



# Feeding and Management of DAIRY CALVES

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**T**HE CHANGE FROM SELLING CREAM TO WHOLE MILK has caused many dairymen to review their methods of raising herd replacements.

Perhaps the first decision a dairyman must make is whether he should raise his replacements or purchase them. Generally, raising herd replacements have several advantages as opposed to purchasing them. Some of these advantages are:

1. Known ancestry.
2. Along with known pedigree, production records should be kept on the dairy herd. Thus, production potential is known.
3. Chance of "importing disease problems" is less.
4. Realizing that exceptions do occur, North Dakota dairymen usually can raise their dairy herd replacements at lower cost than they can purchase them.

Remember, the chance of buying another dairyman's really good heifers is very slim indeed,

Limited space or feed supplies may make it necessary for you to consider purchasing your dairy herd replacements. You must determine the course best suited to your circumstances.

After the decision has been made to raise your own replacements, you must decide which of your heifers to raise as replacements.

#### Heifers should be selected from:

1. Highest producing cows.
2. Cows that have had a long productive life.
3. The strongest cows in the herd must be free from defects such as: Poor legs, broken udders, chronic mastitis, poor disposition, small in size, etc.

The following table shows the average mature weight of cows and bulls of various breeds. Good feed and management are essential if the dairy animals are to reach these weights.

DAIRY BREED MATURE WEIGHTS

BREED	COW (lbs.)	BULL (lbs.)
Ayrshire	1,150	1,800
Brown Swiss	1,400	1,900
Guernsey	1,100	1,700
Holstein	1,500	2,000
Jersey	1,000	1,500
Milking Shorthorn	1,500	2,000

#### FEED REQUIREMENTS OF THE DAIRY CALF

The kind and quality of feed are very important in the development of the dairy calf.

The dairy calf is growing very rapidly—building muscle, blood, hair and skin. The protein requirement is greater in proportion to body weight in the young calf than in older animals. The quality of protein also is important, as the very young calf cannot utilize the simpler forms of protein or non-protein nitrogen (urea, for example.)

Carbohydrates or energy producing feeds also are very important, as they supply the energy and build the fatty tissue of the body. Quality is important here also, as again young calves do not have the ability to adequately digest feeds high in fiber.

Minerals are essential in developing a fast growing, healthy animal. While calcium and phosphorus are required in the largest amounts, magnesium, iron, copper, and other minor elements also are essential.

Vitamin requirements also are important. Vitamins A and D are the two most needed and, fortunately, these may be added to feed with little expense. Generally, no deficiency problem exists with the B complex vitamins.

#### FEEDING AND MANAGEMENT OF DAIRY CALVES

##### Before Birth

The potential value of the calf was determined at the time of breeding. The actual value of the calf will depend upon the care the calf receives from that point on until maturity.

Care of the cow before calving affects the kind of a start the calf receives. The cow should be dry 6 to 8 weeks before calving time. She should be in good physical condition but not overly conditioned. A cow that is expected to produce at her maximum, should receive some grain during the latter part of her dry period. A practice often recommended is to begin with 1 to 2 pounds of the herd mix per day about 2 weeks before calving and increase so that at calving the cow is receiving grain at a rate of 1 to 1.5 per cent of her body weight. Overfeeding should be avoided.

### Calving Time to 3 Days:

As soon as the calf is born, clear the nostrils and mouth of mucus and membranes. Wash the cow's udder before the calf nurses the first time. Paint or dip the navel cord with iodine to prevent infection.

Make sure the calf receives the colostrum milk. Colostrum milk is: (1) High in vitamin A, (2) high in protein and contains some immunizing properties, and (3) is laxative and will cleanse the digestive tract.

Colostrum milk may be frozen and stored for use in case a cow calves and for one reason or another does not have colostrum milk for her calf.

### Third Day to 8 or 12 Weeks:

Three feeding systems may be used in raising calves through this very critical period.

1. Nurse cow
2. Whole milk
3. Milk replacer

**Nurse Cow:** Cows removed from the milking line that are good producers or excellent brood cows may be used as nurse cows. Avoid overfeeding calves, just as with other plans.

**Whole Milk:** Calf may be fed either with a nipple pail or be taught to drink from a pail. Generally, these guides should be followed:

1. Feed calf about 1 pound of milk per 100 pounds body weight daily. (80 pound calf needs 8 pounds milk, 4 morning and 4 evening)
2. Feed twice a day.
3. Feed milk at same temperature (90 to 100° F.)
4. Do not overfeed - weigh the milk.
5. Keep equipment clean use chlorine wash. (Wash thoroughly, sanitize as you do your milking equipment and allow to drain dry between feedings)

6. After a week or 10 days, have a good calf starter available to the calf. Do not put more feed in the manger than the calf will eat. Increase up to 4 pounds per day. When the calf is receiving 1½ to 2 pounds of the calf starter per day and all the excellent quality hay it will eat, the whole milk may be limited or a portion of it replaced with skim milk. Any changes in feeding must be made gradually. At 3 to 4 months you can change from the calf starter to the regular dairy herd grain mix.

Calf starters may be purchased or mixed from home grown feeds. They should contain between 16 and 20 per cent protein and the fiber content should not exceed 5 per cent.

### SUGGESTED CALF STARTER MIXTURES

	Mix No. 1*	Mix No. 2*	NDSU Mix*
Corn (Cracked or coarse ground)	400	300	400
Oats (Rolled or crimped)	350	300	300
Soybean oilmeal	250	200	200
Skim milk or buttermilk powder	---	100	---
Wheat bran	---	100	100
Trace mineralized Salt	10	10	10
Steam bonemeal	10	10	10

\*Plus vitamins to provide 10,000 U. S. P. units A and 400 U. S. P. units of D per pound of feed.

\*The need for vitamins is greatest when hay is poor, or when skim, buttermilk or whey is used in place of whole milk.

7. If you plan to use skim milk in the calf feeding program, remember the calf should receive some whole milk for about 4 weeks, substitution of skim milk for whole milk should be gradual beginning at about 2 weeks of age. Increase skim milk to about 15 pounds per day. Seldom go over 15 pounds per day.

**Milk Replacer Feeding:** Good milk replacers contain a large proportion of dried whole, skim, whey, or buttermilk. Some have fats added at a little higher level than others and most of them include vitamins, minerals, and various antibiotics. The fiber content of milk replacers should not be over 3 per cent.

One method of determining whether it is more economical to feed whole milk or milk replacer is that when the price of 25 pounds of milk replacer is equal to the cost of 100 pounds of whole milk, the cost will be about the same. Each dairyman must determine the cost and convenience factors under his management. The fact that milk replacers do contain added vitamins, minerals and antibiotics must be considered.

Generally the milk replacer you purchase has specific instructions as to how much to feed and how to mix the replacer. These instructions must be followed if proper results are to be expected. They differ according to kind purchased.

Regardless of the method used in raising calves to 12 weeks you should:

1. Provide a good calf starter free choice until calf consumes 4 pounds per day, then limit amount.

2. Provide a supply of good clean, fresh water at an early age.

3. Keep a supply of excellent quality, fresh forage available to the calf.

4. Provide individual pens for calves until 4 months of age (4 feet x 5 feet or equivalent). Pens should be solid on 3 sides to avoid drafts. Use of a manure pack to provide drainage and warmth.

### 3 to 9 Months:

Dairy calves from 3 to 9 months or a year old may be fed the same grain mix as the milking herd, in addition to all the excellent quality forage they will eat. Unless the forage is of the very best quality, the calves should not be expected to obtain all their nutrients from forage until they are at least 9 months old. Each calf should receive 2 to 4 pounds of grain a day, depending on forage quality and rate of growth expected. Make sure the calves have 1 per cent trace mineralized salt and 1 per cent steamed bonemeal in the grain ration. This should be available "free choice", also.

### 9 Months to Calving:

Provide salt and minerals on a free choice basis as is done with the milking herd.

Heifers should grow satisfactorily, if good quality forage is supplied in sufficient quantity. If there is a question as to the quality, 2 to 4 pounds of a grain mix may be continued throughout this period.

About 2 months before calving, give the heifers about 4 pounds of grain per day until 2 weeks before calving. Then, the grain may be increased so that at calving the heifer is receiving grain at about 1 per cent of her body weight.

## General Management Guides

1. Dehorn by 2 weeks of age. Use either of the following methods: (preferably before 6 months)

**Caustic Pastes** (potassium hydroxide sticks)  
This method works well when the calf is 2 to 3 weeks old or when horn buttons can be found.

- Locate the horn buttons and clip hair around them.
- Wrap the caustic stick in some way to protect your hands.
- Dampen the end of the stick and rub the horn buttons. Rub one, then the other, back and forth, until the skin rubs off the buttons. The exposed area should be no larger than a dime.
- Isolate the calf in a pen by itself for a few days out of the weather. If rain washes the caustic compound down the calf's face, it will leave a permanent scar.
- After one day, look at the calf and if there is a scab larger than 1 to 1½ inches, wash the wound with vinegar.
- Use caution at all times when handling the caustic material.

**Electric Irons:** Probably the safest way to dehorn a calf. The hot iron of the dehorner is merely held against the horn button for about 10 seconds. Experience is the best way to learn how long to hold the iron against the horn button.

2. Vaccinate for brucellosis between 4 and 8 months of age (preferably at 4 to 6 months of age).

3. Keep heifers in good but not fat body condition.

4. Breed to freshen between 24 to 30 months of age, depending on growth of heifer.

5. Give heifer "dry cow" care about 2 months before calving.

