals of Milk Replacer Program

The graph above shows that as we feed more milk replacer to a calf, the calf grows faster and the calf also grows more efficiently up to a rate of gain of about 1 lb per day. Beyond this rate of gain, the calf grows faster, but without much improvement in feed efficiency. In other words, the calf grows faster, but not much "better". Our goal in feeding calves must be to promote health, efficient gain, and economical performance. Calves have a much greater protein requirement to grow muscle, bone, and other tissues when fed higher amounts of milk replacer. Professional Calf Ranch™ Milk Replacer is designed to maintain efficient gain to calves under conditions which are often adverse. Therefore, we have designed Professional Calf Ranch™ Milk Replacer to be fed at the rate of 14 ounces of milk replacer powder in 2 quarts of solution per feeding and assuming calves will be fed twice per day. This level of intake should sustain a growth rate of 1.5 lb per day, encourage dry starter feed intake, and provide economical and healthful growth. To meet this level of performance, milk replacer needs to contain 24-26% crude protein and 16% fat. The blend of tallow, lard, and coconut oil provide balanced fatty acids and improved digestibility.

Death Loss of Calves

Percentage of Calves that Died by Period



The graph, above, shows that the first few weeks are critical for calves. Approximately 40% of the death loss of calves occurs during the first two weeks! Proper care and nutrition during this critical period is key to lowering death loss and improving profitability.

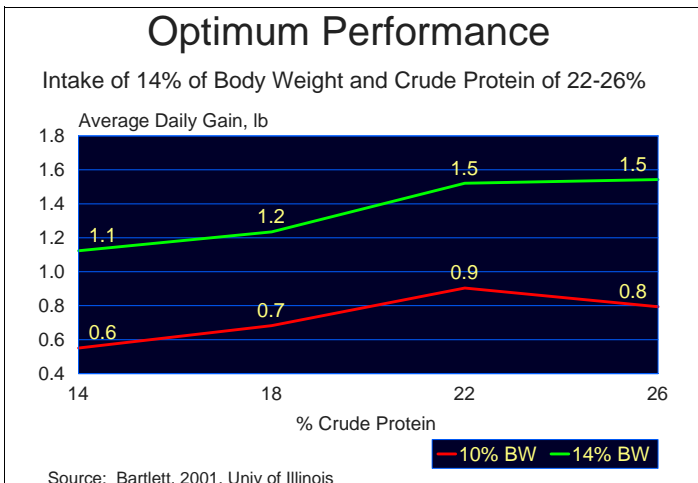
What's Wrong with Feeding 8 oz Twice per Day?

Feeding only 8 oz of milk replacer powder in 2 quarts of solution became common practice when crudely formulated Milk Replacers were introduced, in the 1940's, with the objective of getting calves on Calf Starter as economically as possible and little was understood about long term consequences of inadequate early feeding. The practice and philosophy of feeding only 8 oz became so widely accepted that it was not questioned until well into the 1990's, despite advances in milk replacer formulation,

Research has shown higher starter intake, less scours, and improved body composition with a medium level of fat (16%) compared to higher or lower fat levels. With this optimum level of fat, combined with the accelerated feeding schedule, calves receive slightly more fat per day than feeding a 20/20 milk replacer at 8 oz per feeding, but with much better performance.

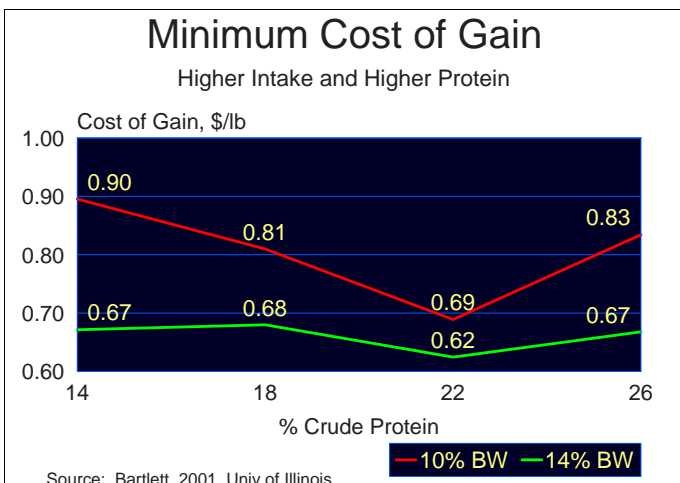
Optimum Performance

Professional Calf Ranch™ Milk Replacer is designed to meet a specific 1.5 lb ADG target. Optimum growth rate and a minimum cost per pound of gain result in the most economical growth. The table below shows that calf performance depends on the level of intake and the milk replacer composition. Professional Calf Ranch™ Milk Replacer has been designed for feeding to calves with a target average daily gain of 1.5 lb. To achieve this level of performance with the lowest total cost of gain, Professional Calf Ranch™ Milk Replacer has been formulated with 24% crude protein and 16% fat using SQM trace minerals and optimum vitamin and mineral fortification from Nouriche's Dyna-Mix™ premix.



Minimum Cost of Gain

Cost of gain is lowest when calves grow efficiently. Calves receiving only enough milk replacer to meet maintenance requirements have higher cost of gain, are not thrifty, and have higher medication costs. Professional Calf Ranch™ Milk Replacer results in thrifty, healthy calves with moderate growth rates and a low cost of gain.



Professional Calf Ranch™ Milk Replacer has a complete nutrient balance of vitamins, minerals, organic trace minerals, and metabolites to maximize efficient nutrient utilization and support accelerated growth. Professional Calf Ranch™ Milk Replacer incorporates Nouriche Nutrition's Dyna-Mix™ premix that contains all of the vitamins and minerals needed by the calf in an economical and convenient package. This nutritional approach enables calves to start at higher feeding rates (14% of calf body weight in reconstituted milk replacer solution per day).

For the Calf Grower...

- ◆ BETTER NUTRITION
- ◆ EASIER TO USE
- ◆ BETTER EXPECTED RESULTS
- ◆ BETTER VALUE

Compared to traditional or accelerated programs

Professional Calf Ranch Milk Replacer

1. Mix 14 ounces of powder into 2 quarts of water
2. Feed 2 quarts per head twice per day through day 28
3. Provide high-quality textured starter feed beginning on day 3
4. Feed 2 quarts per head once per day from day 29 through day 35
5. Wean calves on day 35 provided that they are healthy and: a) at least 21 days old; b) daily intake of textured starter feed is at least 1% of calf's initial body weight; c) cumulative intake of textured starter feed is at least 9% of calf's initial body weight; and d) calf has gained 12% of initial body weight (Greenwood et al., 1997).



Literature Cited

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- Drackley, James K. 2000. Calf nutrition related to heifer growth and longevity. Minn Nutr. Conf. 153-168
- Greenwood, R.H., J.L. Morrill, and E.C. Titgemeyer. 1997. Using dry feed intake as a percentage of initial body weight as a weaning criterion. J. Dairy Sci. 80:2542-2546
- Hafez, S.E., and J.A. Lineweaver. 1968. Suckling behaviour in natural and artificially fed neonate calves. Z. Tierphysiol. 25:187-198
- Hansen, M., P. Madsen, J. Jensen, J. Pedersen, and L.G. Christensen. 2003. Genetic parameters of postnatal mortality in Danish Holstein calves. J Dairy Sci 86:1807-1817

Not just FASTER gain, but BETTER gain!

Research has shown increased daily gains and improved body composition with accelerated milk replacer feeding compared to traditional milk replacer programs. Results have been outstanding and show great improvements in both the rate and efficiency of gain. As a result, calves can be weaned early, continue to grow efficiently, and enter the milking string earlier than with traditional milk replacer programs.

<u>Greater Protein Deposition from Better Calf Nutrition</u>	Crude Protein, g/day	Crude Fat, g/day	Digestible Energy, Kcal/day
Professional Calf Ranch™ Milk Replacer – 14 ounces/feeding twice per day	190	127	3412
20/20 MR – 8 ounces/feeding	91	91	2007
THE PROFESSIONAL CALF RANCH™ MR ADVANTAGE!	+ 109%	+ 39%	+ 70%

The table above shows the increased protein, fat, and energy provided to a calf fed 14 oz twice per day of Professional Calf Ranch™ Milk Replacer compared to a 20/20 milk replacer fed at 8 oz per feeding twice per day. Calves have greater daily gains and more protein deposition when fed Professional Calf Ranch™ Milk Replacer.

Below is an example of milk replacer tag for Professional Calf Ranch™ Milk Replacer including mixing and feeding directions. Different milk replacer manufacturers have different types of systems to dry or crystalize fat that determines the proper mixing temperature. Please discuss with your manufacturer the proper mixing temperature for their milk replacers. Milk replacer manufacturers should formulate milk replacer using whey, whey protein concentrate, skim milk powder (5%), blended fat (40%T, 40%L, 20%C), and Dyna-Mix™ premix (2%) with a maximum of 8% ash. Contact Dr. Drew Vermeire, Nouriche Nutrition Ltd., for more information at 636.625.1884.

PROFESSIONAL CALF RANCH™ MILK REPLACER

Calf Milk Replacer for Herd Replacement Calves.

GUARANTEED ANALYSIS

Crude Protein, min.....	24.00 %
Crude Fat, min.....	16.00 %
Crude Fiber, max.....	0.15 %
Calcium, min.....	0.60 %
Calcium, max.....	1.10 %
Phosphorus, min.....	0.60 %
Copper, min.....	5 ppm
Iron, min.....	20 ppm
Manganese, min.....	20 ppm
Selenium, min.....	0.3 ppm
Zinc, min.....	20 ppm
Vitamin A, min.....	50,000 IU/lb
Vitamin C, min.....	100 mg/lb
Vitamin D ₃ , min.....	8,000 IU/lb
Vitamin E, min.....	125 IU/lb

INGREDIENTS

Dried Whey, Dried Whey Protein Concentrate, Animal Fat, Coconut Oil, Dried Whey Product, Dried Skimmed Milk, Dried Milk Protein, Lecithin, Calcium Carbonate, Dicalcium Phosphate, L-lysine, Sodium Silico Aluminate, DL-methionine, Vitamin A Acetate, D-activated Animal Sterol (source of vitamin D₃), Vitamin E Supplement, Vitamin B₁₂ Supplement, Thiamine Hydrochloride, Ascorbic Acid, Biotin, Riboflavin, D-calcium Pantothenate, Niacin Supplement, Choline Chloride, Menadione Sodium Bisulfite Complex, Folic Acid, Pyridoxine Hydrochloride, Calcium Iodate, Magnesium Sulfate, Zinc Polysaccharide Complex, Manganese Polysaccharide Complex, Copper Polysaccharide Complex, Iron Polysaccharide Complex, Sodium Selenite, Artificial Flavors.

IMPORTANT: Follow feeding directions on back of tag.

FEED COMPANY NAME

Address

City, State zip code

Phone number

NET WEIGHT 50 lbs. (22.68 kg)

Mixing and Feeding Directions: Feed four quarts of colostrum per day for the first three days, divided into two equal feedings. Ensure at least one colostrum feeding within two hours after birth.

Mix 14 ounces of Professional Calf Ranch™ Milk Replacer per 2 quarts of warm (110-115°F) water. For larger quantities, mix 8.75 lbs. of Professional Calf Ranch™ Milk Replacer per 5 gallons of warm (110-115°F) water. Feed at a temperature of approximately 105°F.

Feed each calf twice per day using 14 oz. of Professional Calf Ranch™ Milk Replacer in two quarts of solution per feeding. Research has shown calves gain more weight when fed 14 oz. milk replacer per feeding versus 8 oz. per feeding, due to increased dry matter intake. For best performance, start feeding Textured Starter Feed at day 3-4 and continue feeding free choice until week 4-6.

For best results with shipped calves, feed 2 quarts of Professional Calf Ranch™ Milk Replacer twice daily beginning on the day of arrival and continue until weaning. Provide 1 - 2 gallons of Nouriche Nutrition's *Travel-Lyte*® electrolyte between feedings for the first 3 - 5 days. For calves born weighing 50-80 lbs, feed twice daily on a step-up program starting with 1 1/2 quarts per feeding. Increase to 1 3/4 quarts per feeding after 2 days and increase again to 2 quarts per feeding after another 2 days. Continue feeding 2 quarts per feeding until weaning.

Calves can be successfully weaned from milk replacer at between 4-6 weeks of age. As a guideline, calves should be: 1) at least 21 days old; 2) daily intake of textured starter feed is at least 1% of calf's initial body weight; 3) cumulative intake of textured starter feed is at least 9% of calf's initial body weight; and 4) calf has gained 12% of initial body weight. Weaning can be "abrupt" or by feeding milk replacer only in the morning for 1 week prior to weaning. Provide clean, fresh water at all times.

In freezing temperatures, add a mid-day feeding of Professional Calf Ranch™ Milk Replacer. Feed 1 - 2 quarts per head at mid-day in addition to the morning and evening feedings to compensate for increased energy demands of cold stress.