Manual for Dairy Calf Club Members

By C. S. Rhode

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REQUIREMENTS FOR A LOCAL CLUB

1. Five or more members are required for a local club. Members must be more than 10 and less than 21 years of age on July 1 of the year in which the club is started.

2. Enrollments in the Dairy Calf Club, the first year of the dairy project, should be in the hands of the farm adviser not later than April 1, and the record keeping should begin May 1.

3. To become "standard" each local club must elect officers, have a local adult leader, and plan a program for meetings to cover the duration of the project.

4. Each member is required to own and personally care for the animals used in the project.

5. Records of the kind, amount, and value of all feeds fed, together with notes on the care and management of the calf, and items of receipts and expenditures must be kept by each club member. Books for keeping these records and a book in which the secretary shall keep minutes of club meetings will be furnished by the Agricultural Extension Service of the College of Agriculture, University of Illinois.

6. Each member will be required to exhibit his animal at a show arranged by the county club committee.

7. Each member will submit a final report of his work to the local leader, who will then forward it to the farm adviser.

The illustration on the cover shows Dairy Calf Club members judging cattle at the University of Illinois.
A Manual for Dairy Calf Club Members

By C. S. Rhode, Associate Professor of Dairy Husbandry Extension

Boys and girls interested in dairy cattle will find no better way to acquire the knowledge and experience necessary for success in the dairy business than to take an active part in a well-organized and conducted DAIRY CALF CLUB. Successful dairymen give close attention to a few essential factors. They are careful to select the right kind of foundation stock, they develop the young animals by good feed and care, and they see that the dairy cow is properly fed and managed. They also depend upon selection and breeding to improve the herd, and they take every precaution to control infectious diseases. The DAIRY CALF CLUB offers its members valuable instruction and experience on these points.

While the acquiring of practical information and experience is the first aim of such a club, a member learns also to apply himself whole heartedly to a task that is worth doing well, to take responsibility, and incidentally to develop qualities that will later fit him for active service in the farm community.

THREE-YEAR PLAN

DAIRY CALF CLUB work is organized on a three-year plan. Every boy or girl enrolling as a member should do so with the determination to remain in the work for the full three years. By the time the three-year program is completed one will have had valuable experience in the feeding, care, and management of the dairy calf, the dairy heifer, and the dairy cow.

The cycle of the club is divided into three periods:

1. Dairy calf club.—This period starts when calves four to eight months old are first purchased and ends with a show held when they approach one year of age.

2. Dairy heifer club.—This period starts when the calves are approximately one year old, and ends with a show held just before the heifers are due to freshen.

3. Dairy cow club.—This period starts when the heifers freshen and continues thru the first lactation period.

SELECTING THE CALVES

Selecting the right kind of calves is one of the important steps toward a successful club. The calves will be used in most cases as foundation animals and every care should be taken to secure good ones.

While well-bred calves are desirable, too much attention should not be paid to fancy blood lines. Club members cannot compete with breed-
ers for the best bred calves; consequently one usually will get the most for his money by selecting calves that are good individuals from good producing herds. While it is not advisable to pay exorbitant prices, it should be remembered that a good animal is worth vastly more than a poor one.

Whenever possible, calves should be selected from herds that are in dairy herd improvement associations, so that production records on their dams will be available.

It is important to select calves of the same general quality and uniformity of type, so that all members will start with approximately equal opportunity. Off-type, undersized, sloping-rumped, low-backed, and coarse, beefy heifers should be avoided. A poor animal is a discouraging problem and greatly delays the development of a good herd.

**Fig. 1.—Desirable Types of Dairy Heifers**

Calves of good dairy type, selected from high-producing herds make good foundation animals and give the club members a good start in their project.
Advantages in Using Same Breed

There is no “best” breed of dairy cattle. Each breed has its merits. The breed that one likes best is usually the best for him to choose. However, if one has no decided preference, there are advantages in selecting calves of the breed that predominates in the community.

Members of the same club should select calves of the same breed whenever possible. This will simplify the problem of breeding and disposing of surplus stock, and will reduce the difficulties in arranging for premium lists.

Purebred or Grade?

It is best to select purebred, registered calves. One naturally takes more pride and interest in a good purebred calf than in a grade, and if properly selected, purebred calves should develop into cows of superior quality, making valuable foundation animals. The origin of many good dairy herds can be traced to one or two foundation heifers.

Young Animals Preferable

Calves four to eight months old, yearlings, or two-year-old heifers may be used to start the project, but younger animals four to eight months old are greatly preferred for this work. Calves of this age are usually much easier to locate than older animals, their initial cost is lower, and they are more interesting for boys than are older animals.

When the club calves are of the same general quality and uniform type, all club members start with approximately equal opportunity.

Great care should be taken to avoid losses from contagious abortion and to prevent the spread of the disease when the club heifers are purchased. The chances of loss from this source are much greater with older heifers than with younger ones.

The calves should be dropped between August 1 and February 1 in order to meet the age requirements for showing in the club and open classes at various fairs.
How and Where to Buy

The usual procedure in obtaining calves for club work is for an adult committee composed of dairy cattle breeders or others who are thoroughly familiar with dairy types, to investigate sources and prices. In some cases this committee sees to the actual purchase of the calves. Calves are usually purchased locally if the requirements as to quality, price, and health can be met. It may not be possible to find them in the county, but in most cases they can be found within the state.

When a calf is secured from the home herd it should be purchased as it would be if secured from another herd, and for a purebred, the transfer of ownership should be made on the records of the breed association.

Information concerning the location of suitable calves may be obtained from the Dairy Department, University of Illinois, Urbana.

Guard Against Contagious Diseases

As already suggested, when calves for club work are secured, every care should be taken to avoid losses from infectious diseases, such as contagious abortion and tuberculosis.

The danger of losses from contagious abortion may be greatly reduced if heifers under eight months of age are secured. As a further precaution, those who are responsible for purchasing the calves are expected to select them from herds where there are no indications of infectious disease.

If older animals are used for the club project, the seller should guarantee the calves to be free from contagious abortion as shown by a negative reaction to the blood test. This test should be administered while the animals are still the property of the seller. A thirty- to sixty-day retest should be made before they are placed in the herd. A blood test on the younger animals when they are approximately one year old and before they are placed in the breeding herd is also desirable. Blood samples from club calves and heifers will be tested free of charge by the Laboratory of Animal Pathology and Hygiene at the University of Illinois, Urbana.

To avoid getting calves infected with tuberculosis, they should be selected from tuberculin-tested herds that are free from this disease and should be bought subject to a sixty- to ninety-day retest. They should be kept separate from the herd until the retest is made.

After having made every effort to secure healthy calves it would be foolish to place them on farms where they might contract the very diseases they had thus far escaped. Calves ought not, therefore, to be brought to farms where the herd has not been tested for tuberculosis nor should they be exposed in herds infected with contagious abortion, for the chances of infecting the calf and ultimately losing her are too great.
The henhouse and chicken yard are possible sources of infection from tuberculosis and should not be utilized for the dairy calf.

**CALVES SHOULD BE INSURED**

Club members should protect themselves against losses by having their calves insured. This matter is usually handled in one of two ways.

The cooperative plan provides that every member pay 8 to 10 percent of the original cost of the animal into a sinking fund. In the event of the death of an animal, losses are paid from this fund. If a balance remains at the end of the year or at the close of the project, it is prorated back to the members.

A second plan, extensively used, is to insure the animals in a live-stock insurance company. The companies write a blanket policy to cover all the animals in a club. The insurance coverage should date from the time the calves are purchased, as losses may occur before they are delivered.

**HOUSING THE CALF**

Arrangements should be made for housing before the calf arrives at its new home. The quarters need not be elaborate, but they should be roomy, clean, light, dry, and well-ventilated. If possible, use a box stall. It allows more freedom than a stanchion or narrow stall, and the calf usually will do better, keep cleaner, and be more contented in it than in the ordinary type of stall.

Thoroughly clean and disinfect the stall with some coal-tar disinfectant before the calf is placed in it. This precaution may prevent trouble later on. Clean the stall daily, and add fresh, dry bedding, for a wet, dirty stall is not conducive to health and comfort.

**Cool, Darkened Quarters for Summer**

The calf should have access to a cool, darkened stall during the summer months when the weather is hot and the flies are bad. If the calf is allowed to run outside in the day time, it should have free access to the darkened stall. A better arrangement would be to keep it inside during the heat of the day and allow it to be outside in the evening and at night.

A further protection from the flies may be had by covering the calf with a light burlap blanket. Fly repellants should not be used for club calves, for they make it difficult to get the hide and hair into desirable condition for showing.

**Make a Pet of Your Calf**

Club members will do well to make pets of their calves. This implies kind treatment, frequent handling, and continuous attention. Such
management will do away with wild, unruly, and untrained calves so often seen at show time. Furthermore, kindliness in handling dairy cattle is a principle observed by successful dairymen. The club mem-

![Image: The Successful Club Member Makes a Pet of His Calf]

ber who acquires the habit of gentleness in caring for his calf will find it a sound dairy practice. Taking the calf home, turning it with the herd, and giving it no special attention will usually result in a poor showing and inaccurate records.

**KEEPING THE RECORDS**

**The Cost Record**

In order to determine the cost of raising a calf, every club member is expected to keep an accurate record of all the feeds fed and of other items of expense. A special book is furnished for this purpose.

A special box or barrel of sufficient size to hold a two-weeks' supply of grain should be provided. When adding a supply of grain, weigh it and record the amount in the record book. Do not feed the calf from the common herd supply. The amount of roughage fed in a month may be estimated by multiplying the amount fed per day by the calendar days in the month.

**Production Record for Third Year**

One of the most interesting phases of the Dairy Calf Club work is keeping the production record. This comes in the third year of the project. The record will serve as a guide in feeding the heifer and will give an accurate measure of her ability as a producer provided she is properly fed. It will show the amount of milk and butterfat she produces during the year and the amount of feed consumed. The value of the product, the cost of the feed, and the return above feed may then be determined.
Many of the better dairymen keep production records on all their cows, for the information obtained is essential in building and improving a dairy herd.

**Measuring Milk and Butterfat Production**

Every club member should have a 30- or 60-pound milk scale graduated into tenths of a pound. After each milking, the milk should be weighed and the amount recorded on a milk sheet. Milk sheets may be secured free thru the Agricultural Extension Service at the University of Illinois.

Equal samples from the night and the morning milkings should be taken one day each month and tested for butterfat. The first samples should be taken about a week after the heifer freshens and on about the same day each month throughout the lactation period. A half-pint fruit jar with a tight-fitting top makes a satisfactory container for the milk samples. During warm weather it is necessary to use a preservative to keep the samples from souring. Formalin, which may be purchased from any drug store, is satisfactory for this purpose. Ten drops for a half-pint sample will be sufficient. It is very poisonous and should be kept away from children.

Care should be exercised in taking the milk samples. After the heifer is milked dry, thoroughly stir the milk by pouring it from one pail to another three or four times, then take the sample. When the samples are not properly taken, the results of the test will be misleading and it will be impossible to determine accurately the percentage of butterfat in the milk.

Arrangements can usually be made to have the samples tested at some local cream station, milk plant, or creamery. If the father of a club member is in a dairy herd improvement association, the association tester will make the test for that club member. In case it is necessary for one to do his own testing, he should see the club leader about the proper testing equipment and also secure from him the necessary information about making the test.

After the test is made, the amount of butterfat produced during the month may be computed. For example, if the heifer produced 700 pounds of milk during the month and the test showed that it contained 4.6 percent of butterfat, the amount of butterfat produced during the month is 4.6 percent of 700 pounds or 32.2 pounds.

**Feed Record for Third Year**

When the producing heifer is housed with the farm herd and fed from the common herd supply, the amount of feed consumed each month may be closely estimated by weighing the feeds fed to the heifer during the day the samples of milk are taken, and multiplying these amounts by the number of days in the month.
FEEDS

1. Enter all feeds fed in Table II.
2. Weighing up enough feed to last for a week or more will save time and labor. After weighing keep this supply separate from other feeds and record the amount. When this method is followed it is not necessary to keep daily records.
3. When kitchen waste and milk are fed, they should be entered in the record at regular (weekly or monthly) intervals.
4. Consult your county leader before determining the price and value of home grown feeds. Purchased feeds should be entered at actual cost.
5. Pasture rates on average bluegrass pasture may be taken as:
   - Colts and calves, 6-12 months old ........... 4 cents per day
   - Colts and calves, 12-24 months old .......... 6 cents per day
   - Pigs, 50-100 pounds .......... 1½ cent per day
   - Pigs, 100-150 pounds .......... 2½ cent per day
   - Pigs, over 150 pounds .......... 1 cent per day
   - Lambs, up to weaning .......... 1 cent per day
   - Lambs or sheep, after weaning .......... 1½ cents per day

While legume and rape pastures are slightly more valuable than bluegrass, no difference is made in the charge.
6. In listing pasture in Table II, give the number of animals and days on pasture in the column headed "amount."

<table>
<thead>
<tr>
<th>Kind of Feed</th>
<th>Amount</th>
<th>Price</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>126</td>
<td>.018</td>
<td>2.27</td>
</tr>
<tr>
<td>Date</td>
<td>126</td>
<td>.01</td>
<td>1.26</td>
</tr>
<tr>
<td>Blue Grass</td>
<td>63</td>
<td>.04</td>
<td>2.52</td>
</tr>
<tr>
<td>Bran</td>
<td>84</td>
<td>.015</td>
<td>1.26</td>
</tr>
<tr>
<td>Corn</td>
<td>84</td>
<td>.018</td>
<td>1.52</td>
</tr>
<tr>
<td>Date</td>
<td>84</td>
<td>.01</td>
<td>8.4</td>
</tr>
<tr>
<td>Alfalfa Meal</td>
<td>84</td>
<td>.025</td>
<td>2.10</td>
</tr>
<tr>
<td>Corn</td>
<td>84</td>
<td>.018</td>
<td>1.52</td>
</tr>
<tr>
<td>Date</td>
<td>84</td>
<td>.01</td>
<td>8.4</td>
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<tr>
<td>LC Meal</td>
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<td>LC Meal</td>
<td>150</td>
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<td>1.50</td>
</tr>
<tr>
<td>Alfalfa</td>
<td>150</td>
<td>.01</td>
<td>1.50</td>
</tr>
</tbody>
</table>

**A PAGE FROM THE RECORD BOOK OF A DAIRY CALF CLUB MEMBER**

A careful record should be kept of all the feed the dairy heifer receives so that the total cost of growing can be calculated.
Summary of Project

Making out a statement of receipts and expenses helps the Dairy Club member measure his success and determine the profitableness of his enterprise.
FEEDING CALVES FOUR TO EIGHT MONTHS OLD

Dairy calves should be well fed so that they will make a satisfactory growth and develop into cows with the constitution and capacity necessary for large and efficient production. Club calves will be shown at least twice during the three-year club period and consequently will require additional care in feeding.

**Skim Milk a Valuable Feed**

If skim milk is available and the calves will drink it, it should form a valuable part of the ration. It will supply some of the protein and minerals necessary for growth. The calf should be accustomed to other feeds before being taken to the show, as it is often impossible to get skim milk at a fair. Changing the ration just before the show may cause some digestive disturbance or affect the appetite of the calf, and make it necessary to show her under unfavorable conditions.

Do not use skim milk from milk plants or creameries unless it is carefully pasteurized before being fed. Heavy losses from tuberculosis have resulted from failure to observe this precaution. In addition to skim milk and pasture provide a good quality of legume hay and a sufficient amount of grain to insure the proper development of the calf.

**Legume Hay Important**

Legume hay is the most important of all the roughages for dairy calves. It supplies protein, minerals, and vitamins, all of which are needed for proper growth. A good quality of alfalfa, clover, soybean, or cowpea hay should be fed in abundance. If the calf has a tendency to scour when liberally fed on legume hay, the amount should be reduced and non-legume or mixed hay added to the ration. If corn silage is available, it may be used at the rate of 5 to 10 pounds daily. Straw, fodder, timothy, and other poor quality hays are undesirable roughages for dairy calves.

**Pasture Alone Not Sufficient**

During May and June good pasture may furnish most of the feed required by the calf, but later on during hot weather and fly time the average pasture will not supply the amount of nutrients needed to insure proper growth. It should be supplemented with legume hay and grain.

**Feeding Grain**

Grain mixtures for dairy calves should be made up largely of farm-grown feeds. They are usually the cheapest feeds available and should be used as extensively as possible. They do not, however, furnish enough protein and it is necessary to mix them with such feeds as bran and linseed oil meal. The expense of the grain for the club calf can usually be reduced to the minimum when the grain mixtures are prepared at home.
The following grain mixtures which are easily made at home are recommended (the figures indicate parts by weight):

<table>
<thead>
<tr>
<th>No. 1</th>
<th>No. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground corn or barley</td>
<td>3</td>
</tr>
<tr>
<td>Ground oats</td>
<td>2</td>
</tr>
<tr>
<td>Wheat bran</td>
<td>1</td>
</tr>
<tr>
<td>Linseed oil meal</td>
<td>1</td>
</tr>
</tbody>
</table>

The amount of grain to feed daily will depend to a large extent upon the condition and growth of the heifer. Heifers which are to be shown in the fall should carry more flesh at show time than is ordinarily recommended under average farm practice. When dairy heifers are led into the show ring, they should be in good condition but not overly fat. A safe rule to follow is to feed 1 pound of grain daily for the first 100 pounds of the animal’s weight and $\frac{1}{2}$ pound for each additional 100 pounds of weight. The amounts may be lowered or increased, depending upon the condition of the animal.

The calf should have access to an adequate supply of clean, fresh water at all times. Clean, pure salt should be kept before the calf in a box nailed to one corner of the stall.

**FITTING THE CALF FOR SHOW**

One distinct advantage of dairy calf club work is the opportunity it affords to a club member for showing his calf at a fair or local show. One thus has an opportunity to compare his calf with those owned by other club members, not only as to type but as to condition, training, and development. Comparative judging will bring to light the strong points of the calf and will also call the weak points to one’s attention. A club member who does not use this experience to improve his knowledge of desirable dairy type will lose an unusual opportunity.

It is advisable in most cases to enter and show the calf in the open classes, as the competition will usually be much keener, and the experi-
ence gained from showing against high-class animals exhibited by expert showmen will be very much worthwhile.

**Begin Eight Weeks Before Show**

Active preparation for the show should begin eight weeks before the calf is to be led into the ring. The calf should look its best, which implies proper fitting and careful training.

Begin early to teach the calf to lead readily and to stand squarely on its feet with its head up, so it will show to the best advantage in the ring. Frequent handling is necessary and great patience is required to properly train an animal to show. It is a good plan to spend a few minutes each day in training the calf. A showman and his animal should understand each other thoroughly.

**Give Special Attention to Feed**

Getting a young animal in the proper condition of flesh to show is not difficult if it has received the right care. The calf should not be too fat but should carry enough flesh to give it a good, thrifty, sleek appearance. A month before the show the grain ration may be changed to 5 parts wheat bran, 3 parts ground oats, 1 part ground corn, and 1 part linseed oil meal. The amounts to feed should be governed by the condition of the calf. Feed plenty of alfalfa or clover hay. If any digestive disturbances appear, reduce the amount of feed immediately.

**Cleaning and Clipping**

It is usually advisable to clip the club calves all over six to eight weeks before the show unless the hair is short and sleek. From this time on keep the calf in a comfortable, cool stall during the heat of the day as a protection from the sun and flies. After the animal is clipped, keep it covered with a blanket as an aid to improving the quality of the hide and the appearance of the hair. Burlap bags sewed together make a satisfactory blanket.

About two weeks before the show give the animal a good washing. A good tar soap may be used
for this purpose. The soap should be rinsed out thoroly and the animal dried out under a blanket. Be sure to get the stains out of the flanks and switch.

\[ \text{Get some tincture of green soap; put a teaspoonful in 2 gallons of lukewarm water, and with this sponge the calf every day or so. After each sponging, rub it down thoroly with a good hair brush.} \]

\[ \text{Just before the show, clip the head, neck, withers, belly, and tail as closely as possible. When clipping the tail, be careful not to start too low on the switch, nor to clip too high on the tail head. A well-groomed, properly clipped calf makes a good appearance.} \]

**Attention to Hoofs and Horns**

Neat, shapely horns add to the appearance of the dairy calf. If the horns have a tendency to be out of shape, horn trainers properly used will help to bring them into the correct position.

In trimming the horns first scrape them with broken glass or a steel scraper, then follow with common sandpaper to make them smooth. After this use fine emery paper. Strips of cotton flannel may be used to finish the job. With the first strip see-saw the horn three or four minutes, using pumice

\[ \text{Clipping has improved the appearance and general outline of the calf.} \]
stone and a little sweet oil; on a second strip apply oil, and see-saw as before; with a third strip, using the dry cloth, continue rubbing until the proper polish is obtained. The horns on older heifers are sometimes long and coarse. It is then advisable to shorten the horns slightly and reduce them to the desirable size and shape. A rasp with a rounded side may be used for this purpose.

The calf should stand with natural ease. If the hoofs have grown in such a way as to prevent this, they should be trimmed. Clean and polish the hoofs before the calf is led into the ring.

**Health Regulations and Precautions**

A state law in Illinois requires all animals exhibited at fairs to be free from tuberculosis as shown by a tuberculin test. The club member should meet this requirement in every detail.

The calf should never be watered from a common water tank or trough. Water the calf from your own water bucket and do not allow others to use it. Do not allow the hay which you feed to your calf to be scattered around where visitors or other exhibitors will walk on it. These simple precautions will help to avoid trouble from infectious disease.

**Equipment Needed at the Fair**

Some time before the calf is taken to the show, a list should be made of the equipment that will be needed while at the show. This list should include a water bucket, feed bucket, blanket, hand clippers, flash light, show halter, soap, comb and brush, bottle of sweet oil, sandpaper, emery paper, flannel cloth, and a pitchfork.

**Care at the Fair**

After the calf is unloaded at the fairground, see that it is well bedded in a comfortable stall. Keep the stalls clean and neat at all times; the visitors will appreciate this. Nothing detracts more from an exhibit than dirty, poorly kept quarters.

Feed the same feeds at the show that the calf was accustomed to getting at home. It is advisable to take enough grain to last throughout the show. This will lessen the expense and will make it unnecessary to change the ration.

**Showing the Calf**

There will be plenty of work to do the day before the show. See that the calf is especially well bedded and remove frequently all soiled
bedding in order to prevent the calf from getting dirty. The horns will probably need some attention altho the final polish should not be put on until the morning of the show.

Put the show halter and all other equipment needed on show day in readiness. Give the switch some attention at this time. Wash it thoroly and braid it into two or three tight braids of even size. Work a string into each braid so that the braid can be tied. Comb the switch out just before the judging.

In order to show the calf with the proper fill do not give it all the water it wants the evening before the show. A little salt fed at this time will stimulate the appetite for water the following morning.

**Show Day**

Find out the exact time the calves are to be shown. Then give yourself plenty of time to “dress up” your calf. Clean her thoroly, comb out the switch, put the final polish on the horns and hoofs and see that the show halter and other equipment you will need are ready. Do not forget that you as a showman should also be neat and clean.

![Fig. 9.—A Pulaski County Club Member and His Calf](image)

Kind treatment, frequent handling, and continuous attention will do away with wild, unruly, and untrained calves so often seen at show time.

Water the calf just before it is led into the ring. Be careful not to let her drink too much, as she probably will have quite an appetite for water. Too much water will cause a bloaty appearance and will prevent an animal from showing to good advantage.
In the Ring

When the time comes to show, be ready to lead in promptly. Keep the calf looking its best all the time. Proper training will make this possible and will do away with your having to work with the animal continually while it is being shown. Never allow the calf to slump, as that may affect its placing by the judge. After the awards have

![A Calf Well Posed for Exhibition](image1)

**FIG. 10.—A CALF WELL POSED FOR EXHIBITION**

The club calf should be trained to stand properly while being examined by the judge.

![A Calf Poorly Shown](image2)

**FIG. 11.—A CALF POORLY SHOWN**

The same heifer appears in the above pictures. Note the difference that good showmanship, a neat attendant, and show halter can produce.

been made, inspect the other calves and try to determine in what respects one is superior or inferior to the other.
Naturally there is a lot of satisfaction in winning first prize, but that is not all. The educational value of such a show is more important than prize money, and every contestant has an opportunity to learn just as much as the other fellow. Remember that the calves will be shown again next year and that a different animal may win the blue ribbon.

**FEED AND CARE OF HEIFERS ONE TO TWO YEARS OLD**

Heifers one to two years old will make satisfactory growth on good pasture alone. When the pastures are poor, however, other feeds such as legume hay, silage, or grain will be required to keep a heifer in proper condition.

**Use Liberal Amounts of Good Roughage**

In winter, legume hay, silage, and some grain make an ideal ration. The ration should supply enough protein and minerals to insure proper growth. A liberal supply of good legume hay will usually meet the mineral requirements and in addition will furnish most of the protein needed. If legumes of poor quality or non-leguminous roughages are used, the heifer should be fed 1/2 to 1 ounce of special bone meal or finely ground limestone daily. Feed the minerals with the grain. When alfalfa, soybean, cowpea, or clover hay and silage are available, it is a good practice to feed all the legume hay the heifer will consume and about 2 pounds of silage for every pound of hay. In addition, feed a limited amount of concentrates. Farm grains, such as corn, barley, and oats, should make up most of the grain ration and should be fed in amounts necessary to keep the heifer growing well. Two pounds daily will usually be sufficient.

**Some Grain Necessary**

If silage and some dry roughage, such as fodder or non-legume hay, are used, feed grain at the rate of 2 to 4 pounds daily. For at least one-half the grain mixture use linseed oil meal. When legume hay is the only roughage available, feed all of it the heifer will consume and 2 to 4 pounds of corn, oats, or barley daily. Provide plenty of clean, fresh water and salt at all times.

**Age for Calving Depends on Breed and Development**

The breed and the development of the individual animal should determine the age at which the heifers should drop their first calves. Growthy, well-developed heifers may be bred earlier than poorly grown heifers. Milk production tends to check the growth of the animal and early breeding may result in undersized cows.

Jerseys mature earlier than other breeds and consequently may be bred so they will drop their first calves when twenty-four to twenty-six
months old unless the individual is undersized. Holsteins and Brown Swiss require more time to develop properly and should not calve before they are twenty-eight to thirty months old. Guernseys and Ayrshires should not be bred as young as Jerseys but sooner than Holsteins and Brown Swiss.

Care should be taken so the heifer will not be bred to some inferior bull that may get into the pasture. Breed to the best purebred bull available. If necessary, take the heifer several miles in order to do this.

**Record Breeding and Freshening Dates**

The breeding and freshening dates should be recorded. One should know when the heifer is due to freshen so that she may be properly fed and cared for before calving time. It will be necessary to give the date of birth when the calf is registered. The heifer should be bred from three to four months after calving.

**Feeding Before Freshening**

The bred heifer should be properly fed to insure the birth of a strong, vigorous calf, and the development of the heifer to her proper size. This will require liberal feeding of a slightly laxative ration, rich in protein, vitamins, and mineral matter.

Proper feeding during the last two months of pregnancy is particularly important. Heavy demands are made on the body of the heifer during this period. Keep the heifer in a strong, vigorous condition and feed enough so she will carry some surplus flesh at the time of calving. The extra feed required will not be wasted, for the surplus body fat will be converted into milk and butterfat and the production will be increased.

A satisfactory grain mixture for this period is 3 parts (by weight) ground corn or barley, 3 parts ground oats, 3 parts wheat bran, and 2 parts linseed oil meal. Supplement the grain ration with a good quality of roughage such as legume hay or pasture.

Two weeks before the heifer is due to freshen, reduce the amount of grain from a third to a half and omit the corn and barley entirely. Keep the heifer in a laxative condition. Equal parts of ground oats and wheat bran, or 2 parts ground oats and 1 part linseed oil meal will make satisfactory grain mixtures for this period.

**Care at Calving Time**

A pasture which provides plenty of shade is a good place for the heifer to calve in summer. She should be removed from other cows at this time.

If the heifer freshens at other seasons of the year, a roomy, well-lighted box stall should be provided. The stall should be thoroughly cleaned and disinfected with some coal-tar disinfectant and fresh, clean straw added. It is advisable to allow the heifer to become familiar with the
stall a few days before she is due to freshen. At the time of calving
the heifer should not be disturbed, but an attendant should always re­
main near in case assistance should be necessary.

The vitality of the heifer is likely to be lowered following calving,
and during cold weather she should be protected from cold drafts for a
few days. Lukewarm water should be supplied for drinking. A good
quality of legume hay and a small amount of bran mash will be the only
feed required for a day or two.

**FEEDING THE HEIFER FOR MILK PRODUCTION**

During the first few days following calving, the heifer should be
fed sparingly. Bran mash will be sufficient for the first day and then
she may be gradually started on the ration she is to receive during her
lactation period. It will take two or three weeks to get her on a full ra­
tion.

**Use Silage and Legume Hay**

The ration for the heifer should be selected with care. If at all
possible, good legume hay should form a part or all of the roughage fed.
It is one of the most valuable feeds for dairy cows. It is palatable, has
a good physical effect, is high in protein, and is a good source of min­
erals and vitamines. Legume hay will also improve the ration from the
standpoint of economy.

Silage is an excellent feed to have in the ration. It has a high nu­
tritive value, has an excellent physical effect on the animal, and stim­
ulates the appetite. It adds the succulence to the winter ration that
glass furnishes in summer. When silage and hay are used as rough­
ages, feed approximately 1 pound of hay for every 100 pounds of live
weight and 3 pounds of silage for every pound of hay. Non-legume
hay, such as timothy, redtop, bluegrass, and corn stover are poor rough­
ages for cows in milk. They are low in protein and minerals and have
a poor physical effect on the animal. If they are used in the ration it
will be necessary to add more high-protein feeds.

**Feed Home-Grown Grains**

The grains grown on Illinois farms, such as corn, oats, and barley,
should be used as extensively as possible in the dairy ration. These
feeds, however, are relatively low in protein and it usually is necessary
to mix them with such feeds as cottonseed meal, linseed oil meal, wheat
bran, soybeans, or gluten feed, to build up the protein content of the
ration. A smaller amount of these high-protein feeds will be required
when legumes are fed than when non-legume hay or other poor quality
of roughage is used.

The grain mixture should be fed according to production. Failure
to observe this principle in feeding dairy cattle usually results in a waste

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1More detailed information on feeding dairy cattle may be secured from
Circular 272 of the Illinois Station entitled “Feeding the Dairy Herd.”
of feed and a loss in milk production. The amount of milk produced daily should be used as a guide in determining the amount of grain to feed.

The following grain mixtures are suggested:

**When Silage and Legume Hay Are Fed**  
(*Numbers indicate parts by weight*)

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<td>Corn and cob meal</td>
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<td>Cottonseed meal</td>
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<td>Cottonseed meal</td>
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<td>Ground oats</td>
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<td>Wheat bran</td>
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<td>Cottonseed meal</td>
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<td>Linseed oil meal</td>
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Feed 1 pound of one of these grain mixtures for each 2½ to 3½ pounds of milk produced daily, or 2½ to 3½ pounds for each gallon of milk. Add 1 pound of salt for every 100 pounds of grain mixture.

Substitutions.—Ninety-one pounds of corn may be substituted for 100 pounds of corn and cob meal; 93 pounds of ground corn for 100 pounds of ground barley; 98 pounds of barley for 100 pounds of corn and cob meal; 149 pounds of linseed oil meal for 100 pounds of choice cottonseed meal; 100 pounds of ground soybeans for 100 pounds of linseed oil meal.

**Summer Feeding**

Dairy cows are usually at their best during May and June, when they have pasture in abundance. Conditions are ideal for the production of milk and butterfat. The grass is palatable and succulent and supplies protein, minerals, and vitamins. During this period, even tho the pastures are good, it is advisable to feed some grain to the heavy producing cows. It will keep them from losing flesh as rapidly as they otherwise would, and the residual effect will be beneficial through the next lactation period. At this time the grain ration may consist of 2 parts of ground corn or barley and 1 part of ground oats. A small amount of cottonseed meal will tend to overcome the laxative condition when cows are first turned on succulent pasture.

Cows producing less than 1 pound of butter a day will get along nicely on abundant pasture alone. For higher producing cows, 1 pound
of the above mixture should be fed for every 4 pounds of milk produced daily.

As the season advances, the composition of the common pasture grasses changes and the grain mixtures should be changed accordingly. A grain mixture of 300 pounds of corn or barley, 300 pounds of bran, 200 pounds of linseed oil meal, and 150 pounds of cottonseed meal may be used during this period. If silage and legume hay are fed in addition to grain, the winter grain mixture may be used. Cows should be supplied with enough feed in addition to pasture to prevent them from getting thin in flesh and from falling off in milk flow. The amounts of grain and roughage to feed may be determined by the above conditions.

CARE OF THE YOUNG CALF

As soon as the calf is dropped, the navel cord should be painted with iodin to guard against possible infection. In case the mother does not lick the calf dry it should be dried by rubbing with a cloth or clean dry straw. A strong, vigorous calf should be on its feet and nursing in half an hour.

It is very important that the calf receive the first milk or "colostrum" from its mother. It has a laxative effect, serving to cleanse out the waste products that have collected in the calf's intestines before birth.

The calf should be allowed to nurse its mother for the first two or three days; then it should be taken from her and taught to drink from a pail. Place 2 quarts of the warm mother's milk in a clean, metal pail, and allow the calf to suck your fingers after they have been dipped into the milk. As the calf begins to suck, gradually lower your hand into the pail. Withdraw your fingers as soon as the calf begins to drink.

The calf will usually take more interest in his first feeding from the pail if he is hungry, and it is often advisable to let him go without one meal before an attempt is made to teach him to drink from a pail.

Provide Comfortable Quarters

After the calf is taken from its mother, it should be placed in a clean, dry, well-lighted pen. The pen should be cleaned daily and fresh dry bedding added. During the winter months the calf should be protected from drafts and cold. As an aid in feeding grain, a small feedbox may be nailed to the side of the pen at a height convenient for the calf to reach. A slat hayrack may also be constructed at such a height that the calf can reach the hay but cannot throw it out.

Do Not Overfeed

Proper precautions should be taken to get the calf well started. The first few weeks after birth is the most critical period in its life. It
should receive the right amount of milk at a uniform temperature, and should be fed regularly from clean containers.

The amount of whole milk to feed will be determined largely by the weight of the calf. As a general rule, feed 1 pound daily for each 8 to 10 pounds of live weight. Overfeeding often results in serious digestive disturbances and should be avoided. Milk fed to the calf should be weighed or accurately measured. A quart weighs approximately 2 pounds.

**Keep Feed Utensils Clean**

Calves should be fed from metal pails. After each feeding, the pail should be rinsed in cold water, scalded out with boiling water, and hung up to air and dry. Letting the sun shine into the pail helps kill disease germs. If dirt is allowed to accumulate in the pail, disease germs may start growing and cause the calf to scour. Many of the disorders and diseases of calves may be traced to lack of cleanliness.

**Follow Definite Feeding Schedule**

A definite schedule for feedings should be chosen and carefully followed. Irregular feeding may cause the calf to go “off feed.” The milk should be given immediately after it is drawn from the cow, so that it will be as near body temperature as possible. This is about 100 degrees Fahrenheit.

**Make Change to Skim Milk Slowly**

Skim milk may be substituted for whole milk when the calf is four to six weeks old provided the calf is strong and vigorous. The change should be made slowly. During the first day replace 1 pound of whole milk with a pound of skim milk. Take at least a week to make the complete change. If the calf continues to do well following the change, increase the amount of milk fed daily to 12 to 16 pounds, depending somewhat upon the individual. Continue to feed skim milk until the calf is six or eight months old, if it is available.

**Feed Grain and Roughage Early**

Calves should be encouraged to eat grain and legume hay as soon as they will take it. In order to get them started on grain, place a handful of the mixture in the pail when the calf has finished its milk or let it take some from the hand immediately after its milk feeding. Keep some clean, fresh grain before the calf at all times. During this period the grain should be finely ground. Later on, when the calf is two or three months old, whole corn and oats may be fed.

Grain mixtures for calves should be made up largely of farm grains. Some linseed oil meal and wheat bran will add to the palatability of the ration and will help keep the calves in a sleek condition.
The following grain mixtures may be used (the figures indicate parts by weight):

**No. 1**
Ground corn and ground oats, equal parts by weight.

**No. 2**
Ground corn 3
Ground oats 3
Wheat bran 3
Linseed oil meal 1

**No. 3**
Ground corn 2
Ground oats 2
Linseed oil meal 1

From 1 to 2 pounds of grain daily will usually be sufficient up to six months of age.

By the time the calf is ten days or two weeks old it will begin to nibble at roughage, and from then on it should be given all of the fine, leafy legume hay it wants. Keep hay in a rack where it will remain clean and dry. Silage may be fed in small quantities after the calf is two months old. Only silage of the best quality, free from mold should be used.

**Give Water and Salt as Wanted**

The calf should be supplied with fresh water daily after it is three or four weeks old. Salt should be supplied regularly as soon as the calf begins to eat grain. A good plan is to put the salt where the calf will have free access to it and let it have what it wants.

**HOW TO CARE FOR COMMON AILMENTS**

**Scours**

Ordinary scours is one of the most common ailments of dairy calves. This trouble may be caused by feeding from dirty pails, overfeeding, feeding milk at irregular temperatures, feeding milk too rich in butterfat, and feeding sour or dirty milk. Cold, damp quarters may also be a contributing factor.

When trouble of this nature occurs, reduce the ration at least a half. Give 1 to 3 ounces of castor oil; this will help to clean the digestive tract. If no improvement is noted following this treatment, a competent veterinarian should be consulted.

Buckets used in feeding a sick calf should not be used for others. Be sure that the feeding buckets are thoroughly scalded. The calf should be brought back to full feed as soon as it is in normal condition.

**Ringworm**

Ringworm usually appears about the head and neck in the form of small inflamed areas, later formed into a scaly crust. Remove these crusts by washing with soap and water. Then paint the affected area with sulfur ointment or tincture of iodin once a day for several days.

In order to prevent the disease from spreading, keep the infected animals separated from the others and thoroughly disinfect the stalls.
Lice

Lice annoy a calf and lower its vitality to resist disease and other disorders and thus retard its growth. They are most prevalent during the winter.

Lice may be removed by washing the calf with some coal-tar disinfectant used at the rate of 1 part to 50 parts of water. Dry the calf thoroughly after this treatment. Repeat the treatment in about a week. In cold weather it is best not to wash the calf. Instead, an insect powder may be dusted lightly over the affected parts.

BUILDING A DAIRY HERD

It should be the desire of a club member to use his heifer as a foundation for a dairy herd. It takes time to develop a good herd, and a club member has the opportunity to start while he is young, even tho it is with only one heifer. Many good herds in Illinois have been developed from one or two foundation animals. The practice of breeding a herd has many advantages. It is much easier to improve a dairy herd in both production and type thru the use of superior purebred bulls, retaining the good heifers in the herd, than by buying cows. In fact, indiscriminate cow buying is responsible in large measure for the spread of contagious abortion and tuberculosis, and dairymen find it easier to keep their herds free from disease when they raise their own cows. The cheapest way to get a good herd is to raise it.

The dairy calf club is ideal in its accomplishments when the club members develop into leaders in their communities and succeed in founding good dairy herds.
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CLUB HEIFERS MAKE VALUABLE FOUNDATION ANIMALS FOR A PROFITABLE DAIRY HERD