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BEEF MANUAL

For 4-H Club Members

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Circular 792

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HOW THIS MANUAL CAN HELP YOU WITH YOUR BEEF PROJECT

The Beef Manual was written for YOU. It contains many suggestions to help you carry out your project from start to finish.

First, you will decide which project is best for you.

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There are six to choose from:

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Remember that your 4-H Club leader or county advisers will be able to help you throughout your project, and to explain parts of the manual that may be a little hard to understand.

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BEEF MANUAL

For 4-H Club Members

BEEF PROJECTS are very popular with 4-H Club members in Illinois. Most members feed steer calves to show as baby beef. This is the best way to begin learning about feeding and managing cattle that are being fattened for market. But if you want to learn more about beef cattle as a business, there is a real opportunity in the other feeding and breeding projects. These projects will give you more experience for a future in beef breeding or fattening market cattle.

Decide Which Project Is Best for You

There are six beef projects to choose from. The best one for a beginner is the baby-beef project.

Baby beef. In the fall or early winter you will select a steer calf of at least "good-to-choice" quality, that will weigh 400-500 pounds by January 1. Your final goal will be a fat steer weighing 900 pounds or more at the time of your county 4-H show in the summer. You will have to feed your calf the best possible ration and give him good care to prepare him for the exhibit. Most of the calves will be marketed as baby beef sometime after the county show at a local auction or at a large central market.

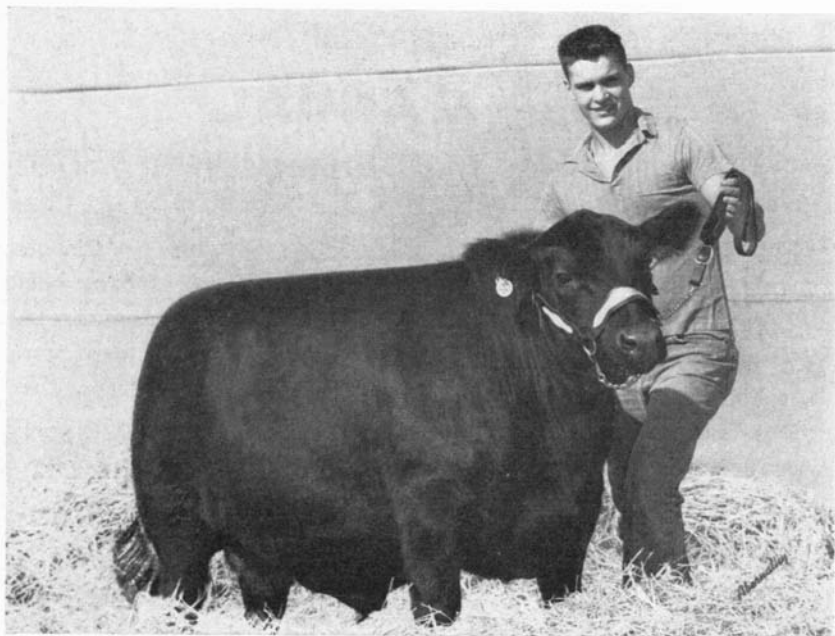
If your steer calf turns out to be an exceptionally fine animal, there will be other shows where you may exhibit him — the Illinois State Fair and the International Livestock Show.

Requirements. 1. Start the project in fall or winter when the calf is bought or weaned. You must enroll by January 1.

2. One or more steers, preferably of the same breed. (If you want to feed more than 4 steers, enroll in the beef-feeding project.)

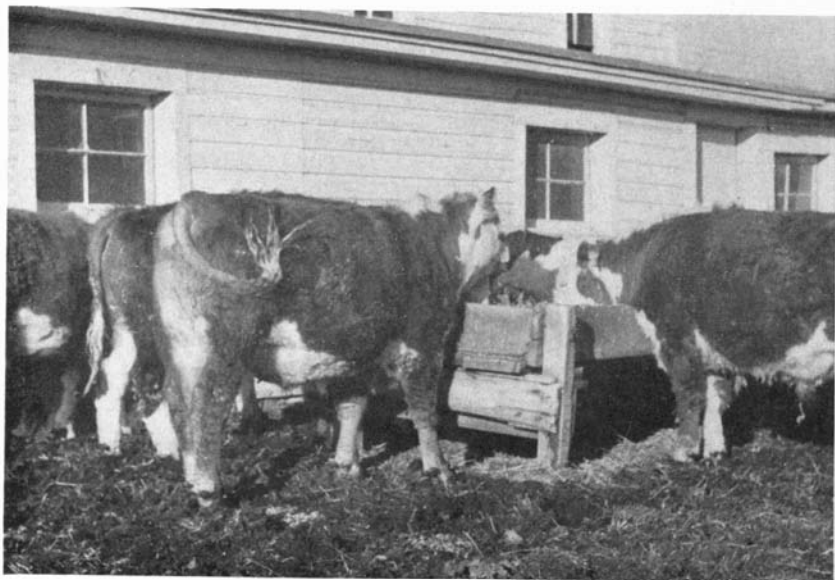
3. Calf may have been born any time the previous year.

This circular was prepared by H. G. RUSSELL, Professor of Animal Science, A. L. NEUMANN, Professor of Animal Science, and G. L. DAIGH, JR., Instructor in 4-H Club Work.



"Little Stuff," the Angus steer owned by Carlyle Greathouse of Hindsboro, was Grand Champion of the Junior Show at the 1953 Illinois State Fair and Grand Champion of the Junior Feeding Contest at the International Exposition. This calf was bought from a nearby purebred breeder. Below is the Champion Shorthorn of the Junior Feeding Contest at the 1956 International and Reserve Champion Shorthorn at the 1957 Fort Worth, Texas, Show, owned by David Cox of Wyoming, Illinois.





The group of feeder calves shown in this picture are part of a beef-feeding project. Notice that they are choice animals, and all about the same type. This is the kind of animal that will make the least expensive gains and the most profit.

Beef feeding. After you have had experience in feeding baby beeves, and want to try a larger program, you may enroll in this project. You will buy 5 or more feeder cattle, feed them largely on home-grown grain, and sell them on the open market when they are finished for their grade. Your success in this project will depend on how much profit you make and not on show awards.

Select "good-to-choice" steer or heifer calves or yearling steers, since young, light-weight cattle make the least expensive gains and offer the best opportunity for profit. The fall of the year will usually be the best time to buy. Heifer calves should be ready to sell in late spring or summer. Steer calves and yearling steers in late summer or fall.

Requirements. 1. At least 5 head of cattle.

2. You may start this project any time before June 1 of the year in which you enroll.

3. Accurate records of production costs, feed cost per pound of gain, and rate of gain are important.

Grade-beef production. As you become better acquainted with beef-production problems, you may decide to produce your own feeder calves. You should select good beef-type cows or heifers and be sure that if bred, they are bred to a good purebred beef bull.

Calves that are produced can be fattened for market as part of the baby-beef or beef-feeding projects, or it may be to your advantage to sell them as feeder calves.

Requirements. 1. Start this project in fall or early winter. You must enroll by January 1.

2. One or more cows or a partnership arrangement that includes the entire herd.

3. Cows must be bred to a purebred sire.

4. Continuous records should be kept on the cows and heifers kept in the herd. Records on market calves produced should be kept from birth to the time they are marketed.

5. There is no age limit on cows used in this project.

Purebred beef heifer calf. If you have made some money on the feeding projects, you may want to start a purebred herd of beef cattle. You begin by feeding and managing a purebred heifer calf until she is old enough to breed. This is a long-time project, because you can't expect any income from a heifer for at least two years.

Requirements. 1. You should start this project when the calf is weaned or bought. You must enroll no later than May 1.

2. Calf must have been born after September 1 of the previous year.

3. Your calf must be a purebred and registered in your name.

Purebred beef heifer. You may enter your heifer calf in this project the second year, or you may buy an open yearling. Your aim is to develop this yearling heifer into a fine breeding animal so that you can start a purebred herd. She should be mature enough to be bred at 16 to 18 months.

Requirements. 1. If you are continuing with your heifer from the purebred heifer-calf project, you should continue your records in a new book starting September 1. You must enroll in the project by January 1.



Purebred heifer. A typy, stylish, beefy, and well-balanced animal like this excellent purebred Angus heifer is ideal foundation stock for purebred-beef production. This heifer, owned and exhibited by Donald Walker of Mackinaw, was Champion Angus Female of the Junior Show and Junior and Reserve Grand Champion of the Open Show at the Illinois State Fair.

2. If you are beginning in this project with an open heifer, or adding one to your herd, you have until May 1 to enroll.

3. Your heifer must be a purebred and registered in your name.

Purebred-beef production. When your heifer calf is old enough to breed, you can enroll in the purebred beef production project. Or, if you want to save time, you can start with a good purebred cow or bred heifer of good type and popular pedigree. When you buy an older animal, you can get earlier returns on your investment by selling the young bulls or fattening the steers for market.

Requirements. 1. You should start this project in fall, in no case later than January 1.

2. One or more purebred cows registered in your name or a partnership arrangement including the whole herd.

3. There is no age limit on cows used in this project.

Buying Cattle for Projects

Take every opportunity you can to learn to be a good judge of cattle. Participation in judging contests, watching shows, studying good animals and pictures of them will all help you to get an idea in your mind of good type and quality.

Because it is sometimes hard to tell just how well a young animal will look after good feeding and handling, you should ask an experienced person, such as a breeder, to help you choose your calf.

Selecting steer and purebred heifer calves

Try to buy a calf born the past spring or early summer that will weigh 400-500 pounds by January 1. It will be to your advantage if the calf has already learned to eat some grain.

If you are a beginner, a "choice" calf shown on page 9, *at bottom*, will be satisfactory and probably show a profit. If you want to produce a show steer, select a fancy calf like the one on page 9, *top*. He will probably cost more money, but you should be able to sell him for more at the end of the project.

Conformation is the first thing to look for in selecting your steer or heifer calf. It should be relatively low-set with a straight, strong topline, and a straight underline. The calf should stand squarely on its feet and legs.

You want a calf that shows balance (symmetry) as viewed from the side. Do not buy a calf that has crooked hind legs, lacks depth of chest or hindquarters, or has a weak or sagging topline.

Look for signs of good width — a wide, level rump, well-sprung ribs, and a relatively short neck blending well into shoulders that are not prominent.

The head should be fairly short and broad at the forehead and muzzle.

Good constitution and vigor are shown by a calf that stands straight with its fore-legs well apart, showing no sign of a pinched or narrow chest.

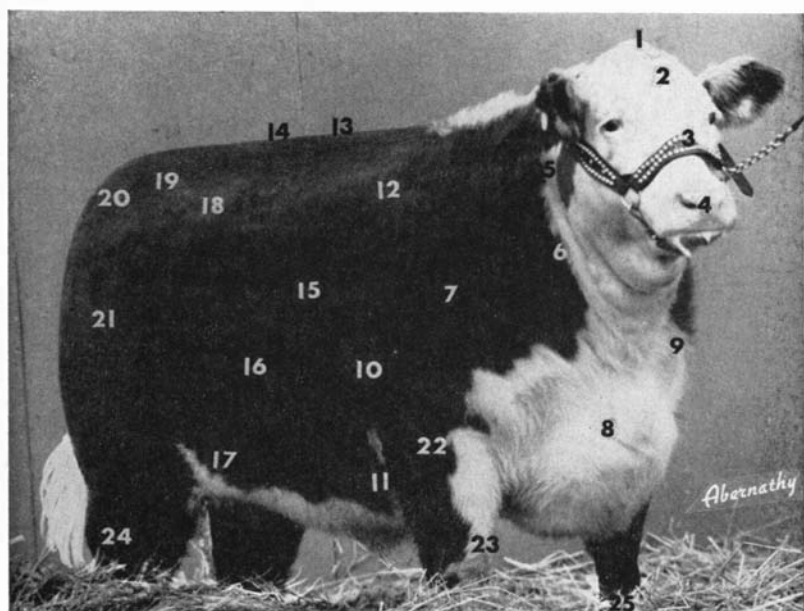
Quality is best shown by a rather thin, mellow or elastic hide, a fine, glossy haircoat, an attractive head, and smooth fleshing.



A "fancy" calf like this can be expected to develop into a fine steer given the proper care and feed. Notice the straight lines, bone, and style of this calf. If you want to have a steer of show quality, you should look for similar features in your calf.

This feeder calf is typical of "good-to-choice" calves fed by 4-H members. Calves of this kind are usually profitable to feed. They will not, however, make as good show calves as the highest or "fancy" grade shown above.





Parts of a Fat Steer

- | | | |
|------------------|---------------------------|--------------------|
| 1. Poll | 10. Chest and heart girth | 18. Hooks or hips |
| 2. Forehead | 11. Foreflank | 19. Rump |
| 3. Face | 12. Crops | 20. Pin bones |
| 4. Muzzle | 13. Back | 21. Thigh or round |
| 5. Neck | 14. Loin | 22. Forearm |
| 6. Shoulder vein | 15. Ribs | 23. Knee |
| 7. Shoulder | 16. Paunch | 24. Hock |
| 8. Brisket | 17. Flank | 25. Shank |
| 9. Dewlap | | |

Thriftness. A young beef animal need not be fat; in fact, a calf that is too fat to start with often becomes hard and rough at the end of the feeding period. But it should be in a thrifty condition so that it will make good use of its feed and gain quickly. This means the calf you buy should be healthy and free from parasites.

Breeding. A well-bred animal is desirable for all projects, and breeding is especially important if you want to start a purebred herd. Whether you choose Hereford, Shorthorn, or Aberdeen Angus, your animal should have the features that are typical of its breed.

Pedigree will not be so important for your steer calf, but your heifer calf should have a popular pedigree. She should show good type, quality, breed character, and femininity because you expect her to produce valuable calves when she is mature.

Selecting feeder calves

For the beef-feeding project, you will want a group of cattle that show about the same characteristics as those mentioned above for baby beef. However you won't find as much perfection in these market cattle. You will be mainly interested in their good bone, width and depth of body, and "beefy" appearance.

Buy choice-grade cattle if possible; but you may choose from a group that grades "good-to-choice." Buy either steer or heifer calves or light yearling steers that weigh 600 to 750 pounds.

Selecting breeding animals

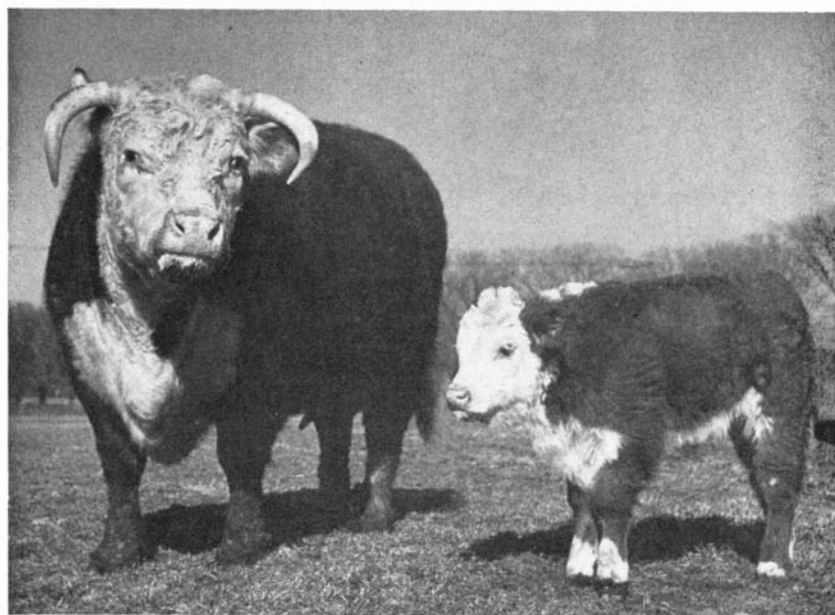
Cows for a purebred-beef production project should have all the good beef characteristics described for baby beef. They will show more maturity, but type, style, "beefiness," and straight lines are still the important points to look for. You will want your cow to have a popular pedigree, for it will add to the value of the calves you produce.

Grade cows for the grade-beef production project should be selected with these same things in mind except that pedigree is not important. You may settle for less type and style, but insist on width, depth, "beefiness," and an animal that shows good size for her age.

Where to buy cattle

For baby beef. The best place to buy a steer calf is from an owner of a good grade or purebred herd in your own community. You can pick your own calf and interest local breeders who may help you in your project. You will also have a chance to see your calf's sire and dam, so that you can have a good idea of how your calf will develop. Buying near home, you avoid some of the problems with shipped-in cattle—loss of weight and sickness from the long trucking or rail-shipping.

If you can't buy in the neighborhood, you can get calves on the open market, from a local dealer, or from a feeder who has shipped in a group of steer calves. Sometimes when enough good calves are



When selecting a beef calf from a herd, try to see the mother of the calf, too. Then you will be able to estimate better how your calf will look when it is grown.

not available locally, a committee of experienced men is selected to buy a carload of steer calves on the open market or direct from a ranch. These calves, on arrival, may be auctioned or drawn by lot by 4-H Club members.

Some local and state breed associations hold 4-H Club calf auctions where top-quality steer and heifer calves are sold to club members.

For beef feeding. Calves and yearling steers for the beef-feeding projects can usually be bought from commission agencies at large markets, or from local dealers who buy large numbers of feeder cattle direct from the range.

For grade-beef production, grade cows or heifers can be bought already bred from a neighbor or you might buy them on order from the range country through a commission company or a local feeder-cattle dealer.

Purebred beef heifers and cows should be bought at the farm of

a purebred breeder or at an auction. Try to buy from breeders who are known for their good cattle and who have been in the business for a long time.

Someone who is just building up a herd will not be as willing to sell one of his better cows. If you buy from a large herd, you can learn something about the cow's breeding ability by looking at her offspring and relatives.

Purebred cows with calves at side can often be bought from local breeders after they have been bred to valuable bulls. The price for a cow may be higher than for a heifer, but you can sell the bulls or fatten and sell the steer calves for a quick return.

Keep Accurate Records

Keeping records is an important part of your project. As soon as you buy your animals, they should be entered in the 4-H Livestock Record Book, which is used for all beef-cattle projects. Even if you get cattle from a friend or relative for less than the market price, the actual value of the animal should be entered, to give you an idea of your real expenses and profit.

Enter all animals in the same book when you can. If you want to have a separate account for feeder cattle you may want to use a separate book. The record book has tables for entering the feed each month and a summary table for adding up the amounts of feed and the total cost. Steers can be started as late as January 1, but if you want your records to be complete at the end of the project, be sure to start entering feed and other expenses as soon as you buy your animal. If you aren't keeping steers in a separate book, and you have other animals, you can keep a separate record of their feed in the monthly tables.

Enter all expenses and receipts from your project the year round, and at the end of the project, you can use the summary to find out if you made a profit. If you have breeding animals left at the end of the project, start them in a new record book as soon as the last one is completed.

Your adviser can help you if you have any questions about how to make entries in the record book.

Feed Cattle Well

To feed cattle successfully, you need the right combination of farm-grown grains, roughages (such as hay and silage), and protein supplements. Steers should be fed for growth and finish so that they will be ready for show and sale as fat cattle. Heifers that are going to be shown also must be fat and well grown at show time. Bred heifers and cows that are meant for breeding, not show, can be fed largely on pasture, hay, and silage. This is what you will need to feed your cattle well:

Grain. Corn is the most important grain you will use. Ground ear corn may be fed to cattle starting on feed; then you should switch to coarsely ground shelled corn.

Oats may be fed as part of the ration — whole oats for young calves, coarsely ground or rolled oats for animals on full feed. Oats should not make up more than 30 percent of the grain ration.

Ground barley or grain sorghums can also be fed — they can be used to replace up to one-half the corn in the ration.

It is a good idea to use a variety of grains in feeding your cattle, because they will probably eat more feed.

Protein supplements. Since home-grown grain is low in protein, a calf that is being fattened should also be given one or more of these concentrates: linseed meal, soybean meal, cottonseed meal or a commercial supplement. Pea-size meal or pellets are more palatable than finely ground meal.

Good-quality roughage. All your beef animals need good roughage. Legume hay is the most valuable. Mature cows can use a considerable amount of roughage, but young calves have less capacity and should not be fed too much hay or silage. Most of what they eat should be gain-producing concentrates.

Sometimes calves fed too much clover or alfalfa may bloat or scour; when this happens, give them some other kind of roughage — mixed hay, timothy hay, or brome grass hay.

Good pasture is valuable to your beef cattle. It furnishes good, laxative feed, and by turning them out on pasture on summer nights, you give them a chance to exercise. The dew helps to keep a calf's feet clean and free of foot rot.

Water. Plenty of fresh water is important all through the feeding

period. If there is no trough or drinking cup, bring in fresh water at least 3 times a day — 4 or 5 times in hot weather — and use a large, clean, galvanized iron pail.

Salt. There should always be a supply of salt available to the animals. The best place for it is in a small box nailed to the side of the stall or put in the end of the feed bunk.

Other minerals. If you use a commercial protein supplement and feed legume hay, you will not need additional minerals. But if you don't, make a simple mineral mix available to the animals free choice. One good mix is made up of equal parts salt, ground limestone, and steamed bonemeal or di-calcium phosphate.

Feed young calves grain before weaning. Before weaning, a young calf depends on its mother's milk for most of its food. At about 6 weeks it can be started on grain. Keep the calf in a pen or stall every morning after it has nursed and offer it a few handfuls of grain — wheat bran is very good as a first feed. When the calf learns to eat this, add $\frac{1}{2}$ pound of oats and $\frac{1}{2}$ pound of coarsely ground corn. Increase these amounts as much as the calf will eat. Then when it is about 4 or 5 months old, add 1 pound of a protein supplement — such as linseed meal — to its ration. Gradually the calf will depend less on its mother's milk and at about 8 or 9 months it can be weaned.

Getting calves on full feed. Feeder calves and animals that are being fitted for show will be eating $1\frac{1}{2}$ to 2 pounds of grain a day for each 100 pounds of weight once they are on full feed. (Steers will usually eat about 2 pounds, heifers less.) Silage can be substituted for part of the hay (4 pounds of silage replace 1 pound of hay). You can feed young calves 8 pounds of silage and 2 pounds of hay a day for the first 2 or 3 months, until they are on a full feed of grain. Then discontinue feeding silage and feed 3 to 5 pounds of hay a day.

If a calf has been fed some grain before weaning, you can start feeding it about 2 or 3 pounds a day of ground ear corn, or a mixture of equal parts shelled corn and whole oats. Give it as much roughage as it will eat. Every 4 or 5 days feed 1 more pound of grain until the calf is getting all the feed it can clean up in about 2 hours. Then take away what's left of the grain and feed legume hay. After a steer calf is on full feed, he should get only 3 to 5 pounds of hay a day.

If a calf has not been fed grain before weaning, it will take a little more effort to get him started. The first day just give him about

6 pounds of legume hay. Then start offering him 1 pound of oats or ground ear corn along with 2 pounds of hay twice a day. When he learns to eat this much, feed 2 pounds of grain at each feed. About the second or third week, when the calf seems hungry, you can start him on the program outlined above. If he doesn't clean up all the grain, you can give him less hay or less oats, because shelled corn is the most valuable part of his feed for fattening.

Getting yearlings on full feed. Yearlings do not need as much attention as calves do to get them started on full feed, but it is best to start them on limited amounts of concentrates.

A 600-pound steer should be fed about 4 pounds a day for the first week. This can be increased by about 2 pounds a week. Start with a full feed of hay and reduce it to 5-6 pounds when the cattle are on a full feed of grain.

Grain rations for calves and yearling steers on full feed. A good fattening ration is bulky, high in energy content, palatable, and contains a protein supplement. One good all-purpose ration is:

by weight

6 parts	coarsely ground shelled corn
3 parts	coarsely ground or rolled oats
1 part	protein concentrate*

You can use coarsely ground barley or grain sorghums to replace part of the corn — about $\frac{1}{4}$ to $\frac{1}{2}$ the amount of corn — and this is especially good for the last three months of feeding.

A few weeks before the end of the feeding period, add a handful of brown sugar in 1 pint of water, or a commercial sugar preparation, to the grain ration. This will encourage the animals to eat more. Moistening the grain mixture with $\frac{1}{2}$ pint of diluted blackstrap molasses will also keep calves eating during the hot summer months.

Feeding three times a day during the last few weeks of the feeding period will also help to speed up gains.

Feed heifer calves for growth. A heifer calf can be started on grain the same way as a steer calf if you plan to show her as a calf or yearling. She will eat a daily ration of about $1\frac{1}{2}$ pounds of grain for

* Any of the oilmeal concentrates can be used — soybean, linseed, or cottonseed meal in meal or pellet form — or a commercial protein concentrate containing molasses. Linseed meal seems to give the best finish of all the protein concentrates, so if you can, feed it during the last part of the feeding period.

every 100 pounds of weight. If you are going to show your heifer as a two-year-old, feed her all the good legume hay she wants and 4 to 6 pounds of grain a day during the second winter.

A yearling heifer that is intended for breeding, but not for show, will not need grain. You are not trying to get top market condition, but you want her to grow well so that she can be bred at about 16 to 18 months. Give her bulky feeds like silages, legume hay, and pasture.

Feed cows for maintenance. During gestation, a cow needs only enough feed to keep her in good breeding condition. She should gain about 100 pounds during the last 4 months before calving. If she has plenty of good pasture in season and corn silage and hay during the winter, she will not need concentrates. After calving, keep the cow on good pasture so that the calf will get enough milk.

Give Your Cattle Good Care

Your success in a beef-cattle project will depend a lot on how well you care for your animals. They won't gain well unless they are quiet and contented. This means they need good shelter, clean bedding, and freedom from flies, lice, and other pests.

Keep cattle clean. Cattle that are fattening rapidly spend a lot of time lying down. They should have plenty of clean bedding, and the stall or shed should be cleaned out every day. If you spend 5 or 10 minutes a day cleaning and grooming your animals, it will improve their appearance and make it easier to put on the final touches just before the show.

Keep calves away from the herd. Calves that are being fitted for show will be more contented if they are kept away from other livestock, once they get used to being off by themselves. But it is better to have two or three calves together; they will probably eat more and gain better if they have some company.

Protect cattle from rain, wind, and heat. It is more important to protect the animals from dampness and wind than from cold in winter. Keep them in a deep shed open on the south, or in a large, roomy box stall in a well-ventilated barn.

In hot weather, cattle should be kept in a cool, well-ventilated place. Usually they will do better if you keep them in during the day and let them graze and exercise at night in a small pasture away from

other livestock. (The hot sun will burn their coats and make their hair dry and harsh.)

When you start to teach your calf to lead, keep it tied in a single stall for the first few days, then gradually give it more freedom.

Keep the animals free of flies, lice, and other pests. It is important to keep your cattle free of flies, grubs, and lice, because if they are bothered by these external parasites, they may not gain well, and they will not look as good in the show ring. Cleanliness will help to get rid of ordinary houseflies, but you will need special chemicals, or insecticides, for good control of other parasites.

How to control flies, grubs, and lice¹

Houseflies do not bite, but stable flies do and it is hard to tell the difference between them. Cleanliness is the first step in keeping houseflies away from your cattle. Cleaning the stall or shed every day and providing clean bedding will help. Fly traps won't do much good. The best way to get rid of houseflies is to spray the walls and ceilings of the buildings and areas around windows and doorways.

Use:	at the rate of:	Control will last:
Malathion spray	½ pint 57% emulsion concentrate or 1¼ pounds 25% wettable powder — in — 3 gallons water	1 to 3 weeks

Add 1 cup of granulated sugar to the spray material. This will help to attract the flies and to hold the insecticide on the sprayed surface for a longer period of time.

Be careful when you use this chemical. Do not spray it on or near the animals. Keep the spray well away from feed and water supplies and feeding troughs.

Horn flies and stable flies. A horn fly looks like a common housefly but it is only about half as big. You will find them on the backs and shoulders of cattle. Stable flies work on the legs and belly, but they spend most of their time on buildings, fences, feed bunks, and trees. Both of these flies pierce the animals' skin and feed by drawing blood. The same chemical can be used to get rid of horn flies and stable

¹ This material was supplied by STEVENSON MOORE III, Assistant Professor of Agricultural Entomology.

flies. A methoxychlor spray can be used on the animals to get rid of horn flies. To give some relief from stable flies, use the spray on fences, outsides of barns, nearby trees, and other places where the flies are likely to rest.

Use:	at the rate of:	Control will last:
Methoxychlor spray	1 pint 25% emulsion concentrate or ¼ to ½ pound 50% wettable powder — in — 3 gallons water	2 to 3 weeks

Dusting the animals with methoxychlor powder helps, but doesn't give as good control as a spray. A backrubber is a very convenient method of applying insecticides for horn flies. You can easily put up a backrubber (see the diagram on page 20) for the cattle to rub themselves on, picking up the chemical as they do. Soak the backrubber in a solution of DDT or methoxychlor.

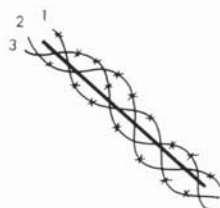
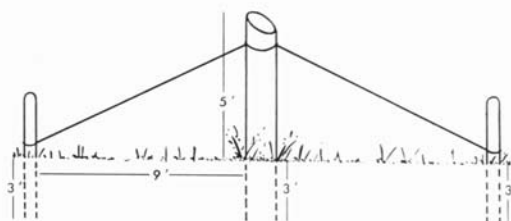
Use:	at the rate of:	Control will last:
DDT or methoxychlor solution	1 quart 25% emulsion concentrate — in — 4 quarts light-grade fuel oil	as long as the ani- mals keep using the backrubber; you should soak it with more solution every 3 or 4 weeks

Horse flies are larger than stable flies. About the only kind of effective control you can get against these flies is with a repellent material that helps to keep them off of the cattle. You can spray the animals with a water solution of pyrethrin. Apply 1 to 2 quarts to each animal.

Use:	at the rate of:	Control will last:
Pyrethrin spray	1 part 1% activated emulsion — in — 9 parts water	about 2 or 3 days

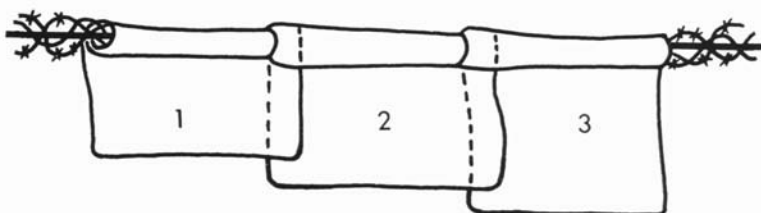
Heel flies or grubs. These flies are large and hairy; they look somewhat like honeybees. They lay eggs on the legs of cattle, but there isn't much that can be done to prevent them. The grubs get into the body of an animal, and form cysts or warbles on its back in about 8 to 10 months. When swellings start to appear (usually early in January), you can have your veterinarian give the calf a capsule or drench that will destroy the grubs. Or you can treat it yourself

MAKING A BACKRUBBER

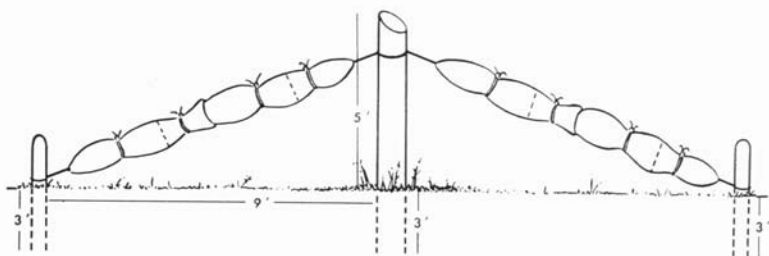


Put an 8-10 foot post into the ground 3-5 feet. Attach a chain or heavy wire (9 gage) to it and to a well-anchored object in the ground 9 feet from the post.

Wind 3 strands of barbed wire around the smooth wire or chain.



Wrap burlap sacks around the wire, each one overlapping the last. Wrap sack 1 over the wire once, then 2, then 3, and so on to the end of the wire. Then start again with sack 1 and repeat until all sacks are completely rolled around the wire. Tie pieces of heavy twine over the parts where the sacks overlap; then tie between the joints as shown here.



This is the finished backrubber ready for use.

this way: wait 30 days after you first notice these swellings, then wash the cattle's backs with rotenone and scrub it in with a fiber brush.

Use:	at the rate of:
Rotenone wash	2 ounces 5% wettable powder
	— plus —
	2 ounces neutral soap
	— in —
	1 gallon soft water

Rubbing 1½-percent rotenone powder into the cattle's hair in winter will help, too. A repeat treatment may be needed 30 days later.

Lice. There are two kinds of lice: chewing lice and blood-sucking lice. The chewing lice are reddish-brown and move around quickly. Sucking lice are blue or black and hardly move at all. You can use either a spray or a dust. Apply about 2 gallons of spray to each animal or 3 ounces of methoxychlor powder.

Use:	at the rate of:	Control will last:
Methoxychlor spray	½ pint 25% emulsion concentrate	the season, unless the lice are not com- pletely controlled by the first treat- ment; if necessary, spray again in 2 or 3 weeks
	— plus —	
or	1 ounce washday detergent	
	— in —	
	3 gallons water	
Lindane spray or	1 ounce 20% emulsion concentrate	
	— in —	
	3 gallons water	
Methoxychlor dust	5% powder	about 2 weeks; be sure the animal is completely covered with the dust

Safety measures. When you use any of these chemicals, be careful to follow all precautions on the labels. Some good general rules to follow are:

1. Be careful not to spill the chemicals on yourself or your clothing. If you do, wash it off immediately.

2. Store the insecticide containers where animals and children cannot reach them, and be sure they will not be mistaken for other products.

3. Follow the directions on the labels carefully, and use the chemicals at the recommended rate.

Marketing 4-H Club Cattle

After your cattle have been shown, you will be ready to sell the steers and heifers fed for beef. Baby beeves will usually be 12 to 18 months old and they'll weigh between 850 and 1100 pounds just after your county show. If they are kept for later shows, they may be considerably older and heavier when sold.

Usually choice and prime cattle sell best in the fall of the year, so you should plan to have your steer calves and yearling steers ready to sell by September or October. Heifer calves fatten more rapidly than steer calves; they will usually be ready for sale in the late spring or summer, and that is when the market for them is generally most favorable.

Fat cattle can always be marketed for their actual value as beef at the large terminal markets. If club members have enough fat calves to make a truck load or carload (20 to 25 finished calves), they may want to sell their animals as a cooperative shipment. When you sell this way, you receive the price the animal sells for, less your share of the marketing expense.

Some local communities do a good job of promoting a local auction with the support of local buyers. You might get a premium price for your steer at one of these sales. You should remember, however, that anything you receive above your calf's actual value as beef represents the good will of businessmen in support of the 4-H program plus what advertising value they can get from aiding and promoting such a worthwhile program.

It will be much easier to show a final profit if you have bought your calves at going market prices rather than at a premium. When feed prices are low and cattle prices high, you may be able to break even or show some profit even when your fat steer sells for less per pound than he cost as a feeder calf.

The only time you might sell breeding stock from your purebred-beef production project will be when you have young bulls or surplus females to dispose of. Usually regular local sales are held by local or state breed associations where excellent cattle are sold for favorable prices. You may have to join the association to participate in its sale.

Prepare Your Animal for Show

When it is time to show your animal, you will want it to be well trained and in top condition. You will have to begin early to have it ready for judging, but the extra time that goes into training and grooming your calf will be important in the show ring.

Training a calf

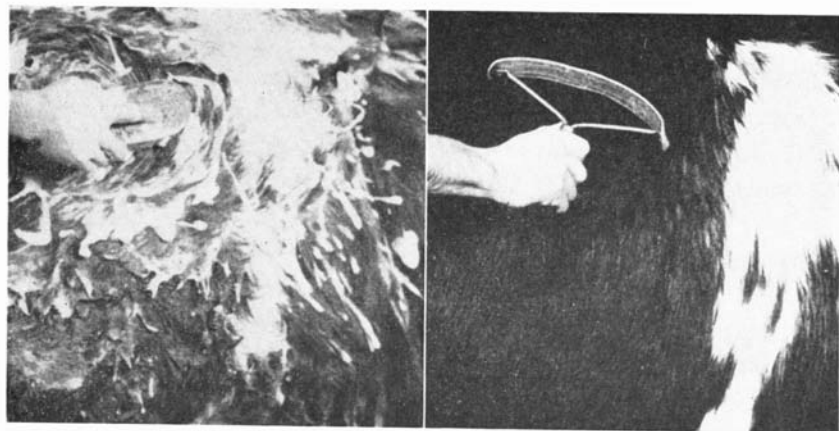
Teach your calf to lead by leading it to water, in and out of its stall, or to and from pasture. Then lead it through doorways, over scale platforms, and get it used to going near unfamiliar objects.

Then start to teach the calf to stand properly. At first, have him stand perfectly still for a few minutes at a time. Place his feet so that his legs are straight and carrying his weight evenly on all fours. His back should be straight, and his head should be held up enough to give him an alert appearance. Practice leading the calf out often, let it take a good position and hold it for 15 or 20 minutes. Do this *every day* the last few weeks before the show. When neighbors or friends come to the farm, lead your calf out and pose it for their inspection; it will get him used to being examined by strangers. Use your show halter after the calf learns to lead, so that he will be used to the chain under his chin.

Grooming cattle

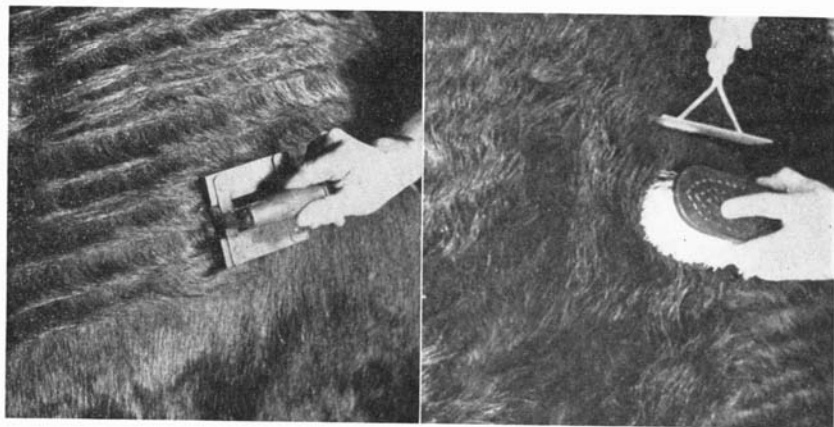
To make your animal look its best at the show, you should begin improving its appearance two months ahead of time. The more care you give your animal during the last two months, the easier it will be to put on the finishing touches.

Washing. For a month before the show, wash the animal twice a week with soft water and tar soap or detergent to keep the animal clean and help make the hair soft, fluffy, and thick. Wet the hair and skin thoroughly, use plenty of soap, and work the lather in with a stiff brush. Add a little bit of water at a time until all the dirt and dandruff are washed out. Rinse the animal thoroughly with clean water; be sure to remove all of the soap. Wipe all the rinse water off and let the animal dry in a place free from drafts. If the weather is cool, cover your animal with a blanket. If it is very cold, do not wash your animal unless you can keep it under heavy blankets in a warm barn until dry.



Washing. Wet the animal thoroughly and work up a good lather using a good detergent. Scrub with a stiff brush, being careful not to get water in the animal's ears. Rinse completely to remove all the soap. Then scrape off excess water with a scraper or the back of a Scotch comb.

Curling. Mark the hair in parallel lines, using a special marking comb. Always mark from the rounds toward the shoulders. Brush the hair upward with a stiff brush and comb. You will have to patiently repeat this many times in order to train the animal's hair nicely for show.

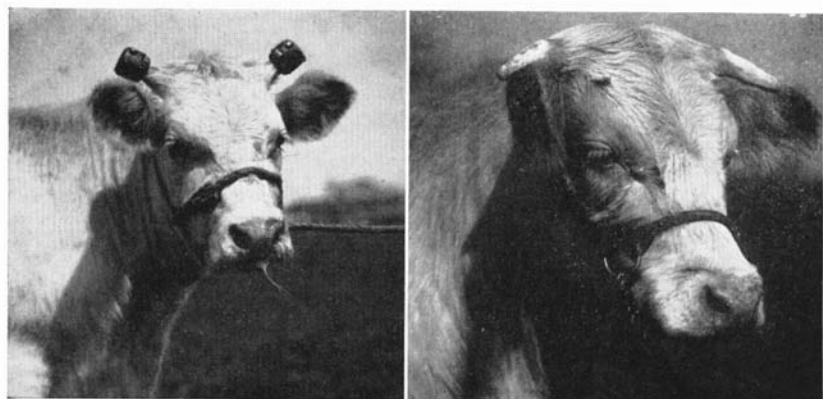


Wetting the hair lightly and brushing it upwards each evening in the summer will help to make it grow faster. When you wet the animal's hair, before curling, use about 1 tablespoon of creosote dip in a bucket of water.

Curling. Long, fluffy hair, often found on Shorthorns and Herefords, is usually curled before the cattle go into the ring. It improves the general appearance of the body. The pictures on page 24 show how to curl and brush long hair. If you practice curling your animal's hair each time you wash it, it will be easier to groom for the show. Do not try to curl a short-haired animal. Brush its hair down smooth and rub it briskly with a woolen cloth that has been dampened with denatured alcohol and an equal amount of sweet oil or olive oil.



Grooming the tail. Begin by removing all the dirt. Then fluff the switch with a brush (upper right). Always brush the hair toward the body. The tail before grooming is shown at left, after grooming at lower right.



Weighting horns. Heifer horns should grow forward and down in a smooth curve. If they start to grow in the wrong direction, you can bring them down in a few months with small weights. Be careful not to use too-heavy weights, or there will be a sharp bend in the horns.

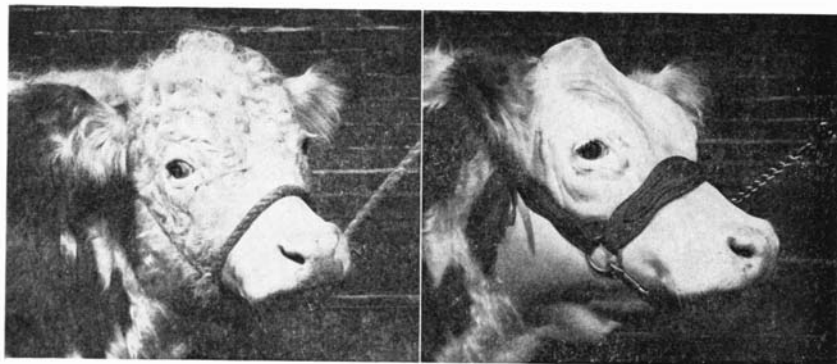
Care of horns. All steer calves should be dehorned. Heifers' horns need to be trimmed and polished. If they begin to grow in the wrong direction they should be shaped. The horns should grow forward and downward. If they should start to grow upward, you can bring them down with small weights. Be careful not to use heavy weights, because they may break the horns. If the horns are large and stiff, you can change their shape by rasping with a coarse file on the outside of the curve.

A week or two before the show cut the tips of the calf's horns back and trim them with a file or coarse sandpaper until they are smooth; do not file too thin. Then smooth them with fine sandpaper. Moisten a woolen cloth with sweet oil or linseed oil and use it to rub the horns to a polish.

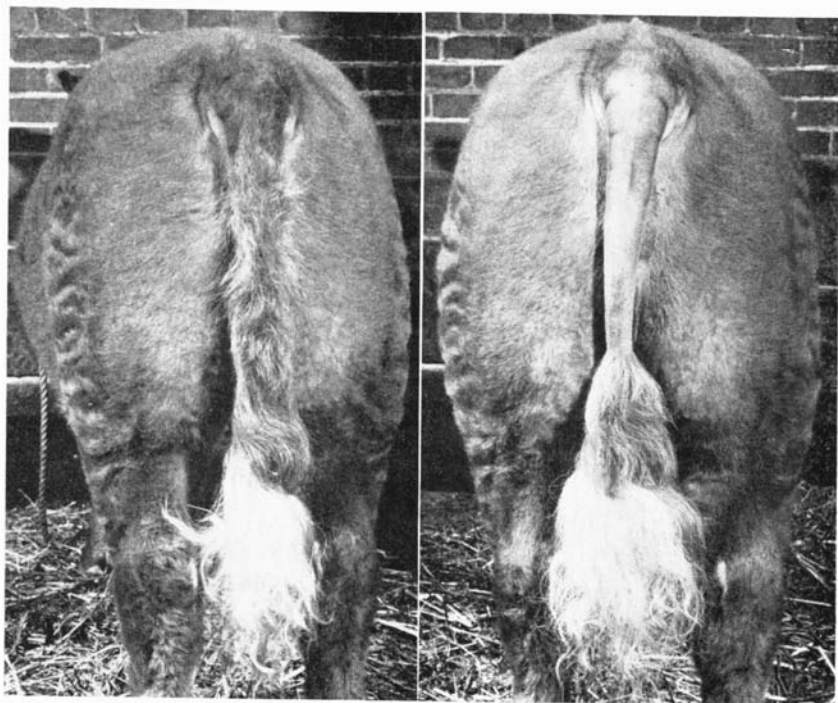
Clipping. All naturally polled and dehorned steers and Aberdeen-Angus heifers should be clipped before showing. Clip all the hair on the head in front of a line drawn around the neck about 2 inches behind the ears, except on the ears. This makes the head look clean-cut and more attractive. Polled Herefords' polls are also sometimes clipped.

Clip tails on all but Shorthorn breeding cattle from above the switch to the tail head (see picture on next page). Do this 2 or 3 weeks before the show, so the hair won't look stubby.

Trimming hoofs. An untrimmed hoof prevents an animal from standing so that it will show to best advantage. To trim a hoof, place



Clipping the head. This animal is shown before and after clipping. Notice how much its appearance has improved in the picture at right. The rope halter has been changed for a leather show halter of the type that is needed to exhibit a calf in the ring.



Clipping the tail also improves the animal's appearance. Compare the picture on the right with the one on the left before clipping. The animal, after clipping, looks smoother and neater.



Trimming hoofs. This hoof is shown before and after trimming. Notice how the trimmed hoof (right) sits level with the ground. This enables the animal to stand better.

it on a solid platform and cut off the horny growth with a wood chisel and a light mallet. Be careful not to cut into the quick — that would cause bleeding.

Equipment for showing

You will need these items to get your animal ready and to show it. Get your equipment together three or four weeks before the judging, so that both you and the calf can get used to it.

For washing and grooming

hose
galvanized iron pail
tar soap or detergent
rice-root brush
high-grade bristle horse brush
circular spring-steel comb or liner
coarse comb
stock dip

For polishing horns

rasp
No. 1 and No. 4 sandpaper
small bottle of equal parts de-
naturated alcohol and sweet oil

For the stall

cardboard sign showing:
owner's name and address
calf's weight and age
pitchfork
rope halter or neck strap
and tie rope
feed box or pan

For showing

show halter
show stick

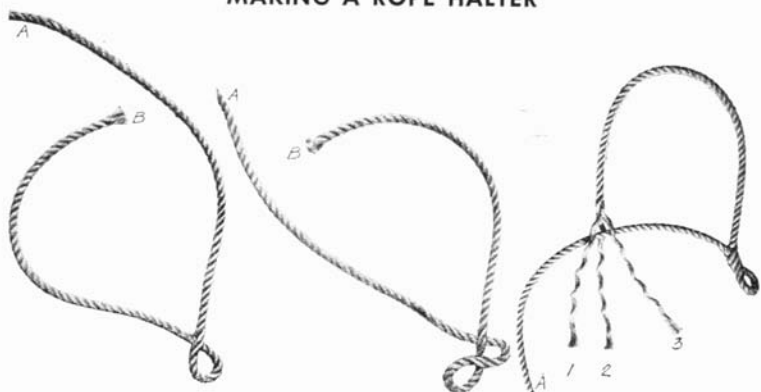
For watering

galvanized iron pail (one that is
not used for anything else)

You can make some of your equipment and buy most of the other things cheaply. Directions are given on page 29 for making a rope halter. You can buy a blanket of burlap, gray or khaki duck, or wool in various colors from a dealer who handles stockmen's supplies.¹

¹ Directions for making a blanket can be obtained from the 4-H Office, 414 Mumford Hall, University of Illinois, Urbana.

MAKING A ROPE HALTER



Take 12 feet of 3-ply, $\frac{1}{2}$ -inch manila rope. About 33 inches from end **A** make an opening between the strands and pass the other end **B** through the hole until you have a loop about 1 inch wide.

Make another opening between the strands just above the loop and pass end **A** all the way through it.

Unravel the three strands of **B** for about 8 inches. Bring strand **2** in back of **A** and bring the other strands, **1** and **3**, in front of it.



Bring **1** and **3** under **A** and up through the triangles on each side of the center strand. Bring the center strand **2** under **A** and up under strand **1**. Draw the three strands tight, twisting each one to tighten the weave.

Braid the 3 strands together by bringing each strand first over one of the others, then under the next. Do this with **1**, **2**, and **3** until each has been pulled through three or four times. Tighten each time you draw a strand through. Cut off the ends of the strands about $\frac{1}{2}$ inch above where they came out on the last weave.

You can keep the free end **A** from unraveling by wrapping it tightly with a waxed cord about 18 inches long. Place the cord so that end **X** points down and end **Y** points up. Take hold of the loop at **Z** and wrap the loop of the cord around the rope so that it binds both **X** and **Y** on each turn. Make a dozen wraps, then pull **X** and **Y** tight and cut them off close to the last wrap.

Show classes

Two-year-old. Entries calved May 1 of the third year before show to April 30 of the second year before show, excepting Herefords: May 1 to August 31 of the second year before show.

Senior yearling. Entries calved May 1 to December 31 of the second year before show, excepting Herefords: September 1 to December 31 of the second year before show.

Junior yearling. Entries calved January 1 to April 30 of the year before show.

Summer yearling. Entries calved May 1 to August 31 of the year before show.

Senior calf. Entries calved September 1 to December 31 of the year before show.

Junior calf. Entries calved on or after January 1 of the year shown.

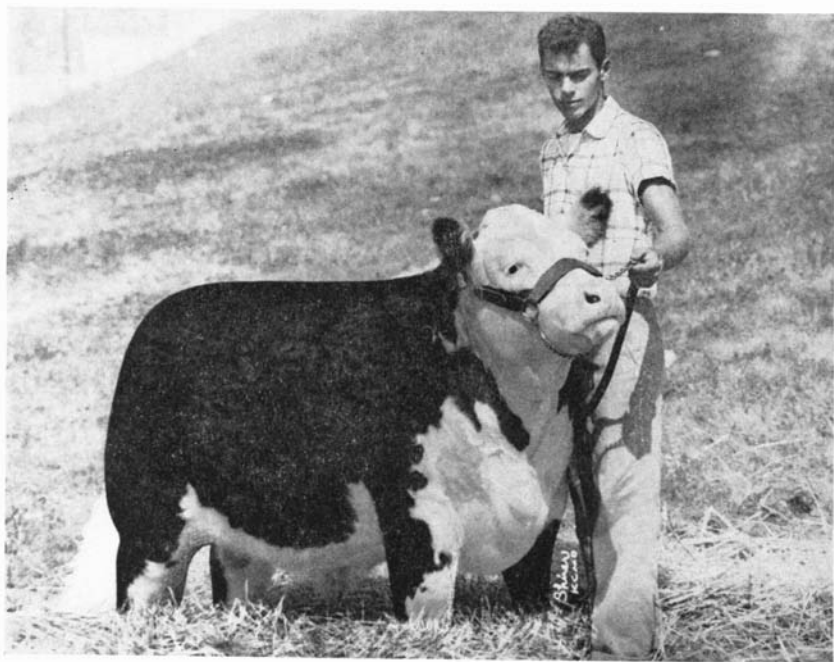


4-H Club winner of both the Junior Feeding Contest and the International Grand Championship in 1955 was Nancy Turner of Champaign, with her Angus steer, "Julius."

Demonstrations

Here is a list of suggested subjects that you can use in 4-H Club demonstrations:

1. Making a rope halter
2. Making a backrubber
3. Making a calf blanket
4. Making a movable loading chute
5. Making a cattle feed bunk
6. Trimming hoofs
7. Curling hair on calves for showing
8. Showing beef calves
9. Cleaning show halters
10. Dehorning a calf
11. Controlling grubs in cattle
12. Preventing bruises and losses in shipping cattle
13. Constructing a hay feeder
14. Preparing a calf for the show ring
15. Clipping a calf for showing
16. What the consumer should know about retail cuts of meat
17. Preventing livestock losses



"Chubby," Grand Champion of the 1957 Illinois State Fair Junior Show and Reserve Champion Steer of the 1957 American Royal Junior Show, was owned by Richard Haas, McLean.

MORE INFORMATION on raising beef cattle can be found in *Selecting, Fitting, and Showing Beef Cattle*, a handbook by Julius Nordby and Herbert Lattig (Interstate Printers and Publishers, Danville), or by writing to the breeders' associations:

American Angus Breeders' Association
3201 Frederick Boulevard
St. Joseph, Missouri

American Shorthorn Breeders' Association (includes
American Polled Shorthorn Society)
Livestock Exchange Building
Stock Yards Station
Omaha, Nebraska

American Hereford Association
Hereford Drive
Kansas City, Missouri

American Polled Hereford Association
1100 Grand Avenue
Kansas City, Missouri

This circular replaces Circular 540.