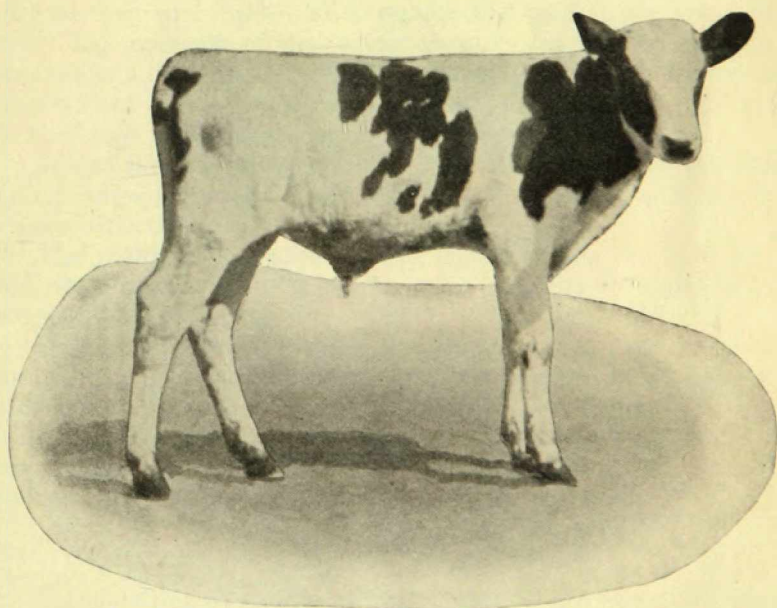


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RAISING AND CARING FOR THE DAIRY CALF



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RAISING AND CARING FOR THE DAIRY CALF

BY C. A. SMITH AND B. W. FAIRBANKS

The raising of heifer calves is an important part of dairy farming. The maintenance of a good dairy herd is entirely dependent upon the animals which are available to replace cows which have outlived their usefulness and to replace the natural losses within the herd. The purchase of producing cows or "springing" heifers for replacements does not give the dairymen the opportunity for dairy improvement thru breeding and selection, and it is difficult to keep the herd free from disease when heifer calves are purchased.

Where there is an abundance of skim milk available the task of raising calves is comparatively simple. When whole milk is sold, it is more difficult.

The quality of the calves raised depends upon the kind of sires used, the producing ability of the dams, and the care of the calves before and after calving.

Only purebred sires of the same breed as the cows in the herd should be used. The disadvantages in the crossing of breeds are greater than any advantage which might be gained. High-grade herds are developed by using a sire of the same breed year after year. Calves which are to be raised for the future herd should be selected from the highest-producing cows in the herd.

Care of the Cow Before Calving

The condition of the cow before calving has an important bearing upon the raising of the calf. The cow which is in poor condition often gives birth to an unthrifty calf which may be hard to raise. The cow should be dry from 6 to 8 weeks before calving. After the cow is dry she should continue to receive a liberal ration of roughage and grain so that she may be in a thrifty condition when freshening. A few days before calving, the grain should be replaced with bran or some other laxative feed.

At calving time the cow should be confined in a box stall which is well bedded with clean straw. Clean quarters at calving time are essential to successful calf raising, as dirty, cold, damp stalls or corals are the sources of much navel infection and calf pneumonia.

Some dairymen prefer to leave the calf with the cow for 48 hours after calving. The advantages of this practice are that the calf gets

the first milk or colostrum, and the sucking of the calf massages the cow's udder and reduces the inflammation. Others take the calf away from the cow immediately as it is easier to teach the calf to drink if it has never nursed the cow.

If the latter method is used the calf should receive the first milk from the cow as it is laxative in nature and stimulates the digestive organs.

After calving, the cow should receive no grain for 4 or 5 days, and then should be put on full feed gradually. It is very easy to get the cow off feed at this time, and her production will be lowered.

Nutrients Required by Calves

Rations for calves must contain an ample supply of protein for building body tissues; mineral matter, especially calcium and phosphorus for development of the skeletons; carbohydrates and fats for energy; and must supply the necessary vitamins for proper development.

Whole milk contains all the necessary nutrients in the right proportion for growth and development of the calf. However, butterfat is too high-priced to feed calves for any length of time.

Skimmilk contains all of the nutrients except fat and the fat-



Pasture reduces the cost of raising calves.

soluble vitamin. Corn will supply enough fat to replace that which has been separated. Yellow corn and good-quality green-cured hay will supply the fat-soluble vitamin. Rations containing no milk can be so mixed that they will contain all the necessary nutrients.

Raising the Calf

It is always best to raise the dairy calf by hand. Letting the calf run with the cow is expensive and is not good for the calf or the cow.

When the calf is first taken from the cow, allow it to go without food for 10 or 12 hours. It will then be hungry and will learn to drink quickly. In teaching the calf to drink from a bucket, take about 3 pounds (1 quart) of warm whole milk, get the calf in a corner, straddle its neck, hold the milk bucket in one hand and with the other put two fingers in the calf's mouth. Slowly lower the head into the bucket. After doing this a few times the calf will learn and drink of its own accord.

The amount of milk to feed the calf will depend upon the breed and size of the calf. The tendency in feeding milk is to over feed in an attempt to grow the calf out quickly. The calf's stomach is small and it cannot handle large quantities of milk at one time. For the first 3 weeks the calf should be fed 3 times a day.

A Jersey or Guernsey calf should receive from 5 to 6 pounds of milk daily; a Holstein can handle from 8 to 9 pounds. After the first few days these amounts can be increased gradually so that at 4 weeks of age the smaller breeds are receiving from 10 to 12 pounds and the larger breeds from 12 to 14 pounds daily. The amount of milk should be weighed and the calves fed in individual buckets.

The temperature of the milk should be the same at every feeding, as variations are likely to cause indigestion. The ideal temperature for feeding is about 95 degrees Fahrenheit. This is about the temperature of the milk when drawn. If the calf is fed immediately after milking, the temperature of the milk will be about the same every day.

The calf should be fed at the same time each day, as regularity in feeding is very important. The bucket and trough used for feeding, should be kept clean. Milk buckets which have not been thoroly cleaned are the cause of some scours and other digestive troubles.

Skimmilk for Calves

The change from whole milk to skimmilk can be started at about 3 weeks of age, and should be made gradually. A good plan is to replace 1 pound of whole milk with 1 pound of skimmilk each day until the calves are receiving only skimmilk. At 5 to 6 weeks old the maximum allowance is from 14 to 16 pounds. If skimmilk is

DAIRY CALF-FEEDING SCHEDULE

Age Days	Whole Milk				Skimmilk				Roughage	Grain
	Small Breeds		Large Breeds		Small Breeds		Large Breeds			
	Pounds	Quarts	Pounds	Quarts	Pounds	Quarts	Pounds	Quarts	Pounds	Pounds
3 to 21	6 to 8	2.3 to 3	8 to 12	3 to 4.6					All it will eat	All it will eat
21 to 28	8 to 10	3 to 3.5	12 to 14	4½ to 5½	10 to 12	4 to 4½	12 to 14	4½ to 5½	All it will eat	All it will eat
28 to 60					12 to 14	4½ to 5½	14 to 16	5½ to 6	All it will eat	½ to 1
60 to 120					14 to 16	5½ to 6	16 to 18	6 to 7	All it will eat	1½ to 2
120 to 180					14 to 16	5½ to 6	16 to 18	6 to 7	All it will eat	2 to 3

plentiful the calves should receive liberal amounts until they are 5 or 6 months old.

Skimmilk differs from whole milk in that the butterfat has been removed. Therefore, skimmilk should be supplemented with feeds that will supply carbohydrates and fats.

Whey for Calves

In some sections of Colorado cheese factories utilize the milk supply and there is no skimmilk available. In such sections whey may be used for feeding calves if the dairyman is careful to get good sweet whey which has been pasteurized. Whey out of the "whey tank" will not give good results when fed to calves as it is invariably sour. The whey should be obtained direct from the cheese vat.

Whey contains very little protein and should be supplemented with legume hay and a grain ration high in protein. The Wisconsin Experiment Station reports good success feeding a concentrate mixture of 3 parts of cornmeal, 3 parts standard middlings and 3 parts linseed oilmeal, and legume hay with whey.

Buttermilk for Calves

Buttermilk may be fed to calves if it can be obtained free from wash water and direct from the churn. Buttermilk which has been allowed to stand in a buttermilk tank is usually too sour and is diluted with water. When feeding either buttermilk or whey it should be fed all the time. Changing from whey to skimmilk or buttermilk from time to time will cause digestive troubles.

Milk Substitutes for Calves

In sections where whole milk is sold for market-milk trade the expense of raising calves is very high unless some substitute for milk is used.

Calf Gruels.—Calf gruels may be substituted for milk and give good results if fed warm and immediately after mixing.

The Wisconsin Experiment Station reports good results in feeding the following gruel:

Fine cornmeal	25 pounds
Flour middlings	25 pounds
Ground and sifted oats	25 pounds
Soluble blood flour	10 pounds
Linseed oilmeal	12 pounds
Salt	1 pound
Steamed bonemeal	1 pound
Finely ground limestone	1 pound

In preparing the gruel 1 pound of meal was mixed with 5 pounds of water at blood temperature and fed immediately after mixing. After a gradual change from milk to gruel, the amount was slowly increased until 15 pounds of the fluid mixture was fed daily. The gruel was supplemented with a dry concentrate mixture of 30 parts corn, 30 parts oats, 30 parts bran and 10 parts linseed oilmeal. Clover hay and water were fed freely.

Commercial Calf Mixtures

Commercial Calf Meals.—There are a number of commercial calf meals on the market which are giving good results. When there are only 2 or 3 calves to raise it is probably simpler and cheaper to buy one of these ready-mixed calf meals than to mix it.

Skim milk Powder.—Skim milk powder may be substituted for skim milk. Mixing 1 pound of skim milk powder to 8 pounds of warm water and feeding immediately will give good results. The cost of the skim milk powder will determine whether it will be profitable to feed or not.

Dry-Fed Calf Mixtures.—The New Jersey Experiment Station has developed a dry-fed calf mixture which has given good results. This mixture consists of:

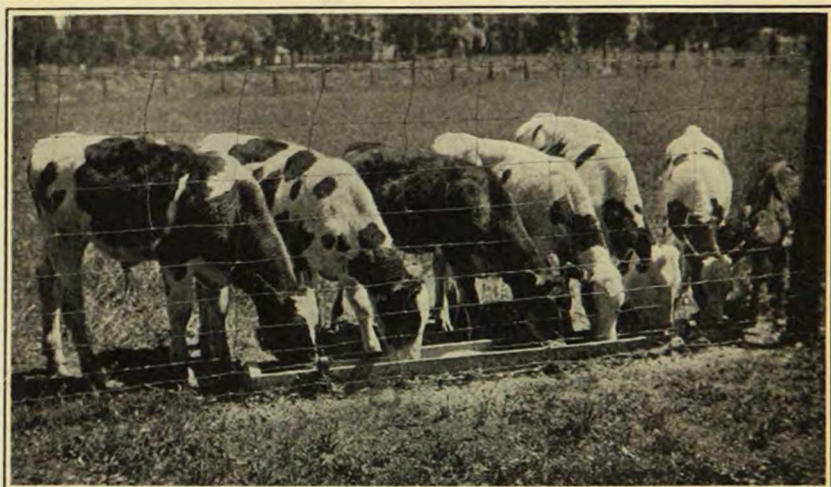
Ground oats	150 pounds
Wheat bran	50 pounds
Yellow cornmeal	100 pounds
Linseed oilmeal	50 pounds
Soluble blood flour	50 pounds
Finely pulverized steamed bonemeal ..	4 pounds
Finely pulverized limestone	4 pounds
Salt	4 pounds

When the animals are 1 week old they receive a small amount of the mixture in addition to the milk they are receiving. The mixture is fed dry in the feed box. Alfalfa or clover hay should be put before the calves when they are a week old.

At 3 weeks of age, the calves' milk should be diluted with water until at 1 month they are subsisting on dry-fed calf mixture, alfalfa hay and water. At 1 month of age the calves should be receiving 1 pound of mixture. At 5 months they should be receiving 5 to 6 pounds daily. At 6 months of age the calves can be taken off this mixture and put on a good growing ration.

Grain for Calves

Calves should be induced to eat grain at as early an age as possible. By putting a small amount of grain in the feed box immediately after feeding milk, the calves will begin to eat a small amount when



Calves should receive grain at an early age.

a week old. Whole oats or corn are good grains to start the calves on. When they are about a month old a mixture of grains should be fed. When alfalfa hay is available the following mixture will give good results:

Corn	300 pounds
Oats	300 pounds
Bran	400 pounds
Oilmeal	100 pounds
Alfalfa hay	

If the roughage available is low in protein such as cane or millet hay, a ration consisting of

Corn	200 pounds
Oats	200 pounds
Bran	400 pounds
Linseed oilmeal	100 pounds

will give good results.

The above rations may be varied considerably and good results obtained. Use all the home-grown grains possible in mixing the growing rations.

The calves should receive only as much grain as they will consume at a feeding. It is not a good plan to have grain left in the feed trough from one feed to another, as the remaining feed will sour.

Roughages for Calves

Alfalfa hay of good quality is the best roughage for calves.

It is high in protein and mineral matter, especially phosphorus and calcium, and good green alfalfa hay contains the vitamins necessary for growth. This roughage is relished by calves. They will begin eating it at a very young age.

Good-quality alfalfa hay should be kept before the calves at all times if it is available.

In the non-irrigated sections millet hay or hay from sorghums may be fed; however, the grain ration should contain more protein and mineral than that fed in the alfalfa sections.

Succulent Feeds for Calves

Silage is a satisfactory succulent feed for dairy calves. It should be free from mold and not too acid. It is not advisable to feed silage to calves under 2 months of age as they will consume only small amounts and it is laxative in nature and may cause scours.

At 2 months of age they will consume about 2 pounds of silage daily; at 6 months they will eat about 10 pounds per day.

Roots make an excellent feed for dairy calves. Like silage they should not be fed until the calves are 2 months old.

There is no better succulent feed for calves than pasture. They should be put on pasture gradually as green grass is very laxative.

Minerals for Calves

Calves receiving milk and alfalfa hay do not need mineral mixtures in their rations. When a calf gruel or dry feed is substituted for milk it is well to add some mineral mixture.

Salt should be fed as soon as the calves start eating grain and hay.

Water should be supplied to the calves even tho they are receiving milk. It should be kept before them at all times.

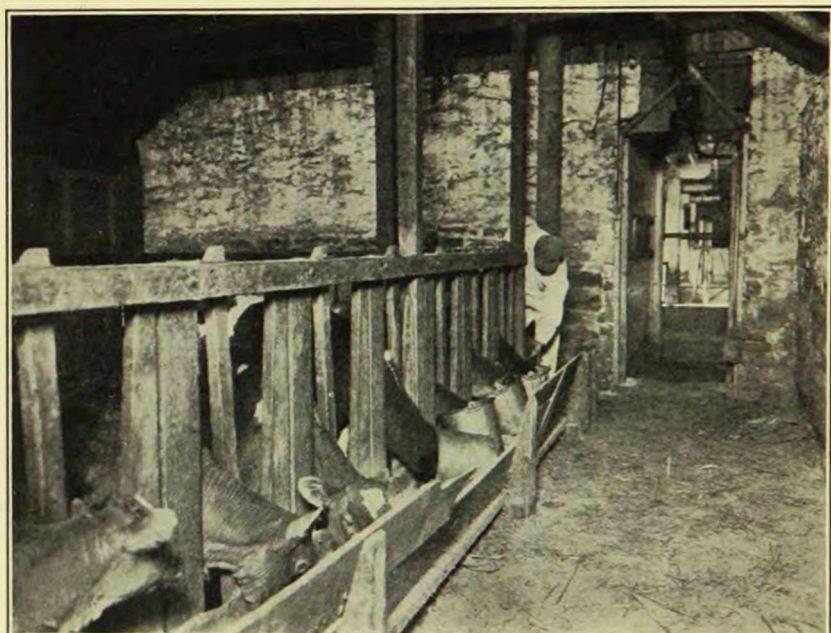
Quarters for Calves

Clean dry quarters eliminate many of the difficulties in the raising of calves. Plenty of dry bedding is essential if the calves are to do well. The calf pen should be large enough to allow the calves to exercise freely. Exercise is necessary if the calves are to be kept in a thrifty condition.

If the calf pen is fitted with stanchions, handling of the calves will be comparatively simple. When stanchions are used for feeding calves, each calf gets its allotted quantity of feed, and the calves will not develop injurious habits such as sucking ears. Stanchions should be about 40 inches high with a 4-inch opening for the calf's neck.

Little trouble will be experienced in raising calves if the dairyman will:

Feed regularly



Calves should be fed in stanchions.

Weigh or measure accurately all feeds fed, except roughage

Change feeds gradually

Feed milk or gruel at the same temperature each day

Keep buckets, troughs and pens clean.

Common Calf Ailments

Scours from Indigestion.—Scours or diarrhea is one of the common ailments of calves. It causes loss in weight, retards development and may cause death if not checked. Scours are caused by unclean buckets or troughs used in feeding, irregular feeding, over-feeding, feeding of sour milk, abrupt changes in feeding, or dirty, damp, cold calf pens.

Scours can be avoided by using sanitary methods in handling calves and by being regular in time, temperature and amount of milk fed.

As soon as scours are noticed, reduce the milk fed about one-half. One or 2 ounces of castor oil should be given to remove the irritant from the bowel. Formalin may be used to check scours but it must be used carefully. Put 2 drops of formalin for each 1 pound of milk in the milk. The formalin acts as an intestinal antiseptic.

B-K may also be used; the usual dose is 1 to 1½ tablespoonfuls in the milk at each feeding.

A simple but effective treatment is the use of blood meal in the milk. One tablespoonful in each feed will often times check scours.

White Scours.—Infectious dysentery appears shortly after birth and is noted by light-colored, offensive droppings. The calf will usually die within 3 or 4 days.

As white scours are very infectious, cows should not be allowed to calve in corrals or stalls where calves have had this disease. In favorable weather the pasture is the best place for calving if white scours have previously affected calves. A veterinarian should be called as soon as white scours are noticed.

Calf Diphtheria.—Calf diphtheria has been the cause of the death of many Colorado calves. The symptoms of this disease are slight fever, weakness, languor, ulcers in the mouth and slobbering. Swallowing becomes difficult and an offensive odor is exhaled. As the disease progresses the tongue becomes very swollen.

The infected animal should be separated from the herd. Stalls and sheds should be disinfected.

Treatment for calf diphtheria consists of frequent swabbing of the affected areas with tincture of iodine. A veterinarian should be called to treat calf diphtheria when possible.

Pneumonia.—Calf pneumonia is one of the common ailments. The symptoms are coughing, rapid and difficult breathing, abnormally high temperature, and running at the nose.

Pneumonia is commonly brought on by chilling and should be treated by a veterinarian.

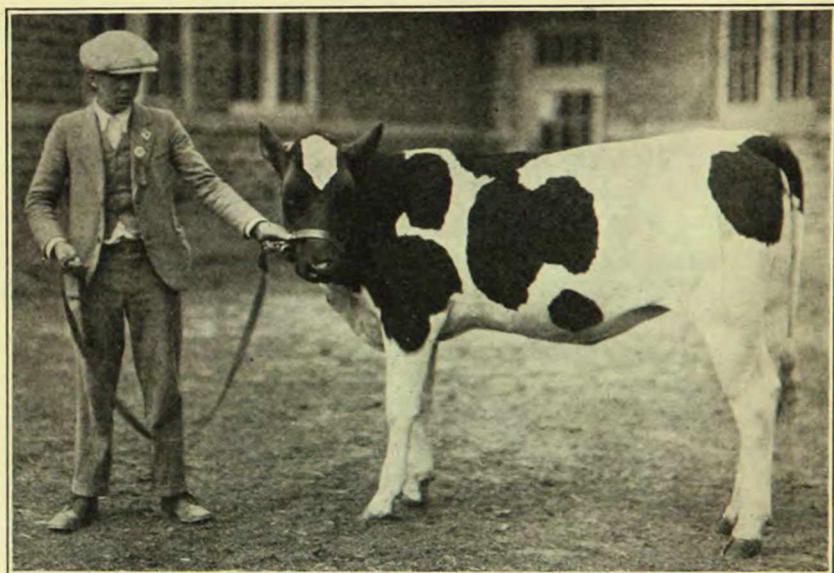
The calf should be kept in a clean, well-ventilated barn, free from drafts, and should be kept warm with a blanket. The bowels should be kept open.

Mange.—The loss of hair around the head and neck is sometimes called mange. This loss of hair, however, is usually caused by ring worm—a fungus growth. Treatment consists of rubbing the affected areas with tincture of iodine. If the condition becomes generalized, spraying with coal-tar dip will control the ailment.

Black Leg and Hemorrhagic Septicemia.—All calves are susceptible to these two diseases. The only insurance against them is to have the calves vaccinated.

Lice.—Lice are usually more troublesome in the winter than in the summer. They may become so bad that they cause the calves much discomfort and loss of flesh.

Treatment for lice consists of dipping or spraying the animals frequently with a coal-tar dip.



The successful 4-H calf-club member fits his calf for the show ring.

Showing and Fitting

Members of 4-H dairy calf clubs usually show their calves at one or more county fairs each season. The champion club member from each club is allowed to take his or her animal to the Colorado State Fair.

If the member is to make a good showing with the calf, a few simple rules must be followed.

If the club member intends to show his or her calf, the calf should be selected carefully for breed type and should be calved as near after February 1, or August 1, as possible, for these are the calving dates which will determine whether it is junior or senior classification. Other things being equal, the larger calf has the advantage over the smaller calf.

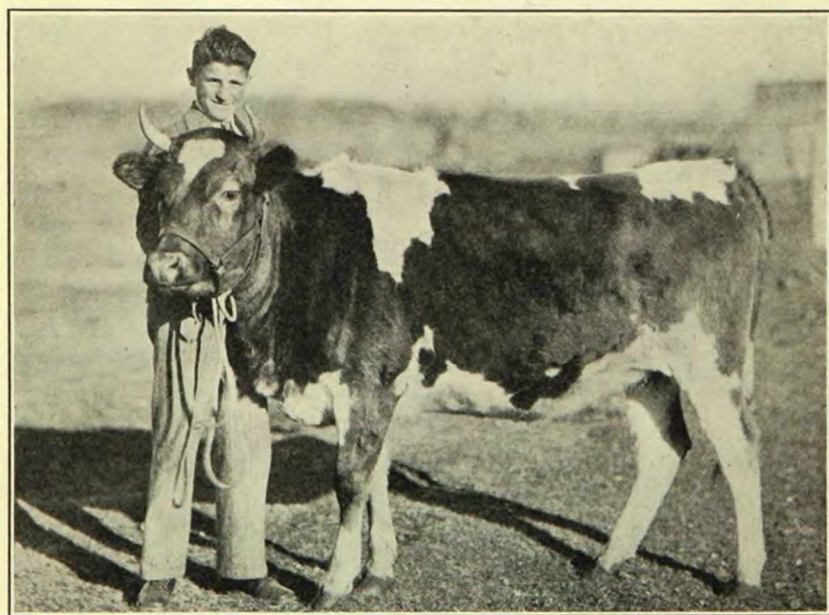
Fitting.—The calf should be broken to lead at an early age. The calf which is well behaved in the show ring has the advantage over one which cannot be controlled.

Young dairy stock should show a large body with plenty of feed capacity without being “pot bellied.” This can be accomplished by keeping the calf growing at all times. Never let the calf become unthrifty. Keep plenty of legume hay before it all the time.

The calf must be in sleek condition if it is to show to the best advantage. The hair and skin must show good quality. A fitting ration should be fed to the calf from 8 to 6 weeks before it is to be shown.

Feeding before the show is the most important part in preparing the animal for the show ring. The following ration is suggested for fitting young dairy stock:

Ground oats	100 pounds
Ground corn	100 pounds
Bran	100 pounds
Linseed oilmeal	100 pounds



The successful 4-H calf-club member grows his calf out well.

Alfalfa Hay at Will

If skimmilk is available it should be fed as long as the calf will take it.

The calf should be brushed each day; this will keep the hair in good condition. A blanket made out of burlap sacks will help to mellow the hide and keep the hair fine. In preparing the calf for the show it should be blanketed at all times during the fitting period.

The animal must have a neat, clean-cut appearance. Clipping the long hair will add to the appearance of the animal. It is a good plan to clip the animal about a week before the show.

The hoofs should be cleaned and polished. Linseed oil can be used to polish them.

Smooth, well-polished horns add to the appearance of the calf. Use a rasp or piece of window glass to smooth them down. Polish with a piece of emery cloth, a wool rag and linseed oil.

Washing is important if the animal is to look its best. Tar soap and luke-warm water should be used in washing. The night before the calf is to be shown, wet the switch of the tail and braid it. When combed out the next morning it will be fluffy and attractive.

Showing.—Have your calf ready to show at the time they are to be judged. Show the calf with a halter which is neat and clean. Do not use a dirty horse halter on a calf and do not have a lot of extra rope tied on the halter.

When your class is called, bring the animal out promptly. Do not delay the judging because you are not ready. When entering the show ring, walk the animal around slowly. When the judge asks you to line up, act quickly, but do not hurry the animal too much. Bring it up in the line slowly and get the feet under the animal squarely. In posing the dairy animals, they should not be stretched; all four feet should be squarely under the body.

Keep the animal on level ground, or better still, have the forefeet slightly higher than the rear. Never allow the forefeet to be lower than the rear feet. Keep the head up all the time and never quit showing your animal. Someone is always looking and it may be the judge.

Do not become discouraged if your animal does not win. Only one calf can be first. If yours does not win this year it may the next. Try to find out what the points of your calf are, upon which the judge placed it down.