

NRV Calf Care Plan

We take care of calves, naturally!



THE CALF LEAVES MATERNITY PEN AND COMES TO THE CALF BARN

1. Ensure that the calf has gotten high quality colostrum, greater than 22 Brix
2. How big is the Calf?
 - Small framed calves under 80lbs should wear a calf blanket if the average temperature in the barn is less than 68°F for the first 4 weeks of life
 - Calves Larger than 80lbs should wear a calf blanket for the first 2-4 weeks if the average temperature in the barn is less than 32°F
3. Check to insure that the navel was dipped and is clean
4. Put calf in calf stall
 - Stall has been cleaned and disinfected from the last calf
 - Stall is filled with dry, clean straw, about 6 inches so calf can nest
 - White water bucket filled up to the top with clean, fresh water
 - Small handful of grain in the grain bucket



WHY?

68°F is the bottom barrier of the thermoneutral zone for new born calves, for every degree below 68°F a new born calf requires about 21 more calories per day just to maintain body temperature. Additionally, smaller calves (Jerseys,

continued

twins) use more energy to maintain body temperature. This is because smaller bodies have a harder time holding in heat, were as larger bodies are able to hold in more heat. With the calves wearing blankets, they do not have to expend as much energy to maintain temperature, and will be able to maintain a higher growth rate. Once the calves are about 4 weeks old the thermoneutral zone moves down to closer to 50°F and often the calf will be eating enough starter that the rumen will be functioning at some level to provide extra heat and energy.

Furthermore, calves that experience cold stress in the first month of life are much more likely to have a suppressed immune system. This is why people have such a problem raising smaller, calves like Jerseys. It is very easy for a small calf to become chilled, and once the immune system is suppressed you will be fighting an uphill battle for that calf to survive. The key to raising smaller calves is keeping them warm and providing them with enough protein and energy. Providing the quality colostrum is essential to the calf's immune system, and if the colostrum is not given in those first 24 hours of the life it is very likely the calf will not survive to weaning.

Dipping the navel is a small task that can make a huge difference. The navel is a direct line to the calf's blood stream, and an infection there can be detrimental to the calf. It is suggested that navels be checked until the calf is 3-4 days old, and to re-dip navels if any sign of infection is suspected. This is especially important in the summer with flies, as they will quickly find an infected navel and then you will have maggots and an infected navel.



Making sure the calf's stall has been cleaned and disinfected will greatly reduce the chances of cross contamination from the last calf. The bacteria and viruses that cause scours are often found in the manure of the older calves, even if they did not scour; so all stalls should be cleaned and disinfected even if the calf taken out was healthy for the entire time it lived in the stall. The stalls should be bedded with lots of straw, especially when the weather is not warm and sunny. There should be enough dry, clean straw for the calf to bed down, without the cold ground pulling heat from the calf.

It takes about 21 days for a rumen to develop in a calf, and that process begins as soon as there is feed and water in the rumen. Making sure that the calf has every opportunity to consume

starter is key to early weaning.

Providing water in a white bucket, filled to the top, the calf is more likely to drink from it because the calf will not have to put its head into a dark area and will be able to see around it while drinking. Additionally, offering a small amount of starter to the calf reduces the amount wasted, while still giving the calf the opportunity to eat it.



FEEDING

1. Feeding

Quickly walk calves, to check for any calves that will need electrolytes. If a calf is scouring:

- Identify the level of dehydration, mild, moderate or severe. (see *Scours Tab*)
- For **MILD**, mark the pen, feed milk with the other calves and feed or tube emergency electrolyte 2 hours or less after feeding milk.
- For **MODERATE**, offer 2 quarts of an emergency electrolyte, like **Gen-III Lyte™**, if they will not drink it from a bottle/bucket, use an esophageal feeder immediately. Mark the pen. These calves should also receive another bottle of electrolytes about 2 hours after the first dose.
- For **SEVERE**, offer 2 quarts of an emergency electrolyte, only **Gen-III Lyte™** can be used in a calf this dehydrated, if they will not drink it from a bottle/bucket, use an esophageal feeder immediately or IV Ringers Solution. Mark the pen. These calves should receive electrolyte or ringers every 2 hours until they are out of the severe category.

WHY?

A scouring calf is an emergency situation!

Every minute that the calf has to wait for electrolytes puts that calf closer to death. And a dead calf only costs money. If you were out feeding calves and looked up to see someone snooping around your house, you wouldn't wait for them to

steal from you before you did something. Don't let scours steal your calves from you!

2. Mixing Milk

BUCKET:

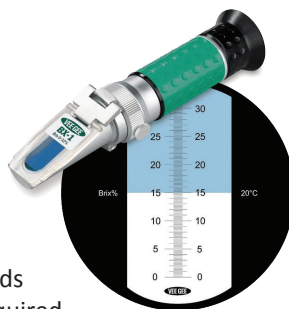
- Weigh Milk Replacer! NRV milk replacer is denser than others
- 12oz per calf during “summer” and 14oz per calf in winter, for one “bucket”
- Fill bucket about 60% of the way with 130°F water
- Add the milk replacer and mix
- Add warm water to reach 118°F and have enough volume to feed calves

POWER MIXER:

- Weigh Milk Replacer, 12oz per 2 quarts during “summer” and 14oz per 2 quarts in winter, making sure to account for calves getting 3 quarts
- Fill mixer with about 50% of the water needed, this water should be about 130°F
- Turn on power mixer, and add the milk replacer and set a timer for 2 minutes
- When timer goes off, shut off the mixer and check the temperature of the water
- Add enough warm water to bring the temperature to 115-118°F and add the rest of the volume needed to feed calves
- Turn the mixer on for a few seconds to mix the two water temperatures and check the temperature again

PASTEURIZER:

- Use Brix refractometer to get the solids level of the milk
- Use spread sheet from Penn State to calculate pounds of milk replacer/Balancer required to get desired solids and protein levels and/or use the chart attached
- Make sure temperature of pasteurized milk and water combination is hot enough to mix the milk replacer and put about half into the power mixer
- Add the milk replacer and mix according to directions
- Add the rest of the pasteurized milk and water to the mixer and mix for a few seconds to ensure everything is evenly mixed
- Verify the temperature is at or just above feeding temperature



WHY?

One of the fastest ways for very young calves to fall ill is to have fluctuating solids levels. Even when using salable milk solids levels can fluctuate enough to cause digestive upsets in calves. By adjusting the solids, calves will have less digestive issues, which means less missed meals, and more gain.

3. Feeding milk

Fill all the bottles

- If you are filling to the top make sure to make enough milk to compensate, for the extra milk

Walk calves while eating, paying special attention to:

- Calves with pens marked for scours, if calves marked for mild dehydration do not eat, remove the milk and feed an emergency electrolyte
- Calves that are eating slower than normal, this is the first sign of a scouring calf
- Baby calves that are still learning to eat

If a calf does not drink milk, **DO NOT** feed the milk with an esophageal feeder. Take the calf's temperature, check the calf's breathing, and give the calf electrolytes, which can be fed with an esophageal feeder. Treat the calf for other ailments if needed.

4. Cleaning

- Take all the nipples off the bottles and place in mesh bag
- Throw the bag in a washer with putting alkaline wash in the soap dispenser and the acid wash in the softener dispenser
- Hang bag to dry when washer is done
- Rinse everything else with warm water, about 90°F to rinse of protein without cooking it to the surface
- Hot alkaline wash to remove the fat
- Hot acid wash to sanitize
- Air Dry

5. Middy Electrolyte

- Mix and feed according to the directions on the package
- Can be mixed in the power mixer

When feeding a midday electrolyte, there may be more afternoon refusals to drink milk, because the dextrose will make the calf still feel “full”. Watch calves carefully and keep feeding times consistent as possible.

6. Starter

- Offer starter from day one, just a small handful
- Make sure calf does not have to drop head deep into bucket to get to the starter
- Walk calves with a bucket and throw out any old or wet starter, especially in the summer when flies are a problem
- When calves are eating 1.5-2% of their birth weight they are able to be weaned

7. Water

- Offer fresh water from day one
- Use white buckets
- Keep the buckets full so the calf does not have to put their head in past their eyes

Keep milk feeding times as close to 12 hours apart as possible, but the key to success is consistency. Keeping the times as close to the same as possible, every day is much better than feeding 10/14 during the week and 12/12 on the weekends. You don't have to be perfect, just consistent.



CALF MANAGEMENT

Having a quick and easy way to mark or label stalls is a very fast and efficient way to provide the best care to the calves.

- For example:
- Pink flag means scours
 - Blue flag means a ruminal drinker
 - Red flag means fever
 - Yellow flag means treated with antibiotics
 - Green flag means 3 quarts of milk

Something like a map or chart can be just as effective as well.

For example: Hang a cork board in the barn with a basic out line of stalls and number them. Then using colored push pins mark the chart what is going on with each calf.

WHY?

When there are multiple calf feeders, a simple management system is best. Being able to walk in the barn, and with a quick glance know which calves need extra attention, which calves need more milk, etc. is a huge time saver. It also helps to make sure the calves receive consistent care, because there are no missed notes written on the board, or forgotten text messages. When one of the feeders is more experienced and better at treating calves, a marking system can also help to train a less experienced feeder.



WEANING

Calves should be weaned when they:

- Consume 1.5-2% of their birthweight in starter for 2 days in a row
- Are healthy and have been healthy for at least a week

When there is a noticeable increase in starter intake, calves are getting 3 quarts of milk per feeding should be cut back to 1.5 to 2 quarts for about a week. During this time, special attention should be paid to how much starter the calf is eating, as the reduction in milk should result in an increase in starter intake.

As long as the calf remains healthy, and the starter intake reaches 1.5-2% of birth weight, after 7 days the morning feeding should be removed. This would mean the calf will be getting a maximum of 2 quarts of milk during the afternoon feeding. By removing the morning feeding, if the calf is not doing well being weaned it will be caught either during the midday electrolyte feeding or the afternoon feeding. Additionally, feeding milk in the afternoon provides the calf with the energy from the milk overnight, which is generally the coldest part of the day.

After 5-7 days of getting 2 quarts once per day, there should be a noticeable increase in starter intake and as long as the calf is still healthy, remove the milk all together. At this point, it is recommended to leave the calf in the stall either alone, or with another calf for a few days. This ensures that the calves are healthy and a partner will also reduce the stress of moving the calves into group pens. This is not required, and moving calves straight to group housing is acceptable, as long as very close attention is paid to freshly weaned calves.





CHOOSING A MILK REPLACER

Common misconceptions

“We only feed a 20/20, because that is what we have always done.”

When dairy farmers started using milk replacers, they went to veal growers and asked “what milk replacer is the cheapest?” and the answer to that is a 20/20. For years people have fed 8 oz. of a 20/20 because it is cheap and it is what they have always done. We now know that this does not come close to meeting the calf’s needs, especially in cold weather.

“You can’t feed anything less than 20% fat.”

People will generally say this because their dairy cow’s milk is more than 20% fat, but humans have been selecting dairy cows to have a much higher fat content in their milk for thousands of years. We did this because we like fat, we didn’t do it for the calf. This line of thinking is very frustrating because why are you only trying to match what the cow would give the calf in one area? Why would you also not feed a much higher protein as well, since your cows’ milk protein level equates to 27-30% protein milk replacer? Why would you not also increase the amount of solids? If you are going to refuse to feed a lower fat, because of what the cow produces, why would you not match it protein and amount of solids as well?

Furthermore, higher fat levels also decrease starter intake. Fat makes mammals feel full over a longer period of time, so if you feed a calf a higher fat diet they are less likely to look for other things to eat, like starter. Eating starter is what develops the rumen papillae – it’s what turns your calf into a ruminant – and it allows you to wean the calf sooner, saving you money. This is the same reason people eat fats when they are on low

carb diets, if you eat a piece of cheese, you will generally feel fuller longer than if you were to consume the same amount of calories from a boiled chicken breast.

Research has shown that feeding a milk replacer the more closely matches that of a beef cow, about 28/12, and feeding a great amount of solids in milk replacer does not only meet the calf’s needs but allows the calf to reach its full potential. High protein, low fat milk replacers have been shown to increase average daily gains, decrease weaning age, and increase lifetime milk production.

“I need to feed a higher fat Milk Replacer in the winter because it is cold.”

See: *The Myth of Using High Fat Milk Replacers For Winter And Why More Powder Is Truly Better Than More Fat*

Things to consider:

1. A 22/18 or a 26/17 are great choices for feeding both bull calves and replacement heifers. Both of these will generally be slightly more expensive than a 20/20, but, if fed correctly, weaning age will decrease, calves will be larger framed and not have as much excess body fat. When fed like this, heifers will breed sooner and steers will finish sooner.
2. NRC considers 7% ash to be the standard for milk replacers. Anything above 7% poses health risks for the calf, including:
 - Cellular dehydration
 - Reduced dry matter intake
 - Diarrhea
 - Abdominal pain
3. Protein is often the limiting nutrient when it comes to calf growth. This is because the requirement for protein is driven by how much energy the calf is fed. Often, calves are fed a 20/20, and this ratio does not have enough protein in it for the calf to effectively deposit it into bone and muscle, so the calf expels the excess protein in urine and deposits body fat. By feeding a higher protein and lower fat calves grow taller, wider and faster than when they are fed a 20/20.




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NRV, Inc. is part of the Serval Family of Milk Replacers

