

NORTH CAROLINA

44

DAIRY  
MANUAL



## PREFACE

Few of us recognize the place of the dairy cow and her products in building a more profitable system of agriculture. The need for a larger number of dairy animals in North Carolina is acute. To assure a profitable and permanent program in dairying, future dairymen must be trained through a program of selecting, feeding, showing and breeding. Four-H Dairy Club work provides one of the best median through which this may be accomplished.

This publication has been prepared in order to give you the necessary information to successfully complete a 4-H Dairy project. It represents the best thought and the latest information available on the subject of raising dairy calves. If there is other information which you desire regarding this project, your county agent will be glad to furnish you with whatever information is available.

L. R. HARRILL, *State 4-H Club Leader.*

June, 1952

(Revised) Club Series No. 12

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Published By

**THE NORTH CAROLINA AGRICULTURAL EXTENSION SERVICE**

North Carolina State College of Agriculture and Engineering of the University of North Carolina and the U. S. Department of Agriculture, Cooperating. State College Station, Raleigh, N. C., D. S. Weaver, Director. Distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914.

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North Carolina

# 4-H DAIRY MANUAL

*Prepared by J. A. AREY and A. C. KIMREY*

*Revised by J. D. GEORGE*

## PURPOSE OF THE PROJECT

1. Encourage interest in dairy cattle among boys and girls.
2. Teach, through actual practice, better feeding and management of dairy cattle.
3. Teach boys and girls the value of record keeping in the dairy operation.
4. Develop among boys and girls a love for cattle.
5. Provide encouragement for boys and girls to start early in building a dairy herd.

## WHO MAY BELONG

Any boy or girl who meets the following requirements may join:

1. Be a member or agree to become a member of an organized 4-H Club.
2. Own one or more dairy animals approved by the county agent. If purebred each animal must be registered in the name of the club member.
3. Agree to feed and care for animal according to the recommendations of the local county agent.
4. Keep a record of the project in the 4-H Dairy Calf Record Book which your local 4-H Club agent will provide. This record is to be turned in to the county agent at a time designated by him each year.
5. Fit and exhibit one or more animals at the county dairy show or fair and at the district dairy show if possible.
6. Breed heifers to good sires approved by the county agent.

## SELECTING YOUR CALF

1. **FINANCING**—Many boys and girls get their parents to purchase a calf to start their project, later repaying the money. Many counties have calf club chains whereby 4-H members can secure calves and return the first heifer calf in payment. Check with your county agent about this matter.



The family production record should be considered in selecting a project calf.

2. **THE BREED**—Select an animal from the breed you like best. It is more important that you select a good individual. Your county agent will be glad to assist you in selecting a calf.
3. **AGE**—Select one that is at least 4 months old or preferably older.
4. **HEALTH**—Get your calf from a T.B. and Bangs free herd—one that has been tested regularly.
5. **PEDIGREE**—First look at the calf's dam (mother) and sire (father). If possible, look at older heifers and cows that were sired by the sire of the calf. Ask the owner to show you the production record of the dam and any close relatives of the calf in question. Select a calf whose dam has a good production record and whose relatives are good producers.

## CARE OF THE ANIMAL

### From Birth to 10 Months

1. House in a well-bedded and well-ventilated stall free of drafts.
2. Exercise daily in the sunshine in good weather in an exercising lot away from older cattle. It should have access to shade during hot weather.

3. Keep fresh water and good legume (or grass-legume mixture) hay in a feeding rack before the calf at all times.

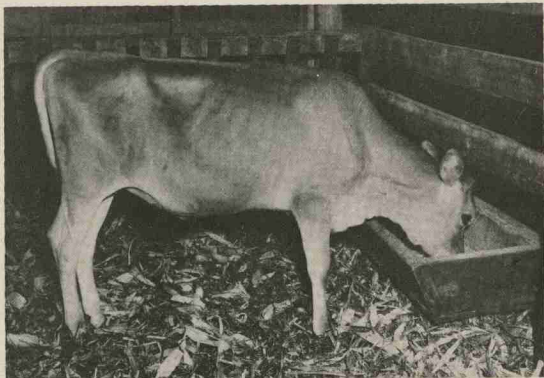
Milk is the best feed available for calves. If you have plenty of milk and are not selling Grade A milk your best bet is to feed the calf all the milk needed to keep it in a thrifty growing condition until the calf is old enough to eat enough dry feed to keep it in good condition (usually about 4-6 months old). If milk is scarce or too high priced, there are available dry milk substitutes which can gradually be substituted for whole milk. Ask your county agent for information on raising calves with limited whole milk and calf starters.

When the calf is about 2 weeks old, start feeding it a little grain mixture. A commercial calf feed may be fed or a home-mixed feed consisting of:

- 30 pounds of ground yellow corn
- 30 pounds wheat bran
- 30 pounds of crushed oats
- 10 pounds of linseed, peanut or soybean meal

One pound of salt should be added to each 100 pounds of the above mixture.

If at first the calf does not eat the grain feed, place a little in its mouth until it begins eating. Place before it only the



The calf should be kept in a well-bedded stall along with plenty of hay and grain.



Electric dehorners used at the proper age (three weeks) will give good results.

amount it will clean up before the next feeding otherwise, the feed will become stale.

As the calf becomes older it will eat more dry feed, and it will require less milk in proportion to its size to keep it in good condition. The weaning age will vary according to the thriftiness of the calf, the method used in raising, and the availability of milk on the farm.

The vessels in which the calf is fed must be kept clean. Milk feeding containers should be washed thoroughly after each use and sterilized with hot water, steam or a chlorine solution before the next feeding.

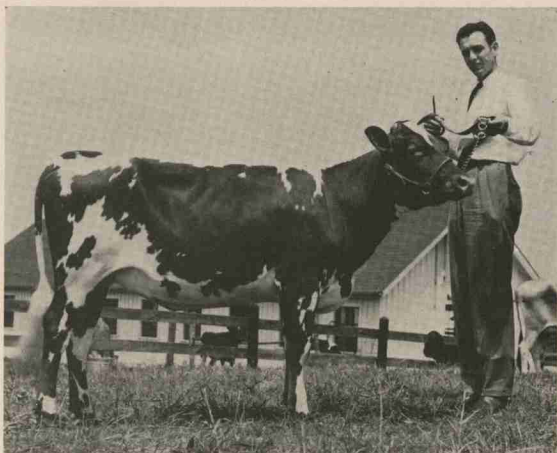
4. Dehorn the calf with caustic paste or electric dehorners at 1-3 weeks of age. Your county agent will be glad to advise you with regard to either of these methods.
5. Limited grazing in calf pastures away from older cows may be practiced from 8-10 months of age, but at no time should the calf run in a pasture with older cattle.

(Note: Ask your county agent for Extension Circular No. 177, "Raising Dairy Calves.")

### From 10 Months Until Freshening

1. The heifer may be turned on good pasture when 10 months old. A small amount of grain may be required to keep her in good condition. She should also have access to hay and water.
2. A good winter ration consists of all the good hay she will eat, silage (if available), and enough grain to keep her in good flesh but not fat. Whole oats are good. If silage is not available, seed a temporary winter grazing plot for her.





Heifers should have plenty of size as well as be old enough at breeding.

3. The following table is a guide to follow in breeding your animal.

#### AGE AND SIZE TO BREED

<i>Breed</i>	<i>Approx. Age (Months)</i>	<i>Minimum Size (Pounds)</i>
Jersey .....	15-17	500
Guernsey .....	17-19	550
Ayrshire .....	18-20	650
Holstein .....	19-21	750

#### The Mature Cow

1. Six weeks before first calving and during dry periods: Feed a conditioning ration—either home-mixed or commercial. A good home-mixed conditioning ration is as follows:

Ground corn .....	100 pounds
Ground oats .....	100 pounds
Wheat bran .....	100 pounds
Protein supplement .....	50 pounds
Salt— $3\frac{1}{2}$ pounds steamed bone meal .....	$3\frac{1}{2}$ pounds

Feed 4-6 pounds daily if the cow is in good condition. Feed 6-8 pounds if she is in poor condition. The cow should always

be in good condition (but not too fat) at calving. She should receive all the roughage she will consume.

Provide a clean well bedded stall for your cow to freshen in.

## 2. The Milking Cow:

Provide plenty of fresh water and salt at all times.

Feed her all the good hay she will eat. Feed silage during the winter months at the rate of 2-3 pounds for each 100 pounds of body weight. A temporary grazing plot should be seeded if silage is not available.

Feed 16 per cent grain ration if the roughage is of good quality and 18 per cent if the roughage is of poor or medium quality. Feed at the following rates:

Jerseys and Guernseys—1 pound grain for each 3 pounds milk

Holsteins and Ayrshires—1 pound grain for each 4 pounds milk

Never feed more than 12 pounds of grain per day to a cow. If the cow is on lush pasture, slightly more than one-half the rate will be enough.

Example for Figuring Amount of Grain to Feed:

*Tommy's cow gives 20 pounds of milk each day. She is a Holstein.  $20 \div 4 = 5$  pounds of grain she should receive each day.*



All the feed the animal receives, including the milk, should be carefully weighed.

### SIMPLE HOME-MIXED DAIRY FEEDS

(1)

300 pounds corn meal  
200 pounds ground oats  
100 pounds soybean meal  
(or cottonseed meal)

(2)

200 pounds corn to cob meal  
100 pounds ground oats  
100 pounds cottonseed meal



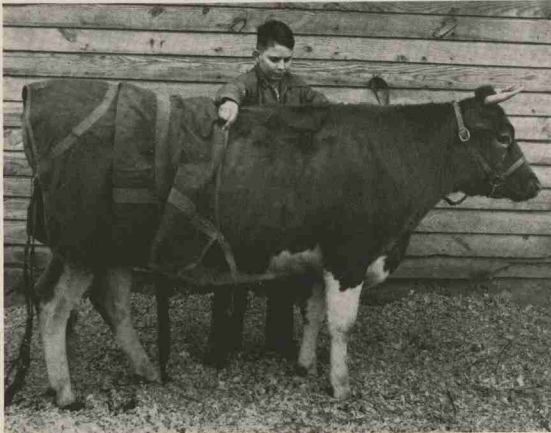
### OTHER MANAGEMENT SUGGESTIONS

1. Follow a good fly control program. Eliminate fly breeding places and keep the stalls and animals sprayed with a good fly spray.
2. Have a veterinarian remove extra teats on your calf at an early age.
3. Inspect your animal regularly for lice. Treat with lice powder.
4. Warts may be removed by rubbing daily with castor oil.
5. Scouring, especially in young calves, is often caused by over feeding of milk, feeding milk in dirty containers, poor sanitation in general or irregular feeding. Check all these points if your calf shows symptoms of scouring.
6. Always put iodine on the navel of the new born calf.

### FITTING DAIRY ANIMALS

You can get a great deal of pleasure as well as valuable training from showing your animal at county and district dairy shows. You should make every effort to participate in these events.

Your county agent or 4-H Club leader will be glad to advise you in regard to fitting and showing your animal. The suggestions



The blanket should be kept on the animal at least 4-6 weeks before the show.

which follow are only guides. You should consult your local agent for details.

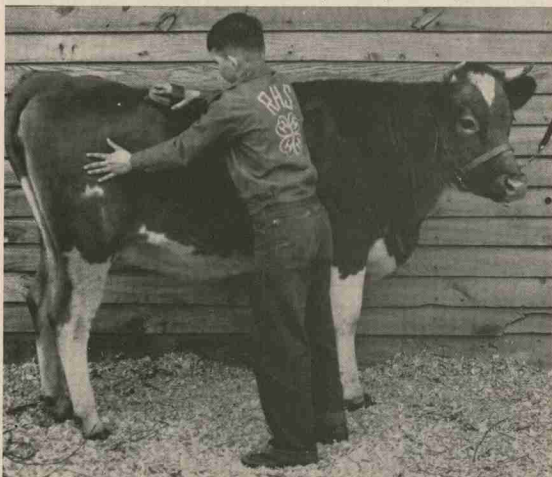
### Equipment Needed

Tie halter (leather or rope)  
Show halter  
Blanket  
Bucket  
Soap (mild)

2 brushes (1 soft and 1 stiff)  
Curry comb  
Rasp  
Emery cloth or sandpaper  
A box for equipment

### Points in Fitting

1. Five to 8 weeks before show time start feeding a "fitting" or "conditioning" ration. The amount to feed will depend on the condition of the animal. Do not get your animal too fat.
2. Four to 6 weeks before show (depending on condition of hair coat) take your animal out of the sunshine and put a blanket on her. A blanket made of burlap bags will do.
3. Keep the animal tied in the stall for a week at the start of the blanketing period and then start leading her every day with a show halter.
4. Up until 10 days before the show you may allow your animal



Remove the blanket daily and brush the animal from head to foot with a soft brush.

to graze 2-3 hours each day but this should be done early in the morning, late in the evening or at night.

5. Keep the stall well bedded and keep good hay and fresh water before your animal at all times.
6. Wash your animal with a mild soap once each week during the fitting period. Make sure all soap is rinsed off each time.
7. Remove blanket daily and brush with a soft brush and follow with bare hands or a piece of flat rubber such as a section from an automobile tire.
8. Start feeding your animal and watering her 2 weeks before show in buckets which will be used at the show. Also, start adding a few drops of molasses to her drinking water. Continue this at the show and she will not notice the change in taste of water and will drink better.
9. Watch your animal's feet. Use hoof nippers to trim back long toes. A rasp may be used to smooth up the job.

### **Training Animal to Lead**

1. Lead your animal daily with a show halter for at least 4 weeks.
2. Always lead from the left side of the cow. Hold the lead strap up close.



Train the animal daily, using a show halter and leading from the left side.

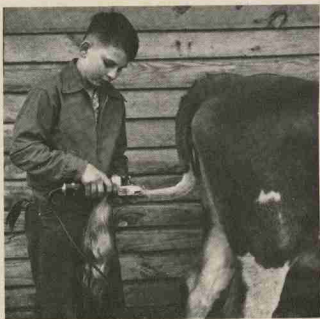


Train animal to place feet by responding to lead strap and pressure on shoulder.



This is the same animal before (left) and after a careful job of fitting (right).

Clip the tail, starting at top  
of switch and ending about  
even with the pin bones.



The head and ears should be clipped and the ears thoroughly washed and cleaned.

3. Practice posing the animal. Train her to place her feet by slight pulls on the lead strap and by placing your hand on her shoulder. Never use your foot to place her feet.
4. Train her to walk slowly with her head high.
5. Study weak points in your animal and study ways of showing her that will cover up these weak points. Have someone watch her and tell you in which position she looks best. Generally the front legs should be side by side and one rear leg slightly ahead of the other. When posing your animal have the front feet on slightly higher ground than the rear feet.

### **Clipping**

The animal should be clipped about one week before the show. The purpose of clipping is to improve the looks of the animal. For this reason all animals are not clipped alike. The following points are meant to be only guides:

1. Clip the tail against the lay of the hair from above the switch to even with the pins.
2. Clip the hair from inside and outside the ears.
3. Many animals should have the entire head clipped back to the point where the show halter crosses the top of the neck; however, some animals have such a fine coat of hair on the muzzle and jaws that only the hair on the poll and around the horns need be clipped.
4. Some animals have extra long hair on top of neck and shoulders which will not shed off. This should be clipped off. The entire neck of some animals will require clipping. If the hair is rather long and thick on the neck you may need to clip it clean back to the shoulders.
5. If there is long hair on the thighs and above the rear udder remove it by clipping with the lay of the hair.
6. Generally, cows in milk should have the long hair clipped from the udder and milk veins.
7. Remember that clipped areas should blend in with unclipped parts.
8. Never try to improve thick shoulders or other coarse points by clipping the hair off. You will only call the judge's attention to these points.

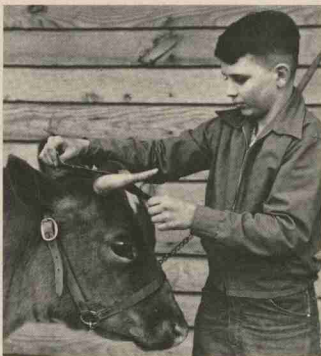
### **SHOWING DAIRY ANIMALS**

#### **The Day Before the Show:**

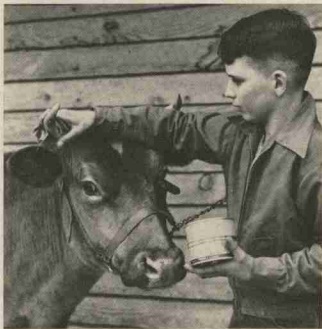
1. Make sure the white areas on your cow are clean. Wash the switch thoroughly.



Smoothing the horns with an emery cloth. Later they will be scraped and polished.



2. Smooth the horns. A rasp will be needed on older cattle. Use sandpaper or emery cloth and finally a piece of glass or scraping tool can be used to finish the job. Use these same tools to smooth the hoofs.
3. Have a clean blanket ready (either a home made or purchased one).
4. Bed the animal down well.
5. Take some of the same kind of feed the animal has been eating to the show.



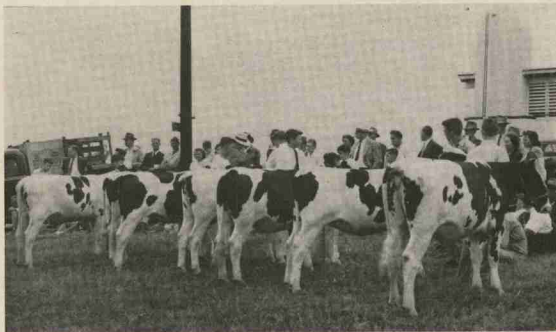
Floor wax is one of several polishes that may be used for shining the horns.

### Show Day:

1. Get a good fill on your animal gradually. Moistened beet pulp is a good filler. Find out about when your class will be judged and get the desired fill on your animal just prior to this time. Do not "over fill," or "starve" your animal for water and then give her too much just before entering the show ring.
2. Make a paste from pumice powder and sweet oil (or olive oil), apply a little to the horns and polish with a soft cloth. Floor wax may also be used to polish horns. Some members use plain mineral oil. Start in time to get this done before show time.
3. Brush the switch out well.
4. Clean any parts that have gotten dirty the night before but do not wash her all over.
5. Brush your animal well with a soft brush and then with your hand.
6. Have your animal ready for the show ring but do not take her out too long before your class is to be judged. She gets tired and the hot sunshine will cause her hair to "stand up."

### In the Show Ring:

1. Be as clean and neat as your animal.
2. Keep your animal alert and be alert yourself.



These 6 fine heifers have been made "blue ribbon" winners at a junior dairy show.

3. Watch the judge and your animal.
4. Lead in a clock-wise direction and on the left side of your animal.
5. Each time you stop your animal, pose her. Keep her that way. If she gets out of position in line, lead out and around and back into position.
6. Be patient and courteous at all times.
7. Be a good sport. Try to see for yourself why another animal is placed over yours. Watch the person who wins the showmanship award. You can learn something from him.

### RECORD KEEPING

Every 4-H member is requested to keep a record of his or her 4-H project. Record keeping is especially essential in Dairy Club work.

A record book will be provided by your local 4-H Club agent. This book will enable you to keep a complete record of expenses involved in carrying on your project and income derived from it.

### AWARDS IN 4-H DAIRY CALF PROJECTS

1. The greatest reward you will receive will be the experience you get from conducting your project.
2. To encourage 4-H members to complete and turn in record books and take a more active interest in their work special awards are offered:

County awards—Silver medals

State awards—Watch, 150 dollar scholarship and trip to National 4-H Club Congress.

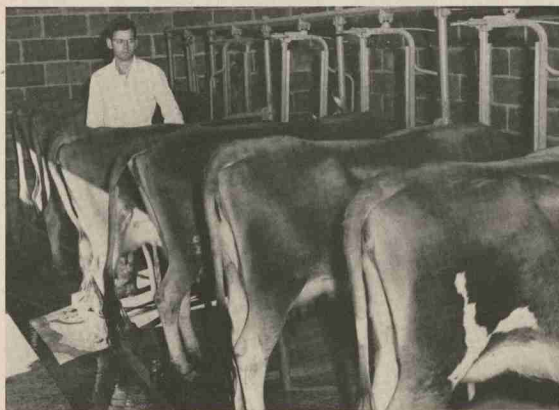
Sectional awards—Trips to National 4-H Club Congress.

National awards—Scholarships.

Ask your local 4-H Club agent to explain the awards program to you. Many counties have additional awards to make to outstanding members.

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Some of the good dairymen in North Carolina today got their start in 4-H Dairy Club work. To be a good dairyman a person must have a working knowledge of and love for cattle. The best way to accomplish this is to start early in life. See your county agent and start now.



This boy has developed a dairy herd from his start with one 4-H Club heifer.

## DEFINITION OF TERMS USED IN MANUAL

*Conditioning ration*—Used to describe a mixture of grains and a small amount protein meal such as cottonseed meal, soybean meal or linseed meal.

*Fitting ration*—A feed similar to the above except many showmen prefer that it contain linseed meal and a little sweet feed such as molasses.

*Grain mixture*—Used to describe a mixed feed containing grains and protein meal.

*16% Grain ration*—A "grain mixture" which has 16 per cent crude protein in it.

*Roughage*—Generally means hay, silage and beet pulp. It sometimes is used to include pasture.

*Thrifty Condition*—A term used to describe the animal when it appears to be healthy, eating and growing well.

*Poor condition*—Animal is too thin and does not appear as thrifty as she should.

*Production record*—A record showing the amount of milk and butterfat the cow has produced.

*Fill*—Used to describe the animal which has been fed sufficient hay, beet pulp, or other filling feeds so as to make her appear full.

*Freshening*—The cow gives birth to a calf.

*Dam*—The mother of the animal.

*Sire*—The father of the calf.

*Pins*—The two bones on each side of the tail setting.