

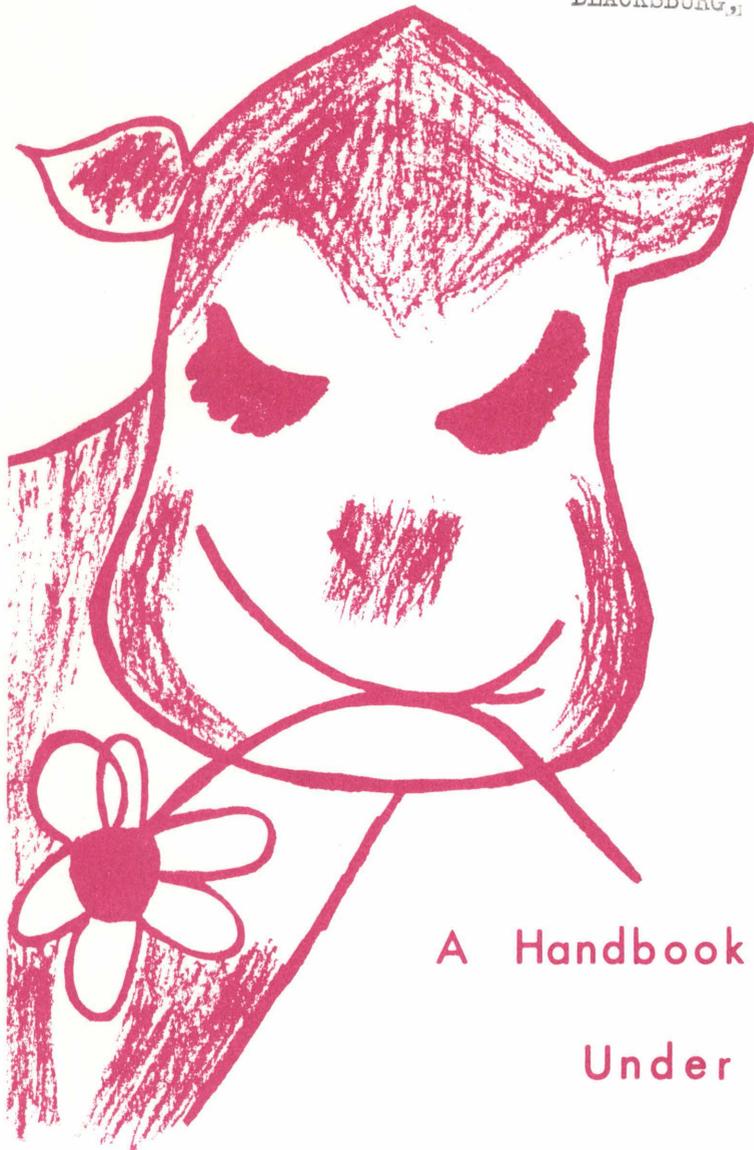
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Dairy Calf Raising Record Book

or

A Handbook for Raising Calves

Under 1 Year of Age

Name _____

Address _____ Zip Code _____

Adult Leader _____

Date of Birth _____ Age _____

Date Project Started _____ Date Project Completed _____

Extension Division
Virginia Polytechnic Institute and State University

Record Book 60
Reprint
Oct., 1977

PROJECT BOOK

This is a Project Book for all 4-H Club Members who don't own a calf but want to learn about dairying. Recommended age level is from 9 to 14 years of age. All the Project Exercises should be completed to receive credit for this project.

HANDBOOK

If you own a calf as a 4-H project then this is a Handbook for your dairy calf project. Follow the Points to Remember and Project Exercises in carrying out your project.

BOOKLET

This booklet pertains to calf raising and management for animals up to one year of age.

THE VALUE OF THE DAIRY ANIMAL PROJECT

Work with dairy animals teaches boys and girls to plan and look ahead. Plans must be made well in advance for shelter, feed, and water. Since the dairy project is one of the longer and harder of the 4-H club activities, it may seem like all work and no play to some. However, like many things in life, the harder the project the more you get out of it.

The thrill of watching a heifer grow and develop, showing her, caring for her, and then, having her come into production is most rewarding. A dairy project gives you an opportunity to meet dairy cattle breeders and other boys and girls who are interested in dairying.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. W. R. Van Dresser, Dean, Extension Division, Cooperative Extension Service, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061.

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THE 1ST LITTLE BOY TOOK THE CALF FROM ITS MOTHER BEFORE IT GOT BOOSTER MILK
AND SHE DIED



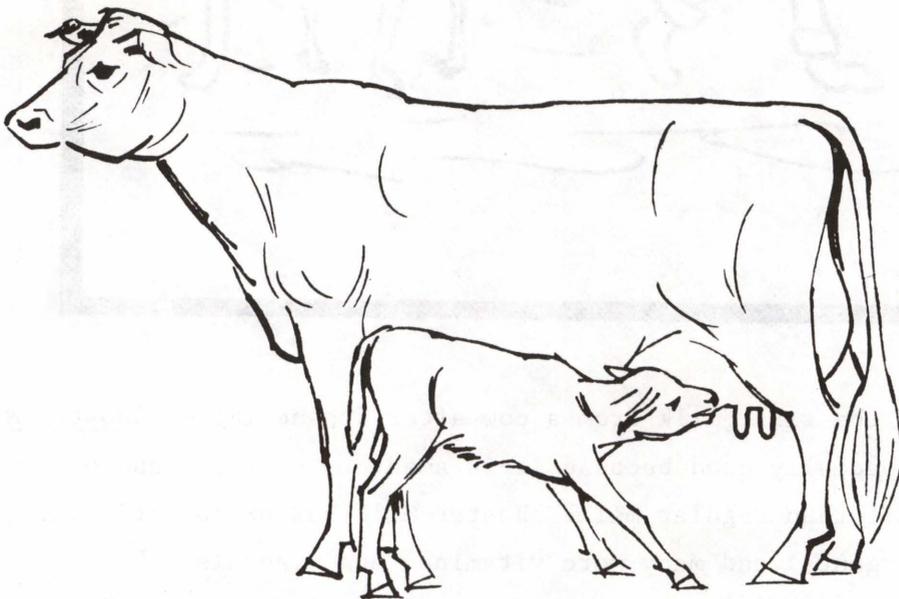
Why No Good: Because the first milk from a cow after freshening is Booster Milk.^{*} Booster milk is especially good because it is sweeter, tastier, and has more energy and pep in it than regular milk. Boster Milk has extra antibodies (disease fighting agents) and many more vitamins, and minerals. Booster Milk gives a calf extra vim and vigor and a calf really likes it, too. Booster Milk's real name is Colostrum. After about 3 to 4 days the cow produces regular cow's milk.

Recommendation: Keep the newborn calf with her mother for the first 3 days, or, after milking the cow, use the milk (Booster Milk) for the calf. This is important for the calf to get a good start and to have the necessary antibodies to fight disease. As a result the calf will be stronger and eat calf starter sooner.

*Booster Milk = Colostrum Milk

SOME POINTS TO REMEMBER: CALVING TIME

1. At time of birth, it is good to be with the cow to see that she and the newborn calf are all right. Sometimes when a calf is born, some tissue covers its nose and it can't breathe. You can save its life by cleaning its nose and helping it start breathing.
2. Put iodine on the calf's navel as soon as possible. This prevents germs and infection from making the calf sick.
3. About 1/2 hour after the calf is born it will stand up and look around for something to do. First, it is hungry. You should help it to drink milk from its mother by the first hour.



PROJECT EXERCISE:

- Date _____ A. Watch a calf being born.
Date _____ B. Help a farmer put iodine on calf's navel.
Date _____ C. Help a calf to its first meal.

List name and address of dairyman who you are helping and his relation to you like: father, uncle, grandfather, or neighbor.

Name Address Relation

THE 2ND LITTLE BOY FED HIS CALF COLD MILK AND SHE DIED



Why No Good: A newborn calf is a little baby. It has a little heart that beats quite fast to keep its blood moving and its body warm. When it drinks cold milk its heart has to beat a lot faster to keep its body warm. Its little stomach gets cold from the milk and has real trouble. The little calf gets cold and doesn't want to live in a cold world. Drinking cold milk is like eating cold eggs for breakfast. It doesn't taste very good.

Recommendation: Warm the milk to 90° to 100°F. This way the milk is about the temperature of the little calf's body. It likes milk, it tastes good, and is easy to digest. So it is off to growing into a good 4-H heifer for you. The first week it is important to warm the milk to 90° to 100°F. After that time it still needs to be warm but can be gradually lowered in temperature.



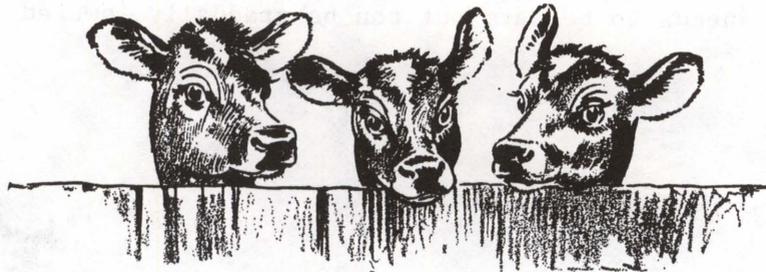
SOME POINTS TO REMEMBER: TEACHING A CALF TO DRINK



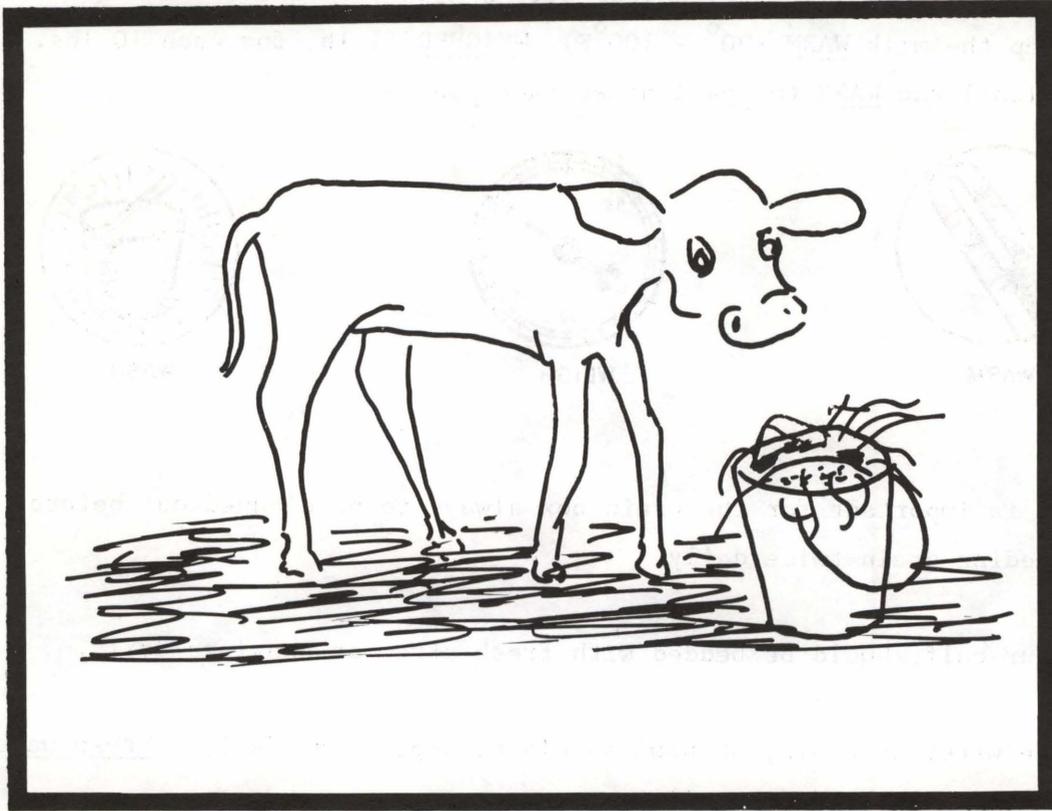
4. To teach a calf to drink from a bucket, let it suck your fingers. Gradually lower its head into the bucket of warm milk. After it has had several swallows, withdraw your fingers gradually. This process may have to be repeated.
5. It frequently is necessary to back the calf in a corner and straddle its neck. With extremely difficult calves, you may find it easier to skip one feeding before attempting to teach the calf to drink.
6. Most calves need to be fed only twice a day. Small, weak calves may need 3 feedings for the first week.
7. Nipple buckets can be used for young calves. However, they are difficult to keep clean and older calves can pull the nipple from the bucket and spill the milk.
8. Calves grow best if fed at a regular time each day.

PROJECT EXERCISE:

- Date _____ D. Warm the milk for your calf.
- Date _____ E. Train your calf to drink from a bucket.
- Date _____ F. Feed a calf milk several times.



THE 3RD LITTLE BOY FORGOT TO WASH CALF BUCKET AND BACTERIA KILLED HIS CALF



Why No Good: It's no good to get a fine calf, to do a lot of work, and then forget to keep the calf bucket clean. Your calf deserves the best, so never give your calf milk from a dirty bucket. If you do, it may get a belly ache, or scours and die.

Recommendation: Wash the calf bucket so it sparkles, twice daily. Only if the bucket is clean enough for you to drink water out of it, is it clean enough for your calf.

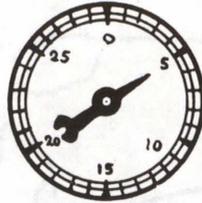


SOME POINTS TO REMEMBER: WARM - WEIGH - WASH

9. Practice the 3 "W's" with your calf's milk from the day it is born. Keep the milk WARM (90° - 100° F), WEIGHED (1 lb. for each 10 lbs. body weight) and WASH the pail after each use.



WARM



WEIGH



WASH

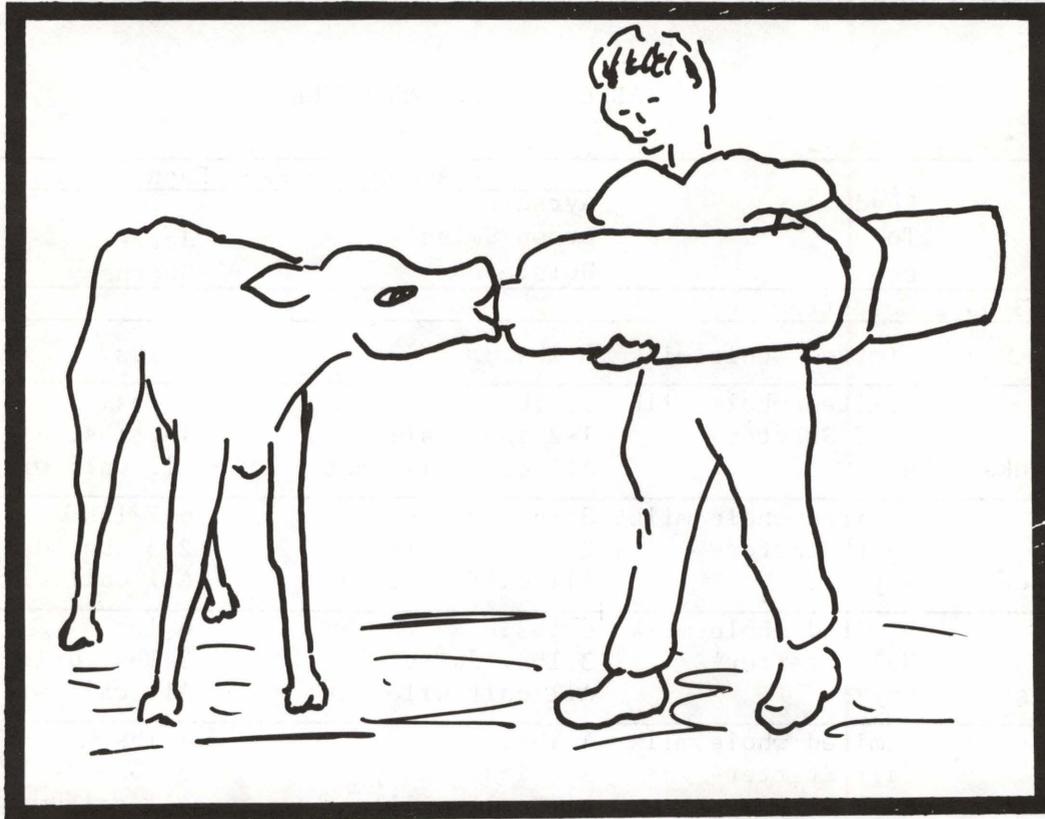
10. It is important for the grain box always to be cleaned out before feeding grain twice daily.
11. Your calf should be bedded with fresh straw or shavings daily.
12. The water fountain, or bowl should be kept clean daily. Fresh water should be provided at all times.

PROJECT EXERCISE:

- Date _____ G. Make the milk bucket sparkle.
- Date _____ H. Clean the grain box.
- Date _____ I. Give fresh bedding to your calf.
- Date _____ J. Clean the water bowl.

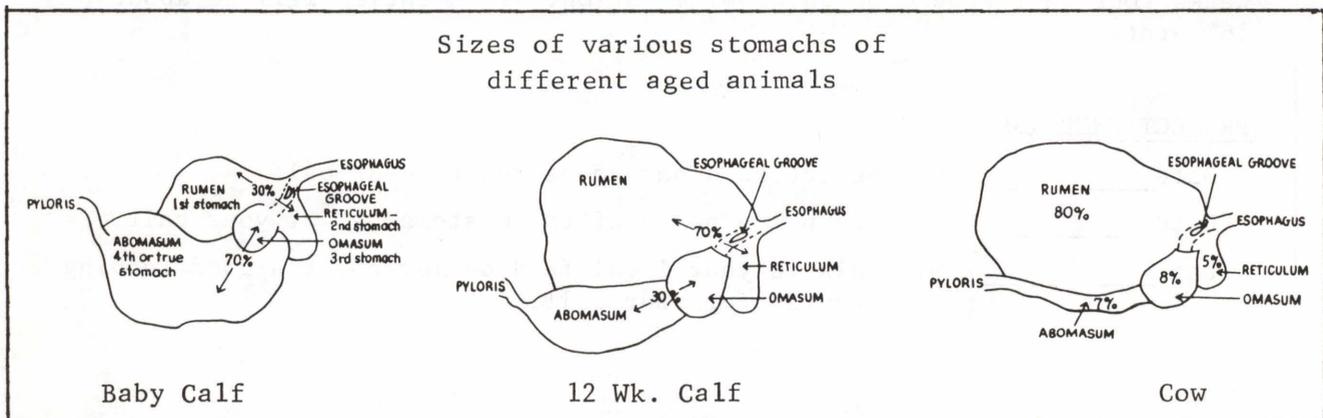


THE 4TH LITTLE BOY FED HIS LITTLE CALF TOO MUCH MILK AND SHE DIED



Why No Good: A baby calf's stomach is small, and it can only drink about one pound of milk for each 10 lbs. of body weight. If it drinks more it will get a bad stomach upset and become sick. It will get the scours and act like it is not hungry or very happy. The worst thing you can do to a calf is to overfeed it milk. Each day your calf is sick she is not growing into a big heifer.

Recommendation: Milk should be fed twice daily to a strong calf but 3 feedings daily are needed for a weak calf. Milk replacers (milk substitutes) may be fed in place of whole milk. Feed according to manufacturer's directions as given on the feed tag or the bag.



SOME POINTS TO REMEMBER: FEEDING YOUR CALF

13.

TABLE 1 - FEEDING GUIDE

Weeks Old	Feed To Use	Amount To Feed Each Day		
		Ayrshire Brown Swiss Holstein	Jersey Guernsey	
First 3 days				Colostrum
1 Week	Limited whole milk	8 lbs.	5 lbs.	
2-3 Weeks	Limited whole milk	10 lbs.	7 lbs.	
	Calf Starter*	1-2 lbs. daily	1-2 lbs. daily	
	Hay**	All calf will eat	All calf will eat	
4-5 Weeks	Limited whole milk	8 lbs.	6-7 lbs.	
	Calf Starter*	2-3 lbs. daily	2-3 lbs. daily	
	Hay**	All calf will eat	All calf will eat	
6 Weeks	Limited whole milk	6 lbs.	6 lbs.	
	Calf Starter*	3 lbs. daily	3 lbs. daily	
	Hay**	All calf will eat	All calf will eat	
7 Weeks	Limited whole milk	4 lbs.	4 lbs.	
	Calf Starter*	3-4 lbs. daily	3 lbs. daily	
	Hay**	All calf will eat	All calf will eat	
8 Weeks	Limited whole milk	No milk if eating well	4 lbs.	
	Calf Starter*	4 lbs. daily	3 lbs. daily	
	Hay**	All calf will eat	All calf will eat	
9-10 Weeks	Limited whole milk	No milk if eating well	2-3 lbs. daily	
	Calf Starter*	4 lbs. daily	3 lbs. daily	
	Hay**	All calf will eat	All calf will eat	
10-12 Weeks	Discontinue milk	No milk if eating well	No milk if eating well	
	Calf Starter*	4 lbs. daily	4 lbs. daily	
	Hay**	All calf will eat	All calf will eat	

*Calf starter should be 18 to 20% protein

**Hay should be of best quality available (green, leafy, fine stemmed).

At 12 weeks add 1 pound of growing ration to the "calf starter." At 16 weeks your calf should be on growing ration. This ration will be about 16% protein.

PROJECT EXERCISE:

- Date _____ K. Select good hay to be fed to your calf.
- Date _____ L. Learn the names of the 4 stomachs of your calf.
- Date _____ M. Talk to your local feed dealer about a good feeding program for your calf.

THE 5TH LITTLE BOY FED COW FEED TO HIS CALF AND SHE DIED



Why No Good: Your calf is something special and deserves a special feed. The cow feed does not have enough Vitamin D (sunshine) and disease fighting agents in it.

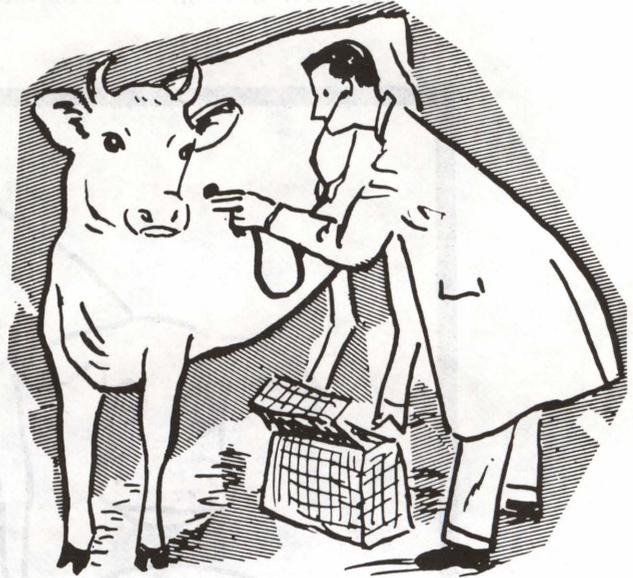
Recommendation: Two suggested grain mixtures that may be used for the growing ration:

- | | |
|-------------------------------------|--------------------------------|
| 1. 300 lbs. ground shelled corn | 2. 700 lbs. 12% or 13% fitting |
| 200 lbs. crushed or coarsely ground | ration |
| oats | 100 lbs. soybean oil meal |
| 100 lbs. bran | 1 lb. irradiated yeast |
| 100 lbs. soybean oil meal | |
| 14 lbs. steamed bone meal | |
| 7 lbs. salt | |
| 1 lb. irradiated dry yeast | |

There are many 18 to 20% fitting rations on the market that are used as calf growing mixtures. Check with your local feed dealer and he can help you plan your feeding program.

SOME POINTS TO REMEMBER: KEEPING YOUR CALF HEALTHY

Be sure to include the following health items in care of your calf.

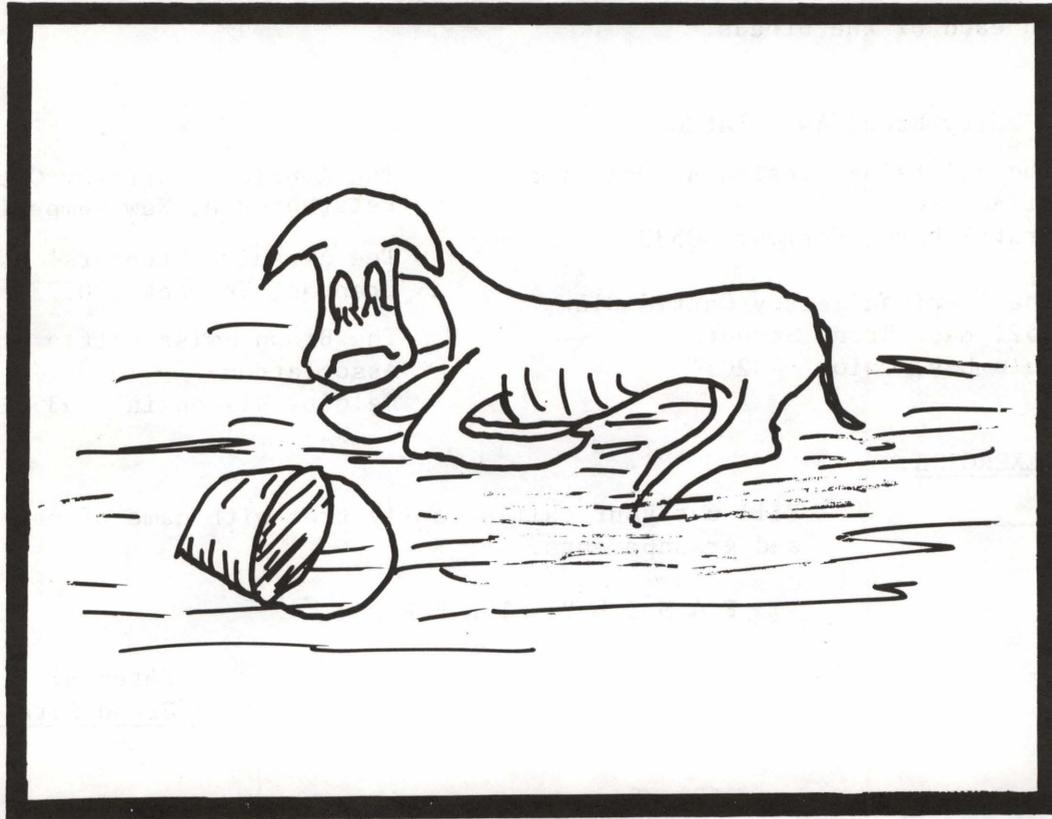


14. Have the calf officially vaccinated for Bang's disease between 3 and 8 months of age. The calf should also be vaccinated for blackleg and malignant edema. See the local veterinarian for complete information.
15. Control flies, lice, and ringworm. These parasites eat up profits and prevent your calf from growing at a normal rate. Your Extension Agent, Agriculture, or 4-H leader can give you advice on controlling these parasites.
16. Warts usually disappear naturally without treatment as animals mature. Most 2-year olds are wart free. If you want to treat animals, you should consult the veterinarian.
17. Internal parasites cause animals to have rough hair coats and grow poorly. Symptoms vary with the amount and kind of worms. When exposed to areas occupied by older animals, young animals eat the tiny worms. Get advice from your veterinarian before giving the treatment.
18. Common scours are usually caused by over feeding, dirty feeding buckets, poor sanitation, bacteria, or cold damp pens. The calves will have a watery diarrhea and be losing weight. The best prevention is avoiding over feeding of milk to young calves. Stalls should be clean, dry, well lighted and ventilated. Feed warm, clean milk regularly and be sure feeding buckets and other equipment are clean. When treating a sick calf, find and correct the feeding and management practices that are causing trouble. Sulfonamide and antibiotics can be given on advice of a veterinarian.

PROJECT EXERCISE:

- Date _____ N. Learn from the veterinarian why your calf is vaccinated.
- Date _____ O. Have the veterinarian test a sample of your calf's manure for internal parasites.

THE 6TH LITTLE BOY FORGOT TO FEED HIS CALF ONE DAY AND SHE DIED



Why No Good: The little calf counts on you, the owner, to be good and feed her every day. Her whole life centers around you. It's a cold, cold world for your calf when you forget or it's too rainy a day to feed her.

Recommendation: When you assume the job of taking care of a calf, it means every day rain, snow, or shine. As a young 4-H member you learn responsibility. When you care for a calf you learn to know if you will be responsible with it. If so, as you grow up you will be given more responsibilities. Some day you may be president of your 4-H Club, secretary of your high school class, or president of your college class. But you must learn responsibility the day you are given it. Your calf, if you will take good care of her, will teach you some important qualities.

SOME POINTS TO REMEMBER: BREED ASSOCIATIONS

19. To be successful with your dairy project, you must learn certain terms or definitions. Write to the National Breed Associations for literature on each of the breeds.

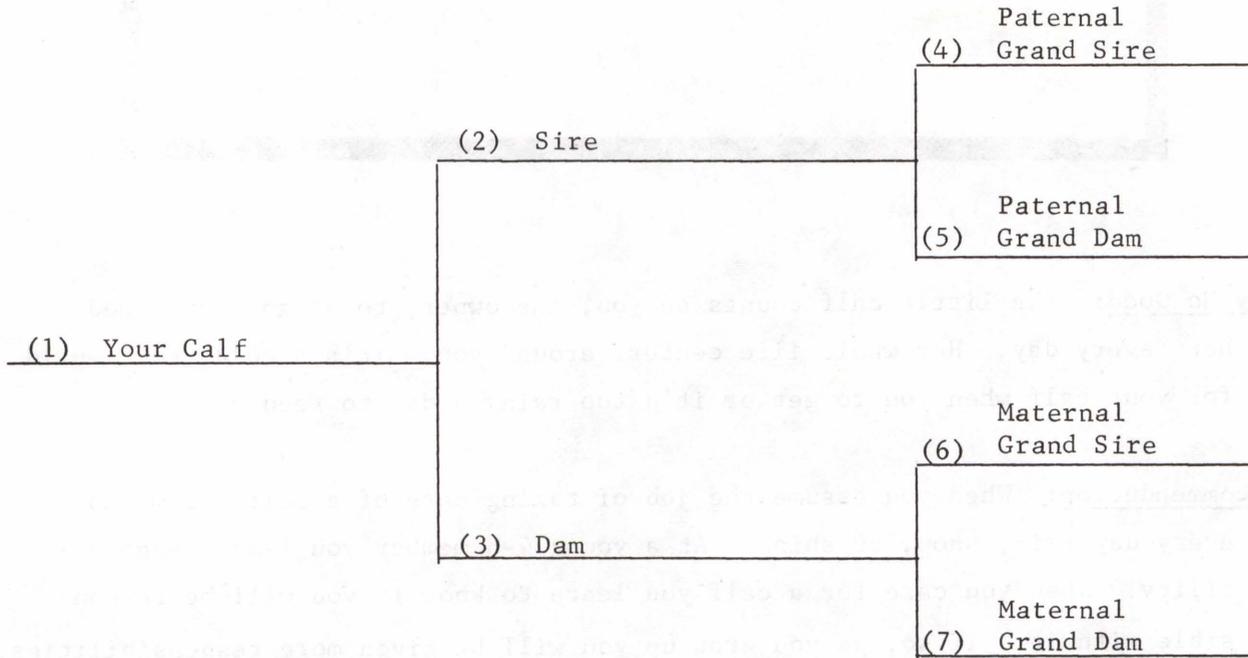
National Dairy Breed Associations

- | | |
|--|--|
| 1. The Holstein-Friesian Association of America
Brattleboro, Vermont 05302 | 3. The American Guernsey Cattle Club
Peterborough, New Hampshire 03458 |
| 2. The American Jersey Cattle Club
1521 East Broad Street
Columbus, Ohio 43205 | 4. The Ayrshire Breeders' Assn.
Brandon, Vermont 05733 |
| | 5. The Brown Swiss Cattle Breeders' Association
Beloit, Wisconsin 53512 |

PROJECT EXERCISE:

Date _____ P. Fill out your calf's family tree with name of parents and grandparents.

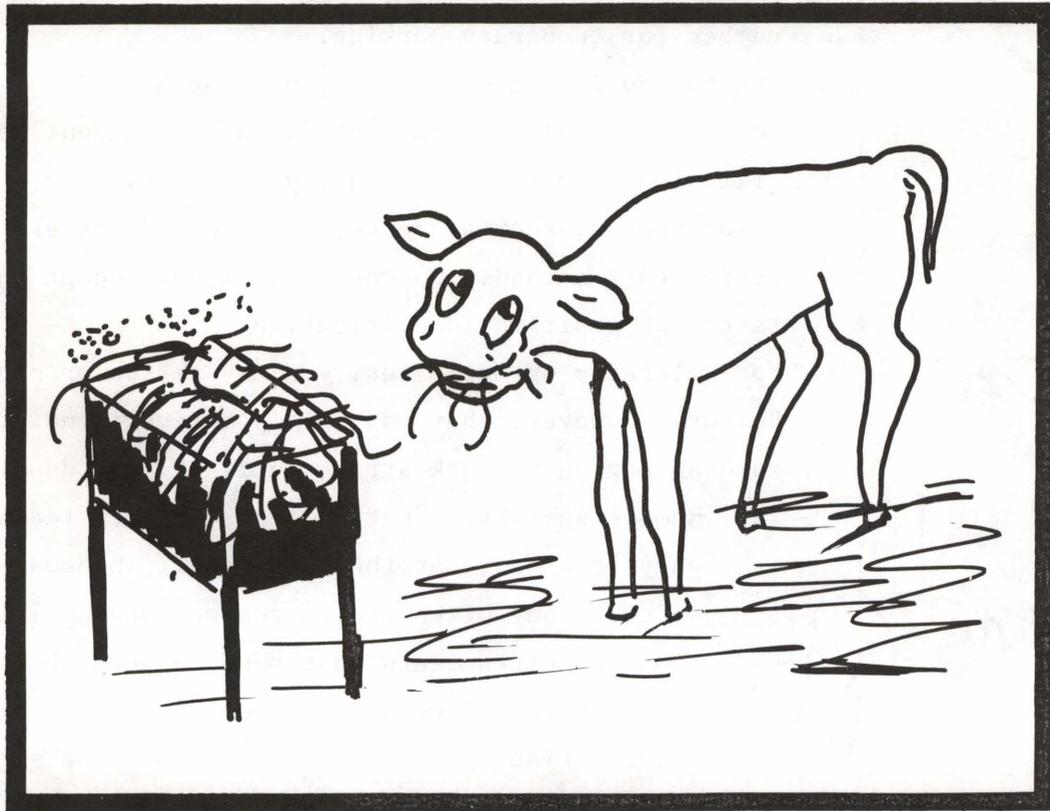
F A M I L Y T R E E



Date _____ Q. Study a Registration Certificate

Date _____ R. Learn the origin of each of the 5 breeds and be able to name some characteristics that distinguish one breed from another.

THE 7TH LITTLE BOY FED MOLDY HAY TO HIS CALF AND SHE DIED



Why No Good: Your calf deserves the best. She is the future for a herd. In 2 years she will be the star, milking 60-70-80 lbs. of milk a day if grown properly. She is your future as a 4-H member. Your 4-H Motto "To Make the Best Better" applies to your calf too. For your calf to develop into the best, she will need the best in care and feed. She has no room in her stomach for moldy hay.

Recommendation: Feed the best hay to your calf because she is the future. It should be fine stemmed, leafy, and early cut. The earlier cut, or pre-bloom stage is easiest to digest, tastiest, and more nutritious.

SOME POINTS TO REMEMBER: HELPFUL SKILLS



20. It's important to identify calves when they are born. A neck strap can be leather, plastic or a chain with a number for temporary marking.



21. The tattoo is one of the most popular methods of identifying calves. The tattoo is a permanent mark that will always positively identify the calf. The solid color breeds, such as Jersey and Brown Swiss especially prefer this method. Guernseys will now accept the tattoo as positive identification.

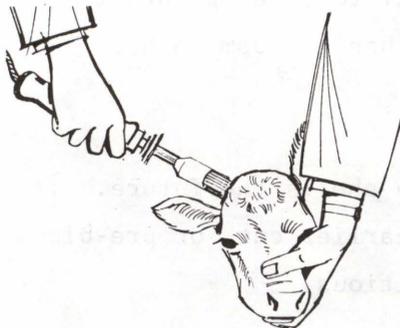
For Holsteins or Ayrshires, you may sketch or photograph. Be sure, however, that you have positive identification, such as eartag or neck strap, until this is done.



22. Remove unsightly "Extra" teats. Extra teats not only look bad, but they can result in damage to the udder. They often are in the way when milking. Removing extra teats must be done when the calf is young, before 6 weeks old. Get a trained person or veterinarian to do this job for you. Be sure it is an "extra" teat before removing it.



23. Horns serve no useful purpose on dairy cattle. If dehorning is done properly, when horn buttons are very small, a neat, clean job can be done with little discomfort to the animal. Caustic potash is very satisfactory for dehorning calves between 1 and 2 weeks of age.

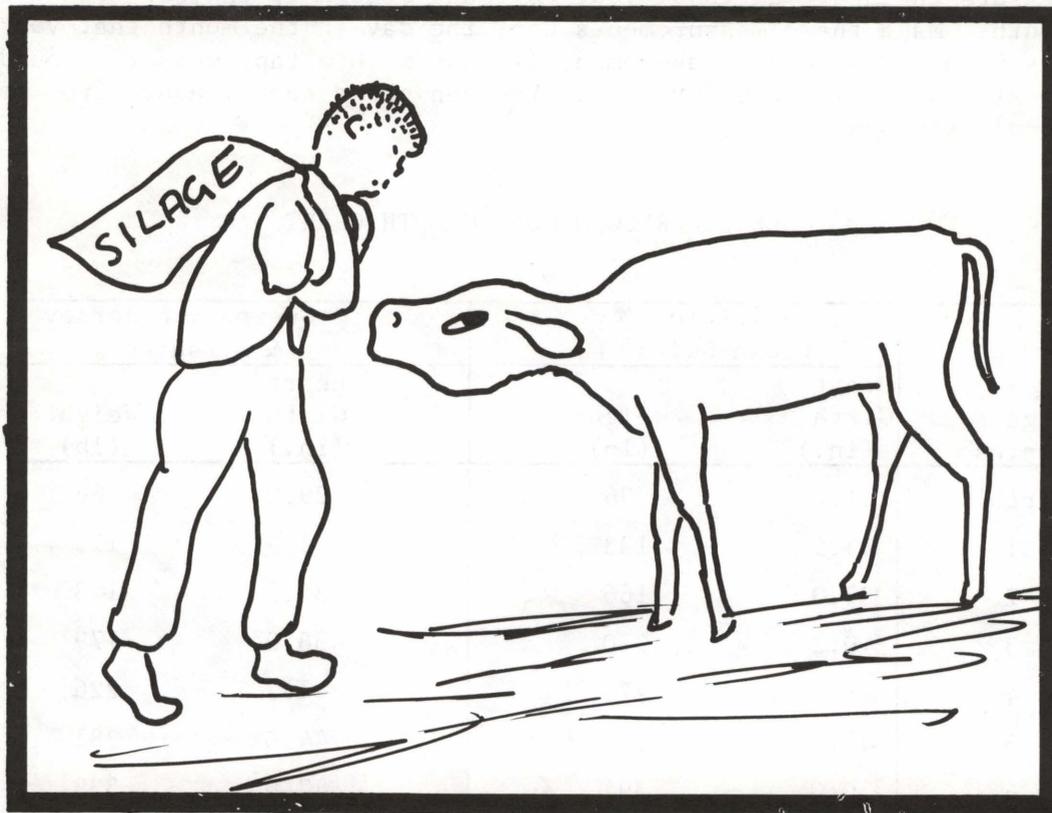


Electric dehorners, if properly used, will do a good job. By carefully following the directions supplied with the iron and after some experience, a calf can be dehorned in about one minute. These dehorners come in different sizes for calves of different ages but best results are obtained when used on calves not over 2 months of age.

PROJECT EXERCISE:

- | | |
|------------|--|
| Date _____ | S. Help to identify your calf. |
| Date _____ | T. Help to sketch, photograph, or tattoo your calf for registration. |
| Date _____ | U. Help to register your calf with the breed association. |
| Date _____ | V. Help to remove "extra" teats if any are present. |
| Date _____ | W. Help to dehorn your calf. |

THE 8TH LITTLE BOY FED A BUSHEL OF SPOILED SILAGE WHEN 3 WEEKS OLD AND SHE DIED



Why No Good: Spoiled silage like spoiled anything is terrible. Your calf needs the best fresh silage she can eat. The key to feeding calves silage is fresh silage. Feed fresh silage twice daily. In the past, only when a calf was off of milk, eating 4-6 lbs. of grain and hay, did she receive any silage. However, today many dairymen are getting good results from feeding fresh silage when the calf is only a few days old.

Recommendation: You can start feeding your calf silage after she is one week old. Only give that amount of fresh silage to her twice daily that she will eat within 1 hour. As her appetite for silage increases, she will be able to eat more within that time period. After the calf is 3 months old, it can be fed silage free of choice.

SOME POINTS TO REMEMBER: MEASURING YOUR CALF'S GROWTH

24. Measure the heart girth of your calf and record it in your book every month. Make these measurements near the day in the month that your calf was born. The chest measurement is made with a tape measure around the chest just behind the forelegs. You can get a tape measure from your local feed dealer.

TABLE 2. RECOMMENDED GROWTH CHART

Age Months	Holstein Brown Swiss		Guernsey & Jersey & Ayrshire	
	Heart Girth (in.)	Weight (lb)	Heart Girth (in.)	Weight (lb)
Birth	31.0	96	29.0	66
1	33.5	133	31.5	113
2	37.0	166	34.5	143
3	40.2	210	38.0	179
4	43.5	270	41.2	226
5	47.0	334	44.0	281
6	50.0	394	47.0	339
7	53.0	456	49.7	393
8	55.2	508	52.0	439
9	57.2	558	54.2	479
10	58.7	600	55.7	518
11	60.2	640	57.2	560
12	61.5	682	58.7	600

PROJECT EXERCISE:

Date _____ X. Measure your calf at least 3 different months to see how much she weighs.

A. Month _____ Weight _____

B. Month _____ Weight _____

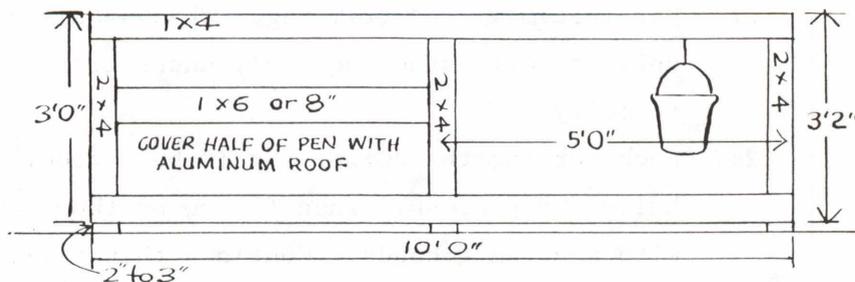
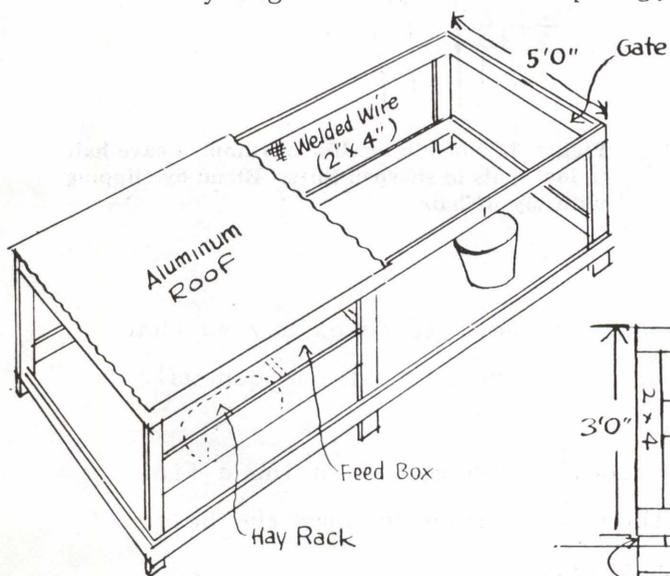
C. Month _____ Weight _____

THE 9TH LITTLE BOY DID NOT EXERCISE HIS CALF AND SHE DIED



Why No Good: Your calf hates to be penned up all day long. She needs exercise and time outside to run around. She needs sunshine and fresh air. She needs to kick up her heels.

Recommendation: Build a pen so that your calf can get outside every day after she is 4 weeks old. She needs to be outside. A portable pen works well for young heifers in late spring, summer, and early fall.



SOME POINTS TO REMEMBER: FITTING YOUR CALF

25. About 6 to 8 weeks before you plan to show your heifer the first time, thoroughly wash her with lukewarm suds, then rinse and rub her dry. With proper daily grooming, your heifer probably will not need washing again before showing.
26. Follow the 4 figures in clipping your heifer.



Figure 1. Clip neck and shoulders to a line between top of shoulders and point of shoulders. Clipping with lay of hair tends to blend clipped and unclipped areas.

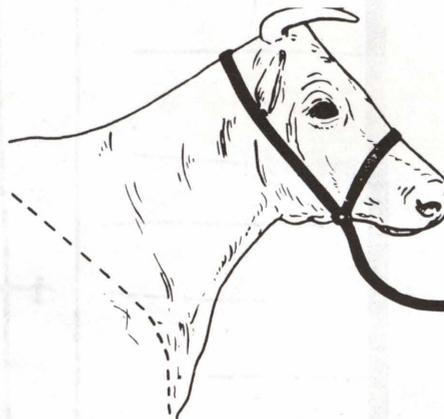


Figure 2. Ears, head, neck and withers clipped improves neatness and appearance.



Figure 3. Start clipping at a point about 3 inches above the long hair at the top of the switch. Continue clipping up the switch, blending the hair smoothly into the rump.

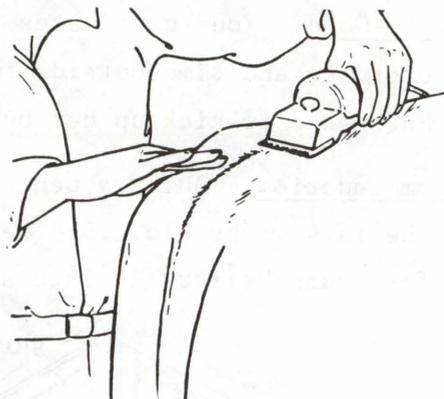


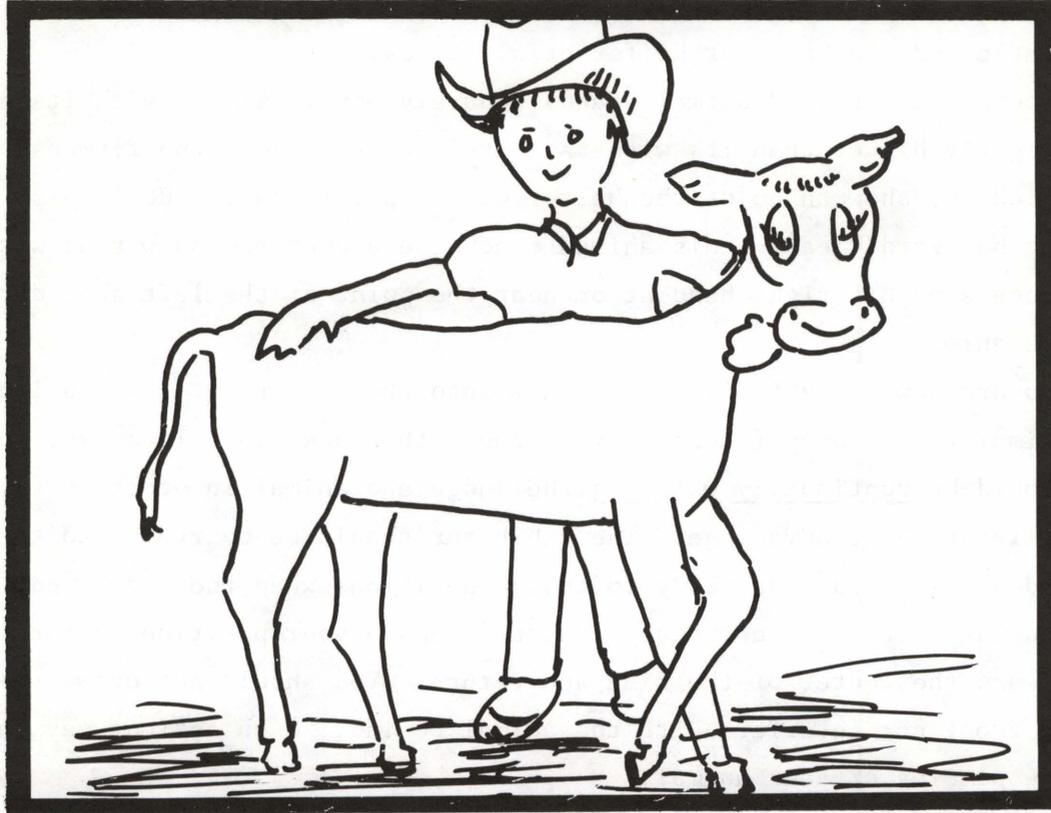
Figure 4. Smooth top line of rump. Leave hair in low spots to sharpen lines. Blend by clipping with lay of hair.

27. Her feet may need trimming. This should be done if necessary so that her legs will stand squarely under her body and so that she can walk normally.
28. Each morning the heifer should be thoroughly groomed by using a fine haired body brush. Then follow by thoroughly rubbing down the heifer with your bare hands. Continue this daily.

PROJECT EXERCISE:

Date _____ Y. Fit your calf for a show, or for your 4-H leader, or for your dairy farmer who is the owner of the calf.

THE 10TH LITTLE 4-H BOY FOLLOWED THE 9 ABOVE RECOMMENDATIONS AND
RAISED A BEAUTIFUL CALF



Recommendation: The secret to raising good animals is good care, sometimes referred to as T. L. C. (Tender Loving Care).

Whether you win or lose in the show ring is not important, it is how you played the game and what you learned.

Growing a heifer into a good milk cow so that she produces a lot of milk for many people is your contribution to feeding America.

SOME POINTS TO REMEMBER: TRAINING YOUR HEIFER FOR SHOW

29. About 6 weeks before show date you should begin to lead your heifer. After leading with the stable halter for 7 to 19 days, you may then change to a show halter (leather lead strap) while leading. Lead your heifer about 30 minutes each day. Short training periods are best. Be gentle and kind to your heifer at all times.
30. A correctly trained animal stands squarely on all 4 feet with its head slightly higher than its withers. It is alert due to the firmness with which the showman holds the halter with his left hand. He is also walking backward, leading his animal clockwise around the show ring with the fingers of his right hand at or near the point of the left shoulder of his animal.
31. You are now ready to lead your calf into the show ring. As you lead your animal very slowly (short steps) around the show ring clockwise, you should be continually watching the judge and animal in order to show the heifer to best advantage. The exhibitor should be courteous to the judge; and should always be ready to change positions when the judge requests.
32. You may "circle" a nervous animal and regain your position by turning toward the center of the ring and return. You should not crowd the animal in front nor interfere with the animal behind. Such actions may lower the placing of your animal.
33. The judge will request that you stop your animal. He is then checking to see if you can "set up your animal." This means the squaring of the feet, lowering the tail head, lowering or raising the back, raising or lowering the rump, or placing the right hind leg of a cow in milk slightly forward.
34. The judge will line up the class from right to left so that the class may easily circle the ring once more before ribbons are presented. Continue to show your animal to the best of your ability while the judge is still working and as you remove the animal from the ring. You may lead your animal out of line when animals are nervous or restless. This should not be a habit, and the animal should not be led between the judge and an animal he is viewing.
35. You should listen carefully to the reasons which the judge gives for his placings. In this way, you can learn and study the defects of your animal and try to pick future show animals with fewer faults.

PROJECT EXERCISE:

- Date _____ Z. Show your heifer at a local show, or to your 4-H leader, or to the dairyman who is the owner of your calf.

SUMMARY

TWENTY-FOUR STANDARDIZED MANAGEMENT
RECOMMENDATIONS FOR RAISING DAIRY CALVES FOR PROFITABLE PRODUCTION A/

HOUSING CALVES

1. Dairy calves should be raised separately - one calf to a pen from the start until at least one week after milk or milk substitute is discontinued.
2. Calves may be raised in groups, beginning one week after milk or milk substitute is discontinued.
3. Ten calves should be the maximum number raised in one group, provided floor and feeding space are adequate and calves are liberally fed.
4. The maximum age difference between calves in any group should not exceed 2 months. It is important to see that all calves are actually eating their fair share.



SPACE NEEDS

5. Minimum pen size for individual calves is 24 square feet.
6. Minimum pen size for calves, in groups with no outside run, is 30 square feet per calf.

WATERING DEVICES

7. Automatic drinking cups are preferred for calf waterers. Where pails are used for watering, they should be kept clean and well filled with fresh water.
8. Automatic drinking cups are preferred for calves housed in pen groups. Where watering tanks are used for calves in outside runs, the water should be fresh and the tanks kept in sanitary condition.
9. Top of drinking cups for calves should be 20" from the floor.
10. Watering equipment for calves in individual pens should be located at a front corner of the pen away from the feed.
11. Watering equipment for calves in groups should be at front corners of the pen or an outside tank.
12. Provide 2 automatic drinking cups when more than 5 calves are housed per pen.

FEED BOXES

13. Calf ration feed box for the individual pens should be 8" x 10" x 6" deep. It is desirable to make boxes removable for cleaning.

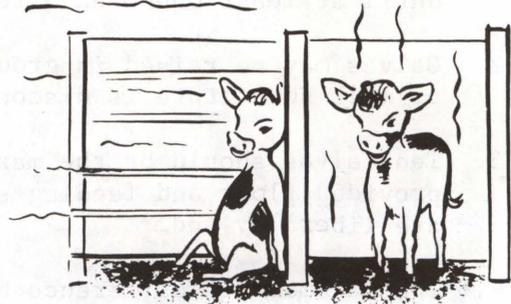
A/ Developed by: The Nutrition Council of the American
Feed Manufacturers Association with
cooperation from the nation's Land Grant
Colleges and Agricultural Experiment Stations



14. When calves are raised in groups, calf ration feed boxes should be 10" x 6" deep, allowing 2' per calf. Two troughs per pen are preferred.
15. Top of calf ration feed boxes should be 20" from floor.
16. Locate calf ration feed boxes at front of individual pens away from waterer.
17. For calves fed in groups, locate feed boxes where convenient, but away from waterers.

PEN CONSTRUCTION

18. Solid partitions between individual calf pens will reduce chilling drafts. Fronts of calf pens should be slatted.



TEMPERATURE

19. Desirable pen temperature range for raising young calves is 50° to 75°F. Keep temperature as uniform as practicable. Sudden variations in temperature are particularly dangerous. Dryness in pen is important because dampness intensifies cold.

FEEDING

20. There is no minimum time to leave the vigorous new born calf with the cow. It is very important that the calf gets colostrum the first 3 days either by nursing or drinking.
21. Young calves may be taught to drink from a pail or a nipple feeding device. It is important that pails or other calf feeding equipment be kept scrupulously clean at all times to avoid digestive disturbances.
22. Calves may be turned out to pasture as soon as practicable after 4 months of age. They should continue to get their usual feed and have access to salt, water and shade.
23. High quality hay should be fed to calves from the start.
24. A safe age at which whole milk or milk substitute may be replaced entirely by a suitable calf starter, grain mixture and roughage will depend on the kind of start the calf had and its vigor. Usually 6 weeks can be considered a safe age for this change, though healthy, vigorous calves may be changed as much as 2 weeks earlier with good results.



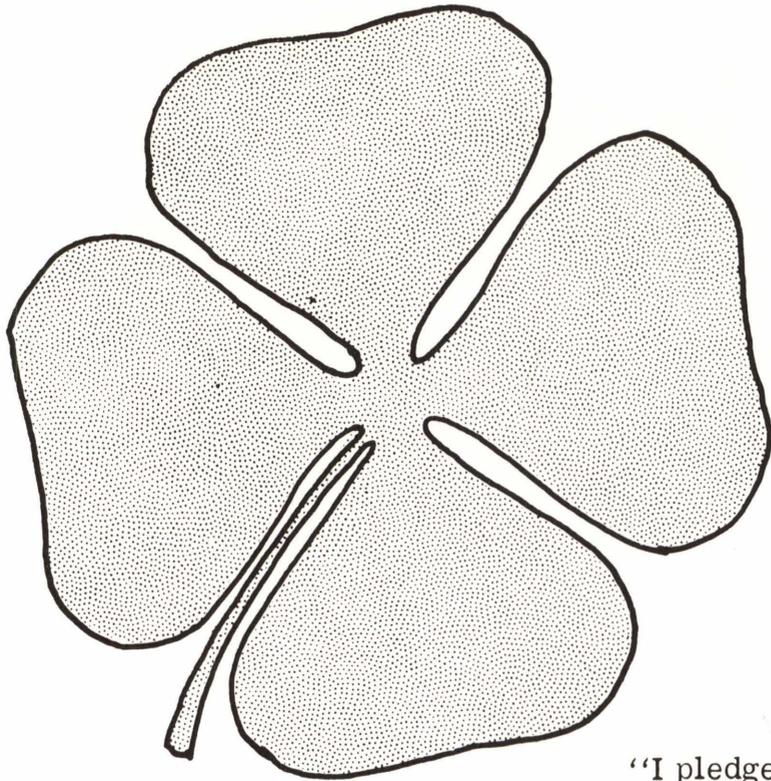




A MILK COW

The cow is a mobile, animated machine housed in unprocessed leather. On one end it is equipped with a mower, grinder, and other standard equipment including bumpers, head-lights, wing flaps and foghorn. At the other end there is a milk dispenser, a fertilizer spreader, and an insect repeller. Centrally located is a conversion plant consisting of a combination storage and fermentation vat, three converters in series, and in intricate arrangement of conveyor tubes. Special equipment includes a device for self-reproduction at yearly intervals, and a central pumping system. The machine is mysterious and secret, but unpatented and is available in various colors, sizes, and qualities, ranging from one to twenty tons of milk production yearly, at prices ranging from fifty dollars up.

The Virginia State Dairymen's
Association Convention Program
January 25-26, 1968



“I pledge
My Head to clearer thinking,
My Heart to greater loyalty,
My Hands to larger service,
My Health to better living,
For my club, my community and my country.”

