GAMECHANGER

CALF FEEDING
Handbook

HI-PRO FEEDS

trouw nutrition
a Nutreco company

Useful Unit Conversions

1 oz.....28.35 g
1 lb.....16 oz
1 lb.....453.6 g
1 lb.....0.45 kg

1 g.....0.03527 oz
1 kg.....1000 g
1 kg.....2.2045 lb

1 in.....2.54 cm
1 ft.....30.48 cm
1 cm.....0.393 in
1 m.....39.37 in
1 m.....1.094 yards
1 km.....0.621 mile

1 imperial quart.....1,136 ml
1 litre.....0.88 imperial quart
1 US quart.....946 ml
1 litre.....1.06 US quarts

Weighing Feed without a Scale

Size of Container	Rolled Feed	Pelleted Feed
500 ml	250 g (0.6 lbs)	350 g (0.8 lbs)
750 ml	375 g (0.8 lbs)	525 g (1.2 lbs)
1,000 ml (1 litre)	500 g (1.1 lbs)	700 g (1.5 lbs)
4 litres	2,000 g (4.4 lbs)	2,800 g (6.2 lbs)

Density of rolled feed assumed to be 500 g/litre
Density of pelleted feed assumed to be 700 g/litre

Calf Feeding

Raising a beef project can be fun! This handbook was written by Hi-Pro Feeds' nutritionists to help you enjoy learning more about your calf and how to take care of it. Good luck!

Taking Care of Your Calf

Choosing Your Calf

One of the most exciting and important decisions you will make in your local beef club is which calf you are going to feed for the year. There are many important things to look for in a calf, which will eventually affect your profit at the end of the year.

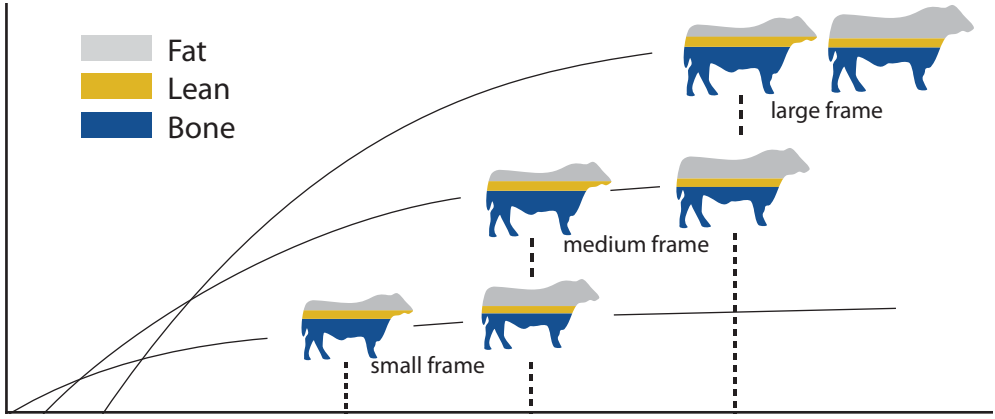
The animal's disposition is very important when selecting your beef project. Naturally, a wild-eyed calf that always has its head up will be much harder to halter break than a calf who is naturally quiet. Performance may also be affected by this, as a wild calf will be under more stress for a longer period of time. When you feed a calf, you want to convert the energy in the feed into muscle and weight gain. If the calf is using all their energy running up and down the fence line, they won't have as much energy left over for growth.

Another thing to consider when picking your calf is the animal's conformation. Conformation is the way the animal looks and how it is built. Ensure that your project has straight legs and healthy-looking hooves. Think of the calf's skeleton as the frame that you are going to hang all its meat and muscle on. If the legs are crooked and the feet aren't healthy, the calf won't be able to handle all the weight you are planning to put on it.

For the same reason, a straight top-line is also important to the animal, as it indicates a strong back.

Another thing to look for is that the calf has some depth around his barrel. This ensures that they have enough room for their inner organs to function properly, and may also indicate that they have the capacity to eat more feed.

Muscling can be an important conformation trait. However, don't be fooled by the overweight calf that has been fed well all their life. Better performance will be achieved with a calf who has received just enough grain to grow their frame, without putting on extra weight as shown below.



This chart shows average daily gain (ADG), weight gain and carcass composition of small, medium and large-framed cattle. To get maximum ADG, choose a calf with a large frame.

Taking Care of Your Calf

Equipment You Need

A calf is a very adaptable animal, and as a result, can be raised under a variety of different conditions. As long as you follow a few basic principles, your facilities can be as basic, or as fancy as you wish to make them.

Calves will perform much better if they always have a source of clean, fresh water to drink. The best type of water source is the stock waterer which pumps fresh water into the bowl every time the animal has a drink. If a stock waterer is not available, a simple water trough will work just as well, provided it is kept clean. Submersible water heaters can be purchased relatively inexpensively, and will help avoid turning your water trough into an ice block. The water source should be checked every day to make sure that it is free of manure, and that it is not frozen or too hot. Make sure you actually put your hand in the water as you can't determine the temperature by just looking at it. The water source should be the first thing to check if your calf backs off their feed consumption.

It is usually desirable to provide some sort of a feed bunk in which to feed your grain. If fed on the ground, calves will waste a tremendous amount of feed, and obviously, if the grain doesn't go into the calf, they can't use it to put on weight. Feeding from a feed bunk will be much cleaner than feeding on the ground. There is also less chance of your calf getting sick or having worms if they are fed from a bunk.

You'll need a form of restraint for your calf for halter breaking or for treating them if they get sick. Again, this can be as elaborate as a squeeze chute and handling facility, or as basic as a small corral and a rope. As long as you can catch and hold your calf in some manner, you can be as imaginative as you like.

Housing Your Calf

In order to perform to the best of their ability, your calf will need some form of shelter. When a calf converts their feed to energy, they use the energy in one of two ways.

The first way a calf uses their energy is called maintenance energy. This type of energy is used to do the things that keep them alive such as walking to the feeder, breathing, digesting feed and keeping themselves warm when it's cold. Whatever energy is left over is called productive energy and is used by the calf to grow.

When we feed a calf, we want to put as much energy into productive energy as we can because it is converted into weight gain and meat. If we can keep the calf out of the wind, they will spend less energy maintaining their body temperature (maintenance energy) and they can put more into growing (productive energy).

A shelter can be as extensive as a calf barn, or it can be as simple as a slab fence or group of trees. Anything that will keep the animal out of the wind and sleet will help them to gain weight more efficiently. It is also important to keep your calf out of the extreme heat and direct sunlight as this could put the animal off feed.

Taking Care of Your Calf

The calf pen should be big enough to allow the calf to move around, yet small enough to prevent them from "walking their weight off." If a pen is too large, the calf will use more of their energy walking to and from the water source, feed bunk and shelter. An appropriate sized calf pen would be approximately 50 by 100 feet. It is often beneficial if the calves are not across the fence from cows who may be cycling in the spring. This has been known to put calves off their feed near the end of their feeding period when you want your calf to be eating as much as possible.

Bedding For Your Calf

The hair coat on a calf is like the insulation in your house. Hair keeps the heat from escaping from the calf's body. This results in less energy being used to maintain their body temperature. If the hair coat gets wet or matted, it can't do its job as well because it will lose more body heat. Once again, the calf will have to use more energy in the feed to make up for this lost heat and less energy will be available for meat production and body weight gain. It is important to keep your beef project clean and dry. One of the best ways to do this is by providing bedding for the calf to lay on. Put bedding down in a well-sheltered, dry spot. The bedding also acts as an insulation layer between the calf and the frozen ground, resulting in even less energy being used to keep them warm. New bedding should be provided any time the old bedding becomes wet or dirty with manure.

The most common type of bedding is straw. Straw is inexpensive, absorbent and provides good insulation. It is convenient because it comes in small square bales that are easy to handle. The best type of straw to use is either rye or wheat straw because the calves don't seem to eat it as readily as they do oat or barley straw. You don't want your calf eating straw because it isn't an energy-dense feed. If your calf fills up on it, they will have less room in their stomach for energy-rich feeds like grains.

Wood shavings are an alternative to bedding with straw and are often used at livestock shows and in stalls. An advantage to shavings over straw is that cattle won't eat the shavings. However, shavings are more expensive than straw and more inconvenient to handle because they are in a loose form.

Calf Health

Health problems are common in calves and can be aggravated in times of stress. Most health problems will show themselves shortly after weaning, and this may be considered one of the greatest stresses of the calf's life. If health problems are caught quickly, and treated effectively, the chance of lost performance and serious sickness are greatly reduced.

Look your calf over closely when feeding them and get to know their normal behavior. The best way to know if they are acting sick is to know how they act when they are healthy.

Taking Care of Your Calf

Below are some things to look for that may indicate that your calf has become sick.

- Drooped head and ears with an arched back
- Labored breathing or a rapid respiration rate
- Rough, dry hair coat
- Straining to urinate with grunting and tail switching
- Loose, watery manure with or without blood in the feces
- Crusted muzzle, nasal discharge or sunken eyes
- Sunken appearance
- Reluctance to come up to the feed bunk
- Slow movements; may not want to get up and move around
- Lameness or abnormal walking

When you notice your calf with any of these symptoms, it is best to restrain your calf and take their temperature with a rectal thermometer. If the rectal temperature is above 40˚C, the calf is ill and will require treatment.

The best idea is to ask your parent, project leader, or, if necessary, call your local veterinarian and obtain their advice on what treatment to follow.

In some cases, calves may show these symptoms as a result of acidosis or "grain overload." Calves suffering from eating too much grain will have a loose, grayish manure and may be very sluggish and stiff. If you are confident that your calf has had too much grain and is acidotic, the best solution is to feed them unlimited long stem hay (grass preferably) to get him chewing. When a calf chews, they produce sodium bicarbonate in their saliva which will neutralize the acids present in their stomach. When the calf is feeling better, start them slowly on grain once more. Only increase the grain amount by 2 lbs every three to four days and keep a close watch on them.

Common Diseases

Disease	What causes this disease?	How do I recognize it?
Footrot	Wet pens, injury to the foot, or deficiency of trace minerals can cause or lead to damage of the hoof. After damage, the skin between the claws is more likely to be infected with bacteria normally found in manure. Once this bacteria gets under the skin, the tissue between the claws will swell quickly and the calf will go lame.	Feet are swollen, hot and painful. The hoof may smell bad and look ugly.
Shipping Fever Pneumonia	Bacteria which are normally present in the nasal area move down to the lungs and cause an infection called pneumonia. Stress leads to the development of this disease.	Cough when walked, fever (40-41.5 °C), increased respiratory rate (100/minute). Shipping fever usually occurs about 5-14 days after a big stress.
Bloat (free gas or frothy)	Feeding too much grain can cause acid-loving bacteria in the rumen to grow too rapidly and lower the pH in the rumen so the muscles don't work properly and the animal cannot properly contract its rumen and belch (free gas bloat). Feeding legumes such as alfalfa or clover can lead to mucus being produced which prevents the gas from escaping (frothy bloat).	Bloat can cause very sudden death and can be hard to identify. Animals that have died of other diseases look a lot like bloat after death. Look for an enlargement of the rumen (left side of calf).
Waterbelly (Urolithiasis)	Caused by a blockage of the urethra. The urethra or bladder can burst from the pressure.	Early signs include constantly trying to urinate, tail switching, and kicking at their belly.
Rumen Acidosis (Grain Overload)	Occurs when the calf eats too much grain. Bacteria in the rumen which feed on the grain produce a lot of lactic acid which is absorbed by the blood and can cause other diseases.	Mild case: Reduction in feed intake and bloat; Severe case: Lameness, yellow/ gray foul smelling diarrhea containing whole kernels of grain
Liver Abscesses	Inflamed areas on the liver usually filled with puss. They are caused by a bacteria which is normally found in the animal. When the rumen lining is damaged by very low pH caused by over-feeding grain, this bacteria can get into the blood and end up damaging the liver.	Feed conversion and average daily gain are poor when the animal has liver abscesses. The abscesses can be from a few millimeters to several centimeters across.
Coccidiosis	A very small, single-cell parasite. It occurs in calves 6 to 12 months of age. This parasite is passed out of infected animals through the manure and grows and changes for 3-7 days in moist, warm bedding. After this change, it is capable of infecting calves orally when they eat litter or feed off the ground.	Most commonly see bloody diarrhea in bad cases. You may also see very thin or liquid manure in less severe cases.
ITEME (Hemophilus Septicemia)	This is a bacterial infection which occurs in calves 6 to 12 months of age between October and February. This is a septicemic disease, which means the bacteria and its toxins are found in the blood.	There are many forms of this disease showing different signs, including difficulty standing, blindness & respiratory problems.
Mucosal Disease (MD) and Bovine Virus Diarrhea (BVD)	Mucosal disease (MD) is one of the diseases that may be triggered by the BVD virus. MD is a special variant of BVD that is particularly severe and fatal in cattle.	Calves with MD are depressed, go off feed, have foul smelling diarrhea streaked with blood. They may have ulcers on their lips, muzzle and in their mouth.
Rednose (IBR)	This disease is caused by a virus and is most common in Fall and Winter in cattle over 6 months of age.	Sick calves have inflamed and ulcerated nasal passages, have nasal discharge, a fever & salivate a lot.
Acute Respiratory Distress Syndrome	The cause is not known and may be like an allergy. It usually ends in death.	Calves have difficulty breathing & stand with their head extended and mouth open gasping for air.

Common Diseases

What do I do?	How do I prevent it?
Treat with antibiotics right away. You can also scrub the affected hoof, remove dead tissue and apply bandages soaked in a copper sulfate solution.	Keep pens clean and well-drained. Make sure there are no sources of injury like sharp stones, metal or sticks in the pen.
You must detect this disease early as it can be fatal. With the correct antibiotic, a sick calf can recover in 1 or 2 days.	Good management will prevent this disease. Calves should be handled and transported carefully. Calves should have been vaccinated at least 2 to 4 weeks before weaning.
You can put a rubber hose down the throat into the rumen to release the gas. An anti-bloat medicine should also be poured into the rumen through the tube.	Ensure that your calf always receives some forage. Don't overfeed even after a period of temporary starvation, and ensure that water is always available.
A veterinarian must perform surgery to remove the blockage.	Always feed the correct ratio of calcium to phosphorus (2:1), provide salt and good water.
Control the feed intake, prevent excessive water intake, keep animals moving, use antacid drugs to neutralize the lactic acid. You can also use mineral oil or rumen stimulant to help empty the rumen.	Increase levels of grain slowly following the recommendations in this handbook. Always feed some forage and never leave grain out where your calf can help himself.
There are few outward signs of liver abscesses and treatment is not practical. Prevention is very important.	Adapt your calf slowly to grain and always provide some forage.
There are several drugs available to treat coccidiosis.	Be sure that feed and water is not contaminated with fecal material, do not feed calves from the ground, and be sure to keep pens clean and dry.
Treat with antibiotics quickly. Delay in treatment by only a few hours may affect ability to recover.	A vaccine is available but does not provide complete protection.
There is no good treatment. Calves which develop MD usually die within a week.	Vaccination against MD does not work well and vaccinating against BVD has not been shown to work.
Antibiotics can help with the bacterial infections that occur along with this disease.	Vaccination programs have been shown to work.
No treatment available.	Difficult to prevent since the cause is not understood

Nutrition Basics

Digestion means to take food and convert it into something that can be absorbed into the blood. The job of your digestive system is to get the nutrients in the food you eat into your body so that you can grow and be active. Digestive systems do this by physical and chemical means, such as chewing by the teeth and acid production in the stomach. This helps the nutrients in your food to be broken down and absorbed into the blood.

Chickens, pigs, cattle and horses all have very different digestive systems to do this job. Chickens don't have any teeth, but have a crop to soften and store feed and a gizzard to grind it up. Pigs use their large intestine to help them digest fiber. Horses have a large cecum which acts like a small rumen to help digest forages. Cattle have a very large rumen as the first section of their stomach which allows them to digest forages. You can see that all these animals have different ways to digest feed; that's why we have to feed them differently.

Rumenation

Cattle, sheep, buffalo and deer are all ruminants. Ruminants are animals who re-chew, or ruminate, their feed. Material is regurgitated (vomited) in a controlled manner up the esophagus, re-chewed and then re-swallowed. This process of re-chewing feed which was already eaten is called rumination, or more commonly called "chewing cud."

Ruminants have one stomach with four different compartments.

- RUMEN - acts as a large fermentation vat
- RETICULUM - sorts feed and helps in rumination
- OMASUM - absorbs water and controls feed passage
- ABOMASUM - produces acids and enzymes

The rumen of a mature cow is very large and can hold up to 200 litres (50 gallons) of material. The rumen is filled with small organisms called microorganisms. These microorganisms help the calf digest feed. If you looked inside the rumen, you would find a lot of solid and liquid material. The solid material is re-chewed through rumination and the more liquid material is ready to be passed on to the other compartments of the stomach.

IN A NORMAL DAY, A MATURE COW WILL PRODUCE ABOUT 150 LITRES, OR 40 GALLONS OF SALIVA!

Normally, animals cannot digest cellulose because they do not make the enzyme required to break down cellulose. Enzymes are chemicals which are needed by the animal to digest certain nutrients. When a cat or dog eats grass, which is mostly cellulose, almost 100% of the nutrients in the grass pass through your pet. Dogs and cats are not able to process the nutrients in grass into their blood and convert it to energy.

However, there are bacteria in the rumen which produce an enzyme called cellulase which can break down cellulose into smaller pieces which ruminants can then digest. Bacteria also ferments the feed your calf eats and converts it into something called volatile fatty acids, or VFAs, which your calf can use for energy.

Nutrition Basics

The inside of the walls of the rumen look like shag carpet with lots of little fingers. The VFAs are absorbed into the blood stream, through these little fingers called papillae and your calf uses the VFAs for energy.

Rumen microorganisms also break down the protein in feed to ammonia and then use this ammonia to make their own microbial protein. This microbial protein is then absorbed into the bloodstream in the stomach and the intestine. This is why ruminants are capable of using inexpensive, non protein nitrogen sources such as urea. Urea comes in liquid and dry granular form and is often used as a source of nitrogen fertilizer for crops. The bacteria in the rumen can convert urea into a better quality microbial protein. However, you have to be very careful since just a handful of urea can kill your calf.

After the partially digested feed leaves the stomach, it passes into the small intestine. More digestion occurs here and papillae, like those in the rumen but much smaller, help to absorb nutrients into the blood stream. The digested feed then passes to the large intestine where water is reabsorbed from the material and feces are formed.

Rumen Health

The contents of the rumen in your calf are alive. If you looked at a tablespoon of rumen fluid under a powerful microscope, you could see hundreds of microorganisms moving around. Some of these microorganisms like eating grains and some like forages. Although lipid is a necessary nutrient, too much lipid can also be harmful to the rumen microbes. It is very important to feed all the microorganisms in the rumen in order to keep the rumen, and your calf, healthy. It is also important to make any feed changes slowly so that the rumen bugs can adjust to the change. Lameness, acidosis, bloat and liver abscesses can all be caused by making feed changes too quickly and not allowing the rumen bugs to adjust to the diet. Keeping the rumen of your calf healthy is one of the keys to raising a beef animal which will look good, be healthy, gain weight, grade out well, and be profitable.

Nutrients For Your Calf

Nutrients are different parts of feed which are needed by animals and plants to live, grow and reproduce. During eating and digestion, feed is broken down into nutrients. The nutrients in the feed are absorbed from the intestine and circulated through the blood. The blood transports these nutrients to different parts of the body to nourish and grow the animal.

There are six different groups of nutrients:

1) Carbohydrates

These nutrients include different types of sugars such as table sugar, starches such as in potatoes, and cellulose which is found in grasses. Rations lacking enough carbohydrates will not have enough energy for normal growth and reproduction.

Nutrition Basics

2) Lipids

These nutrients include different types of fats and oils. Fats are used by the body as a source of energy and to make new cells. Rations with not enough lipids will not provide the animal enough cell building material for normal growth and production. Animals which eat rations deficient in fats will have dry skin, poor hair coat and will not have enough energy for normal growth and reproduction.

3) Proteins

Proteins are made up of building blocks called amino acids. All protein is made up of as many as 22 different amino acids. Amino acids are used by the body to make new cells, muscle, and hormones. They are required for growth and production, and enzymes which are required for digestion of feed. If your calf is deficient in protein, it will have poor growth and poor hair quality because amino acids make up both hair and muscle. In cattle, the chemical urea can be used to replace some of the natural protein in a ration. Urea is a non-protein nitrogen and it contains no amino acids. However, the bacteria in the rumen can convert this non-protein nitrogen into amino acids containing protein. But be very careful because too much urea will kill your calf - even a small handful.

4) Minerals

More than 16 minerals are needed by the body and must be provided in the feed. The minerals calcium and phosphorus are used to make bones and milk. They are needed in order for nerves and muscles to work. Iron, copper, iodine, sodium and chlorine are also all required for different body functions. The form of the mineral is important too, as Game Changer uses Intellibonds that are Hydroxy bonded. Featuring high bioavailability and low environmental impact. IntelliBond minerals have an OH group that creates a strong covalent bond with the mineral. These “smart bonds” help protect the mineral in the feed and the upper digestive tract, allowing for less reactivity and targeted availability. Simply put, IntelliBond minerals are available when and where they are needed the most.

Key features Intellibond offers when looking at mineral benefits:

- Stability
- Bioavailability
- Fibre Digestibility
- Palatability

5) Vitamins

Vitamins are required by the body for different reactions that must take place. Vitamin A, D, and E are the most important for your calf and must be provided in the ration. Vitamin K, C and the B vitamins are all required by the body, but your calf will be able to synthesize these vitamins itself and they don’t need to be provided in the feed.

6) Water

Water is the most important nutrient. About 70% of your calf is water. If your calf is deficient in water, it will become dehydrated and could die. Withholding any of the other nutrients will cause problems, but death will occur most rapidly if water is not available.

Nutrition Basics

Evaluating Water Quality

Item	Water Content (ppm)	Usefulness for Cattle
Total Dissolved Solids	< 1,500	Very Good
	1,500-3,000	Good
	3,000-4,000	Fair
	4,000-5,000	Usable
	5,000-10,000	Unsatisfactory
	10,000+	Toxic
Alkalinity	pH < 8	No problem
	pH 8-8.5	Satisfactory
	pH 9-10	Tolerable
	pH > 10	Unsuitable
Nitrites	Trace	Satisfactory
	> Trace	Health Hazard (indicates fecal contamination)
Nitrates	< 100	No problem
	100-300	Health Hazard
Fluoride	< 4	No problem
	> 4	Browning and weakening of teeth
	> 40	Big problem with bones

Water Quality

Your calf will be able to handle a wide range of water quality. It is very important that the water for your calf is free from fecal material or runoff from a manure source. Your calf's drinking water should be cool and fresh. If you think that your water is poor quality, you can have it analyzed by a certified lab.

Forages

Forages high in fiber include hay, straw and silage. Alfalfa forages are high in protein whereas grass or cereal forages are lower in protein

Grain

Common grains include oats, barley and corn. Oats are low in energy and high in fibre so they are best suited as a starter feed. Barley is higher in energy and ferments rapidly in the rumen so changes in the level of barley in the ration should be made slowly. Corn is high in energy and unlike barley ferments slowly.

Feed Intake and Your Calf

Other Feedstuffs

Other feedstuffs include beet pulp, molasses and tallow or oil. Beet pulp is high in fibre and energy. Molasses is liquid sugar and is high in carbohydrate energy. Both tallow and oil are lipids and are concentrated energy sources.

Feed intake is a very important factor in the overall health, performance and overall profitability of your calf. Every mouthful of feed your calf consumes contributes to the total amount of nutrients which your calf needs to be healthy and grow to its optimum potential. However, even the best quality of hay and grain will not help your calf grow if it doesn't eat.

Your goal is to maximize your calf's intake while keeping your calf healthy. Here are some guidelines for you to follow:

- For a calf which has never had grain, start at no more than 0.5% of its body weight. A 600-lb calf would start at 3 lbs grain per day. Increase the amount of grain in small steps.
- Feed your calf twice per day at the same time each day so that it develops an eating pattern. Feeding at 8 am and 4 pm allows you to feed before and after school.
- Split the feed into two equal parts, or feed a slightly bigger amount at the afternoon feeding.
- Always make changes to your calf's ration slowly. Never increase grain by more than 2 lbs every 3-4 days. The change to the ration should be made during the evening feeding.
- Only feed more grain if the manure does not appear loose or watery and there is no feed left over from the previous feeding.
- Always feed fresh, clean feed and lots of clean water. Leftovers are only good if they haven't spoiled. Your calf won't like to eat moldy silage or dusty hay.

Use these steps, the table below and the worksheet on page 14 to calculate how much grain and forage you should be feeding your calf as it grows.

Suggested Intake and Potential Gain

Calf Weight (lbs)	**Grain Dry Matter Intake** (% of body weight)	**Total Dry Matter Intake** (% of body weight)	**Potential Weight Gain** (lbs/day)
600 - 700	1.0%	2.5%	2.75
700 - 800	1.25%	2.5%	3.25
800 - 1,100	2.0%	2.4%	3.75
1,100 - 1,250	1.9%	2.2%	3.50

Feed Intake and Your Calf

Step 1 - Calculate Total Dry Matter Intake

A young calf should eat about 2.5% of its body weight in dry matter (feed without any water) per day. By calculating dry matter intake and dry matter content of your feeds; you can compare feeds of different moisture levels like grains and forages.

Step 2 - Calculate Grain Intake

After getting your calf started on grain, slowly increase the amount of grain appropriate for the weight of your calf. As you increase the amount of grain that you feed, you will need to decrease the amount of forage so that the total dry matter intake stays the same or decreases as shown in the table.

Step 3 - Calculate Forage Intake

Calculate the amount of forage your calf should be eating. Do this by subtracting the grain dry matter intake from the total dry matter intake. Then divide by the dry matter of the forage.

Step 4 - Calculate Total Feed Intake

The total feed intake is the actual amount of grain and forage that you feed your calf.

Feeding a calf is not much different from feeding yourself. You like to eat breakfast, lunch and supper at the same times each day. Fresh bread always tastes better than stale or moldy bread, and eating too much candy at once can make you feel sick. Just like you, your calf needs to eat to grow, so make the most of the feed. Feed at regular times, feed good quality grains, provide a balance of nutrients and feed the correct amount of grain and forage.

Hi-Pro Feeds has beef project rations balanced with the ideal levels of all nutrients needed for your growing calf.

Hi-Pro™ GameChanger Feeds Calf Feeding Program

Maximizing feed intake is very important to the overall performance, health and profitability of a beef project. Below is a table of Hi-Pro Feeds GameChanger products with an estimated grain intake. Please see the example on the next page to calculate forage and dry matter intakes.

Starter Phase

Calf Weight (lbs)	Product	Grain Intake	
		Rate/Day	% of Body Weight
500	**Hi-Pro™ GameChanger Beef Starter** #13332885 (Plain) #13332905(Plus Monensin Sodium - 52.8 mg/kg)	5 lbs	1.0%
600		6 lbs	1.0%
700		8.75 lbs	1.25%

Grower Phase

Calf Weight (lbs)	Product	Grain Intake	
		Rate/Day	% of Body Weight
800	**Hi-Pro™ GameChanger Beef Grower/Finisher** #13333335 (Plain) #13333375 (Plus Monensin Sodium - 36 mg/kg)	14 lbs	1.75%
900		18 lbs	2.0%
1,000		20 lbs	2.0%

Finishing Phase

Calf Weight (lbs)	Product	Grain Intake	
		Rate/Day	% of Body Weight
1,100	**Hi-Pro™ GameChanger Beef Grower/Finisher** #13333335 (Plain) # 13333375 (Plus Monensin Sodium - 36 mg/kg)	22lbs	2.0%
1,200		22.8 lbs	1.9%
1,300		24.7 lbs	1.9%

Feeding Tips

- Beef project calves should be fed 2 times/day at consistent times, usually in the morning and at night
- When it's time to increase feeding rates, do so in small increments over 3 - 6 days
- When transitioning from Starter to Grower/Finisher rations, adjust feed in increments of 2 -3 lbs/day across 3 - 6 days (Example: Day 1 - Feed 8.75 lbs Starter, 2.5 lbs Grower/Finisher and Day 6 - feed 14 lbs Grower/Finisher)
- Good quality forage is necessary for a balanced ration
- Provide access to freshwater and loose salt
- Refer to the product tags and your feed rep for any questions or inquiries

Know what is in your feed

The following ingredients are included in every bag of GameChanger Calf Feeds:

GameChanger Beef Starter	GameChanger Beef Grower/ Finisher
Barley	Barley
Beet Pulp	Beet Pulp
Corn	Corn
Millrun	Millrun
Oats	

Note on Monensin Sodium

These medicated beef feeds have monensin sodium in them for the prevention of coccidiosis, a disease in cattle that causes bloody feces. Monensin is also fed to finishing cattle for improved feed efficiency, and bloat control.

Do not allow dogs, horses, other equine or guinea fowl access to formulations containing monensin sodium. Ingestion of monensin by these species can be fatal.

Worksheet to Calculate Your Calf's Feed Intake

Steps to Calculate your Calf's Feed Intake (Example Calculation)

Calf Body Weight = 600 lbs

Suggested Grain Intake = 1.0 % of Body Weight

Suggested Total Dry Matter Intake (DMI) = 2.5 % of Body Weight

Step 1: Calculating Dry Matter Intake

Dry Matter Intake = Calf Body Weight (lbs) x 2.5 % of Body Weight

= 600 lbs x 0.025 = 15 lbs Dry Matter Intake

Step 2: Calculating Grain Intake

Type of Grain: Hi-Pro Feeds Beef Ration (normal grain = 88-90% dry matter)

Grain Dry Matter Intake = Calf Body Weight (lbs) x 1.0 % of Body Weight

= 600 lbs x 0.01 = 6.0 lbs Grain DMI

Actual Grain Intake = Grain DMI (lbs) ÷ Grain Dry Matter

= 6.0 lbs ÷ 0.90 = 6.60 lbs Actual Grain Intake

Step 3: Calculating Forage Intake

Type of Forage Fed: Barley Silage (average silage = 30-40% dry matter)
(average hay = 84-86% dry matter)

Forage Dry Matter Intake = Total DMI (lbs) – Grain DMI (lbs)

= 15.0 lbs – 6.0 lbs = 9.0 lbs

Actual Forage Intake = Forage DMI (lbs) ÷ Forage Dry Matter

= 9.0 lbs ÷ 0.35 = 25.7 lbs

Step 4: Calculating Total Feed Intake

Total Feed Intake = Actual Grain Intake (lbs) + Actual Forage Intake (lbs)

= 6.6 lbs + 25.7 lbs = 32.3 lbs

Worksheet to Calculate Your Calf's Feed Intake

Steps to Calculate your Calf's Feed Intake

Calf Body Weight = _____ lbs

Suggested Grain Intake = _____ % of Body Weight

Suggested Total Dry Matter Intake (DMI) = _____ % of Body Weight

Step 1: Calculating Dry Matter Intake

Dry Matter Intake = Calf Body Weight (lbs) x _____ % of Body Weight

= _____ lbs x _____ = _____ lbs Dry Matter Intake

Step 2: Calculating Grain Intake

Type of Grain: _____ (normal grain = 88-90% dry matter)

Grain Dry Matter Intake = Calf Body Weight (lbs) x _____ % of Body Weight

= _____ lbs x _____ = _____ lbs Grain Dry Matter Intake

Actual Grain Intake = Grain DMI (lbs) ÷ Grain Dry Matter

= _____ lbs ÷ _____ = _____ lbs Actual Grain Intake

Step 3: Calculating Forage Intake

Type of Forage Fed: _____(average silage = 30-40% dry matter)
(average hay = 84-86% dry matter)

Forage Dry Matter Intake = Total DMI (lbs) – Grain DMI (lbs)

= _____ lbs – _____ lbs = _____ lbs of Forage DMI

Actual Forage Intake = Forage DMI (lbs) ÷ Forage Dry Matter

= _____ lbs ÷ _____ = _____ lbs

Step 4: Calculating Total Feed Intake

Total Feed Intake = Actual Grain Intake (lbs) + Actual Forage Intake (lbs)

= _____ lbs + _____ lbs = _____ lbs

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For more information on the GameChanger Feeds Calving Program, contact your local feed dealer.

GAMECHANGER

HI-PRO FEEDS

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