

# UNIVERSITY OF KENTUCKY

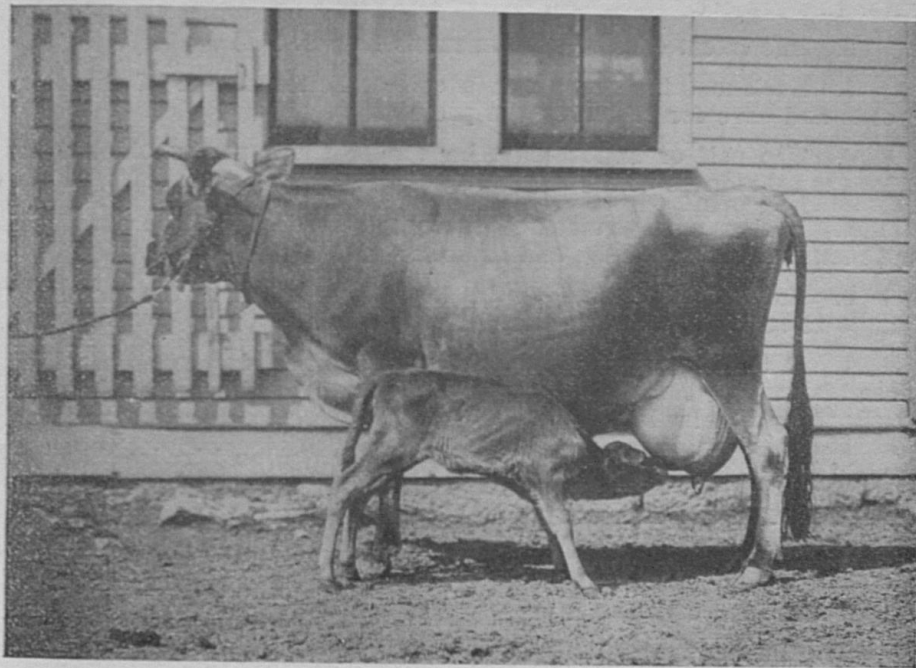
## COLLEGE OF AGRICULTURE

### Extension Division

THOMAS P. COOPER, Dean and Director

### CIRCULAR NO. 119

- I. Dairy Heifer Calf Project.
  - II. Dairy Cow and Calf Project.
- Junior Agricultural Clubs.



Compiled by  
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## Dairy Heifer Calf Project Junior Agricultural Clubs

### OBJECT

The object of this project is to get boys and girls to raise a heifer calf and to interest and instruct them in better stock. The project can be started with an unweaned heifer calf or an older one, and continued until the animal is mature and bred.

### REQUIREMENTS.

1. Boys and girls between the ages of ten and eighteen may enter this project.
2. The latest date of enrollment is May 1.
3. Each member must own a calf or heifer of one of the dairy breeds and care for it during the project.
4. The calf or heifer must be one to three weeks old but not older than 6 months at the beginning of the project.
5. Each member must keep a complete record of the care, feed and management given the calf or heifer during the project.
6. Each member shall exhibit his calf or heifer at the club show that is to be held at the end of the project.
7. If it is impossible to hold a club show each member shall close his project, complete his record book and hand same to the county agent or club leader.
8. Each member is to study instructions given him by the county agent or club leader and the specialists of the College of Agriculture, University of Kentucky.
9. The weight of the calf or heifer must be certified by two disinterested persons. The calf or heifer is to be weighed instead of estimating the weight.

#### 10. Basis of award:

Individuality and condition of animal	40 points
Daily gain or growth	20 points
Cost of gain or growth per pound	20 points
Records and a written report of feeding, care and management of calf or heifer	20 points



## CIRCULAR NO. 119

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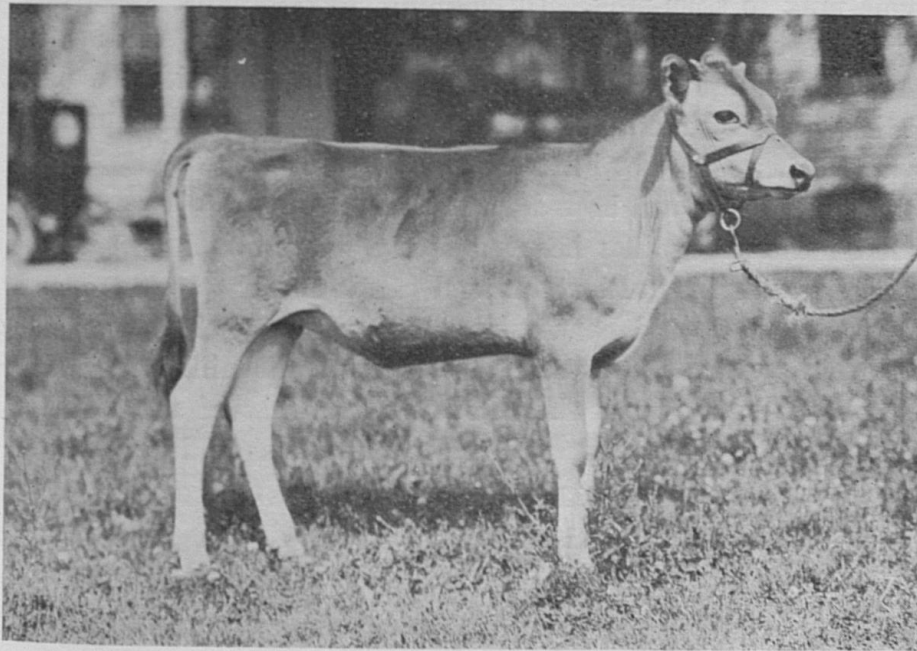
### I. Dairy Heifer Calf Project.

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#### SELECTION OF THE HEIFER CALF.

Each member should personally select the heifer calf that he is to own. It is recommended that she be purebred, altho a high grade calf may be chosen. A calf of either the Holstein-Friesian, Jersey, Guernsey or Ayrshire breeds may be selected.

The calf should be a high-class individual, showing the characteristics of the breed to which she belongs. She should have a feminine, breedy head, a deep, lean, angular body and short, straight legs. Above all, she should not be beefy. It is important that the calf have quality as indicated by a soft, loose hide, silky hair and fine bone.



Cut No. 2. A Good Type Heifer.

**FEEDING THE CALF.**

When the calf is four or five days old, depending on its strength, separate it from its mother. After separating do not feed the calf for twelve hours. It will then be hungry and willing to drink from a pail. Dip two of your fingers into the milk pail and, while the calf is sucking them, gradually move your hand down into the pail until the calf's mouth is in the milk. As soon as the calf gets a good taste of milk gradually withdraw your fingers. With a few attempts the calf will learn to drink from the pail. For the first three weeks feed the calf three times a day equal portions of sweet milk at body temperature. The amount of milk depends on the individual calf. If the calf weighs 50 pounds, feed 3 pounds morning, noon and night; if it weighs 75 pounds, feed 3½ pounds. When the calf is five to seven days old it will feel the need of a little solid food. At this time, after it finishes the milk and while it has the desire to suck, fill the hand with the grain mixture, put some into the calf's mouth and teach it to eat grain. If the calf is to be raised most economically, under average Kentucky conditions, at the end of the first five weeks it is necessary to begin changing from whole milk to skim-milk. In changing to skim-milk, substitute two pints of skim-milk for whole milk at the first feeding in which a substitution is made. The next time substitute a pint additional of skim-milk. Continue this until only skim-milk is fed. A complete substitution can be effected in ten days. At this time the calf can be fed twice a day instead of three times.

After the change has been made the skim-milk should be increased gradually until at the end of six months a strong and vigorous calf should be receiving 16 to 18 pounds. The calf should be weaned at this time, but if plenty of milk is available, this should be fed until the calf is nine months of age. Along with the skim-milk a hay and grain mixture should be fed. A grain mixture that has proved satisfactory for growing animals is:

- 3 parts wheat bran
- 3 parts ground oats
- 3 parts shelled corn
- 1 part oil meal (old process)



These are mixed by weight. The grain should not be mixed with the milk because the calf will gulp the gruel down without chewing it. This will lead to indigestion.

The following table shows what calves should weigh at three and six months of age and how much grain they should receive:

**JERSEYS OR GUERNSEYS.**

Age	Weight	Grain required
3 months	150 pounds	one-half pound
6 months	300 pounds	two pounds

**HOLSTEINS OR AYRSHIRES.**

3 months	200 pounds	one-half pound
6 months	400 pounds	two pounds

With grain the calf should be given all the hay it will eat. The hay should be a good quality of mixed timothy and clover or alfalfa. In summer the calf may be turned on pasture if it be available. To prevent scours this should be done gradually. The calf should be housed during the heat of the day in summer and during the cold and stormy nights of the winter.

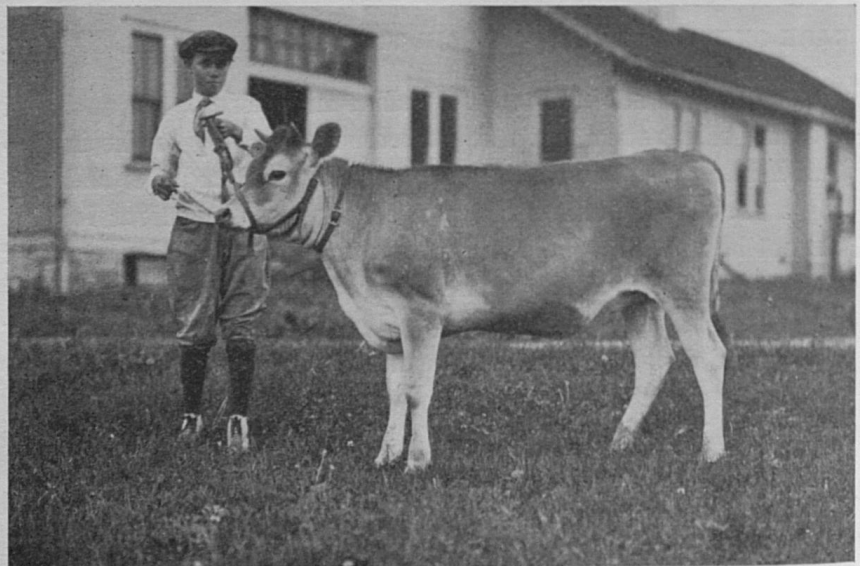
**CARE OF THE HEIFER FROM SIX TO TWELVE MONTHS OF AGE.**

At the age of six months the skim-milk may be discontinued but the grain ration must be increased according to the individual heifer. If the heifer is eating well of other feeds and getting a variety, including silage, roots or other succulent feed, it will not be upset by the change from milk to hay and grain. If good pasture is available the heifer will need little or no grain with grass, but it is advisable to feed some grain to insure proper growth and development. If pasture is not available or is short, the heifer should receive daily 6 to 10 pounds of mixed hay, timothy and clover, and, if possible, 5 to 15 pounds of silage, or a corresponding amount of roots, and from 2 to 4 pounds of the grain mixture. Only a very small amount of silage or roots should be fed at first. Roots especially will cause scours unless the animal is accustomed to them gradually. For the first feed-

ing not over a handful should be given. This should be increased at the rate of one pound a day until the full amount is being fed. The heifer should gain a pound or more a day, so at the age of 12 months the Jersey will weigh 500 pounds, the Guernsey 550 pounds, the Holstein 700 pounds, and the Ayrshire 650 pounds.

The legume hays, such as clover, alfalfa and soybean hay are especially valuable because they furnish both protein and mineral matter. The heifer should have access to salt at all times. To the salt may be added charcoal and bone meal, the first to aid digestion and the latter for bone building. Let the heifer have access to fresh water at all times.

During the summer the heifer should run in a pasture that is provided with shade trees. If she is confined to a dark barn during the hottest part of the day she will keep cooler and be away from pestering insects. A light blanket will protect the heifer from flies and keep the skin and hair in fine condition. In winter the calf should be given a dry, well-ventilated stall, bedded with straw at night, and should be allowed to exercise in a lot for a few hours each day.



Cut No. 3. A Yearling in Growing Condition.

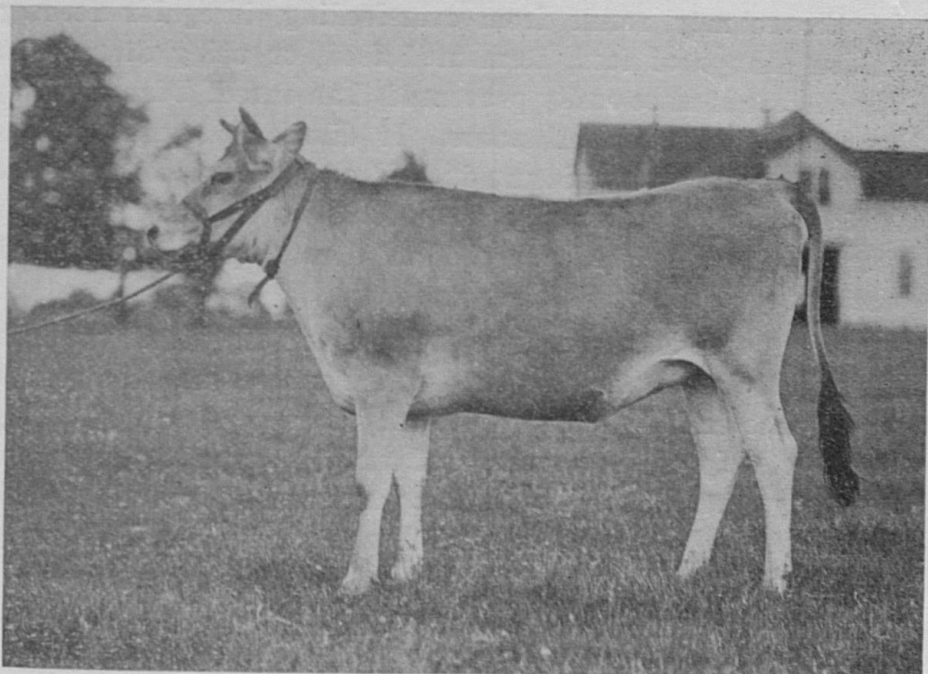


**FEEDING AND CARE OF THE HEIFER FROM TWELVE TO TWENTY-FOUR MONTHS OF AGE.**

In the fall, if pasture is available, turn the heifer in with the dry cows. If pasture is not available put the heifer into a box stall and feed her hay and grain.

The grain mixture recommended on page 4 for heifers should be used at this age. The heifer should receive six pounds of grain, all the hay she will eat and, if possible, five to ten pounds of silage or roots. In the spring and summer the heifer should be turned on pasture and if not bred should receive four pounds of grain.

When the heifer reaches 16 to 18 months of age she should be well developed (Jerseys, weighing about 700 pounds, Guernseys about 750 pounds, Holsteins about 900 pounds and Ayrshires about 800 pounds), and in the proper condition for breeding. It is advised not to breed a heifer under 16 months, because breeding too young will injure the growth of the heifer and her calf will be too small.



Cut No. 4. Mature Heifer in Breeding Condition.

The heifer should be cared for and fed the same grain mixture as has been used thruout the project until two months after she has been bred. Then the grain mixture should be changed to the following:

4 parts corn meal  
4 parts wheat bran  
2 parts linseed meal

All are mixed by weight. This is a flesh-building feed. It should be fed at the rate of 5 pounds a day whether the heifer is on pasture or in a stall. Besides this, 10 to 20 pounds of silage or roots and all the mixed timothy and clover hay she will eat should be given her. This grain mixture should be fed until 10 days before the heifer freshens, at which time it should be changed again. At this time arrangements should be made with the county agent to enter the advanced project of Cow and Calf.

#### DISEASES OF CALVES.

Scours may result from over-feeding, irregular feeding, sudden change of feed, fermented feed, or using dirty pails. The disease is more easily prevented than cured. Diarrhea may be a first indication of scours. If diarrhea occurs, cut the amount of the grain mixture in half and sterilize all pails and feed boxes with scalding water. A few of the more common preparations to be used are blood meal, a teaspoonful at a feed, white of egg, or a pint of lime water.

Ringworm is a disease resulting from dirty surroundings. It appears on the calf as a bare, rough spot around the eyes or on the face or body. Ringworm may be controlled by bathing the affected spot with a solution of one part coal-tar disinfectant in twenty parts of water. A salve made of lard and all the sulphur that can be worked into it will cure ringworm, if properly rubbed into the skin.

Lice on the calf's body are easily killed by spraying or bathing with one part disinfectant in twenty parts of water and keeping the calf good and warm until it is thoroly dry.



**PREPARING THE HEIFER FOR SHOW.**

The heifer should be brushed every day and kept blanketed for a month before the show. It is well to rub her vigorously with a woolen rag to excite blood circulation which will make the hide pliable and oily. If she is dirty give her a good wash. In grooming use a brush instead of a currycomb. If she is covered with coarse hair, the heifer should be clipped all over a month before the show. The horns and hoofs should be polished, first with sandpaper and then with emery paper. After this treatment a smoother finish may be obtained with a strip of cloth to which has been added powdered pumice stone mixed with sweet oil.

**EQUIPMENT NEEDED AT THE SHOW.**

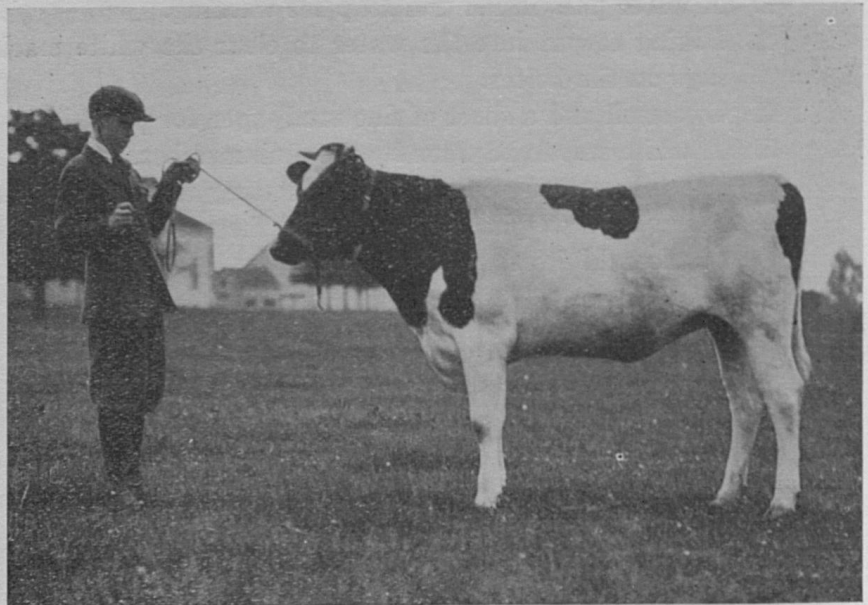
1. A light blanket and strong halter for the heifer.
2. A water pail, brush and soap for washing.
3. Bluing to put into the water to clear the white markings on the heifer.
4. Sweet oil and a sheet of fine sandpaper for polishing.
5. A white suit to be worn by the club member.
6. A cardboard sign, 8x12 inches, stating the name of the heifer, age, weight and breed, and the name and address of the exhibitor.



Cut No. 5. Close Competition at the Club Show.

**SHOWING THE HEIFER.**

The heifer should be taught to stand properly before she is taken to the show; in fact, she should be handled, led and posed every day during the project. While the heifer is being exhibited in the show ring, the club member should stand on her left side, holding the halter strap with the left hand, leaving the right hand free to keep the animal in position. The heifer should stand squarely on her feet with head up. The member should be on time at the show, and care should be taken to see that everything has been properly provided. He should be sure he has the heifer properly entered on the books of the secretary of the fair before the show starts. His record book should be ready to give to the judge.



Cut No. 6. Posing A Heifer.

**KEEPING RECORDS.**

Record keeping is one of the requirements. Keep the record book up-to-date as the work is done. Every time something is done connected with the calf, enter it in the record book. The



number of hours required for feeding and grooming should be put down just as soon as known. Do not try to remember items of expense but let the record book do the remembering.

#### CLOSING THE PROJECT

There are two distinct periods when the project can be brought to a close and the record book completed and turned in to the county agent. The two periods are as follows:

The club member takes an unweaned heifer calf, or one at six months of age, feeds, cares for and manages the animal until it reaches the age of 16 to 18 months. At this time the project can be closed and the record book completed.

The second period of the project can be continued from the first, in that the new project starts when the heifer reaches the age of 18 months, and covers the time up to two months before she freshens. The club member feeds, cares and manages the bred heifer during this time and completes the record book.

#### STORY OF THE PROJECT.

Subject: How I Raised My Heifer Calf.

Instructions: In the back of the record book is a space in which to write the story. Pen and ink must be used. The story must be the work of the club member on what he has learned and done in his project. Neatness, spelling, punctuation and completeness of story are points that will be considered by the judges. The following outline is suggested:

1. Name and location of club.
2. How and when the heifer calf was obtained.
3. Name, breed and age of the heifer calf.
4. Weight of heifer calf and cost of gain made.
5. Amount and cost of feed.
6. Things learned and of most interest in this project.

## SCORE CARD.

The following score card is used by students at the University of Kentucky in class work. All members of dairy heifer project should study this score card.

SCORE CARD FOR DAIRY COW		Per- fect	Score
<b>A. General Appearance, 18 points:</b>			
Form, wedge shaped from front, top and sides; straight back; symmetrical balancing of all parts.....	6	.....	
Quality, mellow skin; hair fine; bone refined; secretions yellow and abundant.....	6	.....	
Temperament, active; disposition gentle; lean body.....	6	.....	
Secretions yellow and abundant.....	6	.....	
<b>B. Head and Neck, 8 points:</b>			
Muzzle, broad, nostrils large .....	1	.....	
Face, lean, straight .....	1	.....	
Eyes, large, bright, mild .....	1	.....	
Forehead, broad, dished, narrowing at horn base.....	1	.....	
Horns, of fine texture and proper shape for breed.....	1	.....	
Ears, medium size, well set, fine .....	1	.....	
Neck, long, lean, light dewlap .....	2	.....	
<b>C. Forequarters, 9 points:</b>			
Withers, thin and lean, not depressed thru crops.....	3	.....	
Shoulders, light and oblique .....	4	.....	
Legs, short, straight, bone fine, feet well placed and of good size and texture .....	2	.....	
<b>D. Body, 21 points:</b>			
Chest, deep and wide .....	6	.....	
Back, lean, strong, straight .....	4	.....	
Loin, wedge shaped, broad, flat .....	4	.....	
Ribs, deep, broad, widest at lower part of barrel, sprung backward .....	6	.....	
Flanks, thin, deep .....	1	.....	
<b>E. Hindquarters, 14 points</b>			
Hips, broad, level with back .....	1	.....	
Rump, long, horizontal, pin bones high and wide apart .....	6	.....	
Tail, bone fine, with good switch .....	1	.....	
Thighs, thin, incurving, long, wide apart.....	4	.....	
Legs, short, hocks wide apart and straight, bone of proper size; feet well placed and of good size and shape .....	2	.....	
<b>F. Mammary System, 30 points:</b>			
Udder, <b>form:</b> large and long, attached high behind and far forward, quarters uniform, not grooved, level sole .....	10	.....	
Udder, <b>quality;</b> mellow and elastic, hair fine and skin soft .....	10	.....	
Teats, of convenient size, wide apart and squarely placed .....	4	.....	
Milk veins, large, long, tortuous, branching .....	4	.....	
Milk wells, large and numerous.....	2	.....	
Total points .....	100	.....	



## II. DAIRY COW AND CALF PROJECT.

Junior Agricultural Clubs.

### OBJECT.

The object of this project is to interest and instruct club members in the care of a bred dairy heifer or cow and the care of the cow and her calf until the latter is weaned. The club member may start with a bred heifer or with a bred cow.

### REQUIREMENTS.

1. Boys and girls between the ages of ten and eighteen may enter this project.
2. The latest date of enrollment is June 1.
3. Each member must own a cow or heifer that is due to freshen preferably within a month of the beginning of the project and care for her and the calf until the calf is weaned.
4. Each member must keep a complete record of the care, feed and management given the cow and calf during the project.
5. Each member shall exhibit his cow and calf at the club show that is to be held at the end of the project.
6. If it is impossible to hold a club show each member shall close his project, complete his record book and hand same to the county agent or club leader.
7. Each member is to study instructions given him by the county agent or club leader and the specialists of the College of Agriculture, University of Kentucky.
8. The weight of the cow and calf must be certified by two disinterested persons. The cow and calf are to be weighed instead of estimating the weight.

9. Basis of award:

Individuality and condition of cow and calf	30
Production of milk and butterfat	20
Cost of production and daily gain	30
Best record and story	20



## II. Dairy Cow and Calf Project.

### FEEDING THE BRED HEIFER OR COW.

The period after the heifer or cow has been bred is the most important part of her life. She must be cared for properly, fed well and given shelter. She requires feed for three purposes: first, to continue her growth; second, to provide nourishment for the unborn calf; third, for reserve material to convert into milk when she freshens after the calf is born. To insure good health feed her a mixture of hay, silage and grain. The following grain mixture is recommended:

- 4 parts corn meal or shelled corn
- 2 parts wheat bran
- 2 parts linseed meal

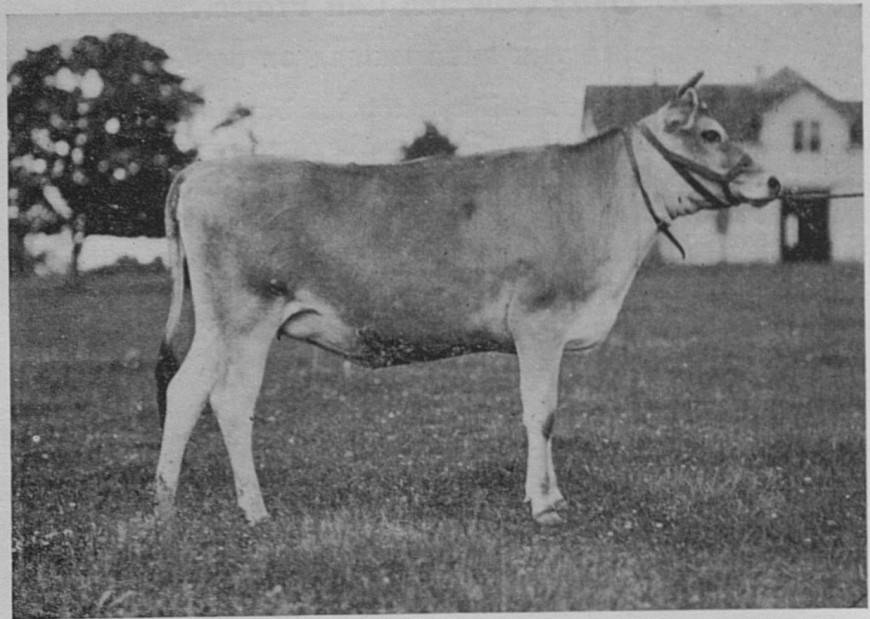
All mixed by weight. This is to be fed at the rate of 5 pounds daily along with as much alfalfa or clover hay and corn silage or roots as seems necessary to keep the heifer or cow in the best possible condition. Care should be used not to feed too much grain during the last two days before calving. Too much grain often brings on udder trouble and in mature cows there is the possibility of milk fever. This is especially true of the best-producing cows.

To insure a good flow of milk the heifer or cow should be in good condition at freshening. A thrifty heifer or cow also has less trouble in calving than does one that is in a run down condition.

Ten days before calving, the grain ration should be changed so that it is composed of:

- 3 parts wheat bran
- 3 parts ground oats

This is a laxative and cooling diet such as she needs at this time. If her bowels are not moving freely give a drench of Epsom salts. Dissolve one pound of salts in a quart of hot water and allow to cool. Put into a narrow-necked bottle and drench the heifer or cow.



Cut No. 7. Heifer Two Months Before Calving.

#### CLEAN CALVING STALL.

Place the heifer or cow in a clean, comfortable box stall, thoroly disinfected and carefully bedded with clean, dry straw. Avoid drafts and dampness. A stall well lighted with sunlight is much preferred to one situated in a dark part of the barn. If everything is normal do not disturb the heifer or cow at calving time. In case of difficulty in calving, give in a quiet, careful and gentle manner what assistance is required.

#### CARE OF NEW-BORN CALF.

As soon as the calf is dropt the mother usually will lick it dry. In case she does not, dry the calf with a clean, soft cloth. In cool weather it is well sometimes to blanket the calf the first day. Be sure to protect the calf from draft and dampness. Clean the stall and bed it with clean, dry straw soon after the calf is born. A strong, healthy calf will nurse of its own free will within an hour or so. If the calf is weak, assistance should be given within the first three or four hours. The calf should



nurse frequently the first day. The colostrum, or the first milk, is necessary to clean the digestive tract of the young animal. The calf should be separated from the cow after two days because it is likely to suck too much milk, which will result in scours or indigestion. Allow the calf to suck a reasonable amount three times a day for the next two or three days, then teach it to drink from the bucket. Attention should be given the navel so as to prevent infection. Thoroughly wash the navel cord with a good disinfectant, tie the cord near the body and cut it four inches from the body. A two to five per cent solution of creolin or carbolic acid can be used to disinfect the navel cord, or it may be painted with a weak solution of iodine.

Allow the calf freedom in a well-ventilated, warm, separate pen, at least six by ten feet in size, until it is a month or more old, or until it is ready to go on pasture. Do not turn the young calf out in hot or cold weather. To the wall of the pen, nail and brace firmly a feed box at such a height that the calf can reach it without straining. Also equip the pen with a slot hay rack so that the calf can reach the hay but cannot throw it out of the rack.

#### CARE OF THE COW.

The first day after calving the cow needs little attention provided everything has been normal. See that the cow has plenty of water. If the weather is cold the water should be warmed to about 70 degrees Fahrenheit. Also see that she is protected from drafts while her vitality is low.

The feed for the first two or three days should be limited in amount and should be cooling and laxative in nature. A warm mash of 3 parts wheat bran, 3 parts ground oats and 1 part linseed meal is satisfactory. It is often better not to feed hay, silage or the regular diet the first day. The cow is better off without this feed. In many cases she does not eat it even when it is given her. One or two weeks are required to get her to eating a normal ration. After the fifth day the grain is fed dry instead of in a mash. Five pounds should be given. This should be increased one-half pound per day up to the fifteenth

day and after that increased to one pound for every 3 pounds of milk the cow is giving. The following are milk-making rations and can be fed to the cow after freshening. Up to one month after freshening the ration may consist of:

- 2 parts wheat bran
- 1 part ground oats
- 1 $\frac{1}{4}$  parts linseed meal
- $\frac{3}{4}$  parts cottonseed meal
- $\frac{1}{2}$  parts corn meal

After the first month, thru the remaining period, the following has been found to produce milk:

- 1 $\frac{1}{2}$  parts bran
- 1 $\frac{1}{2}$  parts oats
- 1 $\frac{1}{2}$  parts linseed meal
- 1 part cottonseed meal
- 5 parts corn meal

Supply these mixtures at the rate of a pound of the grain mixture for each three pounds of milk the cow produces. Along with the grain supply 6 to 10 pounds of hay and 25 to 30 pounds of silage or roots daily.

The requirements for keeping records and instructions for writing the story "How I Raised My Cow and Calf" are practically the same as the requirements and instructions for the dairy heifer calf found on page 11.

Score Card same as in Part I.

#### REFERENCE.

- Extension Circular No. 65 Feeding Dairy Cows in Kentucky.  
College of Agriculture,  
Lexington, Ky.
- Extension Circular N.. 80 Raising the Dairy Heifer  
College of Agriculture,  
Lexington, Ky.
- Extension Circular No. 96 Fundamentals of Live Stock Judging  
College of Agriculture,  
Lexington, Ky.
- Farmers' Bulletin No. 743 Feeding of Dairy Cows  
U. S. Department of Agriculture,  
Washington, D. C.
- Farmers' Bulletin No. 777 Dairy Calves and Young Dairy Stock  
U. S. Department of Agriculture,  
Washington, D. C.