



CANADA
4-H Saskatchewan

Beef

Leader
Guide

4-H Motto

'Learn To Do By Doing'

4-H Pledge

'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'

4-H Grace

(Tune of Auld Lang Syne)

We thank thee, Lord, for blessings great

On this, our own fair land.

Teach us to serve thee joyfully,

With head, heart, health and hand

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Introduction: All Levels

Welcome to the 4-H Beef Project

We are excited that you chose to become a leader of the 4-H Beef Project. This challenging and exciting project allows you and members to have fun while learning about the various aspects of beef production.

To complete a 4-H project year, a member must:

- Complete the units you have chosen for the year.
- Complete a record book.
- Participate in a communication activity at the club level.
- Take part in achievement day.

The Beef Project Materials

There are four levels in the beef project:

- The **cloverbud** level has five units and is designed for members ages 6 to 8.
- **Levels 1 to 3 each have** 19 sections. Each unit covers a specific topic or group of topics about one aspect of beef production. **Showing and Judging** (unit 19) is covered in level 1, and **Learning About Animal Welfare** (unit 20) is covered in level 2 and 3. The Saskatchewan 4-H office also has a leader supplement called **Learning About Animal Welfare** (L.A.W.) that can be incorporated into all levels of the beef project.

The material varies in style and content from one level to the next. The recommended age groupings are:

- Cloverbud: 6-8 years of age
- Level 1: 9-11 years of age
- Level 2: 12-14 years of age
- Level 3: 15-21 years of age

Please note that these age groupings are **NOT** carved in stone! Members may fit into a higher or lower level according to their experience. Please adjust these groupings as required in your club.

Each member should complete the specific units, in their level, that your club selects for that year. Encourage members to begin a binder. Each member can then build on this binder over the project year and future years to create a valuable beef production manual.

You are **NOT** expected to complete all of the units in one year! This may take several years. Plan your project year at your first meeting. Choose the units you wish to cover at your first meeting. The number of units and the topics you choose will vary. The recommended number of units to complete in a year is 5 or 6 depending upon the number of meetings you hold and the interests of your members

Depending on the interests of your members, you may wish to combine or extend units. Work at your own pace. The material is designed to be flexible.

Please note that you are NOT expected to complete all of the activities within each unit. These are provided as suggestions only. You may need to use them to get rolling, or you may not use them at all.

About Beef Record Books

There are five record books available:

- The **cloverbud** record book is complete with the general record book included.
- **Level 1 to 3** has a **General Record Book** to keep track of general meetings, goals, evaluations, etc., and 4 project animal record books: **Market Steer, Heifer, Cow Calf** and **Feedlot**.

Depending on what animal(s) members choose will determine which record books they will need. For example, if a member has both a heifer and a steer, they will need to complete the **General, Market Steer** and **Heifer** record books.

Some of the pages in the record book are for the more advanced members, so use your judgment on what level of experience they are at (i.e. it is recommended that **Performance Records** are introduced at the intermediate and/or senior levels and omitted for the junior level). Decide which pages they will need to complete, and make sure they **X** out the ones they don't have to do.

Why keep records in 4-H?

- To record information about their animal(s).
- To record the work they have done.
- To record their club activities.
- To learn the importance of keeping accurate records in any business.
- So they can see the actual costs involved in completing their project. Without records, they cannot accurately tell how much of a gain or loss they have made on their investment.

How do you keep everything together?

Have members get a 3-ring binder to put their material in. During the year, you can give them other information that they can include in their binder. During the year, they will build their own book about beef. The record book is flexible. Have them make it **their** book by designing a cover. Encourage them to add pictures, newspaper or magazine clippings they have of themselves, their farm or their beef project. After they have been in the project for several years, they will have a special book.

What is involved in a good record book?

- **Completeness**

Note: Make sure members put an "X" across the pages they are not using. If they leave it blank, they may lose marks for having an incomplete record book.

- **Accuracy** – information should be accurate and up-to-date.
- **Neatness** – neatness is important.
- **Personality** – this is their record book. Encourage members to be original and personal in the information they keep.

Hints for Keeping Good Records

- Encourage members to keep a **calendar** and **pen** handy near their animal when they are working with them. Whenever they change the feed, or their animal is treated or vaccinated, they can quickly grab their calendar and mark it down. When it's time to write the information in their record book, the information is handy and accurate.
- Encourage them to **read** the instructions for each section carefully, and make sure they know in advance which records they must keep.
- If they don't know **feed prices**, there are many people they can contact. Your club may decide to set prices at the start of the project year. Have them consult their parents, web sites, local radio reports, feed companies, local agriculture specialist, their neighbours, and so on. Prices will vary during the year.
- Encourage them to be **accurate** in feed weights so they can accurately reflect the costs of maintaining their project. Round to one decimal place, for example – 1.4 kg instead of 1.375.
- Encourage them to be **consistent** in their units for weight. No matter which type of units you use (kilograms or pounds); encourage them to use the same units throughout their entire book.
- Encourage them to include **all costs**, no matter how small. This will give them a true picture of actual costs. Have them identify any purchases or losses of equipment during the project year.
- Encourage them to **keep their records up-to-date!** Problems are caused by forgetting to record last month's feeds, or not recording changes in the feeds.
- Keeping records is **good business procedure**. A good record book will be important in future projects and for decision-making. Encourage them to start record keeping as soon as they have chosen their animal(s). Have them end their record keeping for the project year at achievement day.

Achievement Day Requirements - Members should...

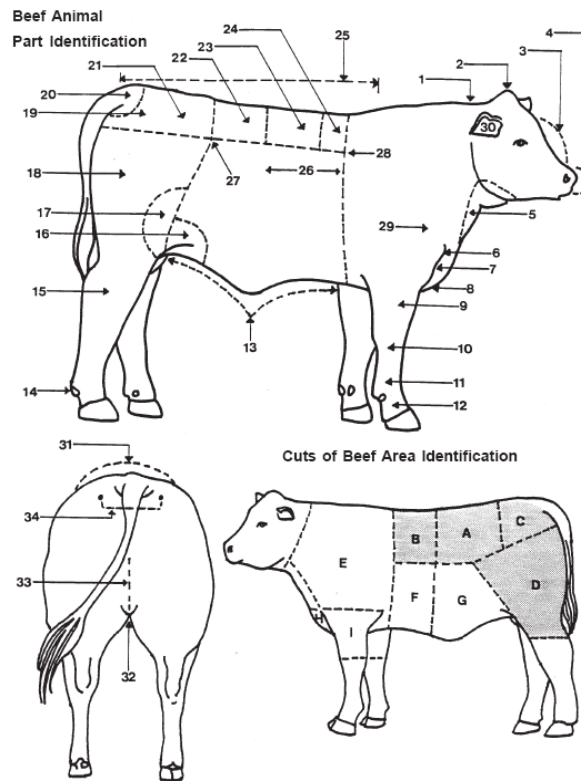
- Exhibit their beef project.
- Display their record books that are complete and up to date.
- Complete an achievement day questionnaire provided by the 4-H office.

Beef Animal Part Identification Key

- | | | | |
|-------------------|-------------------|---------------|-----------------|
| 1. Crest | 10. Knee | 19. Pin Bone | 28. Heart Girth |
| 2. Poll | 11. Shank | 20. Tail Head | 29. Shoulder |
| 3. Face | 12. Pastern | 21. Rump | 30. Ear |
| 4. Muzzle | 13. Underline | 22. Loin | 31. Rump |
| 5. Dewlap | 14. Dew Claw | 23. Back | 32. Cod |
| 6. Shoulder Point | 15. Hock | 24. Crop | 33. Twist |
| 7. Brisket | 16. Flank | 25. Topline | 34. Pin Bones |
| 8. Chest Floor | 17. Stifle Region | 26. Ribs | |
| 9. Forearm | 18. Quarter | 27. Hooks | |

Cuts of Beef Area Identification Key

- | | | |
|---------|----------|------------|
| A. Loin | D. Round | G. Flank |
| B. Rib | E. Chuck | H. Brisket |
| C. Rump | F. Plate | I. Shank |



Working With Your Members

One of the biggest challenges facing 4-H leaders is keeping the interest of the members. By keeping members interested you will be giving them information they will learn and retain. Keep the following chart in mind when you select activities for them to do.

Method	Retention	Examples
Reading	Members will retain 10% of what they read.	Information in member units
Hearing	Members will retain 20% of what they hear.	Lectures, speakers
Seeing	Members will retain 30% of what they see.	Pictures, posters, drawings
Hearing and Seeing	Members will retain 50% of what they see and hear.	Demonstrations, tours, videos
Saying	Members will retain 70% of what they personally explain.	Discussions groups, expressing ideas
Saying and Doing	Members will retain 90% of what they are saying and doing.	Giving demonstrations, practicing

Extra Hints on Working with Your Members

- Depending on the experience and knowledge of your members will depend what level they are at. (I.e. a 16 year old member, who is new to the beef project, can still be in the level 3 unit, but also give them the opportunity to look over levels 1 and 2 for review.
- If some members are bored, give them an extra assignment to research (i.e. a junior could do an activity to promote 4-H (National 4-H Month) or a project to enter in the local fair.
- Involve your senior members – have them teach lessons and work with the younger members. Make sure to give them at least a month's preparation time.
- If you are asking a veterinarian to speak to your group, make sure you tell them ahead of time what the age range is.
- A Brand Inspector is a great speaker to have – it's important for members to know how to fill out a brand manifest and why and when you need one.
- Tour a feedlot – if possible, a smaller one at first. Have them explain how calves are prepared for the feedlot, sick pens and how they prepare different rations.
- Visit a livestock yard to teach members how cattle are sorted and auctioned off.
- Important lessons for senior members could include the proper way of vaccinating, castration and lessons on artificial insemination (AI)

The following two activities are extra activities that can be done by all members. They are not included in the members' manuals.

“Who Am I?” Fill in the breed that corresponds to the description

Limousin	Salers	Charolais	Maine-Anjou
Angus	Longhorn	Hereford	
Simmental	Hays converter	Shorthorn	

1. I often have horns. I am red and white, and am one of the oldest and most numerous breeds in Canada.
Who am I? _____
2. I have one of the largest gene pools in the world. I range in colour from tan to dark red and have white markings. I come from five different European strains.
Who am I? _____
3. I originated in Scotland some 250 years ago. I came to Canada in 1825. I can be red, white or roan.
Who am I? _____
4. I was imported from France in the 60's. I am used primarily as a terminal breed in crossbreeding programs. I have dark red and white markings.
Who am I? _____
5. I am noted for my heavy muscling and lean, high yielding carcass. I came to Canada in 1969.
Who am I? _____
6. I was introduced to Canada in 1860. I can be black or red. My polled gene is dominant when crossed with other breeds.
Who am I? _____
7. I am noted for my maternal traits. I came from France to this country in 1973. I have a thick curly red coat.
Who am I? _____
8. I am one of the oldest French breeds. I have developed a polled gene which now represents 30% of all animals registered. My association has been operating the Conception to Consumer program since 1968. I can be white to straw coloured.
Who am I? _____
9. I was the first breed to be developed in Canada by private interests.
Who am I? _____
10. I was brought to Canada from the Southern United States. My horns can grow up to seven feet across. I am often bred to first calf heifers because of my ease of calving.
Who am I? _____

Answers: 1) Hereford; 2) Simmental; 3) Shorthorn; 4) Maine-Anjou; 5) Limousin; 6) Angus; 7) Salers; 8) Charolais; 9) Hays Converter; 10) Longhorn

Match My Origin Match the breed on the left with the country or region on the right.

Breed	Origin
1. Angus, Shorthorn, Luing, Galloway and Highland	Southern United States
2. Charolais, Limousin, Salers and Maine Anjou	Wales
3. Hereford, South Devon	Germany
4. Simmental	France
5. Gelbvieh	Australia
6. Hays Converter	Switzerland, France and Germany
7. Murray Grey	Scotland
8. Pinzgauer	Canada
9. Longhorn	Austria
10. Welsh Black	England

Answers: 1) Scotland; 2) France; 3) England; 4) Switzerland, France and Germany; 5) Germany; 6) Canada; 7) Australia; 8) Austria; 9) Southern United States; 10) Wales

Suggestions for Planning, Preparing and Presenting Demonstrations

1. Decide on the subject for your demonstration. Example: showmanship, training, grooming, facilities, feeding, health, breeding, genetics, record keeping, and so on.
2. Gather your materials. Some sources of beef information you might use are Saskatchewan Agriculture, breed publications, library books and magazines, seminars, resource people, veterinarians, feed salesmen, breeders, university and college professors, and so on.
3. Decide on a specific topic in your subject area. A demonstration is most successful if you discuss one specific topic, rather than trying to cover an entire subject area. Example: how to clip a steer, how to implant growth hormones, and so on.
4. Decide on a title for your demonstration. Make it catchy!
5. Begin by writing your outline. Sort your information. Decide which sources you will use for your demonstration. Your outline should follow this format:

Introduction: Say what you are going to do.

Body: Show and tell what you said you were going to do. Use illustrations to help teach, enhance and present your information. Live animals will help to illustrate your points.

Conclusion: Say what you did. A poster summarizing the main points you discussed is helpful.

6. Prepare your visuals. Remember that people remember more of what they see and hear than what they only hear. Anytime you can use a visual presentation such as a live animal or a picture of some sort, do so.
7. Write down your presentation in the words you want to use for presenting it.
8. Practice, practice, practice!
9. Have fun - if you have fun, your members will enjoy your presentation.

Topic Ideas for a Beef Demonstration

Selection:

- Parts of the beef animal
- Selecting your 4-H steer
- Selecting a 4-H heifer
- Selecting your herd sire
- Using ROP records for selection
- How to read a pedigree
- Breeds of cattle
- How to read the information on an AI straw

Equipment:

- How to adjust the halter on a calf
- Types of shelters for cattle
- How to build a cattle loading chute
- How to use a weigh scale
- How to build a grooming chute
- How to build a hoof trimming chute
- How to build a round bale feeder
- How to build a tack box

Health:

- How to vaccinate an animal
- How to implant growth hormones
- How to use a balling gun
- Dehorning
- Castrating
- How to trim hooves
- How to restrain an animal
- Keeping breeding records
- Treating an animal for warbles
- Treating an animal for lice
- Drenching an animal

Meats:

- Cuts of meat from a beef carcass
- How a carcass is graded
- Canada's grading system
- Measuring the rib eye
- Uses for beef by-products

The following information from pages are included in the members' manual.

Weighing

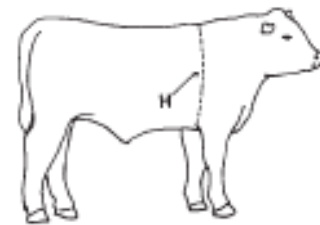
It is not always possible to use a scale when weighing animal(s). Using a scale is the best method to get an accurate weight of their animal. However, if they do not have scales on their farm, have them borrow from a neighbour if possible. Remember that trucking their animal over to a neighbouring farm is good practice for them and their animal.

Tape Measuring

One method that can be used to estimate the weight of an animal is the tape measure. Any tape measure may be used, but there are specially marked tape measures that they can purchase at most livestock and farm supply outlets.

Remember that it only gives you an estimate of the animal's weight. Variations from the actual weight may be due to the length of the body and/or the legs.

To use the measuring tape, measure the circumference of the heart girth. Stand the animal with the head in the normal position and the four legs set squarely under the body. Pass the tape tightly around the body just back of the shoulders at the smallest circumference.



There are charts in the members' books to estimate the weight of their project. Have them record the weight in your record book. They should weigh their animal about the same day each month.

Transportation Regulations

When transporting livestock, you must carry a **LIVESTOCK MANIFEST** completed according to the regulations. Make sure they know how to complete a manifest before the vehicle leaves their property whenever they transport any livestock.

The **owner** of the livestock or his agent must complete the manifest with this information:

1. Date the livestock is transported.
2. Name and address of the owner of the livestock.
3. Consignee's name and address.
4. Number of livestock.
5. Colour of the livestock.
6. Kind of livestock.
7. The proper description and location of the brand and other marks of ownership on each head of livestock.
8. Sign the manifest.

The **operator** of the vehicle transporting the livestock or the driver of the livestock must complete the manifest with this information:

1. Name and address of the person who is operating the vehicle or driver of the livestock.
2. Licence number of the vehicle used to transport the livestock.
3. Transportation charges, if any.
4. Sign the manifest.

The Use of Agricultural and Veterinary Chemicals

More and more farm chemicals are being labeled in metric units (mL, cc). The use of "cc" will be discontinued and cm^3 will replace it. Items such as vaccines and oral medications will be applied directly at rates given as:

Millilitres (mL) Milligrams (mg) or grams (g)

per kilogram (kg) bodyweight

Concentrated products such as horticultural, crop and pasture sprays will require dilution as:

mL/L or mL/100 L or L/100L

g/L or g/100 L or kg/100 L

Application will be as mL/ha, L/ha, mL/m^3 and so forth.

Standard prepackaged products (to avoid weighing from bulk supplies) will eventually be labeled as one pack for a certain number of litres (L) instead of one pack for 100 gallons.

Animal remedies will rely on dosage rates based on live bodyweight in:

millilitres per kilogram (mL/kg)

Only experience will enable them to estimate live bodyweight in metric units. They will have to compare their estimates with actual measurements (i.e. at stockyards). Some animal remedies will simply be on a per animal basis and will not require knowledge of live bodyweight.

Encourage members to think metric and have them read all labels and instructions carefully.

Weighing Feed

Whenever a feed is weighed, they should record the kind and weight on a separate piece of paper so that the transfer can be made at the end of the month. The following information may help in their calculations.

To convert POUNDS TO KILOGRAMS: Divide the total pounds by 2.205 to determine the kilograms fed. Example: 300 lbs. \div 2.205 = 136 kgs.

To convert POUNDS TO TONNES: Divide the total pounds by 2,200 to determine the tonnes fed. Example: 700 lbs. \div 2,200 = .32 tonnes.

To convert KILOGRAMS TO TONNES: Divide the total kgs. By 1,000 to determine the tonnes fed. Example: 1,100 kgs. \div 1,000 = 1.1 tonne.

To convert BUSHELS TO KILOGRAMS OR TONNES: If they are self-feeding and use a bushel measure, multiply the number of kgs./bushel* by the number of bushels to determine the kilograms fed. To determine tonnes fed, divide this amount by 1,000.

Example:

- * Barley - There are 21.8 kgs./bu. 21.8 x 200 bu. = 4360 kgs.
4360 kgs. \div 1,000 = 4.36 tonnes.
- * Oats - There are 15.4 kgs./bushel
- * Wheat - There are 27.2 kgs./bushel

Metric Conversion Table

Weights	1	ounce	=	28.3	grams
	1	pound	=	0.45	kilogram
	0.035	ounces	=	1	gram
	2.205	pounds	=	1	kilogram
	2,200	pounds	=	1	tonne
	1,000	kilograms	=	1	tonne
Liquid Measure:	1	quart	=	1.1	litres
	1	gallon	=	4.5	litres
	0.91	quarts	=	1	litre
	0.22	gallon	=	1	litre
Length:	1	yard	=	0.9	metres
	1	yard	=	0.9	metres
	0.39	inch	=	1	centimetre
	1.1	yards	=	1	metre
	100	centimetres	=	1	metre

The
Cloverbud
Level

Introduction:

This level is intended for members who are six to eight years old. It is written at a level that most six to eight year olds will be able to read. If you think a member is having problems reading and understanding the material, you may have to give them a little extra help.

There are five units in the cloverbud level: Choosing a Calf, Health, Nutrition, Facilities and Handling. There is also a separate record book for this age level that covers both the general and project meetings.

There are optional activities at the end of this section. Most require a minimum of preparation and resources. They can be completed in less than 30 minutes. Some are as short as 10 minutes. Each unit has different activities, so you can choose the ones you think are most suited to your group. Some of these activities can be done individually or as a group.

Objectives

- To allow members ages 6 to 8 to explore the 4-H beef project.
- To build self esteem through the 4-H motto "Learn to do by doing".

Things to Remember About This Age Group

- They have boundless energy and require adequate space for the development of skills, interests and activities stimulated by their active imaginations.
- As they try out abilities and interests they gain self confidence. It is crucial that, as leaders, we protect and build their self esteem.
- The "try anything once" attitude of most children in this age group urges them to use all their senses in impulsive ways.
- Belonging is important.
- Children need to feel approval and acceptance.

Planning

- Emphasize success - minimize failure! It is hard for children of this age to lose. Egos are not ready to take too many blows - show appreciation for all efforts.
- Design activities that are:
 - Hands-on
 - Short
 - Uncomplicated
 - Fun
- Use materials that are visual, graphic and colourful.
- Try planning activities for children and parents together.
- Use a variety of learning activities, games, songs, poems, pictures, word games, art projects and creative drama.

Dealing with Competition

- Don't over-estimate the value of competition. It has limited value in the development of young people.
- Down-play winning by NOT saying "Did you win?" BUT....
 - "Did you have a good time?"
 - "How do you feel?"
 - "Were you and your teammates good sports?"
 - "Did you support your teammates and opponents?"
 - "What could you do differently next time?"
- Encourage - don't force participation in challenging activities.
- Provide encouragement, "You did very well!" "Great job!"
- Take the child's reactions seriously.
- LISTEN.

Tips for leaders

- Keep groups small, five to six children per leader.
- Talk things over with them.
- Hold brief business meetings.
- Plan lots of activities.
- Encourage and involve parents, they can be a big help!

Parents are Important

Parents are a vital part of this project and their cooperation is essential. Leaders can help parents...

- Appreciate the beef project and its goals;
- Understand the project requirements;
- Share the children's enthusiasm;
- Learn how to help their children accept success and failure;
- Become involved with the club; and,
- Have a role in special events.

Planning To Go Places

Consider taking your members on an occasional tour or field trip. They are fun, special times and easy to plan!

- **Plan well** - Know where you are going, how to get there, costs involved and the total time involved. Inquire about guided tours, best times and related facilities.
- **Explain the plans** - Tell the group where they are going and why, what they might see, and how they will get there. Don't make promises you can't keep.
- **Be prepared and flexible** - Safety is a main concern, so make sure children dress appropriately. Carry a back pack with an assortment of supplies from band aids to juice, and plan to have FUN with the group!
- **Expect good behaviour** - Explain in advance what is expected of them and outline the consequences. Be positive and praise good behaviour!
- **Stop while it's still fun** - Remember that this age group has short attention spans. If the trip is long, bring a variety of activities they can do. Don't overstay your welcome, or the attention of the group.

- **Follow through** - Encourage discussion about the outing. Have members share experiences and draw pictures for their record books.
- **Important** - Before the event, make sure all parents are fully informed of all details and have given a written consent for their child.

Keys to Success

Positive reinforcement - is the most important key in the development of youth. Positive reinforcement can be verbal or non verbal. To be effective, be specific and sincere. Some examples are:

- A pat on the shoulder
- Nodding
- Specific verbal praise
- Certificates
- A written note home
- Saying "thank you"
- A smile
- An enthusiastic and
- Encouraging comment

Setting Limits

How much freedom do you give young people? Children need to know the limits, the reasons they have been set and that they will be enforced. When you, as the leader, are setting limits you may wish to use these questions to evaluate them:

- Is this necessary for safety?
- Is this necessary for the protection of property?
- Is this primarily for the convenience of adults?
- Does this prevent new experiences and growth?
- Is this still necessary or has it been outgrown?
- How can this be enforced?

Do...	Do NOT...
Speak in a calm, kind voice.	Make fun of the child.
Speak directly to the child.	Give a choice if one is not available.
Speak in short meaningful sentences.	Compare one child with another.
Express requests in a positive way.	Be dishonest with the child.
Get down to the child's level - sit or kneel so you are face to face.	Make a child feel guilty. Accept them even if you do not condone the actions.
Answer the child's questions, but don't monopolize conversation.	Make a child feel inferior.

All About 4-H Word Scramble Answers (page 4)

- | | | |
|----------------|-------------|-----------|
| 1. Community | 5. Head | 9. Health |
| 2. Club | 6. Meetings | 10. Motto |
| 3. Project | 7. Pledge | 11. Hand |
| 4. Achievement | 8. Heart | |

Unit 1: Choosing a 4-H Calf

It's important for cloverbud members to choose a calf that will adjust to being handled and will feel comfortable in the surroundings you have planned for it. There are several things they will need to look for when deciding which calf to choose.

Remind them that if they choose a steer, they will have to sell it at the end of the project year, and if they choose a heifer, they can keep her and use her as a yearling project next year.

Activities

Who am I? (page 7)

1. Simmental
2. Shorthorn
3. Hereford
4. Limousin
5. Aberdeen Angus
6. Charolais

Extra Activities

Collage

Supplies: An assortment of cattle or farm magazines that members can use to cut out the different breeds.

Have members collect magazines of all the different breeds of cattle they can find. Check the following websites for great colour pictures:

- www.cattle.guelph.on.ca/kids_cattle
- <http://interactive.usask.ca/ski/agriculture>
- www.ansi.okstate.edu/breeds/cattle

Have them cut out as many different breeds they can. Paste them on a large sheet of paper or bristle board, or have each member make their own. If they each make their own, it can go into their record books. A large one can be used for an achievement day display. Identify and label as many breeds as possible.

Breed Cards

Supplies: An assortment of pictures of the different breeds. Two sets of game cards. Mac-tac or laminate.

Make two sets of game cards of the various breeds. Mac-tac or laminate them for durability. Use the cards in a variety of card games such as:

"To The Corral" (similar to "Go Fish")

Using two sets of cards, shuffle and arrange them in random order on a table. Have each member select a few cards. The 1st player asks the one on his right for a matching card for one he already has. If the 2nd player has the card, it is given to the 1st player, and the pairs are set aside. If he doesn't, he says "To The Corral" and a card is drawn from the ones on the table. The player with the most pairs is the winner.

Memory

Using two sets of cards, shuffle and place them face down on the table in random order, or in rows. The 1st player turns over one card, leaving it in place, then turns over another card. If he has a pair, he takes both. If he doesn't, both cards are turned face down again. The 2nd player has a turn, and so on. Play until all pairs have been located.

Flash

Using one set of cards and two members. One player has the cards. One at a time, he shows them to his partner. If his partner correctly identifies the breed he takes the card, if not, it is returned to the deck. Once all have been identified, switch roles.

Ladders'n Slides

A large game board can also be constructed on the floor using masking tape and a few cut out ladders. Give each member one piece of the game board to assemble. Play in pairs. One member rolls the dice and asks the questions, and the other will move along the board by walking and counting the squares. If they stop on a square with a ladder, they take a card from the deck. If it is correctly identified, up they go.

Unit 2: Health

Activities

The Story of Wendy and Ronnie (page 13)

Ronnie is the healthy calf.

I'm Not Feeling So Well Today Crossword Puzzle (page 14)

Across

1. A sick calf might have **swollen** joints.
4. A sick calf might have a **runny** nose.
6. A sick calf might have **droopy** ears.
7. A sick calf might not be **eating**.

Down

2. A sick calf might have **noisy** breathing.
3. A sick calf might have a **humped** back.
5. A sick calf might have a dull **coat** of hair.

I'm Feeling Better Now Crossword Puzzle (page 15)

Across

3. A healthy calf will have **alert** ears.
4. A healthy calf will have **normal** joints.
6. A healthy calf will be **breathing** normally.

Down

1. A healthy calf will have a **clean** nose.
2. A healthy calf will have a **straight** back.
5. A healthy calf will have a **shiny** coat of hair.
7. A healthy calf will have a **good** appetite.

Parts of the Beef Animal

Answers are on page 4 of this leaders guide.

Group Activity – The Great Balloon Bust

Preparation:

- You will need enough balloons (and a few extra for premature explosions) for each member. The large ones work best.
- Cut out the questions on the following page – you will need a set for each team.
- Make a copy of the beef animal for each team. Hang or place the animal picture where the team can easily write on it, or have them tack the question in the correct place.
- You will need a chair for each team and room to run.
- Have your answer sheet ready.

Playing the game:

- Divide the group into teams.
- Give each member a balloon.
- Tightly roll each question and drop it down into the balloon.
- Have the members blow their balloons up and tie them in a knot.
- When everyone is ready, line up the teams at the opposite end of the room from their team chair.
- **GO!** The first member of each team runs down and sits on their balloon to break it.
- They have to find the question that was inside, then run to the animal and enter the word in the correct place. They can guess if they are not sure.
- One point for every correct answer. (You can count up points when they are all finished).

QUESTIONS

Where is the poll?

Where is the brisket?

**Where is the dew
claw?**

**Where are the pin
bones?**

Where is the quarter

Where is the topline?

Where is the face?

Where is the knee?

Where is the hock?

Where is the rump?

Where is the loin?

Where are the ribs?

Where is the muzzle?

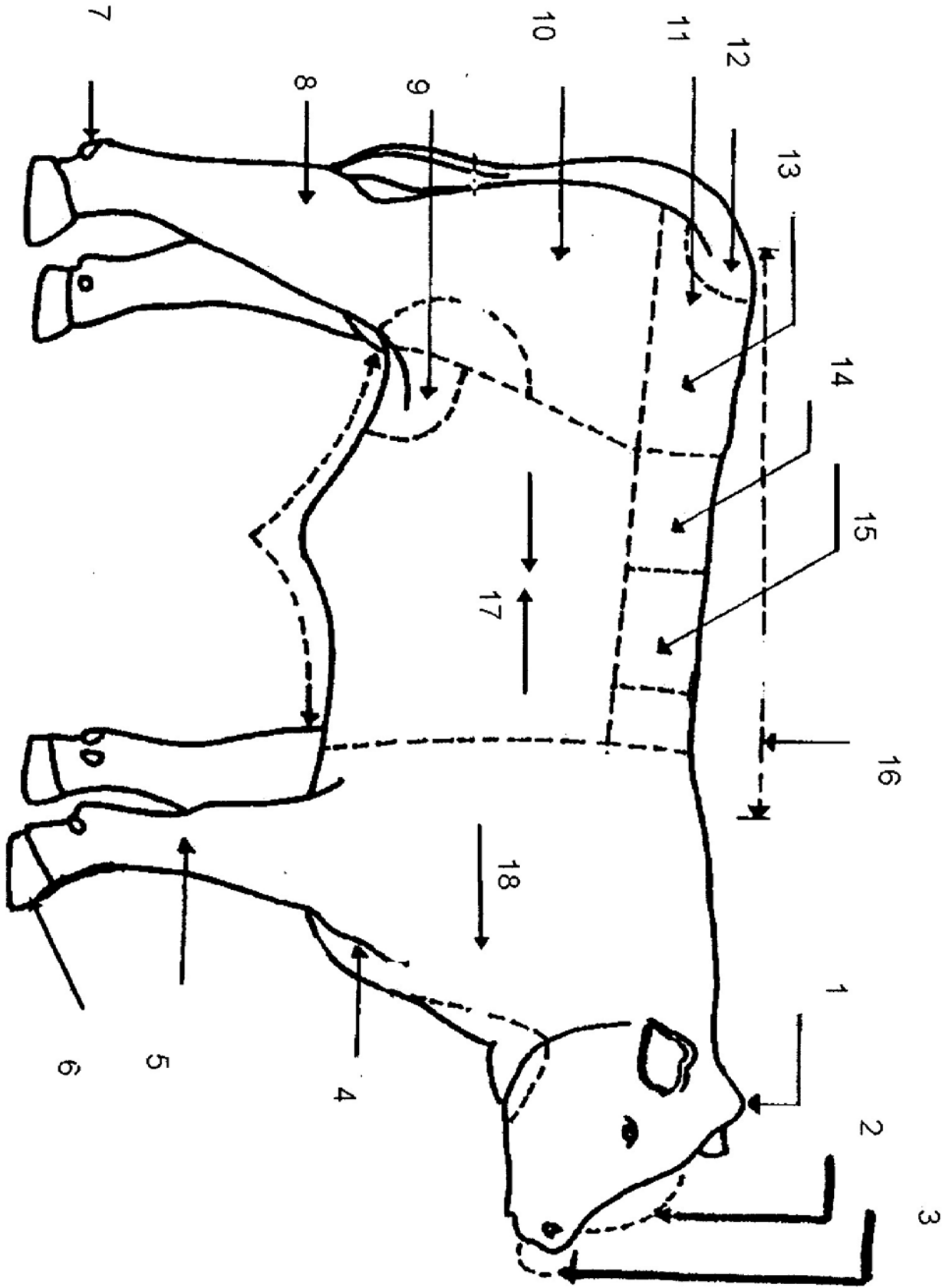
Where is the hoof?

Where is the flank?

Where is the tail head?

Where is the back?

Where is the shoulder?



Unit 3: Nutrition

Activities

- Have members colour the pictures on pages 18 and 19.
- What's inside your calf (page 20)
- What's inside you (page 21)
- Word Search (page 22)
- Down the Hatch (page 23)

Group Activity - The Hunt for the Missing Nutrients

Preparation:

- Cut out the nutrient cards on the following pages. Copy more if you have more members.
- Hide them all around the room before members arrive.
- Hang up the MISSING NUTRIENT POSTER

The Game:

- Have members read the MISSING POSTER so they know what they are looking for.
- They have to find one of each nutrient to make feed for their animal. If they find one they already have, they have to put it back.
- They need to find a bale, a bucket of water, a mineral lick, a block of salt, and a pail of oats to complete their feed.

Missing Five Nutrients



Water
Minerals
Vitamins
Energy
Protein

Description

An alfalfa bale

A pail of oats

A bucket of clean water

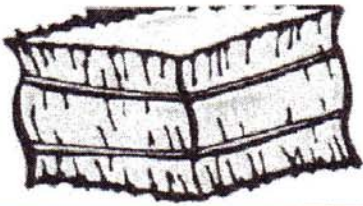
A block of salt

A mineral lick

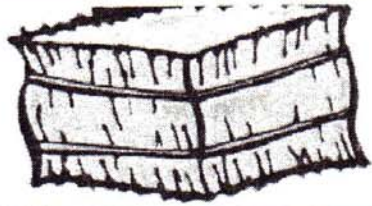
Last seen at feed time

on Tuesday

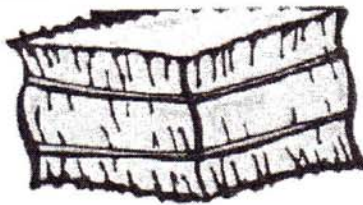
THE MISSING NUTRIENTS



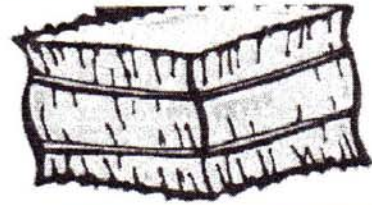
THE MISSING NUTRIENTS



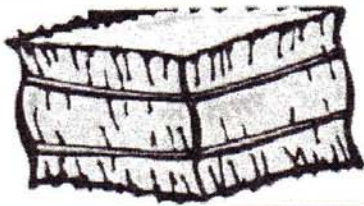
THE MISSING NUTRIENTS



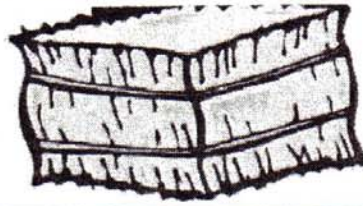
THE MISSING NUTRIENTS



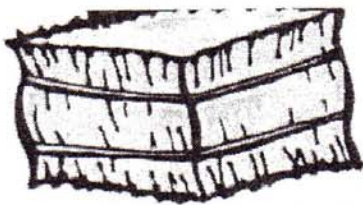
THE MISSING NUTRIENTS



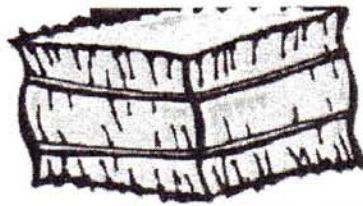
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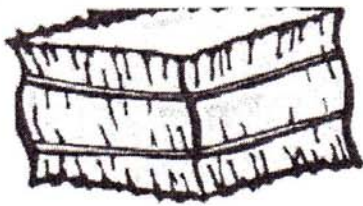
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THE MISSING NUTRIENTS

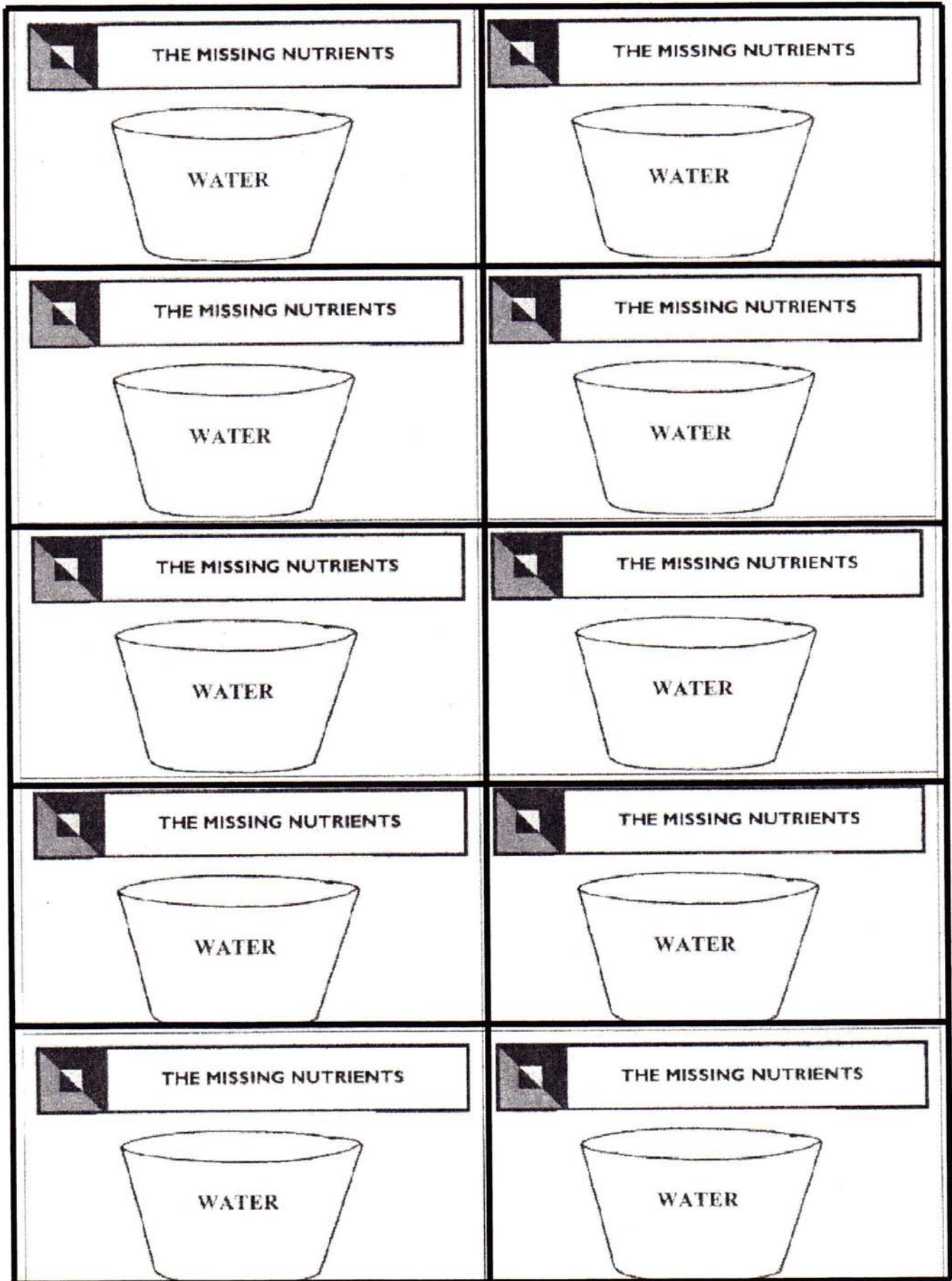












THE MISSING NUTRIENTS

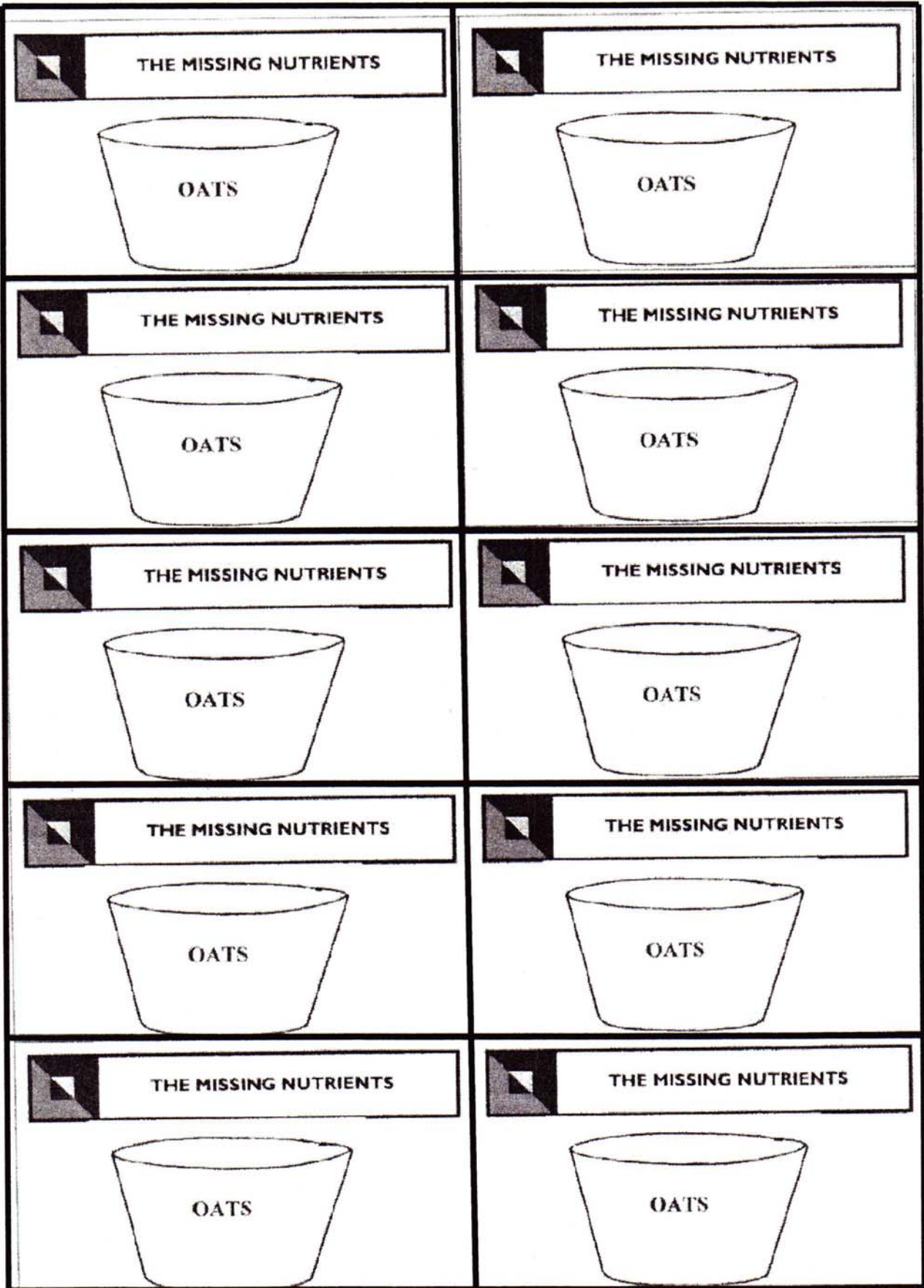


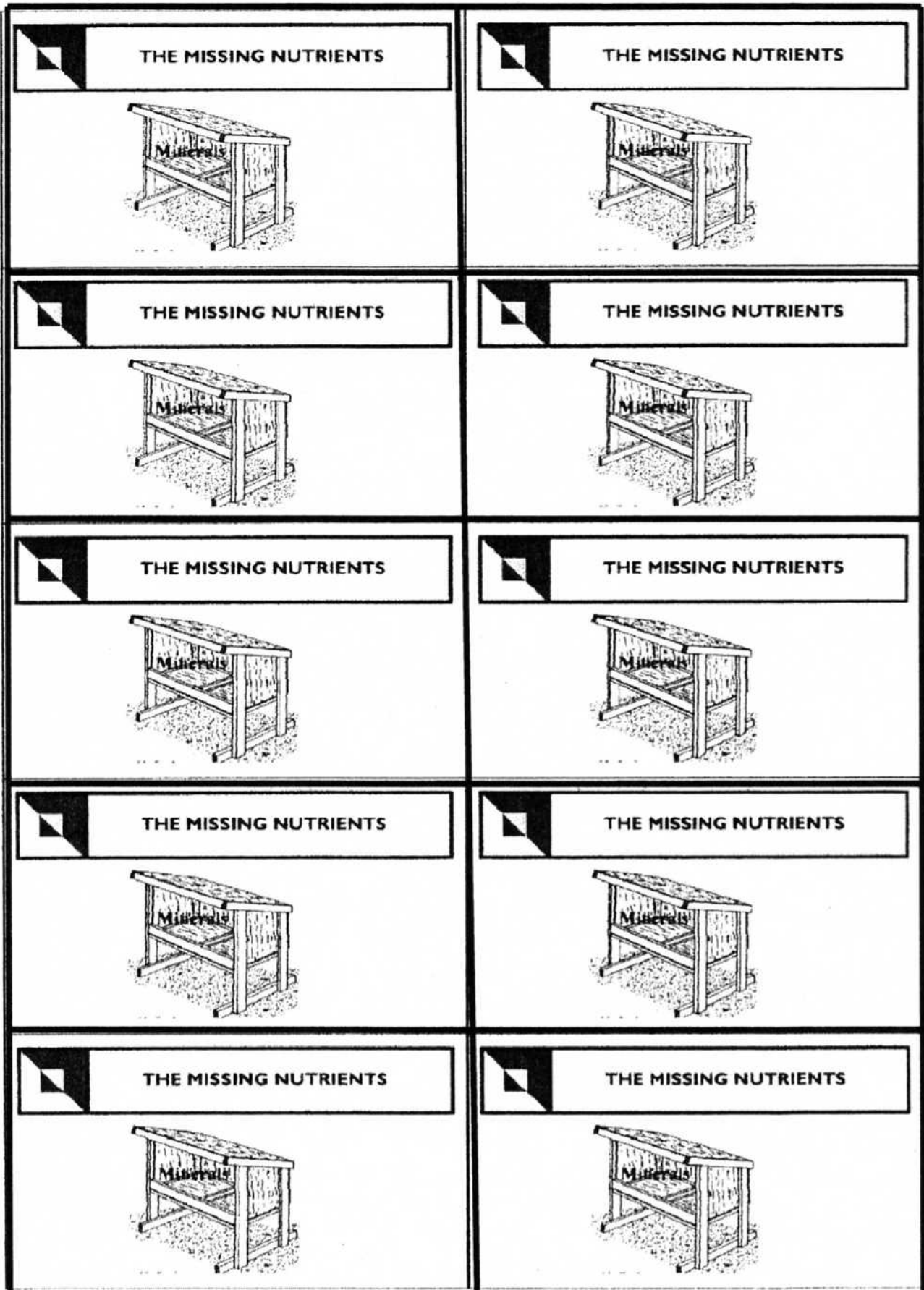
THE MISSING NUTRIENTS





 <p>THE MISSING NUTRIENTS</p> <p>SALT BLOCK</p>	 <p>THE MISSING NUTRIENTS</p> <p>SALT BLOCK</p>
 <p>THE MISSING NUTRIENTS</p> <p>SALT BLOCK</p>	 <p>THE MISSING NUTRIENTS</p> <p>SALT BLOCK</p>
 <p>THE MISSING NUTRIENTS</p> <p>SALT BLOCK</p>	 <p>THE MISSING NUTRIENTS</p> <p>SALT BLOCK</p>
 <p>THE MISSING NUTRIENTS</p> <p>SALT BLOCK</p>	 <p>THE MISSING NUTRIENTS</p> <p>SALT BLOCK</p>
 <p>THE MISSING NUTRIENTS</p> <p>SALT BLOCK</p>	 <p>THE MISSING NUTRIENTS</p> <p>SALT BLOCK</p>





Unit 4: Facilities

Activities:

- Have members colour the picture on page 25.
- Have members draw, cut from magazines or make a model of their calf's shelter on page 26.

Extra Activity – Barn Yard Brush Up Quiz! *(Answers are at the end)*

1. Which of the following are associated with livestock? (Circle all that apply)

- | | |
|-------------------|-------------|
| A. Wool | E. Whey |
| B. Aquaculture | F. Collagen |
| C. Biodiesel fuel | G. Scrapie |
| D. Green manure | |

2. Rank the following from most to least average pounds consumed per person per year.

- | | |
|---------|-------------------|
| A. Pork | E. Dairy Products |
| B. Eggs | F. Chicken |
| C. Lamb | G. Turkey |
| D. Beef | |

3. Some important areas of animal research include: (circle all that apply)

- | | |
|--|---------------------|
| A. Disease resistance | E. Meat quality |
| B. Reproductive efficiency | F. Waste management |
| C. Desirable lean-to-fat ratio in meat | G. Production costs |
| D. Feed efficiency | H. Food safety |

4. In preparing beef cattle for market, grain constitutes at least _____ of the diet.

- | | |
|-------|-------|
| A. 95 | D. 25 |
| B. 75 | E. 10 |
| C. 50 | |

5. The Animal Welfare Act ensures proper care and treatment of animals. (Circle all that apply)

- A. Used in biomedical research
- B. Used in teaching
- C. Used in exhibition
- D. By dealers who provide animals
- E. On farms

6. Animal Breeds: Classify the following breeds according to their species – Beef Cattle (BC), Dairy Cattle (DC), Sheep (SH), Swine (SW) or Poultry (P)

- | | |
|-----------------|------------------------|
| _____ Berkshire | _____ Brown Swiss |
| _____ Suffolk | _____ Texas Longhorn |
| _____ Angus | _____ Rhode Island Red |
| _____ Duroc | _____ Jersey |
| _____ Dorset | _____ Hereford |
| _____ Leghorn | _____ Holstein |
| _____ Lincoln | _____ Plymouth Rock |
| _____ Yorkshire | |

7. Barn Yard Fun!

Using the following terms, pick out which babies go with which moms and dads. Match them up in the table below: (Hint: Several have more than one answer. PLUS, we've thrown in some extras for excitement!)

- | | | | | | |
|---------|-------|---------|-------|------|--------|
| Calf | Bull | Ewe | Gilt | Ram | Cock |
| Rooster | Chick | Whelp | Poult | Lamb | Heifer |
| Foal | Shoat | Pullet | Sow | Joey | |
| Dam | Buck | Piglet | Cow | Mare | |
| Tom | Kid | Lambkin | Boar | Hen | |

	Mom	Dad	Baby
Cattle			
Swine			
Sheep			
Chickens			
Turkeys			

8. The Hen House

___ ___ ___ ___ ___ Chickens (what old people aren't)

___ ___ ___ ___ Weather (Stinkin' weather)

Chicken ___ ___ ___ (Rhymes with "rocks")

Chicken ___ ___ ___ ___ (where chickens live)

___ ___ ___ ___ ___ Wings (great with hot sauce)

Chicken ___ ___ ___ ___ (good for a cold)

Chicken ___ ___ ___ ___ ___ (the sky is falling!)

___ ___ ___ ___ ___ ___ ___ ___ (Last one finished is a ...)

9. Kow Korner

List 10 words that rhyme with moo!

1. _____

6. _____

2. _____

7. _____

3. _____

8. _____

4. _____

9. _____

5. _____

10. _____

10. The Sheep Shed

Some people confuse sheep and goats. Name three easy ways to tell the difference.

Sheep have	_____	; goats have hair.
Sheep say	_____	; goats say "maa."
Sheep are	_____	; goats are browsers.

11. The Piggery

Unscramble the following:

	Clues	
I-T-I-S-L-P-G-A	Boys love to pull them	-----
H-I-N-S-C-I-L-T	The small intestines of pigs – popular in southern cooking	-----
K-C-Y-P-B-G-I-A-G	Hop up for a ride	-----
S-A-H-W-G-O-H	Garbage fed to hogs; ridiculous	-----
S-G-I-P-I-N-K	A football	-----
G-I-Y-G-P-N-A-K-B	Investing in the future	-----
A-C-N-O-B	Great in BLT's	-----
O-Y-P-R-K	The world's looniest pig	-----
D-E-D-G-I-E-P-H-A	Stubborn	-----
G-H-I-E-O-T	To bind the legs together	-----

Barn Yard Brush Up Quiz Answers

1. Which of the following are associated with livestock?

A, C, E, F, G

- A) Wool: Traditionally, most of the wool produced is sold as raw wool. About 25 million pounds are produced each year. Over the years, wool research has focused on making wool competitive with synthetic fibers. Innovations include shrink proofing, creasing and dyeing methods, stain repellency and flame resistance.
- B) Aquaculture: is the production of aquatic plants or animals in a controlled environment, such as ponds or tanks. Catfish, salmon and shrimp are few examples. Aquaculture has been the fastest growing sector of the animal production industry worldwide for more than a decade.
- C) Biodiesel Fuel: Both animal fats and vegetable oils may be converted into derivatives called “esters”, that are being evaluated worldwide as environmentally sound alternatives to petroleum-based diesel fuel. These esters are referred to as biodiesel. But, chemical technology for biodiesel production needs improvement to make biodiesel cost-competitive with conventional fuel, while preserving the fuel characteristics needed for use in cold weather. Research companies are trying to develop an enzymatic approach to produce biodiesel cost effectively from two neglected and inexpensive feedstock – animal fat and recycled restaurant grease.
- D) Green Manure: It’s not what you think! Green manure refers to any crop or plant grown and plowed under, to improve the soil by adding organic matter and releasing plant nutrients, especially nitrogen.
- E) Whey: a watery byproduct from cheese making that contains about ½ the nutrients of milk. About 2.3 billion pounds of whey are produced each year. Thanks to research, a large portion goes into human food, including dairy products, prepared dry mixes, soft drinks, infant foods, candies and bakery goods. It is also used in pharmaceuticals, often in the form of lactose. An even larger share of whey goes into feeds for cattle, swine and household pets.
- F) Collagen: is a fibrous protein byproduct of leather making. Researchers have developed several purified collagen products, including food and cosmetic ingredients, and artificial skins that help burn victims heal.
- G) Scrapie: is a fatal, degenerative disease affecting the central nervous system of sheep and goats. It has no cure or treatment. Scientists do not fully understand how it is transmitted. Sheep can harbour the disease for up to 5 years before they show symptoms, such as trembling, lack of coordination or scraping against objects. Producers with confirmed cases of scrapie in their flock must often destroy animals in an effort to eliminate the disease. Recent research has produced an easy, relatively inexpensive test to detect scrapie before the animals show symptoms. Previously, scrapie would only be confirmed by examining the brains of dead animals. Clearly, this is an important step toward controlling the disease.

2. Rank the following from most to least average pounds consumed per person per year.
E, D, F, A, B, G, C

Pounds consumed per person per year:

297 Dairy products* (E)	32 Eggs (B)
65 Beef (D)	14 Turkey (G)
51 Chicken (F)	7 Lamb ©
49 Pork (A)	

* Includes fluid milk and cream products, butter, cheese, frozen dairy products, evaporated and condensed milk, dry milk products and dried whey.

3. Some important areas of animal research include: Answer: A through H, but these are just a handful of MANY important areas of animal related research!

You may not have considered waste management an important area of animal research. In fact, cattle, poultry and swine from our farms generate millions of tons of manure each year. While manure is a valuable resource in crop production, if improperly managed it can create significant environmental problems, and human health issues associated with contamination of surface and ground water, as well as, air quality. Improved handling, storage, application and analysis methods must be developed.

4. In preparing beef cattle for market, grain constitutes at least 95% of the diet.

Grain usually accounts for at least 95% of the diet, but researchers have found that adding a lot more grass will still produce high-quality beef. Less feed means lower production costs.

5. The Animal Welfare act ensures proper care and treatment of animals. Answer: A, B, C, D

Though the Animal Welfare Act does not include animals raised for food or fiber, there has been a concern raised for the health and well being of farm animals. Animal behaviour research focuses on determining signs of stress in animals, and developing management systems that maximize their well being. Specific examples of research studies – impact of common livestock management practice, such as castration and tail docking, environmental enrichment, and group housing of dairy calves, management practices to reduce transportation stress and buller-steer syndrome in large feed lots.

6. Animal Breeds: Classify the following breeds according to their species.

Answers: Berkshire (SW), Brown Swiss (DC), Suffolk (SH), Texas Longhorn (BC), Angus (BC), Rhode Island Red (P), Duroc (SW), Jersey (DC), Dorset (SH), Hereford (BC), Leghorn (P), Holstein (DC), Lincoln (SH), Plymouth Rock (P), Yorkshire (SW)

Animal breeding continues to play an important role in researchers agendas. Traits to improve factors such as reproductive rate, feed efficiency, growth, carcass and milk composition, egg production, and resistance to diseases and parasites are developed through both traditional breeding and genetic engineering.

Here's how that stacks UP!

Beef Cattle – Texas Longhorn, Angus, Hereford

Dairy Cattle – Brown Swiss, Jersey, Holstein

Sheep – Suffolk, Dorset, Lincoln

Swine – Berkshire, Duroc, Yorkshire

Poultry – Rhode Island Red, Leghorn, Plymouth Rock

7. Barn Yard Fun: From left to right, top to bottom): Bull, cow, calf; boar, sow piglet/shoat; buck/ram, ewe/dam, lamb/lambkin; rooster/cock, hen/pullet, chick; tom, hen, poultry
8. The Hen House: Spring chickens, foul (fowl) weather, chicken pox, chicken coop, Buffalo wings, chicken soup, Chicken Little, rotten egg.
9. Kow Korner: Boo, chew, clue, dew, do, drew, due, ewe, few, glue, goo, grew, hue, mew, new, phew, poo, roux, screw, shoe, stew, sue, who, you, zoo.
10. The Sheep Shed: Fleece, "baa," grazers
11. The Piggery: Pigtails, chitlins, piggyback, hogwash, pigskin, piggy bank, bacon, Porky, pigheaded, hogtie

Unit 5: Handling

Activities

- Caring for My Animal (page 32)
- Will I? Won't I? (page 33)
- The Mystery of Beef Cattle By-Products (page 35)

Group Activity – What Knot?

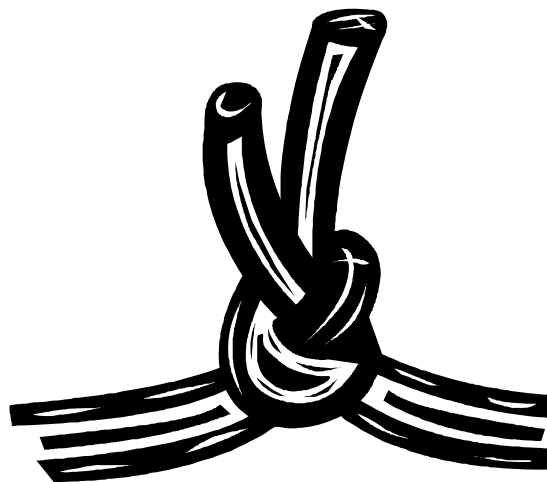
PREPARATION:

There are a variety of knots that are useful when handling animals.

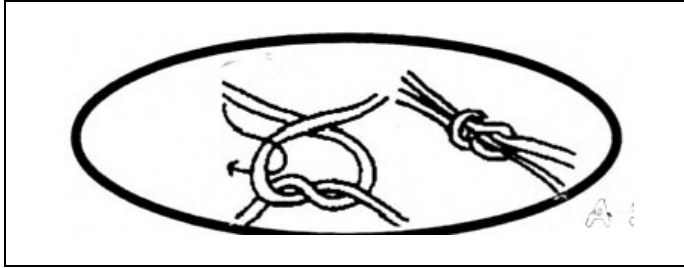
- You will need enough rope for the group to practice with.
- A few copies of the “knots” instructions.

ACTIVITY

- Practice tying the different knots and then divide into relay teams.
- Have the first person on each team tie the first knot.
- Have it checked by your leader and then untie it again.
- The next person will come up and tie the next knot on the list.
- Continue down the line until all knots have been tied – if the teams are small, some members may have to tie more than one knot.
- Race to see which team can tie all the knots first.
- Talk about why it is important that we become quite fast at tying and untying knots.



KNOTS



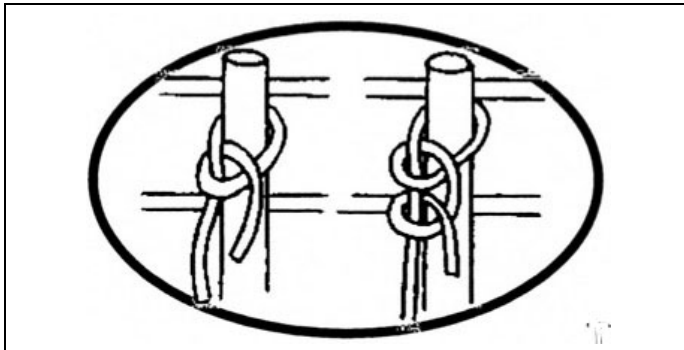
A SQUARE KNOT

Used to join two pieces of rope together



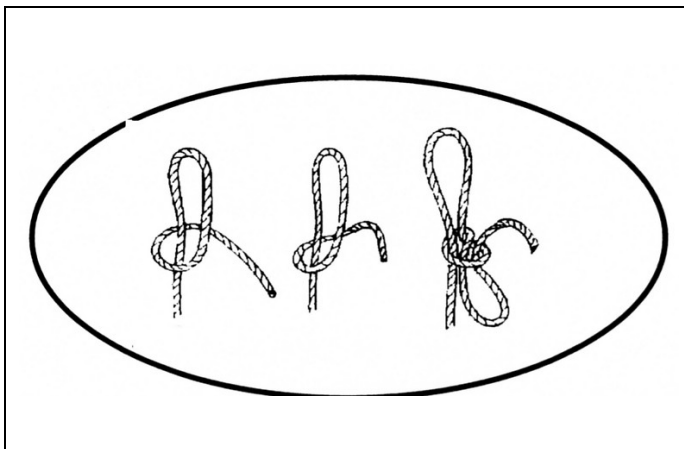
A BOWLINE KNOT

The bowline knot forms a loop that will not tighten



DOUBLE HALF HITCH

The double half hitch is quick and easy to tie, and acts like a slip knot



THE QUICK RELEASE KNOT

The quick release knot can be quickly untied if your calf becomes tangled

Beef Talk

ABOMASUM: The fourth stomach of a beef animal.

APPETITE: When a beef animal feels healthy and wants to eat its food.

CARBOHYDRATES: Are found in grain and hay and help the animal produce energy.

DAM: The mother cow.

DIGESTION: Is what happens to food as it breaks down in the stomach so that all parts of the body can use it.

ENERGY: Beef cattle eat food such as grain and after it is digested it gives them Energy for growing, keeping warm and producing baby calves.

HIDE: The outer layer of skin and hair on a beef animal.

HEIFER: A female calf who hasn't had a calf yet.

JOINTS: Places on the animal's body (like the knee) that let the animal bend and twist.

LEAD STRAP: The strap that is joined to the halter for you to lead the calf with.

NUTRIENTS: Are what beef animals need to grow and be healthy. There are five main nutrients.

OMASUM: The third stomach in a beef animal.

RETICULUM: The second stomach in a beef animal.

SCOTCH COMB: A metal comb with a wooden handle that works well for grooming.

SCURF: A combination of dirt and dandruff in the hair.

SIRE: The father of a calf. Also called a bull.

STEER: A male beef animal that is no longer a bull – it will not be able to breed.

WEANED: This is when a calf separated from its mother.

Level

1 to 3

Unit 1: You and Your Beef Project

Roll Call: How did you choose your 4-H beef animal?

This roll call will initiate discussion about the criteria members used when selecting their project animals. You should hear a wide variety of answers. It will start them thinking about the different things they should consider.

Objectives

Level 1

- To introduce members to the different choices available to beef producers.
- To make members aware of the similarities between selecting their project animal and judging livestock.
- To understand the importance of safety when working with their project animal.

Level 2

- To become familiar with the characteristics to look for when selecting beef animals.
- To learn more about buying from auction marts and private sales.
- To develop a selection plan.

Level 3

- To share their 4-H experiences with younger members.
- To develop an understanding of animal behaviour.
- To be aware of and share the benefits of belonging to a 4-H beef club.

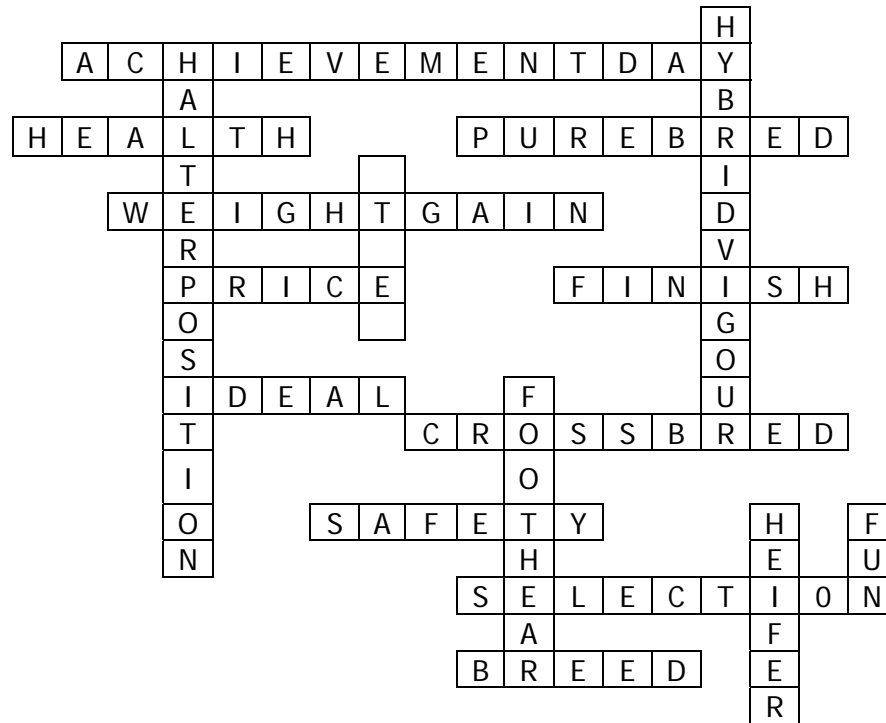
Level 1 Activities

- **Have members complete pages 8 to 9 about their project animal.**
- **British Breeds and Exotic Breeds** (page 9)

If you wish to spend more time on this subject, contact your breed associations or Saskatchewan Agriculture for more information. Some of the answers you will hear are:

- **The British Breeds** - Angus, Shorthorn, Hereford
- **The Exotic Breeds** - Charolais, Simmental, Chianina, Salers, Limousin, Gelbvieh, Maine-Anjou, and so on.

- **Selection Review** (page 11)



Level 2 Activities

- **A Selection Plan** (page 10)

Members are encouraged to develop a plan that they could follow when selecting their next project animal. They should consider these points, and the advantages and disadvantages of each:

- Where to buy
- Crossbred or purebred
- Heifer or steer
- Frame size
- Muscling
- Age
- Weight
- Health
- Temperament and disposition
- Price

Level 3 Activities

Have members work through the activities in this unit and have them share their knowledge with the entire group.

Activities The Entire Club

Videos are a good source for extra activities: the Saskatchewan 4-H Office has a video library. Contact the office for a list or visit the website at www.4-h.sk.ca.

Unit 2: Digestion in the Beef Animal

Roll Call: Name an animal.

Is the animal ruminant or monogastric? Some of the possible answers are:

Ruminant

Cow
Sheep
Moose
Antelope
Buffalo
Deer
Goat
Giraffe
Llama
Elk

Monogastric

Horse
Pig
Rabbit
Human
Bird
Ostrich

Objectives

Level 1

- To learn the difference between a ruminant and a monogastric animal.
- To find out about digestion.
- To understand that each component of the digestive system has a specific function.
- To learn where to find each component of the digestive system in the beef animal.

Level 2

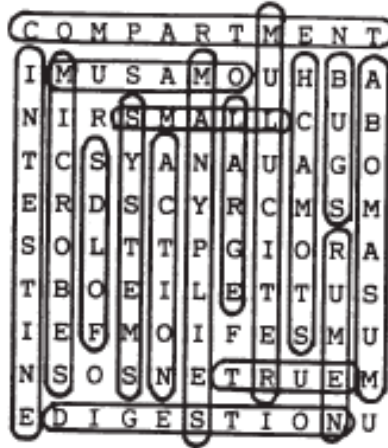
- To compare the digestive systems of the ruminant and the monogastric animals.
- To learn more about digestion in the ruminant animal.

Level 3

- To learn how the ruminant stomach develops.
- To understand some of the factors that can affect feed intake.

Level 1 Activities

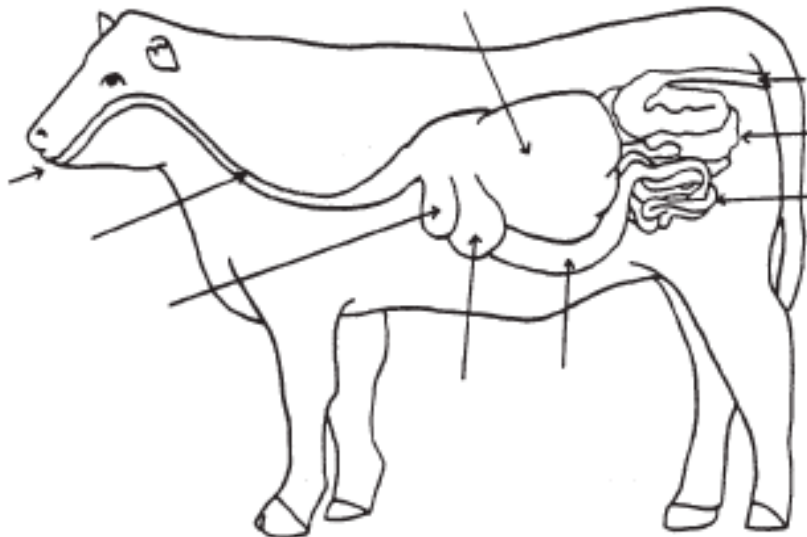
- "The Digestive System" Word Search Puzzle (page 15)



The remaining letters spell the word to complete this statement

"The stomach of the beef animal has **F O U R** compartments."

- Follow the Path (page 16)



Level 2 Activities

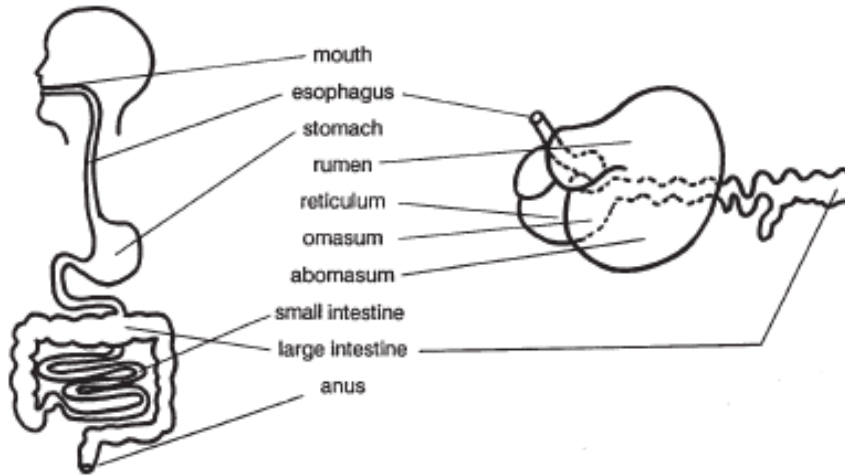
- **Let's Compare** (page 14)

The Human

You have a monogastric (single stomach) digestive system

The Beef Animal

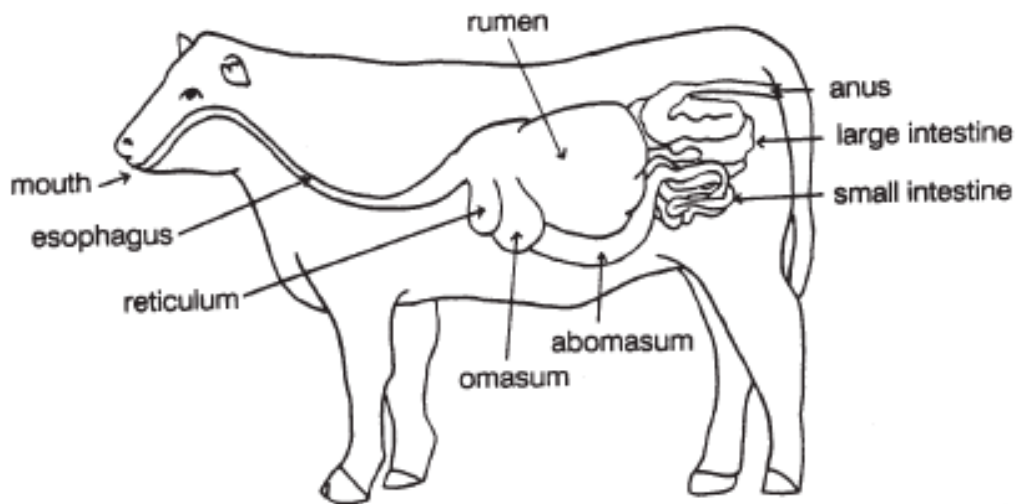
The beef animal has a ruminant (four compartment) stomach digestive system



- **Beef Digestion System vs. Humans** (page 13)

Have members work through the questions in this activity.

- **Label It** (page 15)



- **Let's Review** (page 16)

In this activity, members should match up the description and the function with each of the digestive system parts. Here are the solutions:

Parts of the Digestive System	Description	Function
Mouth	1	B
Esophagus	9	C
Rumen	6	E
Reticulum	7	G
Omasum	4	I
Abomasum	3	A
Small Intestine	5	H
Large Intestine	2	F
Anus	7	D

Level 3 Activities

Level 3 members can help out in this unit. The information in level 3 builds from the information in level 1 and 2 units. Level 3 members have several interesting topics in their unit. Have one of the level 3 members spend a few minutes sharing his or her information with the rest of the club.

Activities For The Entire Club

- **Identification Activity:** Take an outline of the beef digestive system and blow it up to poster size. Make labels for each part and have members place these labels on the correct part. This could be an activity for one of your level 3 members to facilitate.
- **Trivial Pursuit:** Digestion would be an excellent topic to use for a game of trivial pursuit. You or one of your level 3 members could design a series of questions and a game for all members to play.
- **Talk to your veterinarian.** One of the best ways to demonstrate digestion in the ruminant animal is to use a life size ruminant stomach. Your veterinarian may be able to help you locate one of these for use at your meeting.

Unit 3: Nutrient Requirements of Beef

Roll Call: Name a Nutrient.

Name a feed item that is a good source of this nutrient.

This roll call will provide a good introduction to this topic. Some of the answers you should hear are:

Nutrient	Good Source of This Nutrient
1. Water	Clean, fresh drinking water that is available to the animals at all times.
2. Protein	Soybean meal, canola meal, corn gluten meal, fish meal, meat and bone meal.
3. Energy	Grains, forages.
4. Vitamins	Forages, grains, sunshine, manufactured in the rumen, vitamin supplements.
5. Minerals	Forages, grains, mineral supplements.

Objectives

Level 1

- To introduce members to the concept of essential nutrients.
- To create an appreciation of the importance of these nutrients.

Level 2

- To understand that different animals require different amounts of nutrients.
- To learn more about the different vitamins and minerals and their importance.

Level 3

- To learn some of the effects of deficiencies of vitamins and minerals.
- To understand about energy and how the body uses it.

Level 1 Activities

- **Nutrients** (page 17)

There are five nutrients the beef animal needs in its diet. The answers we are looking for here are: Water, Protein, Energy, Vitamins, and Minerals.

- **Match the Vitamin to its Characteristic** (page 20)

A = 5; B = 3; C = 1; D = 2; E = 6; K = 4

- **Find the Minerals** (page 22)

Calcium, copper, magnesium, phosphorus, sulphur, zinc, iron, selenium, chlorine, cobalt, molybdenum, manganese, potassium and sodium.

- **Nutrient Summary** (page 23 & 24)

1. Water, protein, energy, vitamins and minerals.
2. Water helps to: rid waste, helps transport things through the body, lubricates joints and helps keep the body healthy.
3. Soybean meal and canola meal.
4. Carbohydrates and fats.
5. a)
6. Growth, reproduction, movement and staying healthy.
7. Macrominerals and microminerals. Examples: Macrominerals: calcium, phosphorus, magnesium, sulphur, potassium, sodium and chlorine. Microminerals: iodine, selenium, cobalt, iron, zinc, molybdenum and manganese.

Level 2 Activities

- **How much of a nutrient is required?** (page 18)

Maintenance – *the bull after breeding season is complete*

Maintenance plus reproduction – *the pregnant cow*

Maintenance plus growth – *the growing calf*

Maintenance plus production – *the lactating cow and the fattening steer*

- **Which Vitamins?** (page 20)

C	Is made by the beef animal not by the human?
D	Is the sunshine vitamin?
A	Is most often deficient?
A, D, E & K	Would be supplied if you fed leafy, green forages?
E	Works together with selenium to cause muscle action?
B & C	Is made in the rumen?
A	Is needed for good vision?

D	Is needed for strong bones?
K	Is deficient if your animal bleeds heavily with a minor wound?
B & C	Is not stored in the body?

Macrominerals	Microminerals
Sodium	Iodine
Chlorine	Cobalt
Calcium	Iron
Phosphorus	Manganese
Magnesium	Zinc
Potassium	Selenium
Sulfur	Copper
	Molybdenum

- **Nutrient Summary** (page 23 & 24)

1. Water, protein, energy, vitamins and minerals.
2. Water helps rid waste, helps to transport things through the body, lubricates the joints and helps keep the body healthy.
3. Two good sources of protein are: soybean meal and canola meal.
4. The beef animal receives energy from digesting carbohydrates and fats.
5. a)
6. Growth, reproduction, movement and staying healthy.
7. Macrominerals: calcium, phosphorus, magnesium, sulphur, potassium, sodium and chlorine. Microminerals: iodine, cobalt, selenium, iron, zinc, molybdenum and manganese

Level 3 Activities

We have provided level 3 members with some interesting information about vitamin and mineral deficiencies and energy. For activities to accompany these topics, we ask that they share the concepts with the club members.

Activities For The Entire Club

- **"I've Made a Feed"**

Object of the Game: To be the first player to score a total of 50 points by making complete feeds using the nutrient cards and accumulating points.

Equipment: One deck of "I've Made a Feed" cards for every six people - each deck contains:

- 12 cards of: energy
- 6 cards each of: protein; macrominerals; microminerals; vitamins (stored); vitamins (not stored); water
- 1 card each of: "Super Beef" and "Dead Beef"

Instructions: In each hand, try to make a complete feed by getting **two** energy cards and **one** of each of the following: protein, macrominerals, microminerals, vitamins (stored), vitamins (not stored) and water. You may wish to write this on a large sheet of paper and put it up where members can refer to it as they play.

1. Use one "complete feed" set of cards for each member playing. Example: if there are four players, make sure that you have eight energy, four protein, and so on in the deck. If there are more than six players, use two complete sets. They can be combined for one large game or members can split into two groups.
2. Prepare a score sheet to record the score of each round.
3. Select a dealer.
4. The dealer shuffles the cards and deals the whole deck out. Some people will have an extra card.
5. Pick up your cards and sort them, look for cards that will give you a complete feed. You will want to trade away any cards that you hold duplicates of (except energy - remember that you need two of those).
6. After everyone has had a chance to sort their cards, the dealer says "The pasture gate is open!"
7. Players start trading with each other by holding out the number of cards they wish to trade and calling "two-two-two" or "three-three-three", and so on. Cards should be held face down. You must accept back the same number of cards you have traded away. If you wish to trade away two cards, you must accept two cards back.
8. The trading continues until someone in the group has all eight cards required to make a complete feed - or seven cards and the "Super Beef" wild card. When this happens, the person calls "I've Made a Feed!"
9. At this point, the trading stops.

Scoring

- The maker of the feed gets10 points
- If he uses the "Super Beef" he gets 10 extra points
- The holder of the "Dead Beef" loses 10 points
- If someone holds the "Super Beef" but is not the first person to make a complete feed, he loses 10 points.
- Play continues with more rounds until someone reaches 50 points or you are out of time.

Thanks to the Ontario Ministry of Agriculture and Food for this activity.

ENERGY

MICROMINERALS

MACROMINERALS

ENERGY

PROTEIN

VITAMINS (STORED)

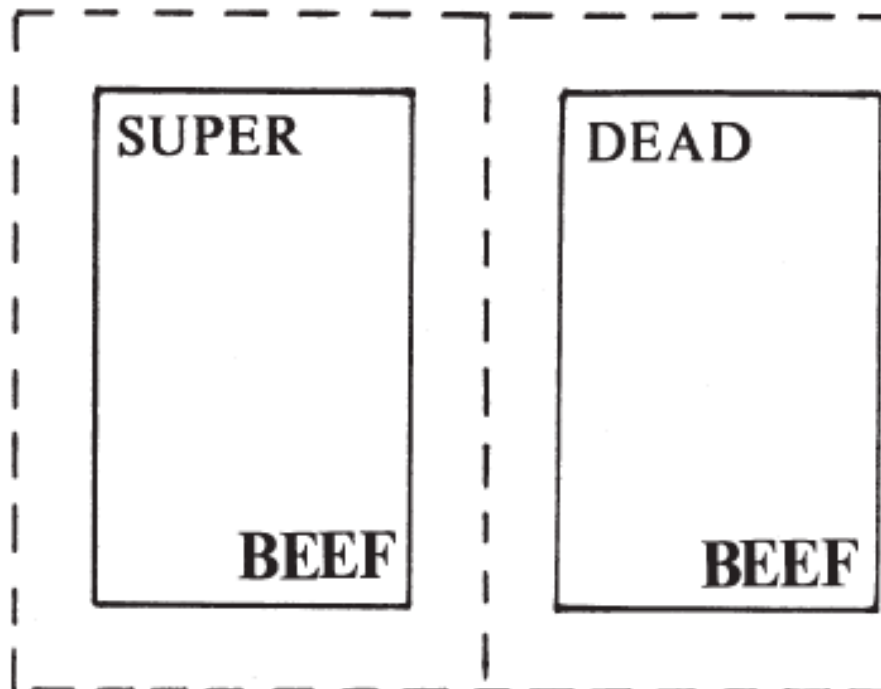
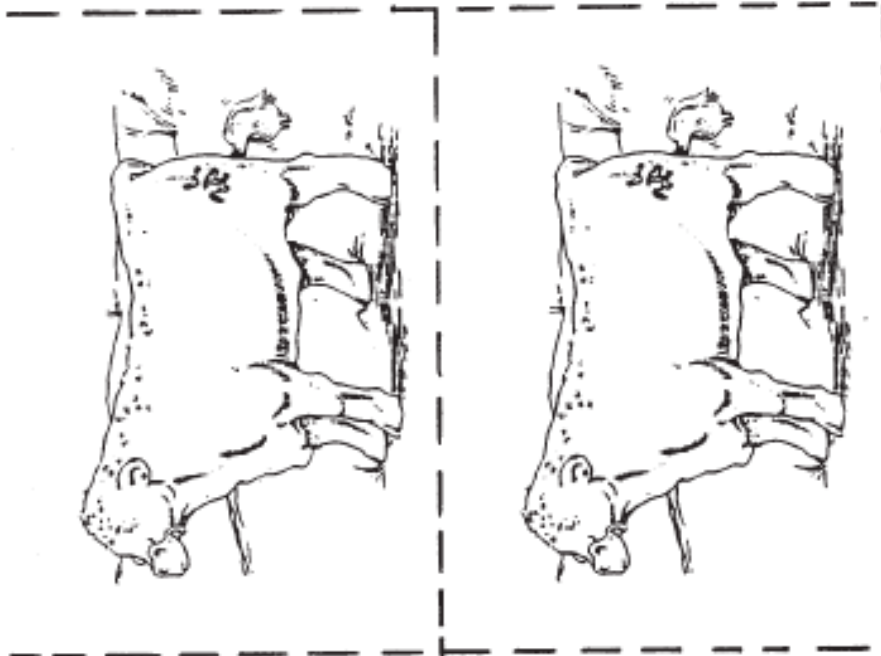


"I've Made a Feed" cards

WATER

VITAMINS (NOT STORED)





Unit 4: Feeds for Beef

Roll Call: Name a feed ingredient that is used in a ration.

Encourage members to name any ingredient that comes to mind. Rather than looking for good ingredients, you should be interested in having members realize what a wide variety of feedstuffs are used for feeding beef. You can get into the least and most desirable later.

You may wish to have a member record all of the different answers on a flip chart or blackboard.

Objectives

In this unit, we have not covered everything about feeds for beef as this subject is endless. We have selected a limited number of topic areas and concentrated on them. For more information on feeds for beef, consult one of the many specialists in the field.

Level 1

- To understand the difference and similarity between rations and diets.
- To understand what palatability is.
- To become aware of the different roughages and grains.
- To become aware of the factors that affect feed intake.

Level 2

- To learn more about feed intake.
- To begin to understand how to formulate rations for beef cattle.

Level 3

- To gather resources on feeding beef cattle and to build a club reference library.
- To research computer programs available for formulating beef rations.
- To become aware of the practice of feed sampling - why it is done, when it should be done, how to do it, where to send samples, and what information can be provided.
- To put all of the knowledge gained about beef nutrition together.

Level 1 Activities

The questions asked in this unit are an excellent way to stimulate discussion. Have members share what they are feeding their animals. It is important for members to realize that there are other things they could be using.

- **“True or False”** (page 29)
 1. Barley has more energy than wheat.
 - FALSE: Barley has less energy than wheat but more than corn
 2. Oats are more palatable than barley. TRUE
 3. A diet is the amount of feed required by the animal daily.
 - FALSE: A ration is the amount of feed required by the animal daily. A diet is the mixture or combination of feeds that provide the nutrient requirements.
 4. A pail of oats is lighter than a pail of barley.
 - TRUE: Barley is denser than oats.
 5. Silage contains more moisture than hay.
 - TRUE: Silage contains approximately 60% moisture. Hay has a low moisture content.
 6. Concentrates are high energy feeds, roughages are high fibre feeds. TRUE
 7. Alfalfa is a grass used to make hay.
 - FALSE: Alfalfa is a legume
 8. Beef cattle will consume up to 8% of their body weight per day.
 - FALSE: Beef cattle will consume from 1.4 to 2.7% of their bodyweight in dry matter per day.
 9. Oats have less energy than wheat or barley. TRUE
 10. If you feed 20 kg of hay with 90% dry matter, you are actually feeding 18 kg of dry matter. TRUE
 11. Dry matter plus moisture gives you the total amount of the actual feed. TRUE

Level 2 Activities

Encourage members to work through this section, filling in the blanks as they go. Obtain a copy of the National Research Council's Nutrient Requirements for Cattle to help them understand the amounts of nutrients required.

- **Increase or Decrease** (page 29)

These events cause the animal to increase feed intake: 1, 2, 3, 6 and 7.

These events cause the animal to decrease feed intake: 4, 5 and 8.

Level 3 Activities

- **More About Feeds for Beef**

Many resources are available on the subject of feeding beef cattle; we encourage you to gather some of these for your members. A good way of storing and utilizing these is as a resource library for your club. Gathering resources is mentioned as one activity for level 3 members.

- **Feed Sampling**

In level 3, we provided information about feed sampling. You may wish to use this information or have a level 3 member explain or demonstrate the importance of feed sampling to younger members.

Activities for all Members

In Unit 3, Nutrient Requirements of Beef, we provided a card game, "I've Made a Feed". This would be another appropriate time to use this game.

Unit 5: Parasites of Beef Cattle

Roll Call: Name a parasite.

You will hear some of these answers:

- Roundworms
- Stomach worms
- Tapeworms
- Mange
- Flies
- Lice
- Ticks
- Lungworms
- Mites
- Flukes

Objectives

Level 1

- To learn what a parasite is.
- To learn the difference between an internal and an external parasite.
- To understand how cattle might become infected with parasites, using the roundworm as an example.

Level Two

- To introduce members to more internal and external parasites, looking at their life cycles and symptoms of infection.
- To have members understand how parasites affect beef cattle.

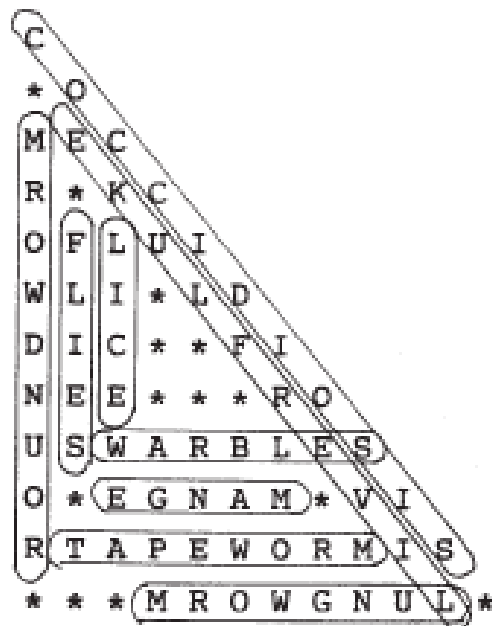
Level Three

- To understand the development and control of warble flies.
- To learn more about the horn fly and its effect on cattle.
- To summarize the methods of parasite control.

Level 1 Activities

- **Activity** (page 33)
 - An **internal** parasite - is an organism that lives inside the body of your animal, getting its life support (food and shelter) from the animal. Examples: roundworms, tapeworms, coccidiosis, liver flukes, eyeworms and lungworms.
 - An **external** parasite - is an organism that lives outside the body of your animal, getting all its life support from your animal. Examples: mange, warbles, nose bot flies, ticks, and lice.
 - The way an animal becomes infected will depend on the type of parasite. It may be through sharing corrals, eating grass, or drinking water with infected animals or under infected conditions. You can prevent your animals from becoming infected by:
 - Following good management practices
 - Keeping your facilities clean and dry
 - Following a routine prevention schedule
 - Recognizing the symptoms of infections

- **Find the Parasites** (page 34)



Level 2 Activities

Parasite Match 'em Up (page 36)

- Roundworm: caused by a protozoa
- Coccidiosis: difficult to diagnose before slaughter
- Eyeworms: most common internal parasite
- Lungworms: biting or sucking
- Liver flukes: caused by tiny mites
- Lice: bovine parasitic bronchitis
- Mange: two hosts - cattle and flies

Level 3 Activities

Invite members to share the information they learned about their chosen topic with your club.

Activities For The Entire Club

- Invite a guest speaker. There are many knowledgeable people who may be interested in coming to speak to your club about parasites. Some examples are agriculture specialists, animal health company representatives, entomologists, veterinarians, local producers, etc.
- Your local veterinarian may have bottled samples of worms and other parasites. Keep in mind the saying - "A picture is worth a thousand words." If members can actually see the parasites, they will get a better feel for the damage they can do.
- Visit a local producer. Use this meeting to find out how a local producer controls, prevents and treats parasites on his farm.
- **Who Am I?** Have members identify each of the following parasites or pests. Remind them that parasites go through several stages in its life cycle. There are three clues for each.
 1. I am a very tiny mite that burrows into the skin of your cattle. I cause barn itch. If you find me in your herd, you must report me to Agriculture Canada. (Sarcoptic mite)
 2. My adults lay eggs or nits on the hair of your cattle. My life cycle is very short - no more than 34 days. There are two types of me - biting and sucking. (Lice)
 3. I bother calves aged six to 12 months most often. I cause diarrhea. I am a protozoa. (Coccidiosis)
 4. I can live in your cattle for 50 to 70 days. Suspect me if your cattle cough after light exercise. I block the air passages and your cattle will have trouble breathing. (Lungworm)

5. I can live for up to 11 years. I spend part of my life cycle in a snail. I am very hard to find until the animal is slaughtered and I am discovered in the liver. (Liver fluke)
6. Two hosts are needed to complete my life cycle. My larvae are very tiny and can only be seen under the microscope. Look for me when your animal "cries". (Eyeworm)
7. I am the most common internal parasite. I cause harm only when there are many of me. Depending on my species, I can be found in either the abomasum or the small intestine. (Roundworm)
8. I can live in the esophagus or near the spinal cord. My adult looks like a bumblebee. I cut holes in the hide to breathe. (Warble fly)
9. I don't bother calves under four or five months of age. I am an irritating blood sucking pest. I rest on the withers, back or underline of cattle - those places where the tail cannot reach me. (Horn fly)
10. I am very tiny - as small as 250 micrometres in length. I live on the surface of the skin. I cause the most common type of mange. (Chorioptic mite)

Unit 6: Beef Herd Health

Roll Call: Name one sign a beef animal show when it is not healthy.

You may hear some of these answers:

Fever
Dehydrated
Depressed
No appetite
Weak

Rapid breathing
Grunting
Cough
Uncomfortable
Restless

Droopy ears
Runny nose
Diarrhea
Runny eyes
Urinating more

Objectives

Level 1

- To learn how to identify healthy and unhealthy animals.
- To look at how to give medications.
- To think about preventing disease on the farm.

Level 2

- To learn how to take the beef animal's temperature.
- To be able to identify, treat and prevent some diseases found in beef calves.

Level 3

- To learn more about some of the diseases that can affect feedlot animals.
- To learn more about vaccinations.
- To look at herd health management year-round.

Level 1 Activities

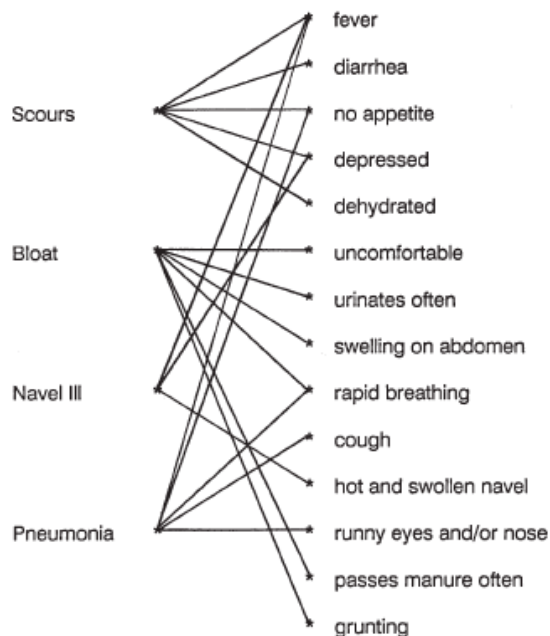
- **The Healthy Calf.** Look at a healthy calf and have members show you all of the characteristics they can find that indicate the calf is healthy.
- **Looking at Medicine.** There are several things that could be demonstrated here: using a balling gun, drenching gun or flexible tube or injections. Emphasize the importance of following the directions on the bottle.
- **How are Betsy and Boris?** (page 38) Boris is healthy and Betsy is unhealthy.
- **Is the farmer trying to prevent diseases from happening or not?** (page 39)

- | | |
|------|------|
| 1. N | 5. P |
| 2. N | 6. N |
| 3. P | 7. P |
| 4. N | 8. N |

Level 2 Activities

- **Taking Your Animal's Temperature.** Use the information in this section to demonstrate how to properly take a beef animal's temperature.
- **"Doctor - I'm Sick"** (page 41)
 1. Pneumonia might be Buster's problem.
 2. Flora might have bloat.
 3. James must have navel ill.
 4. Lester is likely suffering from bloat.
 5. Binky's problem is scours.

- **Know the Symptoms** (page 42)



Level 3 Activities

- Invite members to share their knowledge of vaccinations or a specific disease with the rest of the club.
- Discuss herd health preventative measures with members.

Activities For The Entire Club

- Invite a guest speaker. A local veterinarian could discuss some of the common diseases he has encountered in beef cattle in your area. The veterinarian may also be able to provide advice on administering drugs or demonstrate some of the equipment he uses.
- An animal health sales representative could be invited to discuss certain diseases and how the drugs work to combat these diseases. The representative may also wish to discuss safe handling of drugs, withdrawal periods, labeling and storage.

Unit 7: Managing Your Market Steer

Roll Call: What is the most important part of managing your market steer?

Record the answers on a large sheet of paper and put it where all members can see. This will provide a good introduction to some of the topics to be discussed in this unit.

Objectives

Level 1

- To learn what, when, why and how, about castration.
- To learn more about each of the different methods of castration.

Level 2

- To become aware of the methods and importance of dehorning.
- To learn about growth stimulants, how they work and the types available.

Level 3

- To understand the value of preconditioning.

Level 1 Activities

- **Castration** (page 44)

This topic gives members the opportunity to think about castration and their own steer. If their calf has not yet been castrated, they can decide how it should be done and why. You may want to use this as a discussion to introduce the information in the unit.

- **Activity** (page 45)
 - The instruments that you might use in a non surgical method of castration are the **elastrator** and **burdizzo**.
 - The instruments that you should not use on your calf if he is over six months of age are the **knife** and **elastrator**.

Level 2 Activities

- **Choose Your Method** (page 45)

This activity provides an opportunity for discussion. Members will choose different methods of dehorning. There is no right or wrong answer, but some answers are better than others.

- **More About Growth Stimulants** (page 47)

Ralgro

- Ralgro can be used on finishing steers and heifers.
- Implant into the lower portion of the ear about 2.5 cm from the base of the head.
- True - Ralgro should not be used in breeding cattle.

Synovex

- Synovex H is for heifers only. Synovex S is for steers only.
- Implant with Synovex when the animal is 150 kg or more.
- The withdrawal period for Synovex is 0 (zero) days.
- Synovex is effective for up to 120 days.

Compudose

- Use Compudose on steers only.
- Compudose is effective up to 200 days.

Rumensin, MGA or both?

- MGA - Use in feedlot heifers only.
- Rumensin - Use in steers or heifers.
- Rumensin - No withdrawal period.
- MGA - Withdraw at least 24 hours before slaughter.
- Both - Increases feed efficiency by approximately 11%.

Level 3 Activities

Preconditioning

After working through this unit, members will have a good understanding of the value of preconditioning. Have them share some information about preconditioning with the rest of the club.

Activities For The Entire Club

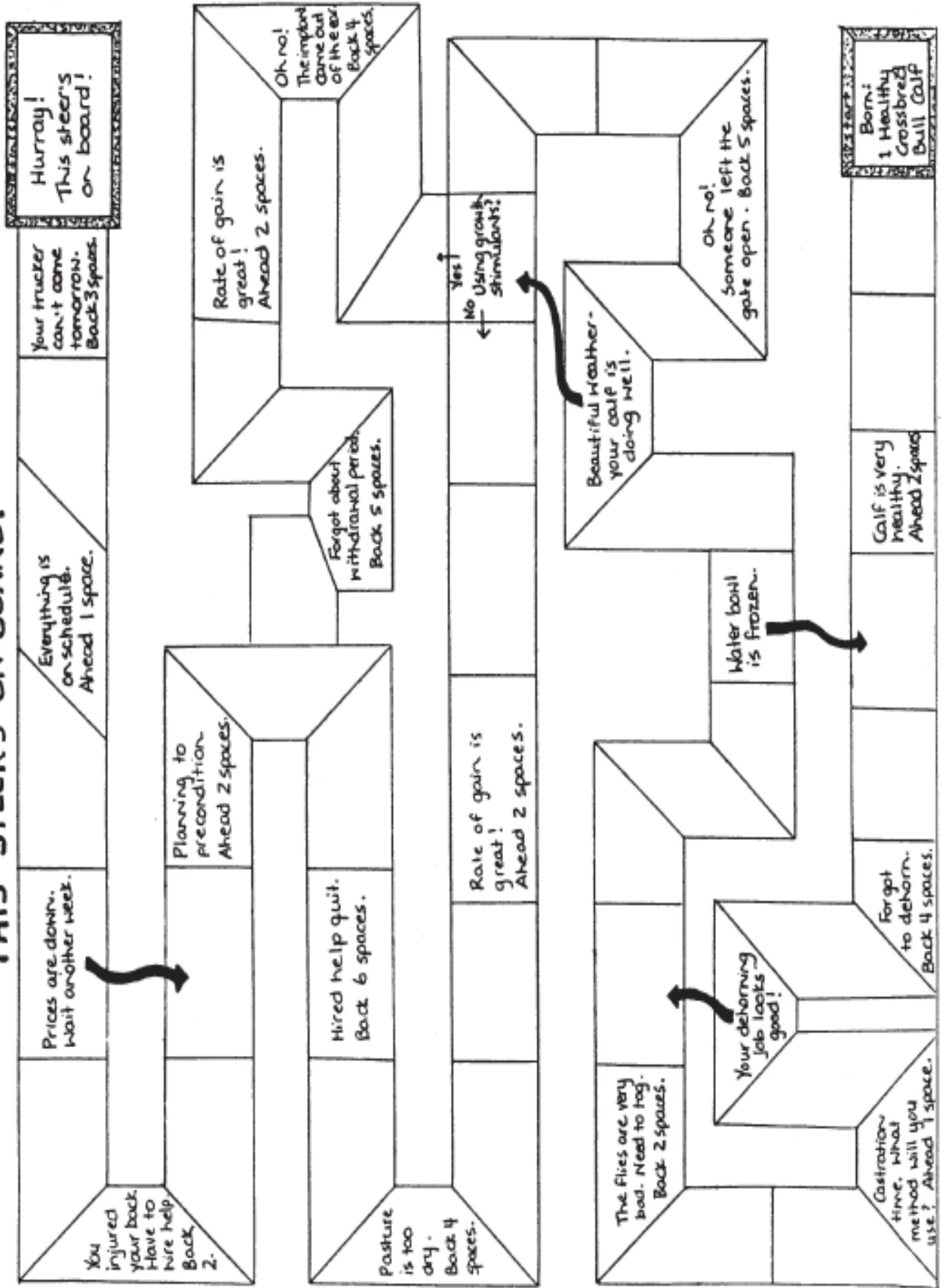
- **Do a demonstration**

A demonstration is an effective way of helping members learn the techniques. Have someone give a demonstration of how to **implant**, **dehorn** and **castrate**.

- **“This Steer’s On Board”**. This game can be a fun activity for all members in your club. It is designed to get them thinking about all the things they need to do to profitably raise a market steer. You will find the game on the next page. Use these rules:

1. You will need:
 - One board for every four members.
 - One die for each board.
2. Each member should use a coin, button or some other small object as their “man”.
3. Roll the die to determine who goes first.
4. Each member moves spaces according to the number rolled, then follows the direction on the space on that he lands.
5. The first person to land on “On Board” is the winner.

" THIS STEER'S ON BOARD! "



Unit 8: Beef Cow and Heifer Management

Roll Call: Tell one thing you must remember when looking after your beef cows and heifers.

Objectives

Level 1

- To learn how to manage for healthy cows.
- To review the nutrients required by cattle.

Level 2

- To learn about the priority of nutrient usage in beef cattle.
- To learn about selecting and managing replacement heifers for the herd.
- To become aware of the importance of culling.

Level 3

- To learn how, when and why to condition score beef heifers and cows.
- To learn about some of the diseases that can affect beef heifers and cows.

Level 1 Activities

- **Cow Management Word Scramble** (page 48)

LYTHEHA	HEALTHY
CTTALIANO	LACTATION
EIADSSE	DISEASE
EGNYER	ENERGY
GNNATEEMMA	MANAGEMENT
TGINOTEAS	GESTATION
EFHIRE	HEIFER

- **Cow Management Review** (page 49)

To have healthy calves, you must first have healthy cows. Heifers have greater nutrient requirements than mature cows. Grazing cattle use energy as they move about to find food. Climate affects the cow's nutrient requirements. Cold temperatures, high humidity and strong winds cause the cow's requirements to increase. In early gestation, nutrient requirements do not change very much. However, during the last six to eight weeks before calving, nutrient requirements increase. The cow's nutrient requirements are greatest when she is producing milk.

What three things must you do to keep your cows healthy and productive?

1. Feed them properly.
2. Keep your animals free from disease and injury.
3. Practice good breeding management.

What can you do to practice good management?

- Know the signs a cow shows when in heat.
- Check your cows for signs of heat in the morning and the evening.
- Make sure you have enough healthy fertile bulls.
- Pregnancy check at the end of breeding season.
- Keep accurate records.
- Feed to meet cattle nutrient requirements.
- Adjust feeding programs for individual cows.
- Cull poor performers.

The five main nutrients are **water, vitamins, minerals, protein** and **energy**.

Level 2 Activities

- **Minimum Daily Requirements of the Beef Cow.** (page 49)

From the information on the chart, members should note:

- Protein, energy and calcium requirements continue to increase as the cow progresses in her pregnancy.
- Protein, energy and calcium requirements are even greater during lactation than they are during pregnancy.
- Calcium and protein requirements during lactation are more than double the requirements of early pregnancy.

- **Developing a Successful Culling Program.** (page 50)

Why might you cull a cow or heifer from your herd?

- Disease (mastitis, prolapsed and so on)
- Injury
- Poor conformation
- Poor growth
- Death
- Reproductive difficulties

- **Would You Cull This Cow or Heifer?** (page 51)

- **Yes** Mastitis is often a recurring problem in cattle.
- **No** Calves are healthy and no problems are mentioned with the mother.
- **Yes** She is getting older, and will not be able to calve in the next calving season.
- **Yes** Good conformation should be one of your criteria for selecting replacement heifers.
- **No** She is a good performer.

Level 3 Activities

- Have members demonstrate condition scoring and explain why, how and when it should be done.
- Have members talk about a disease(s) that affect cows and/or heifers. Have them describe how to identify it and prevent it.

Activities For the Entire Club

Invite a guest speaker. Possible topics are:

- Cow and heifer diseases
- Condition scoring
- Feeding the heifer

Unit 9: Managing the Beef Herd Sire

Roll Call: Tell one thing you must remember when looking after your bulls.

Some of the answers you should hear are:

- Avoid underfeeding
- Avoid overfeeding
- Give special care to young bulls
- Don't expect them to breed too many cows
- Keep feet in good condition
- Provide room for exercise
- Evaluate semen
- Physically examine bulls
- Cull poor bulls

Objectives

Level 1

- To understand the importance of the herd sire.
- To introduce how to manage for a healthy bull.

Level 2

- To learn what to look for when selecting a bull.

Level 3

- To learn how to manage a young bull.
- To become aware of semen collection and evaluation techniques.
- To learn about the importance of hoof trimming bulls.

Level 1 Activities

- **Test Your Bull Knowledge** (page 54)

Phosphorus	Low fertility
Pasture size	Determines the number of bulls needed
Libido	Desire to breed
10 cows	For the small yearling bull
Bull	Determines the number of calves born
Vitamin A deficiency	Abnormal sperm
Overfeeding	Causes foot and leg problems
Maintenance	Keeps your bull in healthy condition
Easy keepers	Usually do not need extra grain

Deficient means that something is not complete. If something (a mineral or vitamin) is deficient in a diet, there is not enough of it to meet the needs of the animal.

Why is the herd bull so important?

The bull determines the number of calves born, the length of the calving period, the growth rate of the calves, the calving ease and the genetic value of the herd.

What can you do to keep your herd bull(s) healthy and fertile?

Provide good nutrition, control disease, parasites and health problems, and practice good breeding management.

Level 2 Activities

- Invite a producer to demonstrate how to accurately measure scrotal circumference of the beef bull and to discuss how they use the results.

- **Let's Review:** (page 55)

Using a bull, work through these questions with your members.

- **Physical Condition** (page 57)

Have members work through the chart and complete the evaluation

- **Breeding Ability** (page 58)

Scrotal Size: is measured by the circumference of the scrotum and indicates the size of the testicles and is closely related to sperm production. Bulls with larger testicles are usually more fertile than bull with smaller testicles.

Semen Quality: the firmness of the testicles provides a good indication of the quality of semen produced. Firm testicles generally produce good quality semen.

Libido/Serving Capacity: Libido is the willingness or eagerness to mount and impregnate cattle. Serving Capacity is the number of services a bull can complete under natural mating conditions. Libido and serving capacity are not related to scrotal size or semen quality.

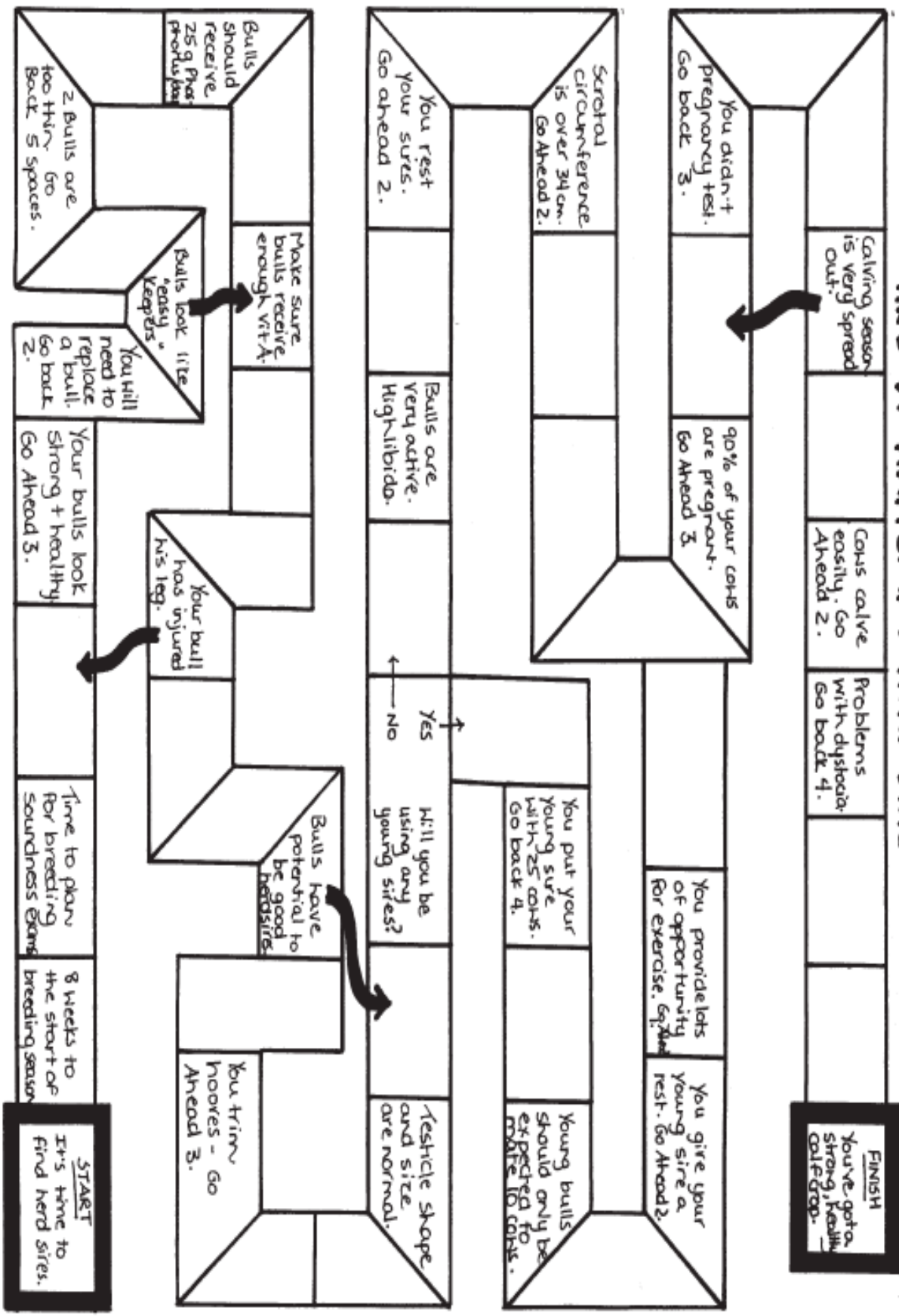
Level 3 Activities

- Encourage members to spend time discussing the use of young bulls with a farmer.
- Invite members to explain to other club members why and how semen is collected. Have them describe the characteristics of normal semen.
- Examine the condition of the feet of the cattle in a herd. Do they need trimming? Discuss why or why not. Invite a foot trimmer to demonstrate the proper trimming of feet.

Activities For the Entire Club

- Invite a veterinarian or an experienced beef producer to discuss and demonstrate how they conduct a breeding soundness examination on potential herd sires.
- Visit an AI centre. Watch how semen is collected from bulls. Look at semen through the microscope and learn about how it is examined and tested.
- Judge a class of young bulls as potential herd sires. Discuss the goals you wish to achieve as a breeder and have members base their placings on that. Include reasons and a discussion to conclude.
- Invite a beef producer to discuss how they select replacement herd sires.
- Play the board game **"HE'S A HAPPENING HERD SIRE"** on the following page.
 - Use one board game for every four members (photocopy to make extra games).
 - Supply one die for each board.
 - Have members roll the die - highest number goes first.
 - Members need only a coin or button to use as their "man" to move about the board.

" HE'S A HAPPENING HERD SIRE "



Unit 10: Breeding

Roll Call: Tell one thing that you know about breeding cattle.

This should provide a good introduction into this topic. Record the answers on a blackboard or a large sheet of paper. A page from the classified ads section of your newspaper works well for recording and displaying information.

Objectives

Level 1

- To introduce members to the reproductive cycle of the beef female.
- To learn how to identify cows in the different stages of heat.
- To learn the difference between natural and artificial breeding.

Level 2

- To learn the structures of the male and female reproductive systems.
- To become aware of the importance of pregnancy testing females.
- To become aware of the importance of maintaining short calving intervals.

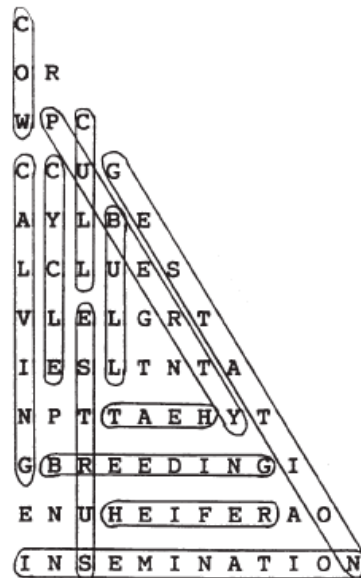
Level 3

- To introduce the technique of artificial insemination.
- To learn about synchronized breeding programs.
- To learn about the heat detection aids that are available.

Level 1 Activities

- **Find the Repro Word** (page 60)

“At the end of the breeding season, you want all of your cows and heifers to be PREGNANT.”



- **The Reproduction Cycle** (page 61)

Betsy was bred on September 15th.	October 6th
Susan was bred two days ago.	19 days from today
Samantha was bred 15 days ago.	6 days from today
Lisa was bred this morning.	21 days from today

If you are holding this meeting at a farm during breeding season, have members identify the cows that are in heat. If it is not breeding season, invite a producer to discuss how and when they identify females in heat.

Gestation Period

To help members understand how long this period of gestation really is, have them figure out when a cow will calve, given her breeding date. Using today as the breeding date, the cow will calve approximately 283 days from today. Then give members more dates of breeding and have them become familiar with figuring out due dates. Point out that this date is only approximate and can range anywhere from two weeks before to two weeks after. Only 4% actually calve on their due date.

Level 2 Activities

- **Is Your Cow Pregnant?** (page 60)

Some of the advantages of early pregnancy detection are:

- It gives early warning of breeding problems such as infertility, abortions, and so on.
 - You can avoid further expenses on non-pregnant cows by culling them immediately.
 - If you want to keep the non-pregnant cow and rebreed her, you can do it immediately without extending the calving season any longer.
 - It can guarantee pregnancy in females you are selling pregnant, or for breeding purposes.
- Invite a veterinarian or experienced beef producer to demonstrate and discuss pregnancy detection in beef females.
 - **The Calving Interval** (page 62)

Working in groups of two or three, have members figure out the calving intervals and decide whether or not they would keep these cows. Come together as a group and make some decisions about these cows. Not all members will agree, but they should be able to explain why and how they decided. The answers are not as important as the learning that will occur through discussion.

- **Repro Summary** (page 63)

Gestation	Approximately 283 days
12 months	Ideal calving interval
Testosterone	Hormone tat gives the bull his masculine appearance
Uterus	Where the fetus or baby calf grows and develops during pregnancy
AI	Semen is placed in the female reproductive tract using artificial techniques
Estrus	Occurs about every 21 days
Ovaries	Almond shaped
Testicles	Produce the sperm
Palpation	Pregnancy test
Calving interval	Length of time between the birth of one calf and the next

Level 3 Activities

- Have members display and discuss the information on a straw of semen.
- Have members work together to provide a display and discussion of heat detection aids that can be used in the beef industry.

Activities For the Entire Club

- Divide members into two groups. Give each group a large sheet of paper and a marker. Give one group the topic of natural breeding and the other artificial insemination. Have each group come up with as many advantages as they can for their method of breeding.

Debrief this activity by discussing the advantages and disadvantages of each method of breeding. Point out that individual farmer preference also affects the method they choose.

- Debate. Give half your members the topic of natural breeding and the other half the topic of artificial insemination. Give teams 15 minutes to prepare their information for a debate on artificial insemination vs. natural breeding. You may want to invite one member to moderate the debate.
- Invite an artificial insemination technician to demonstrate and discuss artificial insemination of beef cattle. Display a vial of semen and have members look at the information on it.

Unit 11: Calving

Roll Call: How can you tell your cow will soon calve?

Some of the answers you will hear include:

- Udder begins to fill with milk or “bags up”
- Her belly “drops” or looks heavier
- Vulva relaxes
- Ligaments on both sides of the tail head relax and sink
- Becomes restless
- Isolates herself from other cattle
- Lies down and gets up often
- Raises her tail head
- Stops eating
- Tries to urinate often
- Discharges a thick mucus from the vulva

Objectives

Level 1

- To recognize the signs a cow shows when calving is near.
- To recognize the stages of labour the cow goes through in calving.
- To know the normal birthing position of the calf.

Level 2

- To understand how dystocia can affect the calf, the cow and the beef producer.
- To learn how the position of the calf can be corrected.
- To learn how to correctly assist the delivery of the calf.

Level 3

- To become aware of some of the problems the cow may encounter after calving.
- To learn about some of the other problems that may be encountered during calving.
- To think about coping with calving.

Level 1 Activities

- **Which Stage?** (page 65)

Following are the solutions. Encourage members to ask questions as they work through this exercise.

- II Suzy has been straining for 20 minutes.
- I Marylou is wandering restlessly around the calving pen.
- I Belinda’s water sac has just broken.
- II Betsy has just lain down in the straw. Half an hour ago she was really uneasy and nervous.

- II You can see the front legs of a calf coming out of Maisy.
- I Lisa is bawling and very restless.
- III Candy just delivered a strong healthy heifer calf 10 minutes ago.

Put It In Order. Following are the solutions. As you work through the exercise, discuss which stage these steps occur in. This is indicated in brackets.

- 1 Udder fills with milk. (I)
- 11 Calf nurses for the first time. (III)
- 2 Mother becomes restless. (I)
- 4 Contractions about 15 minutes apart. (I)
- 6 Calf enters birth canal. (I)
- 8 Calf's front legs and head appear. (II)
- 12 Afterbirth comes out. (III)
- 3 Calf changes position in uterus. (I)
- 9 Calf's head and shoulders appear. (II)
- 7 Contractions are two minutes (or less) apart. (II)
- 5 Water sac is broken. (I)
- 10 Calf's hips and hind legs appear. (II)

Level 2 Activities

- **Identify the Problem.** (page 69)
 - 1. Front feet first with the head bent down between the knees.
 - 2. Front feet first with the head twisted backwards.
 - 3. Breech calf - backwards with rear legs tucked under its body.
 - 4. Normal forward birthing position.
 - 5. Head and one leg first with other leg crossed over neck.
 - 6. Breech calf - backwards with hind feet first.
- Demonstrate the proper use of calving chains on a volunteer. Have your volunteer bend slightly at the waist and hold their arms out in front as if they were going to dive. Attach the chains loosely on their wrists. Follow the directions in the Level 2 material.
- Have members share any experiences they have had or seen in delivering calves.

Level 3 Activities

- Invite members to share information on another calving problem.
- Invite members to share information on their survey on calving ease.

Activities For the Entire Club

- Show a Video
- If possible, view a calving on a beef or dairy farm.
- Invite a veterinarian or experienced beef producer to discuss how they deal with calving season and the problems that may occur.

Unit 12: The Newborn Calf

Roll Call: When was your calf born?

Objectives

Level 1

- To learn about the importance of making sure the calf receives colostrum soon after birth.
- To learn about the contents of colostrum.
- To know the characteristics of a healthy calf.

Level 2

- To review the importance of colostrum for the newborn calf.
- To learn about calf scours and pneumonia and how they can affect the newborn calf.

Level 3

- To learn about creep feeding calves.
- To study the behaviour of the newborn calf and its mother.
- To learn about and demonstrate how to freeze colostrum.

Level 1 Activities

- Lead a discussion about the healthy calf. Ask members how they can tell when a calf is healthy. You may want to take them to a pen with calves and have them answer while they look at the calves.

Signs that a calf is healthy include:

- bright eyes
- good appetite
- steady on legs
- moves about easily
- raised head and ears
- active
- healthy, shiny hair coat

If you want to take this further, work with members to create two lists, one with the characteristics of a healthy calf and the other with the characteristics of a not-so-healthy calf.

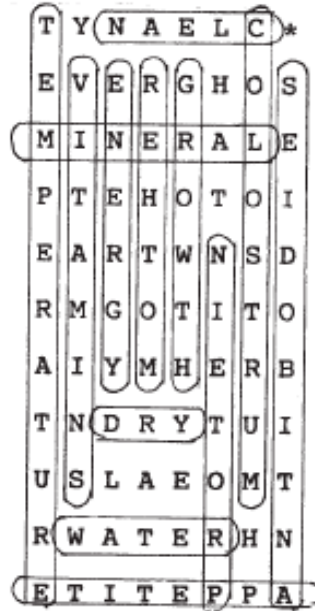
- Demonstrate how to dip the navel. Show the product(s) that should be used.
- If possible, show members a sample of colostrum and a sample of whole milk. (If you cannot get colostrum, maybe a neighbouring dairy farmer would give you some.) On a piece of paper beside each, create a list of the characteristics. Include visual and content characteristics.

- Demonstrate how to correctly take the temperature and determine the respiration rate of a calf. Have members practice.
- **The First Month** (page 69)
 1. The best milk for the calf comes from its mother.
 2. The most important things the calf receives from the colostrum are the antibodies.
 3. Vitamins and minerals are also found in the colostrum.
 4. It is important to make sure that your newborn calf receives the colostrum as quickly as possible.
 5. If you have extra colostrum, it is a good idea to freeze it.
 6. When you feed a calf artificially, you feed it milk replacer in place of milk.
 7. Your goal is to raise strong, healthy calves.
 8. Feeding the newborn calf properly is important for its future growth.
 9. Be sure to provide a good supply of fresh, clean water.

Level 2 Activities

- **Let's Review About Colostrum** (page 73)
 1. Colostrum is important for newborn calves because it supplies disease fighters called antibodies.
 2. A young calf should receive approximately 10 to 12% of its bodyweight in colostrum per day.
 3. Colostrum can be frozen so you always have a supply available.
 4. Colostrum is also high in vitamin A, protein and contains a laxative.
 5. The newborn calf can absorb the nutrients from the colostrum for only the first 12 to 24 hours after birth.
 6. Colostrum is thick, rich and yellowish in colour.
 7. If the calf is unable to suckle, you can give it colostrum using an esophageal tube.
- **What's The Problem?** (page 74)
 1. Charlie shows the symptoms of pneumonia. Keep him in a warm and dry place. Make sure he gets enough colostrum or milk and contact your veterinarian for advice on antibiotics.
 2. Lindy could possibly have calf scours. However, you cannot be sure. Contact your veterinarian and have him or her identify the problem. If the problem is enteritis, isolate the calf; feed it electrolytes and antibiotics as recommended by the veterinarian.
 3. The twins show the symptoms of nutritional scours. Clean and disinfect the pails, your clothes and their pens. Make sure they are in a clean and dry area, and receive electrolytes and the proper amount of milk (10-12% of their bodyweight per day). Contact your veterinarian if their condition does not soon improve.

- Invite a producer or a veterinarian to display different electrolyte solutions and demonstrate how they should be fed. Have him or her talk about when and how he or she decides if a calf needs electrolytes.
- **Keep Your Newborn Calves Healthy.** (page 75)



The remaining letters spell the word that completes this sentence:

“As a beef producer, one of your goals is to produce strong, healthy calves.”

Level 3 Activities

Invite members to share information about creep feeding, the behaviour of the newborn calf and its mother, or freezing colostrum.

Activities For the Entire Club

- Show a video
- Illustrate how much milk a calf needs. Ask members how much milk they should feed a 54.5 kg (120 lb) calf per day during nice weather and during cold weather.

Nice Weather - approximately 5.5 to 7.5 kg (12-15 lbs)

Very Cold Weather - approximately 7.5 to 8.0 kg (15-18 lbs)

To help them understand exactly how much this is, have them measure this out by filling a pail with what they think is 3 kg of water. Three kg would be the approximate amount for one feeding for a 60 kg calf. (A calf should eat 10 to 12% of its bodyweight in milk per day.) Use a bathroom scale to find out who was the closest to this amount.

Unit 13: Handling and Facilities

Roll Call: What is one thing to remember when you are working with cattle?

Objectives

Level 1

- To understand the basics of cattle behaviour.
- To learn how to make a quick release knot.
- To learn about other knots that can be used.

Level 2

- To learn the purpose of, and be able to identify each part of cattle handling facilities.

Level 3

- To understand more about cattle behaviour.
- To learn and demonstrate how to make an adjustable rope halter.
- To know the recommended dimensions of various cattle handling facilities.

Level 1 Activities

- **The Quick Release Knot**

It is important that all people working with cattle know how to make and release this knot. Spend time with your members practicing how to make the quick release knot. Show them how firmly it holds when stressed and how to release it with a simple tug. You may want to tie a halter around a calf and tie the calf to a post using this knot.

- **More Knots**

If you have the time and interest, create each of these knots to show your members. Have them practice tying these knots themselves. Discuss when and why you might use them.

- **Let's Work** (page 71)

Members can have fun working their way through this maze on their own or in groups. Add more situations if you like.

- **Release It** (page 74)

This activity is designed to get members thinking not only about the knot but also about working with their animals. Some ideas are listed below. Encourage members to come up with their own ideas - anything they can relate to this topic is fair game.

Q - Quick, quiet, quality
 U - Untie
 I - Avoids injury
 C - Cattle, control, good
 K - Kick

R - Restrain, rope halter
 E - Excited
 L - Loop, little
 E - Emergency
 A - active
 S - Safety, sharp feet
 E - Easy to untie

Level 2 Activities

- If possible, tour a farm with a variety of cattle handling facilities. Invite the host(s) to show members how each of the parts of the facilities work. Discuss the advantages and disadvantages of each part as you view it.
- **Looking at Beef Facilities** (page 79)

Crowding pen	Used to move cattle in single file into the working chute.
Working chute	Lines up and holds cattle in single file ready to enter the headgate or squeeze.
Headgate	Safely and securely restrains cattle
Cutting gate	Allows you to separate an animal from the group.
Blocking gate	Prevents an animal from moving forward or back.
Back stop	Prevents an animal from backing up.
Kick bars	Prevents an animal from kicking the worker.
Squeeze	Holds the animal by its sides, giving you greater control.
Scale	Used for weighing the animal.
Holding pen	Holds cattle before they enter the working area.
Man gate	For the safety and convenience of the worker.
Loading chute	Used to move cattle up, usually onto a truck.
Cattle guard	Allows you and a vehicle, but not the cattle, to enter a pen or yard.

- **The Large Working Corral** (page 80)

- | | |
|--------------------|---------------------------|
| 1. Loading ramp | 9. Scale |
| 2. Fencing | 10. Curved chute |
| 3. Gate | 11. Cat walk |
| 4. Waterer | 12. Man gate |
| 5. Holding pen | 13. Squeeze with headgate |
| 6. Crowding gate | 14. Sorting gate |
| 7. Collecting area | 15. Concrete |
| 8. Crowding pen | |

- **What Do You Think** (page 81)

Following are some thoughts about each of the cattle handling facilities. Encourage members to discuss and come up with their own thoughts.

- The chute is slippery because the cattle are bringing mud and/or wet feet up the chute. It should be located in a dry area.
- Chutes should only be wide enough to handle one animal at a time.
- This person will find that they will need to have some sort of facility, especially when working with older and untrained cattle.
- The bright light shining in the eyes of cattle makes them stop. They cannot see where they are going. The area should be lit, but don't shine the light into their eyes.

Level 3 Activities

- Invite members to present a short skit to demonstrate the behaviour of cattle.
- Invite members to demonstrate how to make an adjustable rope halter. You may want to have several members each make a rope halter. Your whole club could then judge a class of rope halters to practice judging skills.

Activities For the Entire Club

- Invite a guest speaker. Here are some suggestions:
 - Trucker to discuss hauling and handling beef cattle.
 - Rancher to discuss ropes and/or working with cattle.
 - Someone experienced with building and designing beef cattle facilities to discuss how and why they build these facilities.
- View a video.
- Demonstrate how to load and transport beef cattle. Experienced beef handlers will have their own tips on what works best for them and why. Include loading for both market and show.

Unit 14: Range and Pasture Management

Roll Call: What is one thing you might find on the land where you graze your cattle?

This question should provide a good introduction to this unit. Encourage members to use their imagination. Answers will include everything from fences, plants and gates to cattle, horses and wild animals.

Objectives

Level 1

- To learn the difference between range and pasture land.
- To learn why and how to properly manage range and/or pasture land.
- To become familiar with different types of range and pasture plants.

Level 2

- To be able to determine the stocking rate for range or pasture land.
- To become familiar with the factors that can affect how the land is grazed.
- To realize that forages differ in their values.

Level 3

- To know the differences between types of grazing systems.
- To be able to determine range condition.
- To learn more about plants that can harm cattle.

Level 1 Activities

- **Range or Pasture?** Invite members to share information about their farm or ranch. How much land is range and how much is pasture? What differences do they notice between these? Take a few minutes to identify whether certain local land is range or pasture.
- **Good Range and Pasture Management.** Emphasize the importance of practicing good management of your range and/or pasture. Using a large sheet of paper, a blackboard or a white board, divide it in two by drawing a line down the centre. Put the heading "Good" (a well-managed range or pasture) on one side and "Bad" (a poorly managed range or pasture) on the other.

Ask members to tell you the characteristics of the pasture on each side. Have them record them. Conclude your discussion by asking members which one they would rather have. Emphasize again the importance of practicing good pasture and/or range management.

- **Word Scramble** (page 78)

ZAERG - graze
RSTUPAE - pasture
NMGEAA - manage

NGREA - range
SSBRHU - shrubs
BROFS - forbs

SSSEARG - grasses
SSHRUE - rushes
DGSSEE - sedges

- **Range Review** (page 81)

Use this page however you wish, but try to avoid assigning it for "homework". All of the solutions can be found in the level 1 material.

Level 2 Activities

- **The Stocking Rate**

Lots of information is available on this topic. If you want more for your members, contact your local agriculture office and they can point you in the right direction. You may want to practice measuring the forage production on the land by following the method in the level 2 material, or other recommended methods. Emphasize that the production will vary among different ranges or pasture and depending on soil, topography, climate and condition of pasture.

- **Pete's Problem** (page 86)

Encourage members to help Pete solve his problem. Have them work in teams, or if your club is small, work together as a group to figure out how long Pete should put his 10 cows on the field.

Information given:

- 10 cows
- One cow eats 12 kg of forage per day
- 20 hectares of land
- 500 kg of forage per hectare - but we know that with good grazing management, you only graze half of this forage or 250 kg

Solution:

- One cow will eat 12 kg of forage per day
- 10 cows will eat $10 \times 12 = 120$ kg of forage per day
- The field produces 20×250 kg = 5000 kg of available forage (Remember we will only be grazing half and you need to remember the 25% wastage factor.)
- $5000 \text{ kg} : 150 \text{ kg/day} = 33$ days

Therefore, Pete should put his cows out on this land for approximately 33 days or five weeks.

If you wish, design a problem (or have a level three member do it) that is specific to your local conditions. Have members work together to solve it.

- **Range Review** (page 87)

- | | |
|-----------------|---------------|
| 1. range | 6. varies |
| 2. pasture | 7. units |
| 3. good | 8. rate |
| 4. palatability | 9. month |
| 5. animals | 10. trampling |

Level 3 Activities

- **Grazing Systems**

There are several ways you can approach this topic:

- Invite someone to speak about their grazing system and how and why it works for them.
 - Have members work together to plan a grazing system for a specific land area.
 - Have members explain, in a brief presentation to other members, all about grazing systems.
 - Have members design their plan and share it with other members of the club.
- **Range Condition.** Encourage members to practice determining range condition.
 - **Poisonous Plants.** Encourage members to learn more about plants that can harm their livestock. A good way of doing this is to have them share their information with the rest of the club.

Activities For the Entire Club

- Invite a guest speaker. Suggestions include the following:
 - A member of a forage association to discuss range management, choosing a pasture site, forage quality or poisonous plants.
 - A veterinarian to discuss poisonous plants, symptoms, treatment and diagnosis of poisoning.
 - A range management or grazing specialist to discuss any aspect of range management.
 - A grazing reserve manager to discuss their reserve.
- View and tour a large range. Make sure members notice the variety of land areas and plants.

Unit 15: Record Keeping

Roll Call: What is one record you keep on your farm?

Encourage members to think of any kind of record - from long distance phone calls and household food expenses to feed, veterinary and breeding costs.

Objectives

Level 1

- To understand why records are kept on farms.
- To learn some of the different types of records that are kept on farms.

Level 2

- To look at what is involved in deciding on a farm record keeping system.
- To learn about performance records for beef cattle, using weaning weights as examples.
- To look at the farm records on a specific farm.

Level 3

- To decide which method of keeping farm records is best for individual operations and why.
- To learn about different computer record keeping programs available on the market today.
- To learn how to use records to identify breeding goals.

Level 1 Activities

- **Pedigrees** (page 81)

If someone in your club has an interest in family histories, you could have a lot of fun with this section. If someone has a family history book, have them bring it to the meeting so members can have a look and see what kinds of things are included. A simple pedigree or family tree is in the member unit. Encourage members to complete this for their family. You might want to have members do the same for a dog, pet or their calf.

- **What Would You Do** (page 84)

The objective of this activity is to help members understand how good record keeping systems will help them begin to solve problems. Encourage them to answer each of the questions. Have them think of how good records would help them with each situation.

Following are some ideas for solutions:

- A. If you always carry a notebook and pencil in your pocket, you could jot down the numbers of the cows, calves and weights. It would only take a few seconds, and you could transfer them to your records later, when you have time.

- B. Check your breeding records. You should know that the length of the gestation period is 283 days. The cow or heifer will calve approximately 283 days after being successfully bred.
- C. One of the things you might want to include in your breeding records each year is the length of time from the first calving of the season to the last calving. By keeping this record, you can compare your numbers over the years and see what your trend is.
- D. It is important to enter all of your information into the computer or your farm record books to keep your records up-to-date and accurate. Set aside a period of time every week or two weeks for entering data. By using the same time period every week, it will be easier to schedule your other work around this time. You might want to set an alternate time as well.
- E. If your records are complete, all your feed costs will be included. Simply look at the totals for the previous years and compare these numbers to what you have spent on feed so far this year. Keep your records up-to-date and you will have some very accurate information.

Level 2 Activities

- **Now It's Your Turn** (page 93)

The weaning weight is just one of several performance records that can be used as a management tool on the beef farm.

To calculate May's 205 day adjusted weaning weight:

$$205 \text{ day wt} = \frac{(202 - 25)}{220} \times 205 + 25 = 190 \text{ kg}$$

Because the dam is eight years old, there is no need to make any adjustment. May's adjusted 205 day weaning weight is 190 kg.

May and Allie both have 205 day weaning weights that are above average for their group. They have the genetic potential to be superior animals.

- **Looking at a Farm** (page 93)

This exercise will be valuable to help members further understand the benefits that records can provide.

- **Tell About Your Farm** (page 94)

Have members complete this activity and then share with the entire club.

Level 3 Activities

All three of the activities in the level 3 unit will help members further understand the benefits of record keeping on the farm.

Activities For the Entire Club

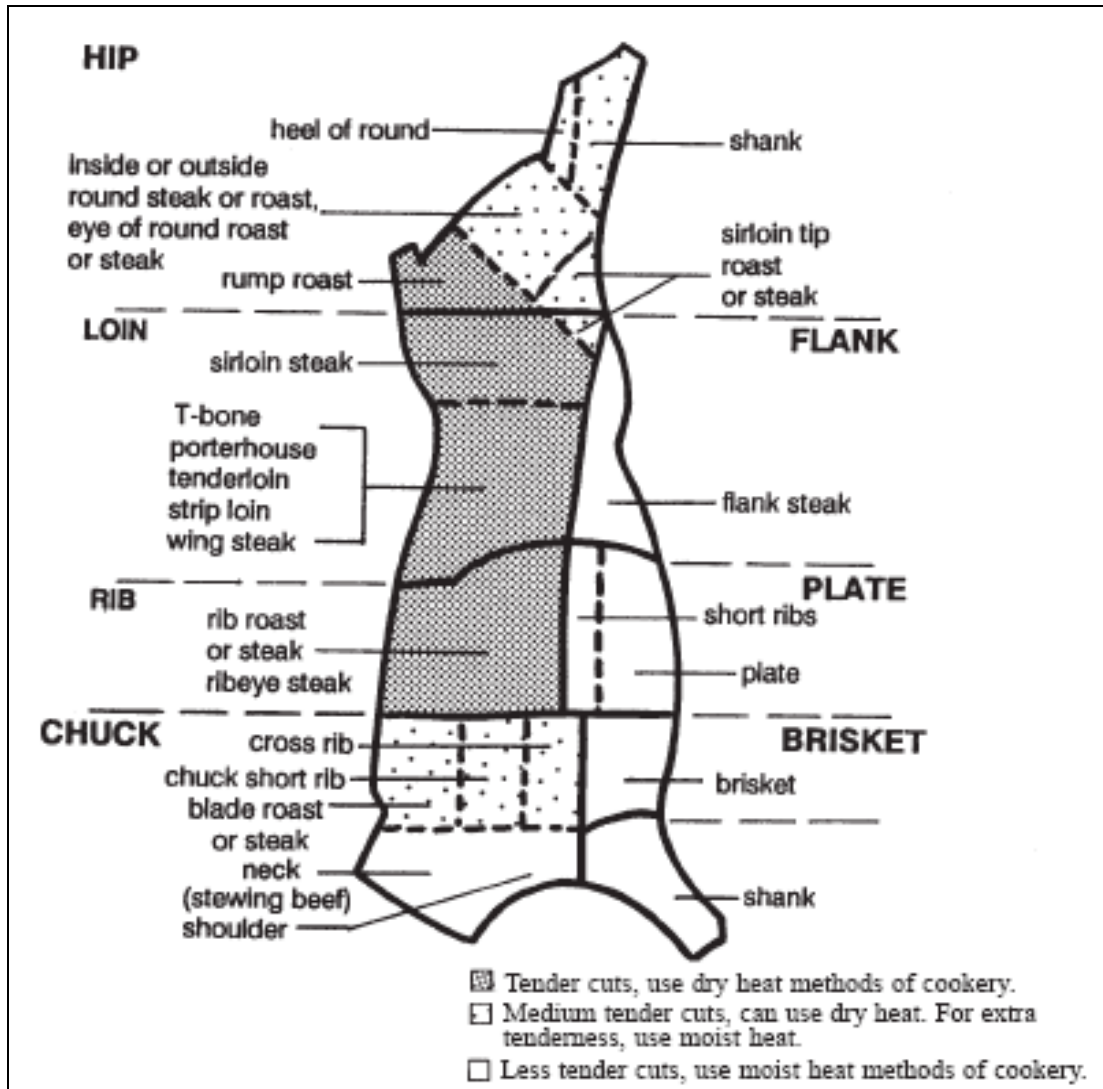
Because the systems used for keeping records vary greatly from farm to farm, only a limited amount of specific information has been included in this unit. Members will benefit most from looking at actual farm records and record keeping systems and holding discussions with people in the business.

Invite a guest speaker. Suggestions include:

- A local bank manager to discuss their views on the types of records and information important in the business of lending or borrowing money.
- A beef specialist or farm management specialist to discuss the record keeping assistance available from the provincial agriculture department.
- A local beef producer to discuss their methods of farm record keeping.
- A local computer supplier to discuss current trends in computer usage.
- An accountant to discuss farm accounting practices.
- A local auction mart representative to discuss how they keep records.

Unit 16: The Beef Carcass

Roll Call: Name a beef cut



Objectives

Level 1

- To learn what makes up a carcass.
- To learn what the parts of the carcass are.
- To learn why and how we grade beef.
- To become familiar with some of the carcass terminology.
- To learn where to find the parts of the carcass on the live animal.

Level 2

- To learn what the consumer looks for in purchasing beef.
- To learn how to produce a desirable carcass.

- To become familiar with the concept of heritability and how it affects carcass traits.
- To learn some of the other uses of beef.

Level 3

- To become aware of some of the issues facing beef producers today.
- To understand the recent changes to Canada's beef grading system.

Background Information

We must produce the quality of beef demanded by our market.

It is easy for 4-H members to lose sight of the overall objective of the beef industry. This objective is to continuously improve the genetics of the beef animal in order to provide a profitable, consistent and high quality product to meet the demand of the consumer. Members can get caught up in the show ring aspects of beef production because the ribbons, trophies and awards are viewed as determinants of success.

We want members to become interested in producing a quality carcass that can be produced economically. Most often, this has nothing to do with the show ring or the placing on Achievement Day. It is essential that members gain a sound understanding of the beef animal and what it should look like underneath the hide - that is what the consumer is paying for.

A strong understanding of the beef carcass will assist members in their future cattle decisions. It will also make them more mindful of the many issues surrounding beef production today.

Level 1 Activities

- **Selling Your Carcass** (page 88)

Fill in the Blanks

1. A four letter word for the most valuable part of the carcass is meat.
2. The consumer is the person or people who buy your product. They determine the type of product you, the beef producer, should be producing.
3. Meat, the edible part of the carcass, is muscle.

What Makes Up The Carcass

1. Muscle
2. Fat
3. Bone

Why do we grade beef?

- To tell the difference between breeds. FALSE
- To give the consumer a consistent quality product. TRUE
- To reward the producer for producing top quality beef. TRUE
- To set a standard to compare carcass qualities. TRUE

- To indicate to the consumer the qualities of colour, marbling, tenderness, juiciness, flavour and amount of fat. TRUE

Who grades beef carcasses?

- d) Meat graders

Is beef grading necessary?

Some of the benefits of having our meat products graded are:

- The quality of beef is consistent
- A standard for the producer to meet
- Ensures that all producers in our country produce a top quality product
- colour, marbling, tenderness, juiciness and fat are consistent

What is the difference between grading and inspecting?

Grading is categorizing the carcass according to different characteristics. It takes into account the maturity or age, colour, yield, fat and marbling.

Inspecting is the examination of the animals before and after slaughtering to ensure that the standards of sanitation, hygiene, product handling, packaging and labeling are met. Any carcass that does not meet these standards is condemned and destroyed.

Why is inspection important?

Inspection guarantees that the carcasses meet rigid standards of sanitation, hygiene, product handling, packaging and labeling. In other words, the product is handled for the safety of the consumer. Any carcass that does not meet these regulations is condemned and destroyed.

- **Grading Review** (Page 90)

1. Suppose your carcass graded Canada A1.

What price would you receive for it today? (*Answer will vary depending on the date*)

Is it youthful or mature meat? *Youthful*

Is it bright or dark red meat? *Bright*

Will it be made into hamburger? (*Part of all carcasses are made into hamburger*)

2. Suppose you culled a seven year old cow from your herd.

What grade would it be? *D*

It will have these characteristics:

Older

Darker meat

Tougher fat

Darker fat

Level 2 Activities

- What happens to the rest of the animal that is not considered to be part of the carcass? This includes the feet, horns, internal organs, and so on.

These items are used for the production of by products and specialty products (liver, kidney, sweetbreads, heart, tongue, tripe, and so on).

454 kg animal (1,000 lbs)

435 lbs (196.8 kg) Retail Beef

- Steaks
- Ground beef
- Roasts
- Stew Beef

Variety Meats

- Liver
- Kidney
- Sweetbreads
- Heart
- Tongue
- Tripe

Edible By-Products

- Oleo oil & stock for margarine & shortening
- Gelatin
- Marshmallows
- Canned meat
- Natural sausage casings
- Ice cream

Inedible By-Products

- Leather
- Sports equipment
- Surgical sutures
- Soap
- Cosmetics
- Buttons
- China
- Photographic film
- Sandpaper
- Violin strings
- Camel hair rushes
- Explosives

Pharmaceuticals

- Rennet
- Epinephrine - for hay fever, asthma
- Thrombin - for blood clotting
- Insulin - for diabetes
- Heparin - anti-coagulant
- TSH - stimulates thyroid
- ACTH - corticotropin
- Estrogen
- Thyroid extract

- Products from the beef animal go into making many materials. Mark the items you think contain some part of the beef animal.

Amino acids from body protein	Margarine, shortening, gum candies
Gelatin from bones and horns	Marshmallows, ice cream, canned meats
Intestines	Sausage casings
Hair from animal's ears	Artist brushes
Glycerin from tallow	Lipstick, handcream, toothpaste, cough medicine, soaps, candles, crayons
Bones, horns and hooves	China, piano keys

To find out more information on these and other products, talk to your local butcher.

- **The Beef Carcass - A Quick Review** (page 101)

The scrambled and unscrambled words are:

SMLUEC	MUSCLE
ESTER	STEER
CCSSAAR	CARCASS
NMCSROUE	CONSUMER
CNTPREEIONS	PERCEPTIONS
EADRG	GRADE
YUIAQTL	QUALITY

Level 3 Activities

- **Consumer Crossword** (page 68)



Activities For The Entire Club

- Visit a packing plant, slaughterhouse or a butcher.
- Mark the live animal. Using chalk or powder, draw lines on the live beef animal to show where the beef cuts are located. Have members feel the animal to determine the amount of muscle or fat in each area.
- As an additional activity, take pictures of the marked animal. Keep them on file for future reference.
- **Do a consumer survey**

Have members use the following survey, or design their own, to determine consumer buying habits, tastes and preferences. A local grocery store or butcher shop is an excellent place to find consumers. Discuss the findings as a club. Prepare a summary of your findings. You may even want to have your results published in the local newspaper.

Sample Consumer Survey

1. Are you the main food purchaser in the family?
YES or NO
2. Do you normally purchase beef as part of your weekly shopping?
YES or NO
3. Do you eat more or less of each of these than beef?

Chicken	MORE or LESS
Pork	MORE or LESS
Fish	MORE or LESS
4. Do you view beef as healthy and wholesome? Why or why not?
5. Which of these factors are important to you when selecting beef products?

_____ price	_____ packaging	_____ colour	_____ brand
_____ fat amount	_____ marbling	_____ fat colour	_____ quantity
6. What cuts or types of beef do you buy most often?
7. Do you consider beef production to be environmentally safe?
8. Would you buy a product call "natural beef" over the regular beef products? Why or why not?
9. Do you feel that meat produced in Canada is unsafe in any way?

- **Beef Tasting Extravaganza or Mystery Beef Dinner**

Have a beef tasting extravaganza or dinner involving all 4-H families. Have each family prepare a different beef dish. In order to have a wide variety of dishes, select the recipes at the beginning and have each family draw one from a hat.

Share the dishes so everyone has a chance to taste them all. Prepare an information card for each with the cut, the method of preparation and the recipe.

- **Carcass Quiz**

Design a beef carcass quiz for all members to complete. This would be a good exercise for a senior member.

- **Have a guest speaker**

Contact your local breed association and find out who they might recommend as speakers in your area.

- **Carcass Judging**

Have a carcass judging competition either in conjunction with your achievement day or at a meeting. Members, leaders and parents can all take part in this activity. Judge a class of live steers, or take photos of them. Judge the carcasses, and compare placings to that of the live animals.

- **Limerick Contest**

This activity will help members learn more about beef in a fun and crazy way. Have them make up limericks either by themselves or in pairs or groups. Invite the parents to try their creative hands too. Use carcass and beef terminology.

Limericks are verses rhyming in a specific pattern. Following are two examples:

Example 1

There was a young fella named Leif
and boy he sure liked his beef
T-bone or stew
anything that would moo
gave his fish loving family much grief.

Example 2

There was a young man who liked steak
he went to the restaurant to take
a sample food
but it tasted so rude
It was tofu! Boy, what a mistake!
Now make up your own to share with the members!

- **RAP**

I'm sure that members are all familiar with rap. Let's see how creative everyone can be. Here's an example:

We are 4-H members and we love our first class beef
(rap rap rap rap - you know what I mean)
We want you to realize what we sell is quality
(rap rap rap rap ...)
Sirloin, steak, stew or roast,
We've got the recipe to make you the perfect host.
Eat our beef and soon you will see
Why you should support our industry.
(rap rap rap rap ...)

You can really have a lot of fun with this activity!

Unit 17: Marketing

Roll Call: What do you think of when you hear the word marketing?

It is likely that everything mentioned will have something to do with marketing. If you want to spend more time with members on the topic of marketing, there is further information in level 1.

Objectives

Level 1

- To understand the concept of marketing and how it applies to the beef industry and others.
- To recognize how many people are involved in moving beef from the field to the table.
- To become familiar with the characteristics of the beef industry and beef marketing at the national, provincial and local levels.

Level 2

- To become aware of the different options for marketing beef cattle in Canada.
- To learn the difference between marketing live and on the rail, and to determine which is currently most desirable for individual producers.

Level 3

- To learn how the beef cycle affects the beef market and the producers.
- To encourage members to have some fun with the topic of beef marketing.

Level 1 Activities

- **Market It** (page 93)

Spend time with members working through this activity. They can work individually or in small groups or teams to plan how they would market their goods or services. Some ideas for goods and services are lemonade at a lemonade stand, grass cutting for homes in the neighbourhood, picking up recyclable items, delivering newspapers or flyers, raking leaves in the neighbourhood, making and selling Christmas cards, decorations or crafts.

- **Journey to the Table** (page 94)

The objective of this activity is to help members realize that many people are involved in moving beef from the field to the table.

- | | | |
|-----------------|---------------|------------------|
| 1. veterinarian | 6. butcher | 10. researcher |
| 2. auctioneer | 7. waiter | 11. barn builder |
| 3. trucker | 8. equipment | 12. farmer |
| 4. accountant | worker | 13. grader |
| 5. rail worker | 9. ranch hand | |

- **Provincial and Local Beef Markets** (page 95)

Spend time discussing the characteristics of your provincial beef industry. For more information contact your local agriculture office. Discuss your local area. Topography and characteristics may make your area quite different from other parts of the province and country.

Level 2 Activities

- **Options for Marketing Beef Cattle**

This topic provides lots of opportunity for discussion. Invite members to share how they market on their farm. Members should find that everyone will market cattle a little differently. Stress that there is no right or wrong method. Generally, small producers will handle marketing very differently than large producers. Encourage members to look at other options available and decide how they would suit their operation. Have members complete the activity: Taking a Look on page 104.

- **Rail Grading**

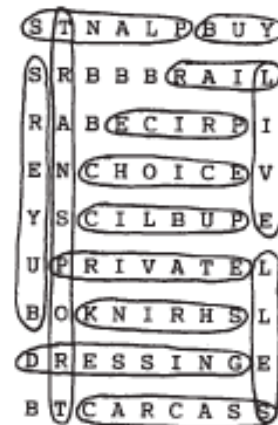
Invite a speaker to come and talk about rail grading. Suggestions are local producer, buyer or packing plant representative.

- **Rail or Live**

With members, work through the method of deciding which is most suitable today. Have members find price information by looking in newspapers, contacting local marts, listening to the radio or television, talking to their agriculture office or to producers.

- **Let's Market** (page 107)

Buy, buyers, carcass, choice, dressing, live, plants, price, private, public, rail, sell, shrink, transport



Level 3 Activities

- **The Beef Cycle**

Encourage members to talk about the beef cycle and look at where we are today. Discuss predictions for prices next year, in three years and in five years.

- Encourage members to get involved in creating and leading some fun activities for the rest of the members in your club.

Activities For the Entire Club

- Invite a guest speaker. Suggestions include:
 - A cattle buyer to discuss how they buy cattle and to provide ideas to the sellers about how they can make informed decisions.
 - An operator of a local auction mart to explain their operation.
 - A local producer to talk about how they buy and/or sell cattle and why.
 - A representative of a packing house to talk about what they look for in cattle coming in.
- If you have a slaughter house, packing plant or auction mart in your local area, you may want to arrange a tour. Keep in mind that this may be difficult for some of your members, so check with them ahead of time to make sure it would be acceptable.

Unit 18: The Beef Industry Today

Roll Call: Name a person who is involved in the beef industry.

Objectives

Level 1

- To understand where they fit in the beef industry.
- To learn about consumers and how they decide.

Level 2

- To learn more about some of the factors that directly affects the beef industry.
- To understand some of the changes that has occurred in the beef industry over the last 25 years.
- To learn more about how consumer demand affects the industry.

Level 3

- To become aware of the complexity of the beef industry.
- To find out more about the sensitive issues that affects the beef industry.
- To become aware of the effect the media and advertising can have upon the beef industry.

Level 1 Activities

- **Where do you fit?** (page 96)

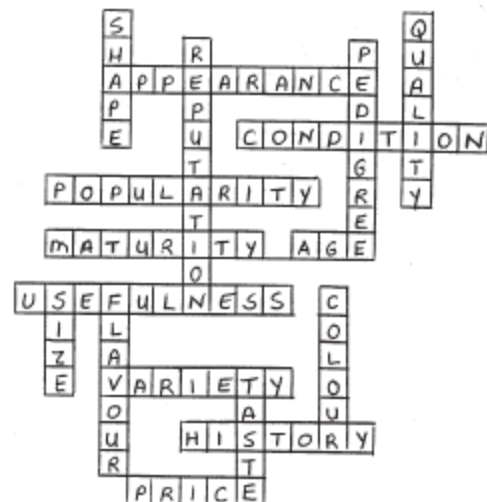
In this section, it is important that members understand the key role the beef producer plays in the agriculture industry. Discuss the importance of producing beef. In Canada there are over 25 million people. Most of these people eat beef. One steer goes a long way in feeding some of these people.

- **The Power of Choice** (page 98)

Consumers make choices when they make a purchase. Discuss how different things can help to influence the choice a consumer makes. Have members provide input on how they decide.

- **Wrapping Up Crossword** (page 99)

Following are the solutions to the crossword puzzle. Discuss how each of these things can have an effect on the consumer's decision.



Level 2 Activities

- **Factors Affecting the Beef Industry Today** (page 108)

This crossword puzzle is designed to lead into a discussion on the members' views of how the beef industry can be affected by different factors. Here are a few ideas:

- **Prefer** - beef vs. chicken or pork, why
- **Antibiotics** - cost vs. results, people are scared of side effects
- **Choices** - made in the supermarket - packaging, cost, appearance
- **Family** - cost to feed, fast meals, time for preparing
- **Genetics** - availability to the breeder, AI vs. natural breeding
- **Grade** - ability to produce Canada A1 beef, cull cows
- **Economical** - those who can't make money get out of business
- **Efficient** - large herds vs. small herds, cow calf vs. finishing
- **Chemophobias** - fear of drugs
- **Perception** - what people think of beef
- **Natural** - the extra cost of it, actually "natural"
- **Lean** - how much is too fat?
- **Quality** - fat colour and quantity, meat colour, texture
- **Sustainable** - is our agriculture system self supporting?
- **Cholesterol** - the effect recent cholesterol scares have had on beef
- **Health** - of animals and consumers
- **Safety** - of people working with animals, of the product
- **Fat** - how much is too much?
- **Castration** - humane, healthy, effects

- **From Yesterday to Today** (page 109)

The beef industry has changed over the years in response to customer demands, the feeds available, the genetics available and the changing farmer.

	From	To
A	Smaller, fatter and dumpy	Larger, taller and leaner
B	Small family farm, producing beef for just family, neighbours	Finishing hundreds of steers in a feedlot
C	Small cuts with more fat	Larger cuts, leaner
D	Grass, pasture fed and finished	Feedlot fed, concentrates, less time to market

- **Consumer Demand - Food For Thought** (page 111)

Consumer demand affects the beef industry in many ways. Most importantly, we need consumers to want our product. By keeping it in demand, we can produce more of it and be sure that it will sell. When the customer demands a leaner product, we need to start producing a leaner product.

What is it that affects consumer demand?

- Price
- Appearance
- Information received - true or false
- Health and cholesterol levels

How do you think the average consumer perceives beef? The answer to this will vary with each member as they are all consumers themselves and each of them will perceive it differently.

It is important that the cattle producer understands how we want the consumer to perceive beef as this will directly affect the things we do when producing beef.

What can the producers do to help consumers perceive beef in a positive way? The beef producer should be sensitive to today's issues and be aware of how they can affect him.

Level 3 Activities

Level 3 members have some interesting activities in their unit material. The information they gather would be good to share with all members in your club.

Activities For The Entire Club

- **Invite a speaker**

There are many people in the beef industry you can call upon to share their expertise, opinions and ideas about beef production. Select a topic of interest to you and your members and invite a speaker. Make sure you invite 4-H parents and friends to take part in the meeting.

Some suggestions for speakers include:

- Beef specialist
- Veterinarian
- Game farmer
- Saskatchewan Agriculture staff
- Local feedlot operator
- Representative from Canada Beef Export Federation
- Your butcher

Ideas for topics include:

- Animal welfare
- Consumer perception of the beef product
- Food safety
- Cattle and the environment
- Beef as a nutritious product
- The beef cycle
- New opportunities for beef
- Grading system
- Marbling and tenderness
- Free trade

- **Beef Information Night**

Members and leaders may wish to hold a beef information night for the local community. This can be both fun and educational. As a club, plan and implement the evening together with your local agricultural society.

This type of activity would help to:

- Provide a community service
- Instill a sense of purpose in your members
- Help people learn more about the beef industry
- Give people experience in program planning
- Give people experience in working as a team
- Possibly raise money for the club

Advertise the event throughout your community. Use posters, radio, newspapers, flyers and announcements. See if you can obtain sponsorship from the butcher shop, grocery store or auction mart.

- **“The Crazy Beef Producer”**

Here’s an idea for an activity that both members and adults can play. It will take some time and space to play, so hold it in a place where there is lots of room to move around. It is a good activity to use to introduce members to some of the issues facing beef producers.

1. Prepare cards with the labels listed below. Have one card for each participant. Double up the labels or add some more ideas if you have more participants.

Feed supplier

Politician

Butcher

Veterinarian

Game rancher

Organic beef producer

Banker

Animal welfare activist

Acreage owner

Retail store owner

Government representative

Lobbyist

Vegetarian

Consumer

2. Prepare an obstacle course. This should be made of tasks to be accomplished. Some ideas are climbing over a board fence, climbing through the front seat of a truck, passing around a full pitcher of water, making a sandwich from five specific items, singing a song, colouring a picture, eating three crackers, or anything else you can think of. Use your imagination and make sure everything is safe.
3. Have each participant draw a card. Have each participant picture themselves as the person on the card and describe how they would relate to the beef industry.
4. Tie all of participants together, in a circle, using a long rope. Explain to them that the group is a beef producer trying to make a living producing beef. The obstacle course represents the industry. The beef producer (the entire group) must proceed through the industry (the obstacle course) toward their ultimate goal which is the production of a top quality beef product.
5. Send the group on their way through the obstacle course.
6. Once the riotous event is over, and everyone has had a chance to catch their breath, sit down and discuss the exercise.

Discuss how the entire group accomplished the tasks assigned. Key points are:

- The farmer (like the group) needs to cooperate with the various elements (the other group members) in order to accomplish his goals.
 - No part of the group was independent from the other parts.
7. Spend time discussing the influence the different people have on the beef industry. You may wish to record the discussion for future reference.

Examples are:

Politician: Makes major decisions that affect the industry. Often, interest or lobby groups can influence him. Name some of these groups.

Government: Government regulations, although very necessary, may slow down the processes, take too long and may be difficult to change. What would it be like without any government support or regulations?

Feed Supplier: This person is affected by the crop production situation, grain prices, feed availability and feed quality. How do these affect his profit margin and the cattle producer's profit margin?

Animal Welfare Activist: These people have certain opinions on humane beef practices and production that may differ from the producer's. How might these affect the producer, demand for beef and consumer perception?

- **Inter Club Activity**

For those of you, who enjoy interaction with other clubs in your district or region; organize an interclub activity based on the topic of **The Beef Industry Today**. Some ideas are a trivial pursuit night organized by senior members, a potluck supper with a guest speaker, or an impromptu speaking competition.

Unit 19: Beef Grooming, Showing & Judging

Roll Call: Name a tool used when grooming or showing beef?

This unit is for all members to learn about grooming and showing beef cattle. The project material for this unit is in the level 1 manual only, and not in level 2 and 3. If level 2 and 3 members haven't done the lessons in a previous year, you may want to copy the material for them to include in their binders.

It is important to note that there is much more to grooming and showing than we could possibly include in this unit. This information is intended to be an introduction only. For further information on grooming and showing, contact your breed associations, local beef breeders, judges or other experienced people in your area.

Activities

- **Invite a guest speaker**

There are many grooming and showing professionals in your local area who would be willing to share their expertise with 4-H members. Invite one to come to your meeting and talk about grooming or showing today. Have them provide a demonstration. You can have members actively take part by pretending to be animals in a show ring, moving as the judge requests.

- **Show a video**

The Saskatchewan 4-H office has some videos available for you to rent. Call the office for a list, or contact your breed associations to find out more.

- **The Memory Game**

When discussing preparing the show box for show day, try this quick, fun memory game to introduce the topic.

Show members a complete show box containing items needed for grooming or showing beef cattle. Put in many different items. Allow members to view the show box for 30 seconds.

Have them make a list of all of the items they saw in the box. If many members are inexperienced with grooming and showing, have them work in teams.

Some items you may want to include are bucket, clean rags, clippers (different sizes), curry comb, brush, rope halter, leather halter, blanket, show stick, and so on.

- **The Fast List**

Have members work in pairs to make a list of the items to put in their show box for achievement day. Give them two minutes to list as many items as they can, along with a use for each item.

Set up the lists like this:

Item	Use
Clean rags	To wipe the ears or your clippers
Show stick	For showing animal
And so on...	

- **Hold a grooming and showing workshop**

There are many options for this. You could hold a short workshop on washing and drying, clipping, final show preparation or showmanship. You could hold a full day workshop where members bring halter broken animals and groom them. You could hold mock competitions to help them learn the specifics about showing. No matter what type of workshop you hold, make sure members have an opportunity to do some “hands-on” learning. This is especially important for younger and inexperienced members.

Senior and more experienced members often have a wealth of knowledge about grooming and showing. You may want to invite one or more of these members to conduct the workshop. It would be a valuable learning experience for them.

- **Show Ring Competition**

Show ring competitions are becoming more popular across the province. These competitions, where members practice acting as judge and/or ringperson, give them another opportunity to develop their skills. The following information on the responsibilities of the judge and the ringperson will be helpful to you.

The **judge** of 4-H competitions should:

- Have a sincere interest in the development of the skills and knowledge of 4-H members.
- Arrive at the show location well in advance of the start of the show, and check in with the secretary or a show committee member.
- Always act in a professional manner.
- Remain unbiased.
- Be aware of time constraints.
- Be familiar with the show regulations and rules.
- Report any unprofessional or unethical practices to the show committee members.
- Communicate with the ringperson before the show begins; decide how animals will enter the ring, parade, line up and exit the ring, and who will indicate this to members.
- Use common signals to direct movement in the ring.

- To move around the ring - move arm and hand around in circular motion.
- To stop - hold up arm with palm out.
- Be prepared to give tactful and professional reasons.
 - Publicly to the top placings in a large class or all placings in a small class.
 - Individually to all members.
 - Arrange to line up the animals so they can be viewed easily by the audience.

The **ringperson** of 4-H competitions should:

- Help the judge.
- Communicate with the judge before the show begins; know who is responsible for which duties.
- Handle every class at that show in the same manner.
- Keep animals moving in straight lines and large circles.
- Assist exhibitors with difficult animals.
- Direct members to the correct locations in the ring.
- Give directions to members on how to exit and enter the ring.
- Keep the animals, exhibitors and the show moving along smoothly and in an organized manner.
- Not express opinions or comments unless asked to do so.

Hints for Organizing a Beef Show

Organizing a show is a big responsibility and requires a lot of work. Don't try to do it all yourself. Recruit volunteers (members, leaders, parents, friends and neighbours) to help with the event.

The key to a successful event lies in organization. Make sure all committee members know who will be responsible for which duties. Use a check-list.

You will need to consider these duties:

Show location	Master of ceremonies	Advertising
Show date	Show time	Cleaning up after show
Booking facilities	Registrations	Presenting ribbons
Supplying straw	Catalogues and programs	Setting up stalls
Checking ear tags	Ordering awards	Checking papers
Payments: <ul style="list-style-type: none"> • Judges • Facilities • Refreshments • Awards 	Judges for each competition: <ul style="list-style-type: none"> • Contact • Confirm • Brief before show 	Thank you: <ul style="list-style-type: none"> • Judges • Facilities • Volunteers • Any others
Audio system	Insurance	Recorder
Ringperson(s)		

Ten Commandments for Parents of Youngsters Showing Cattle

1. THOU SHALT NOT feed, train and care for the animal, for thou art trying to teach the child responsibility.
2. THOU SHALT forgive a child for making mistakes in the show ring for thou hath made mistakes too.
3. THOU SHALT NOT get mad when thy child forgets items in the showbox, for one day thou may forget the showbox.
4. THOU SHALT help the show management, for they are doing a job thou would not want to do.
5. THOU SHALT see that thy child is on time for all show activities, for thou would not want to wait on another.
6. THOU SHALT be sure that the child has animals entered and registration papers in order by the designated time.
7. THOU SHALT teach the child that winning a blue ribbon is a desirable goal, but making friends along the way is a more worthy goal.
8. THOU SHALT NOT complain about the judge, for it is his opinion that has been sought.
9. THOU SHALT remember that livestock projects are teaching projects, not necessarily moneymaking projects.
10. THOU SHALT remember that the livestock project is a family project that shall be enjoyed and supported by the entire family.

By: Clyde D. Lane Jr., University of Tennessee

Unit 20: Learning About Animal Welfare

This unit is in level 2 and 3 and not in level 1. Saskatchewan 4-H offers a leader supplement called "Learning About Animal Welfare" that could be incorporated into all levels of the beef project. Contact the provincial office for a copy.

Roll Call: Name some concerns the public may have about the welfare of your project animal?

- Depending on the projects of your members, possible answers include:
- Neutering, castrating
- Confined space, caging, tying, tethering
- Shipping, hauling
- Removal of horns, tails, beak trimming
- Animal identification
- Slaughtering procedures
- Show sticks, canes, cattle prods
- Shearing, clipping, induced moulting
- Discipline, training or pets
- Livestock expositions
- Rodeo, gymkhanas
- Use of animals for recreation or work
- Exposure of animals to weather, environmental control
- Drug use, steroid use, implants
- Use of animals in research
- Veal production
- Sale yard practices
- Disposal of unwanted chicks, poults and pipped eggs
- Disease of individual vs. herd euthanasia
- Artificial insemination

In this unit members will learn about animal welfare issues, examine their own practices with their project animals and develop a strategy for responding to animal welfare concerns. It is important that members read and complete the activities in this unit before participating in any group discussions or activities.

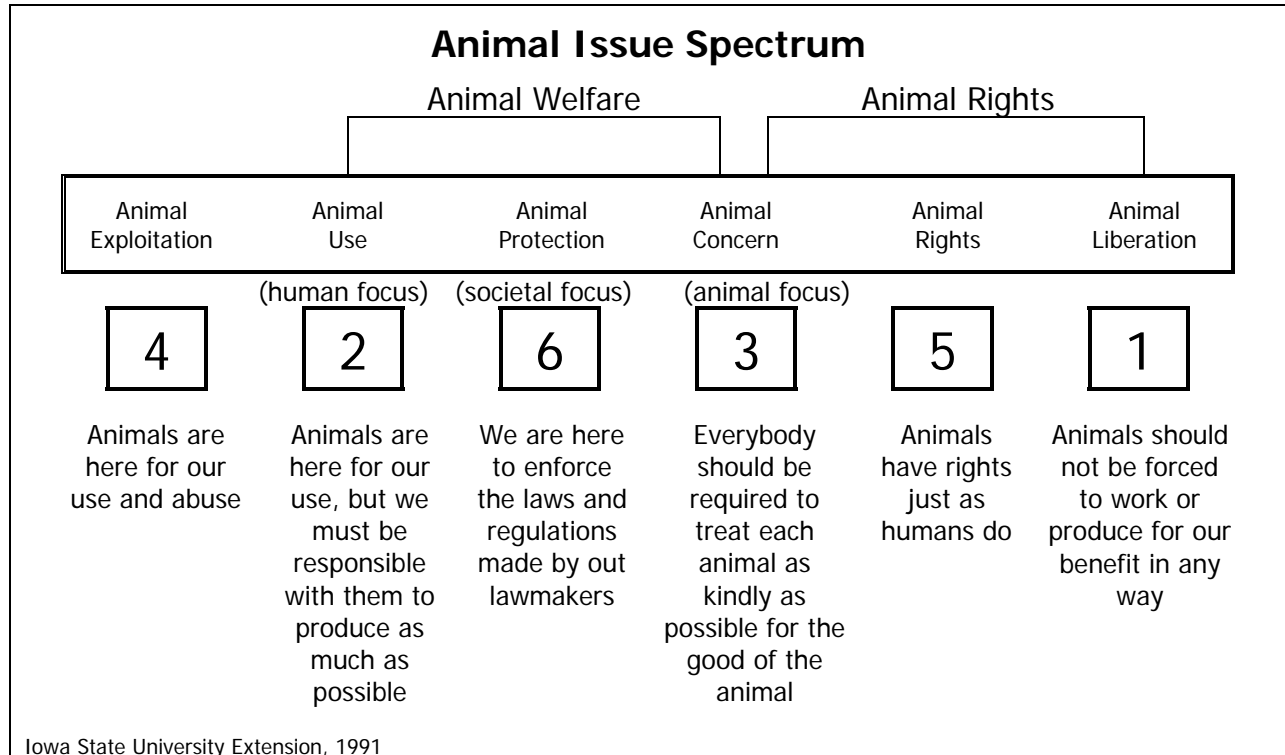
Objectives

Level Two

- Develop an understanding of where animal welfare issues come from.
- Examine various viewpoints of what human interactions with animals should be like.
- Understand the difference between an animal welfare and an animal rights stand on issues of animal care.
- Establish their personal viewpoint on animal welfare issues and prepare themselves to respond to the questions and concerns of the public.

Level Three

- Plan strategies for handling animal welfare questions and dealing with the media.
- Learn how to be a spokesperson and conduct positive interviews.
- Learn facts to support their position.



Level 2 Activities

- **Start Digging** (page 114)

Have members work through the activities and the questions. You could have them present some of their findings to the whole group.

- **Animal Issue Spectrum** (page 117)

Have members complete the chart and discuss as a group their results.

- **Why We Do What We Do** (page 118)

Remove horns, tails or trim beaks: To enhance handling practices, for the safety of the animals and the producer, and/or to avoid complications later on.

Transport Animals: To move animals to a fresh food supply to prevent over-grazing and soil erosion, or to deliver the animals to regulated and inspected processing plants.

Train and show our animals: To learn about proper handling and training of our animals, understanding their behaviour and celebrating our accomplishments.

Eat meat: Domestic animals convert grasses into human nutrition and would otherwise not be available. Meat provides important proteins.

Branding and/or tattooing: Permanent identification and theft deterrent. Not currently shown to be excessively painful.

Confine animals in pens or cages: To better provide for their individual or group environmental and physical needs. To enable close monitoring of their individual health.

Feed grain to livestock instead of starving people: The quality of most feed grains is inadequate for human consumption.

Castration: To prevent aggressive behaviour and enhance the handling of the animal. To control the breeding of the animals and to enhance the efficiency of feed animals.

As a group, discuss the next three questions and have members record the best responses to them.

- **What Would You Say** (page 121)

Work through this activity as a group and have members record the best responses for the questions.

Level 3 Activities

- Invite members to share their findings after reviewing material from a group concerned with animal care.
- Invite members to share their responses to public concerns about the treatment of agricultural animals. Discuss the responses based on the "Suggested Ways to Respond" provided in their manual.

Activities For the Entire Club

- Interview Activity (20 minutes) to be facilitated by a leader or a level three member.
- Prepare for and practice responding to animal rights groups and the media.
- Have a few volunteers experience an interview with the types of challenging questions provided in this manual. Interview them in front of the club as if you were a reporter. After they have responded to a few questions, ask other members to provide some feedback and ideas on how to improve the responses given.

Conclusion

- 4-H involves livestock projects. Animal welfare is an important component of the 4-H program. Animal rights philosophy is a threat to 4-H livestock projects and to animal agriculture. The 4-H community must ensure that project animals are treated humanely, become informed about animal care issues, and get involved by educating the public about the excellence of 4-H and animal agriculture. This unit is a first step in becoming informed. You, as a club, as a family farm/business and/or as an individual, have to decide where to go from here.



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