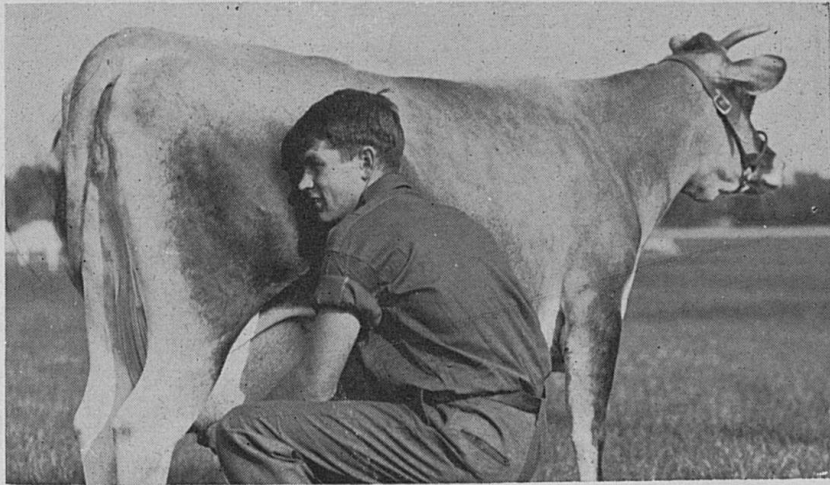


# Dairy Project for 4-H Clubs

CIRCULAR NO. 298



UNIVERSITY of KENTUCKY  
COLLEGE OF AGRICULTURE  
Extension Division

THOMAS P. COOPER, Dean and Director

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### OBJECT AND REQUIREMENTS

The object of the dairy project is to teach boys and girls approved methods of selecting, feeding, breeding, and managing dairy cattle. The dairy project covers three or more years and includes work with the heifer, the cow and the calf. It may begin with any one of these. A certificate will be given for satisfactory work at the end of each project year.

*Age.* The member must be at least ten years of age before the close of the project year and under 19 on January 1 of the project year.

*Ownership.* Animals must be owned by the member. Registered animals must be in the member's name; the ownership of grades must be confirmed by the club leader and county agent.

*Number of Animals.* One or more animals may be owned.

*Care.* Animals must be cared for by the member, on the farm where the member resides.

*Practices.* Members must follow the instructions of the local club leader and the county agent.

*Exhibits.* Members are expected to exhibit their animals in the county show and, if selected by the county agent, in the district and state shows.

*Record.* Members must keep, on the forms in this circular, a record of all work done on the project and of all receipts and expenses. The record must be approved and signed by the county agent.

*Income.* The member should receive the net income from the project.

*Club Meetings.* To get the most development out of 4-H Club work, a member should attend all meetings of his club and take part in its activities.

Circular No. 298

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DAIRY PROJECT FOR 4-H CLUBS

Revised by George Harris

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SELECTING THE HEIFER

*Choice of a Breed.* There is little or no difference in efficiency in the production of human food, between the breeds of dairy cattle. In choosing a breed it is well to consider:

1. What breed is most common in the community? Use of the most popular breed makes it easier to get breeding stock and sell surplus.

2. What are the market demands for dairy products? Any dairy breed is satisfactory if the product is to be sold as cream or as whole milk. If the milk is to be retailed a breed which produces fairly rich milk may be preferred.

3. Which breed does the member prefer? If several breeds are common in the community the member's personal liking may be the best guide in choosing a breed.

*Registered or Grade.* A registration certificate shows that the animal is registered in a recognized breed association, which means that its sire and dam were registered animals of the same breed. Registered animals of good type and capable of high production are more valuable than grade animals capable of the same production. Registered animals are more inclined to transmit desirable type and production to their offspring; therefore, since the first heifer purchased may be the foundation for the future herd, it usually is advisable to purchase a registered heifer.

*Age.* Usually it is advisable to purchase a heifer between six and twelve months of age. Younger animals may develop defects in type later in life that make the animal undesirable; in purchasing older animals there is more danger of getting one which has recently become infected with contagious abortion. However, a heifer eighteen to twenty-four months of age gives the best indication of her future development and the club member has to wait

but a short time for a return on the investment. The age of the heifer should be decided by considering the heifers and the amount of money available. It is always better to buy a good calf than a common yearling.

*Pedigree of the Animal.* A pedigree is a short history of the accomplishments of the animal's ancestors. The points of importance in the pedigree of any animal are:

1. Records of half-sisters and full sisters.
2. Record of the dam.
3. Records of sisters to the sire and dam.
4. Records of the grand-dams.

Often pedigrees are confusing. For example, if the dam of a calf has no production record the following may appear beneath the dam's name. "Her dam is a sister to Butterfat Queen with 540 pounds of butterfat in 305 days at 3 years." In this instance the record is on a great aunt of the calf in question. This tells practically nothing about the dam of the calf. A red pencil mark should be drawn thru such information to remove the unimportant facts from a pedigree.

Popular families and blood lines usually are over-emphasized. It is much more important to secure a heifer whose ancestors have been of good type and have been good producers than to select one for the popularity of the family to which she belongs.

*Individuality and Production Records.* A dairy cow having a straight back, a deep body and a large, long udder extending well forward, with teats far apart, usually is capable of good production over a long period of time. Milk and butterfat production is, however, the real measure of a cow's ability to produce. A cow that produces 400 pounds of butterfat on twice-a-day milking, in ten months, is the type which every dairy club member needs. The following facts are given to assist in comparing production records:

A two-year-old cow produces approximately 70 percent as much milk and butterfat as a mature cow; a three-year-old, 80 percent; a four-year-old, 90 percent, and a five-year-old, 100 percent. A two-year-old cow that produces 350 pounds of butterfat in a year may be expected to produce 500 pounds of butterfat when she is five years old. A cow milked twice daily and given good farm care pro-

duces about 70 percent as much as she would if milked three or four times daily, when given all the feed she can consume and the best of care. A cow producing 420 pounds of butterfat under good farm conditions is capable of producing 650 to 700 pounds of butterfat under the best conditions. Most cows produce 15 percent more milk and butterfat in 365 days than in 305 days.

When Holstein records are given in terms of butter, multiply by 0.8 to get the amount of butterfat. (500 pounds butter  $\times$  .8 = 400 pounds of butterfat.) When Jersey records are stated in butter the percent of butterfat in the butter usually is given. (500 pounds of 85 percent butter equals 425 pounds of butterfat.)

*Freedom from Disease.* The importance of selecting healthy animals cannot be overemphasized. It is easier and cheaper to buy healthy animals than to get rid of diseases, once they have gained a foothold in the herd. Buy animals subject to physical inspection as to general health and to approved test for tuberculosis and Bang's disease.

*Valuation.* The price which a club member should pay for a heifer depends on the type of heifer, her age, her growth for age, and the production and type of her ancestors. A heifer whose half-sisters and dam have not been tested may or may not be a good producer and should be bought at a lower price than one whose close relatives have good production records. A high-producing cow will pay for herself more quickly than a low producer and the calves from a cow of good type will be more valuable than those from a cow of equal producing ability but of poor type.

#### CARE OF THE GROWING HEIFER FROM 8 MONTHS TO 2 YEARS

*Feeding.* Heifers from 8 months to 2 years of age need plenty of good roughage. They do not need grain if given abundant pasture, but if the pasture is only poor to fair, they should be fed two to four pounds of grain a day, depending on their condition. A satisfactory mixture is 200 pounds of corn-and-cob meal and 100 pounds of bran or oats.

In winter, heifers of this age should receive all the legume hay they will clean up, with 10 to 20 pounds of silage. The amount of grain necessary depends on the condition of the heifers as well as the quality and kind of the roughage they are receiving. When

plenty of legume hay and silage are available it is not necessary to feed grain except to heifers that are thin in condition. If grass (non-legume) hay is fed with either silage or fodder, a grain mixture should be used, made of

200 pounds corn-and-cob meal

200 pounds wheat bran

100 pounds cottonseed meal

The amount of grain required will be 3 to 5 pounds a day. After the heifer is bred the grain must be increased so that she will be in good condition before freshening. Heifers on good pasture need a small amount of grain during the 6 weeks previous to freshening. Salt should be provided at all times and, if non-legume hay is fed, they should have steamed bone meal at will.

*Management.* Heifers of this age need shade in summer. In winter they need a shed with dry bedding. Unless the cows in the herd are free from contagious abortion it is best to raise the heifers separately because they may contract the disease any time after they start to come in heat and especially after they are bred.

#### AGE AND WEIGHT AT WHICH TO BREED HEIFERS

Jerseys, 15 to 18 months, 500 to 575 pounds

Holsteins, 19 to 23 months, 700 to 800 pounds

Guernseys, 17 to 20 months, 550 to 625 pounds

Ayrshires, 18 to 21 months, 600 to 675 pounds

The normal gestation period for a cow is 283 days. Cows that freshen in the fall, September 1 to December 1, yield the highest production and are dry during the busy, hot season; consequently it usually is best to breed heifers between November 20 and February 20. To breed for the shows, remember that senior yearlings show best when springing. Older cows show best a week before freshening.

*Choosing a Sire.* The heifer must be bred to a purebred bull. An aged bull which has sired high-producing daughters of good type is best. When a good, proved bull is not available, and few of these are to be found, breed the heifer to the bull which has the favorable points as regards type and breeding which were discussed in "Selection of the Heifer."

**FEEDING AND MANAGEMENT OF THE HEIFER OR COW  
BEFORE AND AFTER FRESHENING**

*Feeding.* A heifer or cow should be fat at time of freshening, so feeding should be started two months before that time. Heifers may need from 2 to 8 pounds of grain a day, depending on their condition, and cows may need from 2 to 16 pounds. With pasture or with legume hay and silage or fodder a good mixture is

200 pounds corn-and-cob meal  
100 pounds wheat bran

With mixed legume and grass hay and silage or fodder use

400 pounds corn  
200 pounds wheat bran  
100 pounds cottonseed meal

For ten days before and a week after calving feed bran alone or a mixture of 4 pounds of bran and 1 pound of linseed meal. Feed 2 to 6 pounds a day depending on the appetite. If the animal will eat wet feed, feed a warm bran mash the first two feeds after freshening. Reduce the allowance of silage one-half the first two feeds after freshening; otherwise feed roughage at will.

*Care.* A heifer should be placed in stanchions with the cows for at least a month previous to freshening and should be handled gently. A clean box stall, disinfected and well bedded, is the best place for a freshening cow or heifer in the winter. In the summer a shady lot is most desirable. Do not milk a cow before calving, even if the udder is inflamed. Be certain that the calf is being presented normally and if the presentation is normal the cow should calve unaided within one-half hour. If assistance is needed a pull on the front feet of the calf in a downward direction at the time the cow labors is most effective. If the calf is not presented in a normal position call a licensed veterinarian or an experienced dairyman. After the calf is born remove all the phlegm from its mouth and nostrils. If it fails to breathe, regular pressure and release of the foreribs may start breathing. If the cow fails to lick the calf an hour after it is born rub it until it is dry. Disinfect the navel with iodine. The calf should be helped as soon as it wants to suck be-

cause the colostrum (first milk) is necessary to its health. The cow should be given as much warm water as she may care to drink after calving and may have hay to eat at will.

*Breaking the Heifer to Milk.* Gentleness and patience are necessary in milking a heifer the first few days. Handled roughly at this time a heifer may be made permanently nervous which will prevent her from yielding her best possible production. It is not advisable to milk a cow dry for 48 hours after freshening as this lessens the danger of milk fever. Heifers freshening the first time, however, rarely have milk fever. If the udder is badly inflamed milking several times a day is helpful. After each milking massage all the quarters in a downward direction. Applying mentholated vaseline makes the massaging easier and helps to irritate the skin, thus drawing a larger blood supply to the udder. The massaging of the udder by the calf when sucking is of some help in removing congestion. If the inflammation continues to be severe bathe the udder with hot water (as hot as the hand will bear) for 30 minutes once or twice daily. Following the hot applications dry the udder, apply mentholated vaseline and rub it in thoroly. *Keep the udder warm* after using hot applications. Regularity in time of milking does much to eliminate udder troubles and is of prime importance in getting good production. Get Kentucky Extension Circular No. 227, "Feeding Dairy Cows," for instructions on feeding cows in milk.

*Feeding the Heifer.* If heifers under 8 months of age are turned on pasture, grain feeding should be continued until they are 8 months of age. One pound of grain a day with good pasture is sufficient.

If skim milk is not available, dried skim milk may be used instead. Mix one pound of dried skim milk with 9 pounds of warm water and feed at blood temperature (100 to 103 degrees F.). Change from whole milk to remade skim milk at the same age and in the same manner that the change is made to skim milk. Neither skim milk nor remade skim milk need be fed in amounts over 14 pounds a day. They may be discontinued at three months. A grain mixture of

1 pound of cracked corn  
1 pound of ground oats

1 pound of wheat bran  
1 pound of linseed meal



will be most satisfactory for the period from 3 to 6 months of age, when no milk is fed. The mixture recommended in the preceding table is satisfactory at other times.

*General Feeding Rules.* Feed whole milk immediately after milking. Milk from low-testing cows usually is most satisfactory for calves.

*Teaching the Calf to Drink.* After the calf is taken from its mother (3 or 4 days of age) allow it to go 12 hours without feed. Then place 2 or 3 pints of milk in a pail, back the calf into corner and stand straddle of its neck. Hold the pail with one hand and let the calf suck the first two fingers of the other hand. Lower the hand until the calf's nose is in the milk. Remove the fingers slowly and when the calf raises its head repeat. The calf usually drinks the third feed without assistance. Patience is all that is needed.

Keep *bright, palatable* hay before calves at all times. Mixed timothy and clover is most satisfactory while calves are receiving milk. When the calf is no longer receiving milk, legume hay is preferable.

To teach calves to eat grain at 10 days to two weeks of age, place a handful of grain in the bucket immediately after feeding milk or rub some grain on the calf's nose. Keep clean water and salt before calves at all times.

*Care.* Keep the calf in a clean, well-bedded stall, free from drafts. If two or more calves are put into a pen, keep them tied until their noses are dry, after feeding milk. This prevents sucking which ruins many udders. Feed calves at a regular time, night and morning, in buckets which are washed at least once daily. Calves under 6 months of age should not be turned on pasture. They grow more rapidly if kept in the barn during the day and turned out for exercise at night.

*Removing Extra Teats.* Extra teats should be removed while the heifer is young. She should be thrown and the udder bathed in a mild disinfectant. Alcohol may be used for this purpose. The extra teat or teats should be clipped as closely as possible with a pair of scissors. The wound should then be painted with tincture of iodine.

**FEEDING AND MANAGEMENT OF THE YOUNG CALF**  
**Feeding with Skim Milk Available**

Age	Milk	Grain		Hay	Shlage
		Mixture by weight	Amount		
1 to 3 days	With mother				None
4 to 10 days	Whole milk, Rule 1. (Jersey 6 pounds, Holstein 8-10 pounds)			At will	None
11 days to 3 weeks	Whole milk (Jersey 6-8 pounds, Holstein 10-12 pounds)	2 corn 1 bran	At will	At will	None
3 weeks—3 months	Change to skim milk, Rule 2	2 corn 1 bran	At will	At will	None
3 months—6 months	Skim milk (Jersey 12-16 pounds, Holstein 16-20 pounds)	2 corn 1 bran	Jersey, 1-2 lbs. Holstein 2-3 lbs.	At will	1-5 pounds
6 months—8 months		4 corn 2 bran 1 C. S. meal	Jersey 1-3 lbs. Holstein 2-4 lbs.	Legume At will	3-7 pounds

**RULE 1.** 1 pound or 1 pint of milk each day to each 10-pound weight of calf. (A 60-pound calf, 6 pounds or 6 pints of milk.)

**RULE 2.** Change to skim milk by substituting 1 pound of skim milk for one pound of whole milk each day. After the change, increase the daily allowance of milk 1 pound every ten days until the amounts suggested are reached.

*Removing Horns.* Calves, particularly of the Holstein breed, are often dehorned. This should be done when the calf is three to ten days old. The hair should be clipped and vaseline applied around the horn button, which should then be rubbed with the dampened end of a stick of caustic potash until blood appears. Paper should be wrapped around the dry end of the caustic stick when handling it.

#### COMMON DISEASES AND ABNORMAL CONDITIONS IN CALVES

Disease	Cause or symptoms	Treatment
Common scours	Overfeeding, cold milk, dirty buckets, irregular feeding.	Reduce milk one-half. Drench with 2 ozs. castor oil. In severe cases follow with 1 teaspoonful of salol twice daily. Increase milk slowly.
Ringworm	Round, hairless spots covered with grayish scab.	Remove scab daily by sponging with a damp cloth. Paint with tincture of iodine.
Lice	Calf rubs, especially the neck and hind quarters.	Summer. Dip or wash with one of the cresol solutions on the market. Repeat in eight days. Winter. Use some commercial louse powder and disinfect the pens.
Pneumonia	Exposure in wet weather or in damp pens in draft. Calf loses appetite, has high temperature,* breathes rapidly, is constipated.	Reduce feed and feed bran alone. Give a laxative (1 to 3 ozs. of castor oil). Blanket the calf, keep it from drafts and call a veterinarian for further suggestions.
Bloat	A rapid accumulation of gas in the paunch or first stomach.	Place a stick in the calf's mouth to keep it open, using it as a bit, and walk the calf. If this treatment fails give the calf 2 ozs. of mineral oil; a yearling ½ pint, or a cow 1 pint.
White scours	Caused by disease germs which are in the calf's body at birth or enter soon after birth. Indicated by a white dysentery soon after birth, and extreme weakness.	Use regular scours treatment. Then clean and disinfect all stalls and pens to avoid a recurrence of the trouble. If the disease recurs in other calves see a veterinarian.

\* The normal temperature of a cow is about 101 degrees F. The normal pulse is 40 to 50 beats per minute and the normal respiration is 10 to 20 breaths per minute.

#### THE VALUE OF PRODUCTION RECORDS

A dairy cow may be compared to a machine which produces milk and butterfat. If one machine is much more efficient or can perform more service than another the less efficient one is discarded. So it is with dairy cows that fail to produce enough to be profitable. With butterfat selling at 35 cents the cow producing 138 pounds of butter-

fat (the average cow in the state) does not pay for her feed. The cow producing 400 pounds of butterfat can give her owner a nice return at this price. Since a cow is more or less a machine the materials taken into her body must furnish her with enough food to nourish her body and provide for production. Project members need records of production each year to determine the ability of their cows as producers, and thus to be able to feed them for the best and most economical production and to know their value as foundation cows. A production record combined with proper information on feeding will indicate the amount of feed a cow should receive per day. A record of both daily and monthly production will also indicate whether a cow is maintaining good production. Project members also need records to show them which feeding practices give the best and most economical results. Occasionally a member may select a heifer which is not a profitable producer. If a cow is unprofitable one cannot afford to keep her, whether she be registered or grade, regardless of her type. Over a period of years production records are needed to find those cows whose daughters are high producers and to find whether daughters of certain herd sires produce more or less than the cows to which those bulls were mated. A herd sire which, when mated to high-producing cows, sires daughters that produce more than their dams, is very valuable and should be kept in service as long as possible. Daily milk weights may be kept, the milk may be weighed three times a month, or it may be weighed once a month and this weight used as a measure of the milk production for the month. The milk from both milkings should be tested for butterfat once each month. The dairy record book affords space for both production and feed cost records. See your club leader and county agent in regard to keeping such records when your heifer freshens.

#### **FITTING FOR EXHIBITION**

*Time.* The fitting period should be six weeks to two months and during this time calves should be kept blanketed in the barn. Yearlings and cows may be allowed on pasture during the night but should be kept in the barn under blankets during the day.

They should be kept in the barn night and day for three weeks before the show.

*Feeding.* An animal must be well-grown and must carry enough flesh to be smooth, if it is to be given any consideration in the show ring. The following grain mixtures are suitable for use during the fitting period:

For thin animals

- 400 pounds ground corn
- 200 pounds wheat bran
- 100 pounds linseed meal or cottonseed meal

For animals in good flesh

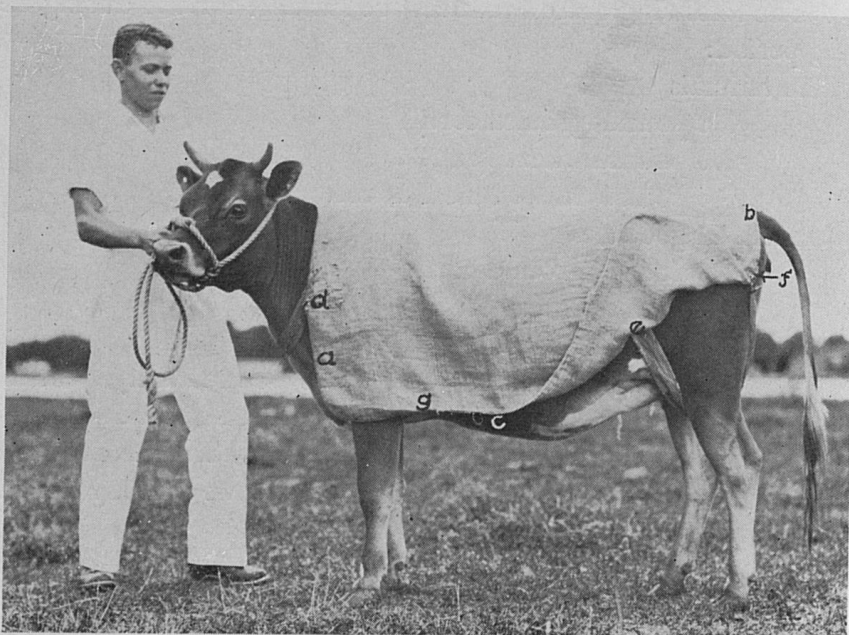
- 300 pounds ground corn
- 300 pounds wheat bran
- 100 pounds linseed meal or cottonseed meal

*Amount.* Heifers under one year, 4 to 6 pounds daily; yearling heifers, 6 to 10 pounds daily, depending on their condition and appetite; cows, enough to put them in good condition. This may vary from 4 to 15 pounds for dry cows, while cows milking heavily may need 10 to 18 pounds of grain per day.

*Rate of Increase.* Start with 1 to 1½ pounds per day for calves and increase the daily feed 1 pound the first day of each week. Start with 2 to 3 pounds per day for yearlings and increase at the rate of one pound a week. These are general rules and may not fit individual cases. Feed twice daily at regular hours and if an animal fails to eat all its feed in 15 minutes, remove what is left and reduce the next feed. Weigh the feed or use a small measure that holds not more than 2 pounds of feed.

*Roughage.* Clover or mixed timothy and clover hay is preferable for fitting animals of all ages, altho alfalfa and soybean hay will do. If one of the latter hays is used one may use timothy or some other grass hay every third feed. It is necessary that animals consume a large amount of hay if they are to develop a large "middle." After animals are put into the barn for fitting, silage or dried beet pulp is a valuable addition as a roughage. Soak the beet pulp for 12 hours before feeding. It will take up about 3 times its weight of water. Feed calves 4 to 6 pounds a day of the soaked beet pulp, yearlings 6 to 10 pounds and cows 10 to 14 pounds.

*Water.* Animals being fitted for show should be watered twice daily. It is best to water them out of a bucket for several days before they leave the farm. Loose salt may be fed at will in a small box.



A serviceable tho inexpensive blanket made from burlap sacks and overall suspenders, plus a needle and heavy thread.

*Blanketing.* A blanket may be made from burlap sacks. Split the sacks and lay them on the animal. The front edge of the blanket should just cover the lower point of the shoulder (a); the back edge should extend to the point where the tail joins the tail head (b). The sides should hang almost even with the belly or about 2 inches above the lowest point of the underline (c). After the sacks have been thus arranged, pin them together with safety pins. Then mark with safety pins the places where straps will be fastened to the blanket. The straps which go under the neck should be sewed to the blanket 4 inches above the point of each shoulder (d). One strap may be used, fastened at one end and the other end sewed to the blanket, as in the illustration, or two straps may be used, to

be tied together. Two straps hold the blanket from shifting to either side, one to pass on the inside of each hind leg. One end of each should be sewed to the inside of the blanket at the flank (e), the other end snapped or tied to the rear edge of the blanket (f), 8 inches below the pin bones. Tho not necessary, one strap may be extended underneath the body back of the front legs (g), and be fastened on the inside of the blanket 6 inches from the lower edge on each side. After a pin has been placed at each of the positions mentioned the blanket may be removed, other sacks added to make the blanket of two thicknesses and the sewing done. Old overall suspenders make good straps. Note in the illustration at (f) that buttons may be used for easy removal of the blanket. At each place where a strap is to be sewed to the blanket a piece of denim 6 inches square should be sewed to the burlap (d) and the strap sewed to both, using harness thread or other extra heavy thread. If a sweat blanket is desired, a piece of old bed blanket placed under the sack blanket does very well. When the blanket is put on it should be placed 2 or 3 inches too far forward and pulled to the rear. A heavy canvas blanket may be purchased. Most herdsmen prefer the type without lining, using a piece of bed blanket when a sweat blanket is desired.

*Washing.* The animal should be washed at the time blanketing is started. Use tar soap. If the weather is warm, cold water is satisfactory. Pour water over the animal, then rub the soap on one side until a thick lather is formed. Scrub with a coarse brush, then rinse thoroly. Wash the other side in the same manner and wash the switch. Jerseys and Guernseys should not be washed after the first washing. Holsteins may be washed two or three times during the fitting period and must be washed the day before they are to be shown. After washing put a clean sweat blanket under the regulation blanket. Manure stains on the thighs and switch may be removed by adding a chorine bleach to the rinse water. Bluing is satisfactory but must be used carefully. If the switch is white it should be washed often enough to remove the stains.

*Grooming.* The animal must be groomed *every* day with a *soft* brush. Use the currycomb only on the legs and flanks. After a thoro brushing, stroke the hair rapidly with the hands. This is

most important because it gives a gloss to the hair and removes dead hair. If the hair is very long when fitting is begun use coarse sandpaper twice a week to remove it.

*Care of the Hoofs.* An animal must stand on its toes if it is to show to advantage. Animals that have been on rough grazing probably will not need their hoofs trimmed. Calves or cows that have been long in the barn, perhaps need their hoofs trimmed to the proper shape. Calves and some yearlings may be left standing when trimming their feet. It will be necessary to throw older cattle. If the hoofs are too long and hoof pinchers are not available a wood chisel may be used to remove the ends of the toes. If the animals will not stand quietly, hold one foot. In trimming the hoof remove small pieces. If the hoofs are very long it will be necessary to leave them a bit long and complete the task two or three weeks later. To trim the bottom of the hoof with the animal lying down, place a piece of plank under the foot. A wood chisel may then be used. The sole of the foot should be trimmed near the toe so that the sole and shell of the hoof taper together at the toe. It should also be trimmed so that the outside edge of the toes carries most of the weight.

A half-inch rope is satisfactory for throwing all animals except large cows and bulls, which may require a three-fourths inch rope. Tie the rope around the animal's neck so that the knot will not slip. The knot should be at the top of the neck just ahead of the withers. Pass the rope under the body just back of the front legs and up on the other side to make a half-hitch over the animal's back. Make a similar loop and half-hitch just ahead of the hips and arrange it so that when the rope is pulled the half-hitch will be just half-way between the spinal column and one of the hip bones. Tie the animal's head to a post, allowing sufficient rope so as not to choke when throwing, then pull on the end of the rope and the animal will fall easily. The rope may then be tied or one person may hold it.

*Horns.* The horns should curve inward and slightly downward, to be most attractive. If horn trainers are available they may be used when the horns are 2 inches long. They must be tight enough to exert a continuous but easy pull inward at all times. Leave them on for a week, then remove them for 3 or 4 days. If horn trainers



are not available file a round notch near the base of the horn on the front side to make the horn curve inward. File until you can see a light red color and repeat in two weeks. If the horn is inclined to grow high file the notch at the base of the horn on the under side. If the horns are too long file the tips removing a small amount at each filing. If they are too large they may be made smaller by using a coarse file or a fine rasp, being careful not to draw blood; otherwise, only the rough shell of the horn need be removed with a file. When removing the rough shell, the shape of the horn may be improved with proper filing. For instance, if a horn is too high, file the lower side of the base and the upper side of the tip as much as possible. If the horn is not curved enough, file the front side near the base and the outside of the tip. After the horn has been shaped properly and the rough part of the shell has been removed, scrape with a piece of glass or sharp steel. Then use a piece of very fine sandpaper or emery cloth until the horn is perfectly smooth. Apply a paste of ground pumice stone and olive oil, then polish with a woolen cloth. The final smoothing and polishing should be done after reaching the show.

*Clipping.* If an animal fails to shed the long hair it may be necessary to clip its entire body 2 weeks before the show. This should be only a last resort because unclipped animals show a smoother and more glossy coat. The clipping of the head, ears and tail should be done 2 or 3 days before the show. Animals that are sleek should have the entire face and head clipped to a line extending from ears to mouth, as well as the inside and outside of the ears. The neck may be clipped in one of two ways. Clip only the hair from the top of the neck, or clip all the neck back to the line where the neck joins the shoulders. Clip the tail, starting 2 inches above the switch and to the point where the tail joins to the tail head. Select the place to start clipping, then start at a point 2 inches above it. If desired more hair can then be removed. Clip the hair on the udder and also the belly of the animals older than, and including, springing heifers. Clip only high enough on the sides to show the milk veins to good advantage and as far forward as the front legs. Clip the udders of younger heifers but do not clip the entire underline. The edges of all clipped portions should be blended with the longer

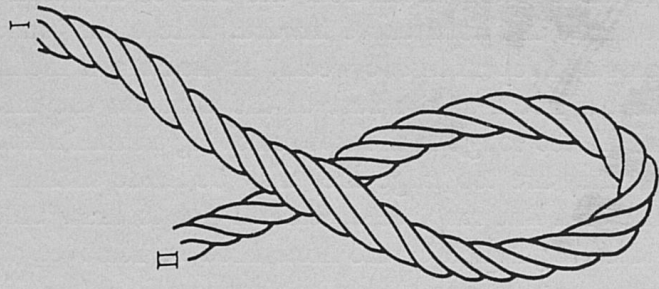


Fig. 3

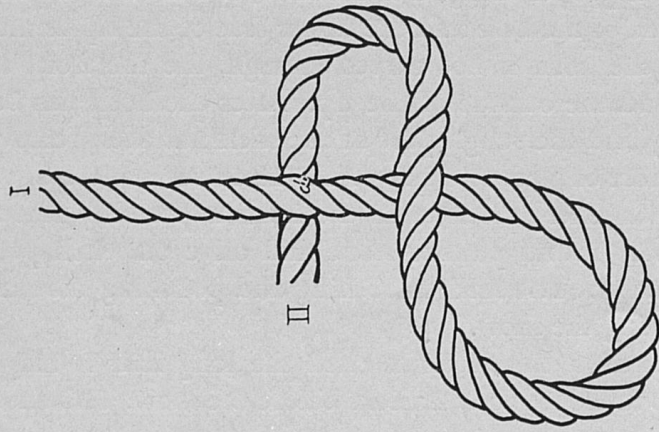


Fig. 2

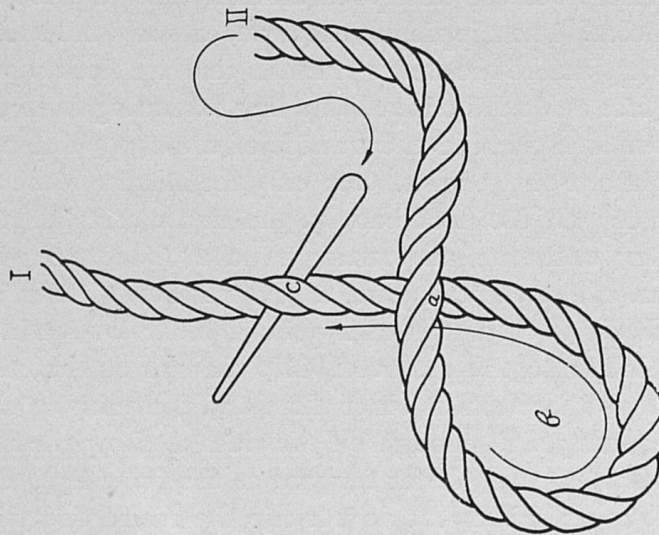


Fig. 1

LOOP SPLICE

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hair. This may be done by clipping the edges with the hair. If a change in color occurs near the place where the clipping should end make this color change the stopping place for the clipping.

#### TO MAKE A ROPE HALTER

For calves use 10 feet of  $\frac{3}{8}$  inch rope

For yearlings use 11 feet of  $\frac{1}{2}$  inch rope

For cows use 12 feet of  $\frac{3}{4}$  inch rope.

To make a halter for a calf 6 to 10 months of age tie one string around the rope 32 inches from the end and another 38 inches from the same end.

*The Loop Splice, see Figure 1.* Raise two strands of the rope at the point where the first string was tied (a). Turn the short end of the rope just as indicated by the arrow and pass it (I) beneath these strands, pulling it thru at a right angle. A wooden wedge is an aid in parting the strands of a new rope. Leave a large enough loop (b) for a rope to just pass thru; then raise two strands of the short end of the rope (I) as near the point where the ropes cross as possible, as indicated by the wedge at (c). Pass the long end of the rope (II) thru this opening as in figure 2 at (d) and pull taut. Pull the ropes together as indicated at figure 3.

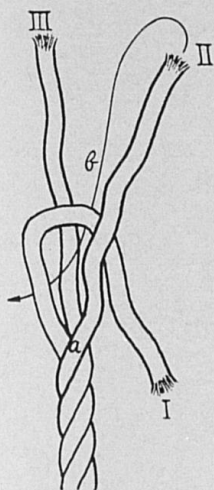


Fig 4

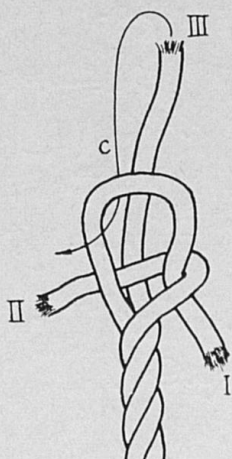


Fig. 5

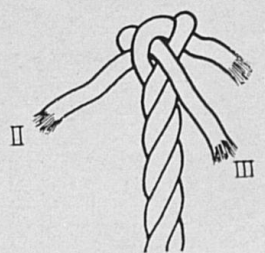


Fig. 6

### CROWN KNOT

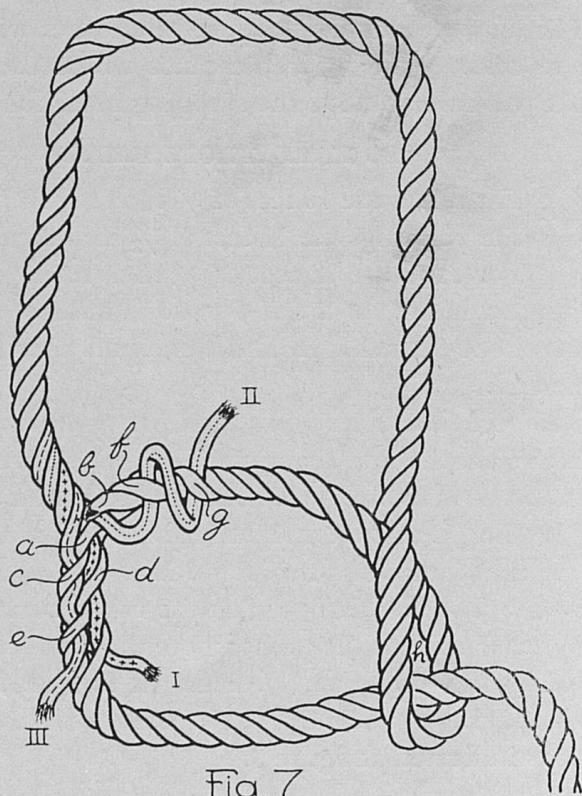


Fig. 7

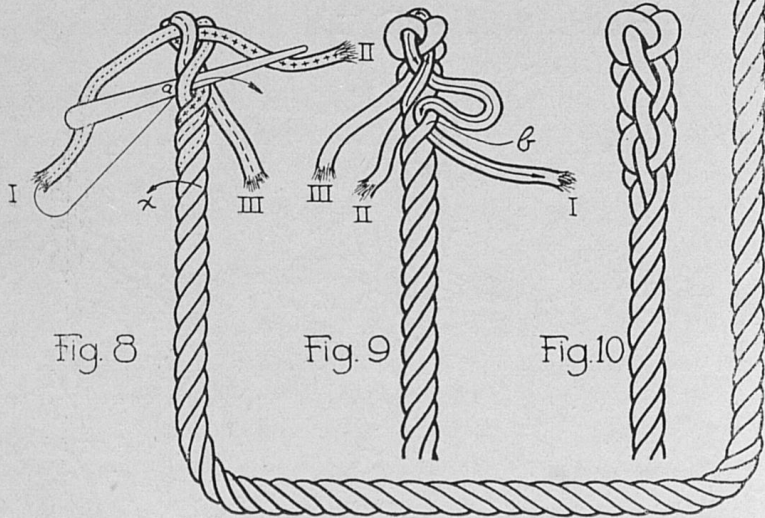


Fig. 8

Fig. 9

Fig. 10

HALTER AND CROWN SPLICE

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*The Crown Knot.* Untwist the long end of the rope for four inches, then hold the rope with the thumb placed at (a) and pointing upward (figure 4). Then I is brought across to form a loop in front of strand III, and back of strand II. Strand II is then turned to the left and downward (follow b) so that it forms a loop back of I (figure 5), and lies in front of III. Strand III is then brought forward thru the loop formed by I. Continue to hold the rope firmly while the ends are gradually pulled taut. This completes the knot as shown in figure 6.

*The Halter Splice.* After the long end of the rope has been so secured untwist the short end for three inches and pass each end under a separate strand at the point where the second string was tied around the rope. See figure 7. I passes under at (a), II at (b), and III at (c). Note that each end passes under a separate strand. Two strands are spliced one way, the third being spliced in the opposite direction. Continue the splicing by passing each end in turn over one strand and under one strand. Start I then splice II and alternate. See I at (d) and III at (e). Continue splicing II as indicated. It may be spliced further than indicated in figure 7, and must be pulled taut as it is spliced. Pass the end of the rope in which the crown knot was tied thru the loop (h). Remember that this loop should be on the left side of the calf's head.

*The Crown Splice.* Figure 8 shows how to start the crown splice. Hold the knot in the left hand and the rope in the right. Untwist the rope slightly and raise one strand, see the wedge at (a). Find the end of the strand which has been so raised and pass this thru the opening as is indicated by the arrow. Pull fairly taut. Now revolve the main rope in the direction indicated by the arrow X and place the next loose end which in figure 8 is II, under itself in the main rope. Revolve, place III over one strand and under the next. Continue turning the rope in the same direction and splice each strand in turn over a strand and then under a strand. Remove the ragged ends with a knife and pound or roll the splice to make it smooth. This completes the halter. To make a halter of a proper size for a yearling tie strings around the rope 36 and 44 inches from the end and proceed in the same manner.

### PREPARING FOR THE RING

Give the calf, heifer or cow two-thirds of her usual allowance of hay, grain and water the evening before the show and include a handful of salt in the grain. Wash the switch and braid it tightly in 10 or 12 small braids while it is very wet. Then wrap a clean cloth around the braids. Feed all the hay the animal will clean up the morning of the show. If the heifer or cow usually shows a deep body give her her regular feed of grain in the morning. If however, she is shallow bodied, do not give the morning feed. This stimulates her appetite for hay or beet pulp if it is available. Water her an hour or an hour and a half before she is led into the ring. Soaked beet pulp may be fed after watering. Animals which are weak in the loin should be watered not earlier than 10 minutes before being taken into the ring. Brush the animal in the morning and do not remove the blanket again until 5 minutes before she is to be taken to the ring. Then remove all dust from the hair with a dry cloth or a very fine brush. Follow with a cloth dampened with a mixture of 1 part olive oil and 1 part denatured alcohol. Clean the hoofs. They may be oiled with an oily rag and the horns should be given a final rubbing with a dry woolen cloth. Comb the switch, leaving it as fluffy as possible.

### SHOWING THE CALF

*Leading and Posing.* In teaching a calf to lead it is necessary to first teach it the feel of the halter. Use a halter which has the lead strap passing under the jaw and thru a ring or loop on the left side of the head. Take hold of the lead strap or rope near the end and facing the calf give a steady but strong enough pull to make her take a step forward. When the calf steps forward release the rope and repeat. Do not attempt to drag the calf as it will only become stubborn. After two or three lessons of this kind teach the calf to lead as follows: walk on the left side of its head just ahead of the shoulder, holding the rope at a point 8 to 12 inches from the halter. If the calf fails to lead in this position take a small switch and tap her smartly on the opposite side of the rump when she hesitates. When leading the calf slowly as one does in the show ring it is well to walk backward holding the lead strap or rope in the left hand 4

to 6 inches from the halter. In this position the showman can watch his calf constantly and can stop her easily by crowding back on the halter rope with the left hand. If it is necessary to back the calf the right hand may also be used in pressing back on the lower point of the shoulder. *Always stop the calf facing up hill.* Place the hind feet by leading or backing the calf a step. If the front feet are too far ahead a slight pressure above the hoof with the foot will cause the calf to move its feet. The calf's feet should be placed almost squarely at the corners of its body tho in showing a cow it may be advisable to have one hind foot somewhat forward to display the udder in the best possible manner. In teaching the calf to hold up its head, short, sharp jerks upward help. If the calf's rump slopes somewhat a touch of the fingers or a pinch on the back at a point 2 or 3 inches ahead of the hooks (hip bones) is an aid in making her show straight. Regular leading and posing for 10 minutes or more each day will teach both the club member and the calf how to show.

**Conduct in the ring.**

1. Watch the judge and the animal being shown.
2. Have her standing properly when the judge is ready to look at her.
3. Keep her faced uphill.
4. Show her strong points and keep her alert.
5. Do not criticize the judge. It is always permissible, however, to ask the judge for his reasons for the placings.

**SHOW RING CLASSIFICATION**

July 1 and January 1 are accepted as the base dates in determining the age of animals in the show-ring classification.

*Calf.* Dropped between June 30 of the year preceding the show and April 1 of the year the animal is exhibited.

*Junior Yearling.* Dropped between December 30 and July 1 of the year preceding the show.

*Senior Yearling.* Dropped between June 30 of the second year preceding the show and January 1 of the year preceding the show.

*Two-year-old.* Dropped between June 30 of the third year preceding the show and July 1 of the second year preceding the show.

**DAIRY RECORD**  
(Heifer or Cow)

The following questions are to be answered when the project is started:

- 1. Date record began .....
- 2. Age of animal at beginning of record .....
- 3. Grade or purebred .....
- 4. Breed—Jersey, Holstein, etc. ....
- 5. Name of animal .....
- 6. Registry number .....
- 7. Date of birth .....
- 8. Cost or value of animal at beginning of record .....

The following questions are to be answered when the project is completed:

- 9. Date record closed .....
  - 10. Age of animal at close of record .....
  - 11. Did you exhibit your animal at any fairs or shows? .....
  - 12. What premiums did you win? .....
- .....
- .....

**PEDIGREE**  
(If purebred)

..... (Name of heifer)	Sire.....	}	Sire.....
			No.....
No.....	Dam.....	}	Dam.....
			No.....
.....	Sire.....	}	Sire.....
			No.....
.....	Dam.....	}	Dam.....
			No.....

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Month

Total  
for year





**AMOUNT AND COST OF ROUGHAGES FED**

To determine the amount of roughage fed (hay, silage, fodder, etc.) during the month, weigh an average feed night and morning to ascertain the amount for one day and multiply by the number of days. Put silage into a sack or basket to weigh. Tie a string around the usual forkful of hay fed and weigh it. It is best to weigh several such forkfuls and use the average weight. If corn fodder is fed determine the value from the value of a shock. Write the name of the roughage at the top of the column and the amount for the month below.

Month	Succulent roughage		Dry roughage				Days on pasture	Value of pasture
	Silage		Legume hay	Mixed hay	Corn fodder	Cost of roughage		
Total for year								

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**BUSINESS RECORD FOR THE PROJECT YEAR**

**Expenses**

Value of heifer or cow at beginning of record ..... \$ \_\_\_\_\_

Cost of feed for project year ..... \_\_\_\_\_

Miscellaneous expenses ..... \_\_\_\_\_

Total expenses ..... \_\_\_\_\_

**Receipts**

Value of heifer or cow at close of project year (estimate) ..... \$ \_\_\_\_\_

Value of milk or butterfat for project year ..... \_\_\_\_\_

Miscellaneous receipts (calves sold, etc.) ..... \_\_\_\_\_

Total receipts ..... \_\_\_\_\_

Total receipts ..... \$ \_\_\_\_\_

Total expenses ..... \_\_\_\_\_

Income above feed cost and current expenses ..... \$ \_\_\_\_\_

This amount is not net profit; the heifer or cow has not been credited with manure  
or has she been charged for labor, interest on investment or housing.

**STORY OF MY PROJECT**

A series of horizontal dotted lines for writing, spanning the width of the page.

**STORY (Continued)**

A series of horizontal dashed lines for writing.

**STORY (Continued)**

A series of horizontal dotted lines for writing.

**PHOTOGRAPHS AND DRAWINGS**

**DAIRY PROJECT**

I hereby certify that the foregoing is a true record of my project,  
in my own handwriting.

Name ..... Age .....

County ..... Date .....

Post office ..... R. F. D. ....

Years in club work ..... Years in this project .....

Approved .....  
*Local Club Leader*

Approved .....  
*County Agent*

Date .....