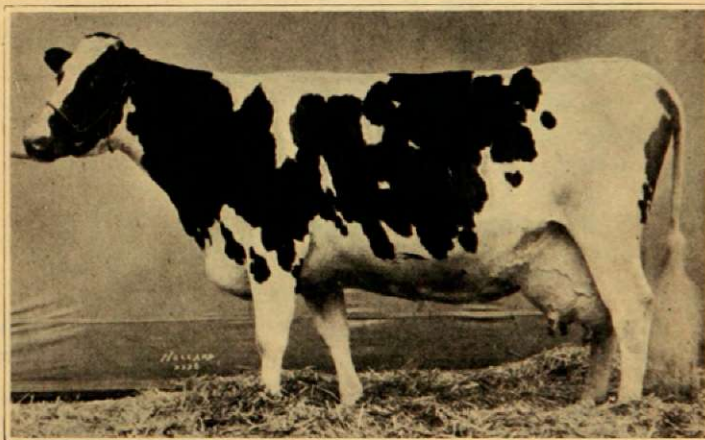


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CARE OF THE DAIRY HEIFER

by B. W. FAIRBANKS



Korndyke Sarcastic Solie 2nd 223966—Bred and Owned by Colorado Agricultural College, Fort Collins, Colorado. Grand Champion Holstein Cow, National Western Stock Show, Denver, 1922

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CARE OF THE DAIRY HEIFER

By B. W. FAIRBANKS

The success in developing a dairy heifer into a good producing cow depends upon the earnest efforts of the owner, and the individuality and breeding of the calf. Excellent feed, good care, or proper management cannot make a good dairy cow out of a poorly bred, "off type" heifer. If in doubt as to where good heifers can be obtained, consult your County Extension Agent.

SECURING THE HEIFER CALF

Type to Select: A good dairy heifer is the future good dairy cow. So most of the points which are to be seen in a good dairy cow are to be found in the good dairy heifer. The differences existing are for the most part differences in development only.

A great amount of information can be obtained from a study of the head of the heifer calf. The head is an excellent index to the breeding, quality and value of the animal. The eye should be large, bright, clear, indicating good health; the face should be medium in length, free from fleshiness, showing an expression which the true dairyman cannot refrain from calling "sweet"; the nostrils large and well dilated to allow for the entrance of plenty of air; the muzzle large and broad, indicating a good feeder, and the jaw should be strong.

Many dairymen look for a yellow, waxy secretion in the ears, which they believe to be an indication of a good dairy cow.

The constitution can be judged in part by standing in front of the heifer calf. We do not like a calf that stands with the front legs close together. This is an indication of poor constitution. The legs should be straight and wide apart, making room for a wide chest floor.

The calf should be examined next from the side. The neck should be neat, slim, and medium in length. A short, thick neck is desired on the beef animal, but upon the dairy animal it is never associated with good dairy type or high milk production. The neck should blend neatly into the shoulder which should be rather spare in flesh and come to a point at the withers.

From the side and by standing back a little distance, we can get a view of the general outline of the heifer. The top line should be straight from the point of the shoulders to the root of the tail.

The back should be of good length to make room for a large middle which is so essential in the high-producing dairy cow. The rump should be long and level, for it has been observed that cows with long, level rumps usually have udders which have good length and floors that are level. A strong, robust constitution, and a large, roomy middle, capable of holding large quantities of feed, are two important considerations in the ideal dairy cow, and indications of these should be looked for in the heifer calf.

The calf should not be constricted in the spring of its ribs; the loin should be long and level, and the thighs thin. The skin should be soft and pliable, and the hair should feel silky to the touch. Skin and hair are good indicators of quality and health.

The udder of the heifer has not yet developed, but it should be carefully examined, as the udder is one of the first considerations in the dairy cow. There should be four good-sized and well-placed teats. If there are more than four, they should have been removed when the heifer was small, and we do not like them now, for they will be troublesome later on when the calf has come into milk. This undeveloped udder should be soft and pliable, and most dairymen like to see plenty of size in it. The age of the heifer should always be considered when we are judging the udder of the heifer calf. The skin between the thighs should be soft and elastic, showing abundance.

What Breed to Select: There is no best breed of dairy cattle. Some breeds may be adapted to some conditions better than others, but the question of which is the best breed cannot be answered. It is generally a good plan to select the breed that you like the best, and the one with which you are most familiar, providing that it is adapted to your conditions and purposes. It would be an excellent thing if all of the boys and girls of one club would select the same breed.

The four important breeds of dairy cattle in our country are Jerseys, Guernseys, Ayrshires, and Holsteins. There are some cows of the Shorthorn breed which are good milkers. Some boys and girls may be living under conditions where the Shorthorn breed would be the best one to select. Upon the dry land where feed is often scarce and conditions rather severe, the Shorthorns may be better than some of the dairy breeds, because of their ability to withstand such adverse conditions. There also may be some mountain sections in which the Shorthorn breed would be advisable. If your conditions are adapted to the dairy business, however, most men would advise one of the dairy breeds.

In breeds there are good individuals and poor individuals, so that the point of importance is to select a good individual, no matter what the breed.

CARE AND MANAGEMENT OF THE HEIFER

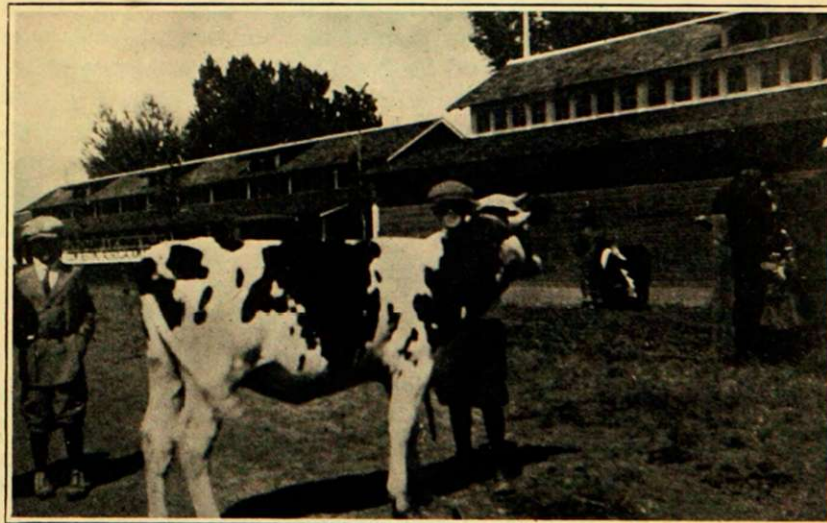
Feeding and Care: The majority of the calf club members will start their work with calves that are from twelve to eighteen months of age. There is nothing better for the growth and development of the heifer calf than a good pasture with plenty of shade and an abundance of water. Heifers under such conditions need little extra attention or feed.

The following pasture mixture is recommended:

Morton's Pasture Grass Mixture

Brome Grass	15 pounds
Orchard Grass	15 pounds
Meadow Fescue	10 pounds
Timothy	6 pounds
Yellow Blossom Sweet Clover..	4 pounds

In the absence of pasture, plenty of clean, bright alfalfa or clover hay, supplemented with some grain, must be fed. Such feeds as corn meal, kaffir meal, ground barley, wheat bran, linseed



This boy is a successful calf club member. His heifer won first place.

meal, cottonseed meal, etc., may be used. The following grain mixture is offered merely as a suggestion:

Corn Meal	5 parts
Ground Oats	7 parts
Wheat Bran	5 parts
Oil Meal	3 parts

A safe rule to follow in the feeding of grain to calves is to feed one pound of grain for the first 100 pounds live weight, and increase the grain one-half pound for each additional 100 pounds live weight.

If no leguminous hay, such as alfalfa or clover, is available, it will be necessary to feed a grain mixture which contains more protein. Protein is that food nutrient which is used by the animal for building up its body. The following has been suggested as a grain mixture when alfalfa or clover hay is not fed:

Corn Meal	2 parts
Bran	1 part
Linseed Meal	1 part

Gluten meal or cottonseed meal may be substituted for the linseed meal in the above grain mixture. In addition to this mixture, from 10 to 25 pounds of silage should be fed daily together with all of the dry roughage that the calf will consume.

Age to Breed: Heifers that have been well fed and are in a good, thrifty condition can be bred when from 16 to 20 months old. No definite time can be set, for the time of breeding depends upon the size, condition and breed of the heifer. Animals that are under-size or out of condition should be given plenty of time to complete their growth and development before they are bred. After a heifer is bred, she will make little or no growth. A large number of the small cows, that we see upon our farms, are such, because they were bred too early in life. Early maturing breeds such as the Jerseys may be bred at twelve months, but it would be far better to wait two months longer. Those breeds which are somewhat slower in their maturity than the Jerseys, such as the Holsteins, should not be bred before they are eighteen or twenty months old.

Keep a record of the date on which you bred your heifer so that you will know when to expect the calf. A normal heifer will freshen from 280 to 290 days after she is bred. This is called the gestation period.

Preparing the Heifer for Calving: During the gestation period the heifer is not only nourishing her own body, but she is also nourishing a growing calf within her. During these months the

embryo calf is making a rapid growth. We must, therefore, feed the young heifer accordingly. Give her plenty of feed which is palatable, easy to digest, and those which are rich in the necessary food nutrients. As a suggestion, the following grain mixture may be cited:

Ground Oats	1 part
Wheat Bran	1 part
Oil Meal	1 part

The heifer should also be receiving the required amount of hay. Silage is also quite essential and in the absence of this succulent feed, soaked dried beet-pulp or roots may be used as a concentrate.

It is advisable to have the heifer in good condition when she freshens. After she is milking, she will milk the fat off her back and into the milk bucket, if she is a heifer of the right dairy temperament. The fat which has been put upon her back by the feeder is not wasted, but is returned to him in valuable butter fat.

As the date of calving approaches, laxative feeds such as wheat bran, dried beet-pulp, or oil meal should be given. If the heifer is upon pasture, the addition of these laxative feeds will not be necessary. Bright, clean, alfalfa hay and silage is an excellent combination of feeds at this time if the heifer is in dry lot.

Watch the heifer very closely from this time until the calf is born. When the udder becomes swollen and quite hard, and a hollow appears upon each side of the tail head, due to the relaxing of the muscles in this region, the calf may be expected within a day or two.

Prepare a clean and well-bedded box-stall in which the heifer may freshen. If she shows signs of constipation, give her a dose of Epsom Salts.

Care at Calving Time: During the time of calving, the heifer should not be bothered or annoyed, unless it is absolutely necessary. If she is having trouble, call some one who has had considerable experience in the handling of such cases. Do not attempt to give her assistance unless you are confident that you know how to do the right thing at the right time. A discussion of the care of the heifer at the time of calving, which would cover all of the problems which might present themselves, and what to do in each particular case cannot be given in a bulletin of this size. The warning can be given that in cases of difficult calving, an experienced man should be called, or you are apt to lose both the heifer and her calf.

The heifer should be kept free from all cold drafts. During the first two or three days after calving, she should be given luke warm water to drink. The only feeds necessary at this time are those which are cooling and laxative and these in limited amounts.

THE FEEDING OF THE HEIFER IN MILK

General Requirements: It is well known that our dairy cows do their best when they are grazing upon good pastures. It should be the aim of the dairyman to imitate as much as possible the conditions of the pasture when he is feeding for economical milk pro-



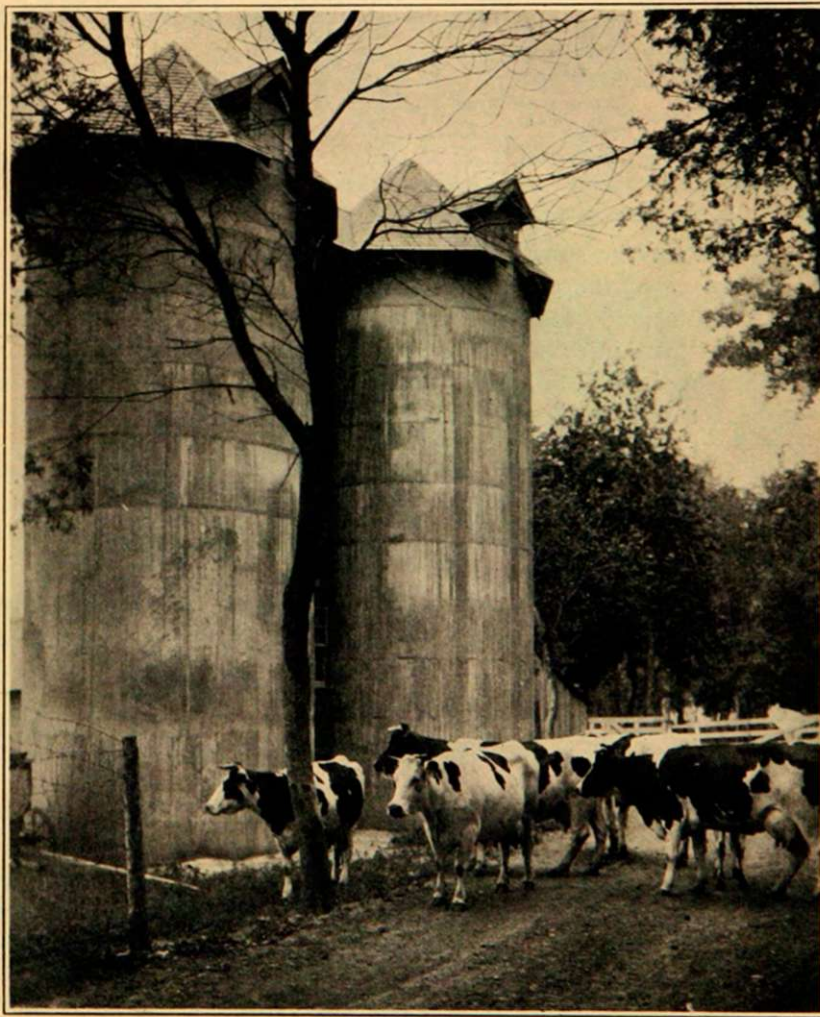
Dairy cows do best when grazed upon good pasture. This picture shows part of the Agricultural College herd on pasture.

duction. In other words, use a system of feeding which is known as the "June Pasture Standard." This standard has the following points: Feed abundantly; feed a balanced ration; feed a succulent feed; feed those feeds which are palatable; and furnish comfortable surroundings. The closer the dairyman comes to following the "June Pasture Standard" the more apt is he to make dairying profitable.

Feed Abundantly: Liberal feeding is one of the prime factors in profitable dairying. The greater amount of feed that we give a cow goes toward the maintenance of her body. The surplus feed goes for the manufacture of milk. It can be readily seen that the cow which is only receiving a small amount of feed may be using it all for the maintenance of her body, leaving none for the manufacture of milk. When liberal feeding is practiced, we are able to feed a greater variety of feeds. A ration containing several feeds is relished more by the cow, consequently she will consume more feed than otherwise. It is easier to digest, and it is more apt

to supply all of the requirements of the body and of milk production. This feed must be fed regularly, for low production always follows irregular feeding. Regularity is as important as kindness. To aid digestion and to stimulate appetite, keep salt before the dairy animals at all times. A small box may be securely placed in one corner of the lot or pasture, and in this the salt may be kept.

Suggested Dairy Rations: The following rations are suggested



Full silos insure contented cows and lots of milk.

in the feeding of the heifer in milk. Each feeder must work out

his own rations for his own particular conditions, but a few suggested rations may be of some assistance.

Ration No. 1	Ration No. 2	Ration No. 3
250 pounds ground oats	225 pounds corn chop	175 pounds ground oats
100 pounds ground barley	200 pounds ground oats	100 pounds ground barley
100 pounds corn chop	150 pounds dried beet pulp	Legume hay and silage
Legume hay and silage	25 pounds cottonseed cake	
	Legume hay and silage	

The following ration may be a suggestion for those working under dry land conditions:

Linseed Meal	330 pounds
Cottonseed Meal	100 pounds
Bran	100 pounds
Corn Chop	100 pounds
Millet hay, sorghum hay, milo hay, kaffir hay, sudan hay, or oat hay.	

Kaffir may be substituted for the corn. Linseed meal may be used in place of the cottonseed meal, and it would make a better feed for the cow, but under Colorado conditions linseed meal is usually too high in price. Under most of the dry land conditions it will be necessary to buy some of the mill feeds which are high in protein, for it is in this food nutrient that most of the dry land crops are lacking. Prairie hay, native hays, cane hay and like roughages may be used in place of the corn stover or in the replacing of part of it. Silage has been included in this dry land ration for it is thought that if dairying is to be profitable in the dry-land regions, silage must be fed.

Feeding Rules: It is impossible to give any rule which can be used blindly in the feeding of dairy cattle. The real value of a rule in feeding is merely that of a guide. The following rules are well known and generally advocated:

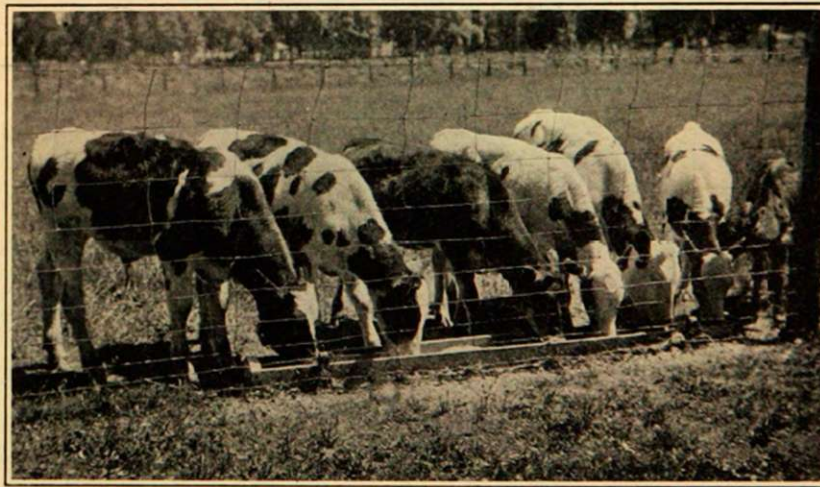
1. Feed 1 pound of concentrates per day for each pound of butter fat the cow produces in a week.
2. Feed 1 pound of concentrates for each four pounds of milk produced.
3. Feed about 2 pounds of dry roughage or 1 pound of dry roughage and 3 pounds of silage daily for each 100 pounds of live weight.

MILKING THE HEIFER

Previous Training: Before the calf is born, it is best to get the heifer accustomed to the place in which she is to be milked

and also accustomed to being tied. This training should start about a month before she calves. Handle her daily, but handle her carefully, particularly at first. Be gentle with her at all times, and in moving about her, go slow and refrain from loud talking and other noises. A little patience with the heifer at this time, will save a great amount of trouble in the future.

The First Milking: The first time that the heifer is milked it should be done very carefully. Always act in the manner which is less likely to excite her. Milking is considered a chore that can be done by anyone. Good milking, however, is not an easy operation to learn, nor is it something that anyone can do. Some milkers can get 20 per cent more milk from an animal than another, just because they understand their work and take an interest in it. Milk her as quickly as possible. Milk her dry, making sure that you have stripped her well. In milking, use the entire hand, first



Plenty of skim milk and good pasture make large, healthy calves.

closing that part of the hand next to the udder, then forcing the milk out by closing the rest of the hand. Do not milk with the thumb or forefinger, or with the thumb curled within the palm of the hand. Always milk the heifer with clean, dry hands. This is a sanitary precaution and by having the hands dry there is less danger of the heifer having sore and chapped teats. A bottle of vaseline in the dairy barn is a very handy and useful thing to have when the heifer has sore teats.

RAISING THE CALF

The Skim Milk Calf: Under most conditions in Colorado the price of butter fat makes many dairymen hesitate to feed whole milk to their calves. Whole milk is nature's feed for the calf, but skim milk, when properly supplemented, will, in the light of many experiments, make a feed which is equally as good. Whole milk may make a better calf than skim milk, but not necessarily a better cow. Skim milk is the whole milk after the fat has been removed by the farm separator, as we all know, so we must supplement the skim milk with those feeds which are high in those energy-giving food nutrients, which we call carbohydrates and fat. Such supplements are corn meal, kaffir meal, ground barley and like feeds. The following may be suggested in the feeding of skim milk to calves:

Ration No. 1		Ration No. 2	
Ground Oats	1 part	Ground Barley	2 parts
Ground Barley	1 part	Ground Oats	2 parts
Wheat Bran	1 part	Wheat Bran	2 parts
Skim Milk		Linseed Meal	1 part
Hay.		Skim Milk.	
		Hay.	



With a little patience anyone can teach a calf to drink. Be sure that the milk is fresh and warm.

Corn meal or kaffir meal may be substituted for the ground barley in the above grain mixture.

Getting the Calf on Feed: The calf should nurse its mother for the first few days, after which time it should be fed by hand.

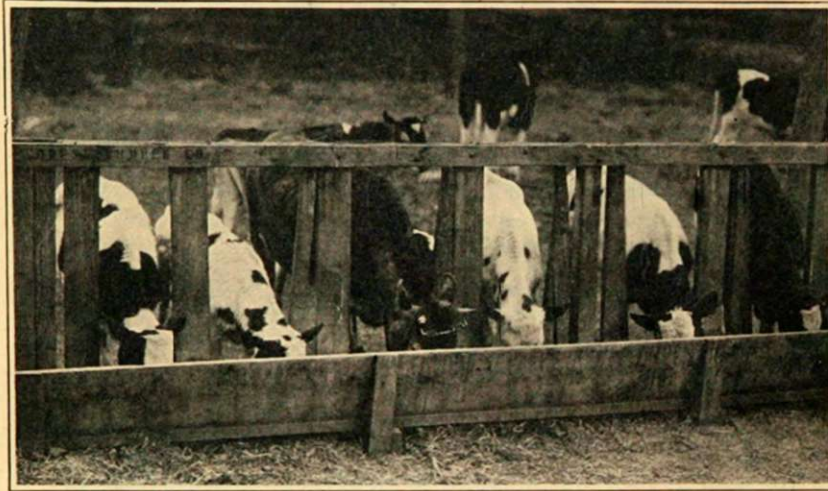
If the heifer is a heavy milker it will be necessary to see that the calf does not get an over-feed of milk. The stomach of the calf at this time is not very large, and over-feeding of milk predisposes digestive troubles.

In teaching the calf to drink from a bucket, push the calf gently into a corner, being careful not to scare it any more than is necessary. Into the bucket put about three pints of its mother's milk, being sure that the milk is fresh and warm. Place two fingers into the calf's mouth, and when it starts to suck the fingers, lower the nose into the bucket. Mr. Hayne, writing in "The Cow"—"The Mother of Prosperity," states, "A man who can't teach a 5-day-old, hungry calf to drink, isn't making use of the brains that an ordinary man should have."

As the stomach of the calf is quite small, about five or six pounds of whole milk is all that will be necessary in the beginning. As the calf grows this amount is very gradually increased. It will not be necessary to feed over 8 or 10 pounds daily to a Guernsey or Jersey calf during the first three or four weeks. Calves of the larger breeds will require from 10 to 12 pounds daily during the same period. Feed the milk as fresh as possible and at blood temperature. This temperature should be determined by a thermometer and not merely by guess.

Changing to Skim Milk: When the calf is from two to four weeks old, the whole milk can be replaced gradually with skim milk. The exact time of the starting of the change will depend upon the condition of the calf. Upon the first day of the change, replace 0.5 to 1.0 pound of the whole milk with an equal amount of the skim milk. The second day a like substitution will be made, and so on each day, until the calf is receiving nothing but skim milk. This makes for a gradual change and no ill results will follow. The amount of the skim milk will be increased in amount as the calf grows in size and gets older. When the calf is about six weeks old it should be receiving about 18 pounds of skim milk daily. The skim milk feeding of the calf may be continued until the calf is from 8 to 10 months old. Calves may be weaned younger than this if it is necessary, but it would be much better if the feeding of the skim milk could continue until the calf is 8 or 10 months old.

Starting Calf on Grain: It is best to start the calf upon grain as soon as possible. The first grain may be given to the calf as early as the first or second week. Corn meal, ground oats, wheat bran, kaffir meal, alone or in various combinations, can be given to



When calves are fed grain in stanchions, each gets its share.

the calf at this early age. Put a little of the grain in the bottom of the bucket after it has finished drinking. The calf will soon get the taste of the grain and will apparently crave for it. Often some calves are a little slow in cultivating the taste for grain, and with such calves, a little grain rubbed upon the nose will assist in starting them upon the grain feed. At six weeks of age the calf will eat 0.5 pounds of grain a day; at two months, 1 pound, and at three months, 2 pounds. Two pounds of grain daily are enough until the calf is six months old.

The calves should be fed in stanchions, so that each one will get its share. This will help to prevent the calves from sucking each other. After the feeding of the milk, place in the manger a little box containing the grain feed. Equal parts of oats and bran make an excellent calf feed.

The Feeding of Hay: The feeding of hay to the calves can be started at the same time that they are being taught how to eat grain. At first they will eat about as much grain as they will hay. This amount will be gradually increased until the calf is six months old, at which time it will be eating about three times as much hay as grain. Hay which has been cured early and is bright in color, fine and leafy, makes the best hay for a calf at this time.

Succulence: Some silage may be fed when the calf is from 6 to 8 weeks old. To calves which are just starting to eat silage, about 2 pounds daily will be ample. The silage must be from well-

matured corn and be free from mould. The first few feedings of silage should consist almost entirely of the leaves of the corn plant. If roots are available, they make an excellent succulent feed for the calf.

FITTING FOR SHOW

The following is taken from Colorado Extension Bulletin Series No. 171—Entitled “Fitting Livestock for Show” by Chas. I. Bray.

“Dairy type and form should be the prime considerations in selecting for show, the breed type must always be taken into account. For cows, a large capacious udder, flexible, and with well-placed teats is of greatest importance in any breed. Dairy temperament is indicated by large, long milk veins, rich secretions in skin and ears, sharp withers, prominent hips, well-shaped ribs, long, thin neck, and lean thighs. Capacity is shown by a large barrel, full fore flanks and chest, and strong muzzle. Strength and constitution are judged by general vigor and vitality, strong, straight back, full, bright eyes, full heart girth and active walk. Quality is determined by pliability and fineness of skin and hair, and by reasonable fineness of bone. Drooping rumps and deficient front udders are serious objections in show cattle. They are found in many heavy producers.

“Dairy cattle must be fitted but they are not fattened like beef animals. The object of fitting is to put the animal in good healthy condition, and have the skin and hair soft and pliable. Any satisfactory dairy ration fed in the right amount will keep the animal in right condition. A little more corn or barley may be advantageous for cows inclined to be thin. A good ration might consist of equal parts of ground oats, wheat bran, and corn or barley. One or two pounds of linseed meal daily will tone up digestive system and will improve the feel of the skin and hair. With good hay and a little roots or silage, the ration will be complete. Such a ration will do for young stock or bulls. Mature breed bulls are not fed much silage.

“Considerable attention must be paid to the skin and hair of dairy cattle. A dairy animal with thick hide or wiry hair always shows at a disadvantage. Neglected animals rarely exhibit good handling qualities. Improvement of the skin and hair is brought about by regular grooming, good feeding, blanketing, clipping and washing. Grooming aids in keeping the animal in health, in addition to improving the coat. Use a medium brush. Dairy cattle are usually blanketed to keep the coat thin. For late fairs they are generally clipped. In some cases only the neck, under part of the body and thighs are clipped, together with the tail, face, ears and udder. The object of clipping is to show clearly the quality and dairy form. The milk veins show up more prominently, and the animal appears leaner and of final quality. There is considerable advantage in having the cow fresh or nearly so at the time of showing. A large part of the score for dairy cows is on the udder and milk veins, and these naturally show to a better advantage when the cow is fresh. Cows are generally taken into the ring un milked to show the udder as large as possible. The judge may order such cows to be milked out so as to determine the quality of the udder when empty. Polish horns, wash and train to stand as with beef cattle. In washing Holsteins a slight amount of blueing added to the water used in rinsing will make the hair appear whiter.”

Colorado Agricultural College
ANIMAL HUSBANDRY DEPARTMENT
 Students Score Card
DAIRY COW

SCALE OF POINTS		Perfect Score
DAIRY FORM—30 Points		
GENERAL OUTLINE—Well proportioned, symmetrical	2	
HEAD—Medium, long, clean cut, lean	3	
NECK—Long, slim at throat, neatly joined to shoulders, light dewlap	2	
WITHERS—Narrow, sharp, vertebrae above shoulder blades	2	
SHOULDERS—Sloping, smooth, blending well with body	2	
BACK—Straight, strong	3	
RIBS—Long, deep, well sprung	3	
LOIN—Broad, strong	2	
HIPS—Wide, hip points high and prominent	3	
RUMP—Long, level, wide, pin bones wide apart and high	2	
TAIL—Neatly set on, long and tapering	1	
THIGHS—Spare, not thick or fleshy	3	
LEGS—Straight, medium short, well set	2	
Total on Form	30	
CAPACITY—12 Points		
SIZE—Sufficiently large; age and breed considered	3	
BARREL—Deep, long, capacious, roomy	5	
MUZZLE—Broad, mouth large, jaw strong and wide	2	
HINDQUARTERS—Wide, roomy, pelvis long	2	
Total on Capacity	12	
DAIRY TEMPERAMENT—12 Points		
DAIRY TYPE—Wedge shaped, angular, lean, especially when in milk	4	
NERVE FORCE—Alert, eyes bright, forehead broad, vertebrae open, ribs broad and wide apart	3	
SECRETIONS—Yellow, abundant in ears and skin	2	
FEMININITY—Refined, maternal	1	
BREED TYPE—True to type of breed, grade cows showing high per cent pure blood	2	
Total on Dairy Temperament	12	
CONSTITUTION AND VIGOR—10 Points		
CHEST CAPACITY—Deep, wide between fore legs, heart girth large, full behind shoulders	5	
STYLE AND VIGOR—Active, vigorous, stylish carriage	3	
FEATURES—Nostrils large, eyes full and bright, ears well held up	2	
Total on Constitution	10	
QUALITY—6 Points		
HANDLING QUALITY—Skin fine, loose, pliable, hair soft and silky	4	
BONE—Fine, clean, strong, horns medium size, waxy	2	
Total on Quality	6	
MAMMARY DEVELOPMENT—30 Points		
UDDER FORM—Large, wide, attached high behind, carried well forward, well held up, quarters even in size, not cut up between fore quarters	14	
QUALITY—Smooth, soft and flexible when empty, skin and hair soft	6	
TEATS—Evenly placed, convenient size, cylindrical in shape, three to four inches long	4	
MILK VEINS—Large, tortuous, branching, extending well forward, milk wells large	6	
Total on Mammary Development	30	
GRAND TOTAL	100	
DEDUCTIONS		
DEFORMITIES—For marked deformities deduct 5-15 points.		
HEALTH—For tumors, sores, lumpjaw, or any signs of ill-health, deduct 5-25 points.		

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