

## ***Section 2: Selecting An Animal***

## Lessons included the *Selecting An Animal* section of the eLearning tool:

Lesson 1: Animal History .....	12
Lesson 2: Anatomy .....	15
Lesson 3: Frame Score .....	17
Lesson 4: Estimating Finish Weight.....	19
Lesson 5: Grading System .....	22
Lesson 6: Cuts of Meat .....	24
Lesson 7: Beef Breeds .....	26

### ***Key Takeaway:***

Considerations for selecting animals to be a part of a herd must be aligned with the producer’s operation, as well as their overarching production and profit goals. The animal’s history and potential for cattle or beef production should be top of mind when selecting an animal.

## **By completing the *Selecting An Animal* section of the eLearning tool, members will be able to:**

- Work through the assessment of an animal’s history using a checklist.
- Locate the parts of a beef animal’s anatomy on a diagram.
- Measure an animal’s hip height and determine the animal’s frame score, finished weight and the average daily gain needed to achieve finished weight.
- Give an overview of the beef grading system in Canada and list what characteristics differentiate the quality grades.
- Label a diagram of a beef animal’s carcass with the different cuts of meat.
- Reflect on what breed traits would be most important to them and their production and profit goals.

### ***Lesson 1: Animal History***

Reference Sheet: Assessing an Animal's History

Checklist: Assessing an Animal's History

### ***Lesson 2: Anatomy***

Diagram: Anatomy of Beef Cattle

Activity Sheet: Anatomy of Beef Cattle

### ***Lesson 3: Frame Score***

Reference Sheet: Determining and Using Frame Score

Charts: Frame Score for Females and Males

### ***Lesson 4: Estimating Finish Weight***

Reference Sheet: Estimating Finish Weight

Reference Sheet: Average Daily Gain

Activity Sheet: Determining Frame Score, Finished Weight & Average Daily Gain

### ***Lesson 5: Grading System***

Reference Sheet: Beef Grading in Canada

Chart: Quality Grades

### ***Lesson 6: Cuts of Meat***

Diagram: Cuts of Meat

Activity Sheet: Cuts of Meat

### ***Lesson 7: Beef Breeds***

Reference Sheet: Selecting Beef Breeds

## Reference Sheet

### Assessing an Animal's History

---

An animal's history and previous management will affect how the animal will grow, develop and generally maintain its overall health in the future. When building a comprehensive history of an animal, producers consider the following:

- **Date of Birth/Age Verification.** Ask for an age verification certificate and make sure the certificate matches the tag number.
- **Weaning.** Ask when the animal was weaned and what it weighed at weaning.
- **Breeding Considerations.** Will the animal's dominant breed traits will help to meet your cattle and beef production goals. If you're considering a purebred animal, ask to see a copy of the registration papers.
- **Castration.** For a steer, determine when it was castrated and what method was used. Be sure to check that its castration was done properly and is in fact complete.
- **Horns.** Check to see if the animal is horned, dehorned or polled. If the animal is not polled, ask when it was dehorned and what method was used. Inspect the head for any regrowth. If there is regrowth, will the process need to be repeated?
- **Health.** Observe to see if the animal is it alert and active. Does it have a good appetite? Is the hair coat smooth and shiny? Does the animal have bright, clear, eyes? Are the ears upright, not drooping? Does the animal drink the water provided? Is the manure and urine normal for its age? Is there evidence of disease or parasites? Is the animal too fat or too thin? What is the current weight of the animal?
- **Vaccinations and de-worming.** Ask for a record of both.
- **Disposition.** Is it calm and comfortable around people and other animals or does it seem agitated? What is it's positioning in a corral?
- **Implants.** Ask if the animal received any growth implants. If so, with what product and when?

## Checklist

### Assessing an Animal's History

---

#### ***Date of Birth (DOB) / Age Verification***

- Does the animal meet the age requirements for the project?  
Refer to the 4-H Alberta Beef Project Policy #6.05 for specific age requirements for projects.
- Have you seen the age verification certificate?
  - Does the certificate match the tag number?

#### ***Weaning***

- What was the weaning date?
- What was the weaning weight?

#### ***Breeding Considerations***

- Is the animal a purebred or crossbred?
  - If crossbred,
    - What are the major breed influences?
    - Will this cross's traits help meet your project goals?
  - If purebred,
    - Will the breed's traits help meet your project goals?
    - Are there registration papers for the animal?

#### ***Castration***

- If selecting a steer, when was it castrated?
  - What method was used to castrate?
  - Is there evidence that castration was incomplete?

#### ***Horns***

- Is the animal horned, dehorned or polled?
  - When was the animal dehorned?
  - What method was used to dehorn the beef project animal?
  - Is there any regrowth, and if so, will the process have to be done again?  
Check the 4-H Alberta Beef Project Policy 6.05 for further guidelines.

## Checklist Cont

### Assessing an Animal's History

---

#### **Health**

- Does the animal look healthy?
  - Is the animal alert?
  - Does it have a good appetite?
  - Is the animal active?
  - Is the hair coat smooth and shiny?
  - Does the animal have bright, clear, eyes?
  - Are the ears upright, not drooping?
  - Does the animal drink the water provided?
  - Is the manure and urine normal for the age of the animal?
  - Is there evidence of disease or parasites?
  - Is the animal either too fat or too thin?
  - What is the current weight of the animal?

#### **Vaccination & Deworming**

- Did you ask for a record of vaccinations and deworming?

#### **Disposition**

- What is the beef project animal's disposition?
- How does the animal behave?
- Is the animal calm and comfortable around people and other animals?

Some things to look for and avoid are:

Eyes - wild, fiery, scared

Legs - fidgety, pawing, kicks

Stance - charging, shaking, cowering

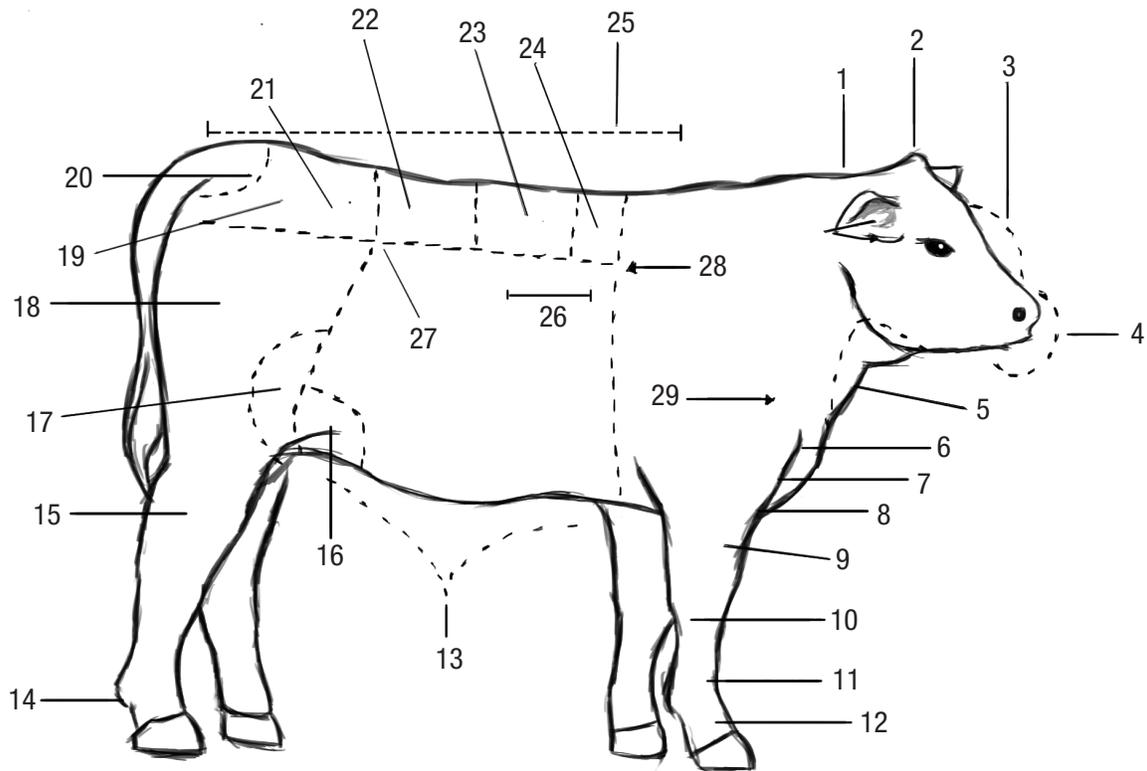
Positioning in the corral – if the animal stays far away from you at all times, stay far away from it as a project.

#### **Implants**

- Has the animal received a growth implant?
  - If so, with what product?
  - When was it implanted?

## Diagram

### Anatomy of Beef Cattle

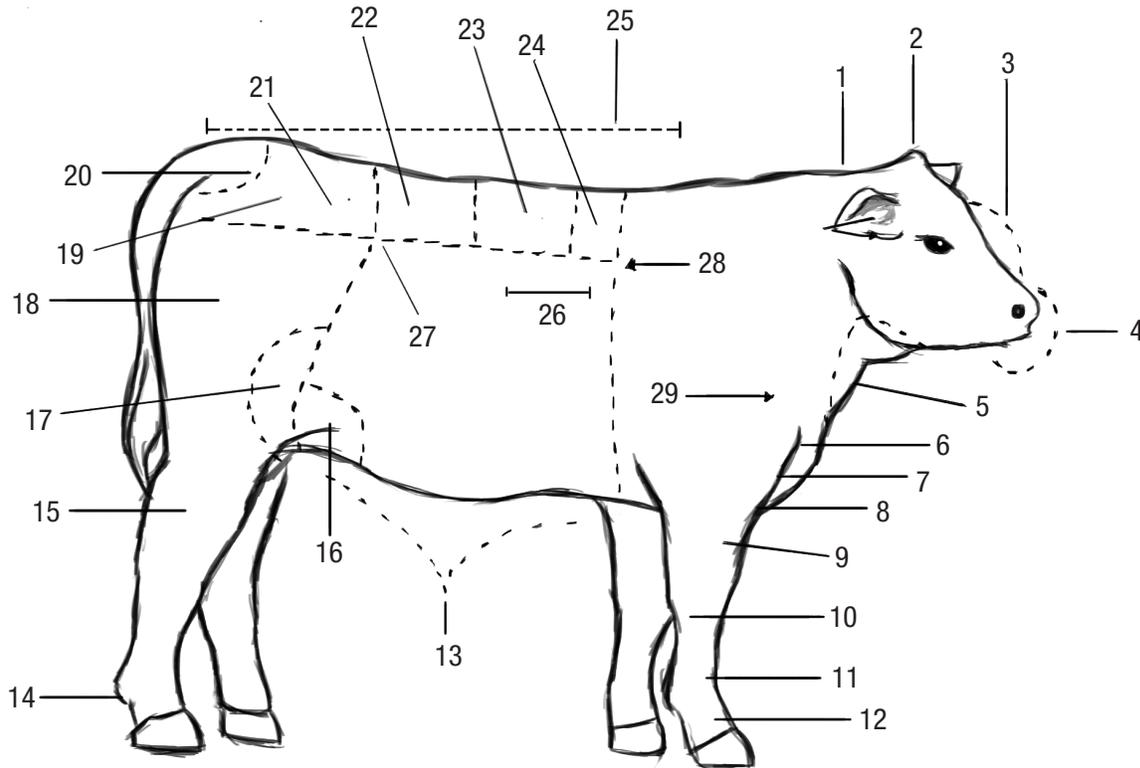


- |                          |                |                   |               |                 |
|--------------------------|----------------|-------------------|---------------|-----------------|
| 1. Crest                 | 7. Brisket     | 13. Underline     | 19. Pin Bone  | 25. Topline     |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

# Member Activity Sheet

## Anatomy of Beef Cattle

Instructions: Correctly match the parts of the animal to their location on the diagram.



- |                   |                             |                     |
|-------------------|-----------------------------|---------------------|
| _____ Poll        | _____ Chest Floor           | _____ Dew Claw      |
| _____ Tail Head   | _____ Ribs                  | _____ Topline       |
| _____ Pin Bone    | _____ Underline             | _____ Brisket       |
| _____ Crest       | _____ Point of the Shoulder | _____ Pastern       |
| _____ Quarter     | _____ Crop                  | _____ Ear           |
| _____ Shoulder    | _____ Back                  | _____ Stifle Region |
| _____ Shank       | _____ Dewlap                | _____ Muzzle        |
| _____ Knee        | _____ Flank                 | _____ Loin          |
| _____ Heart Girth | _____ Hooks                 | _____ Rump          |
| _____ Hock        | _____ Forearm               | _____ Face          |

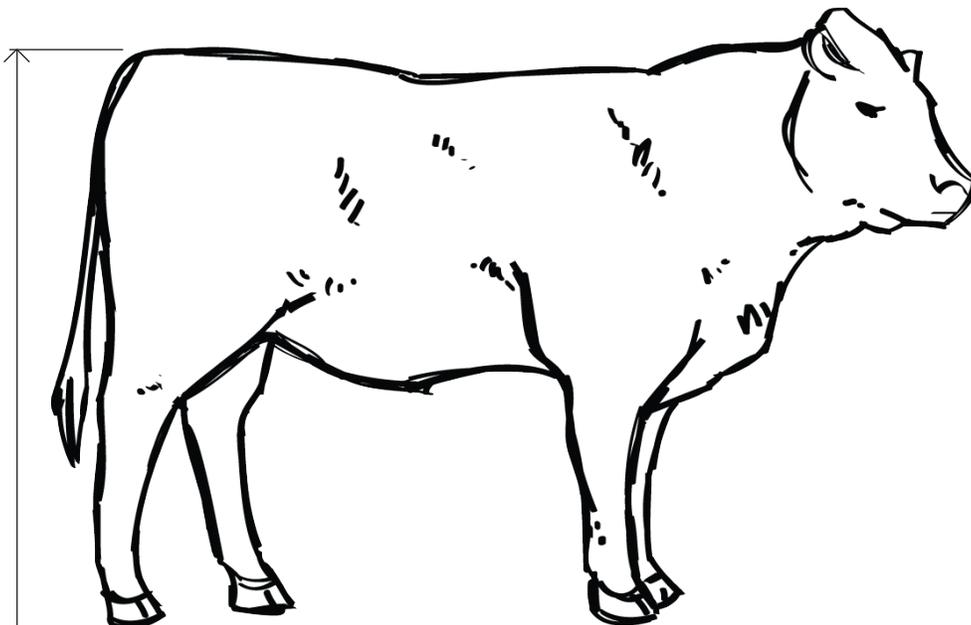
## Reference Sheet

### Determining and Using Frame Score

---

Frame score is determined by the age and the hip height of the animal. With the frame score, the producer can better determine how best to feed the animal in the time that they have. The higher the frame score, the longer it will take to finish the animal or the larger it will be as a mature cow or bull.

#### *Measuring Hip Height*



Ensuring that the animal is standing on a level surface, in inches, measure to the point directly over the hip bones.

## Charts

### Frame Score for Females and Males

#### Frame Score for Females

Age (months)	Frame Score for Heifers								
	1	2	3	4	5	6	7	8	9
5	33.1	35.1	37.2	39.3	41.3	43.4	45.5	47.5	49.6
6	34.1	36.2	38.2	40.3	42.3	44.4	46.5	48.5	50.6
7	35.1	37.1	39.2	41.2	43.3	45.3	47.4	49.4	51.5
8	36.0	38.0	40.1	42.1	44.1	46.2	48.2	50.2	52.3
9	36.8	38.9	40.9	42.9	44.9	47.0	49.0	51.0	53.0
10	37.6	39.6	41.6	43.7	45.7	47.7	49.7	51.7	53.8
11	38.3	40.3	42.3	44.3	46.4	48.4	50.4	52.4	54.4
12	39.0	41.0	43.0	45.0	47.0	49.0	51.0	53.0	55.0
13	39.6	41.6	43.6	45.6	47.6	49.6	51.6	53.6	55.6
14	40.1	42.1	44.1	46.1	48.1	50.1	52.1	54.1	56.1
15	40.6	42.6	44.6	46.6	48.6	50.6	52.6	54.6	56.6
16	41	43	44.9	46.9	48.9	50.8	52.8	54.8	56.7
17	41.4	43.3	45.3	47.2	49.2	51.1	53.1	55.1	57.0
18	41.7	43.6	45.6	47.5	49.5	51.4	53.4	55.3	57.3
19	41.9	43.9	45.8	47.7	49.7	51.6	53.6	55.5	57.4
20	42.1	44.1	46.0	47.9	49.8	51.8	53.7	55.6	57.6
21	42.3	44.2	46.1	48.0	50.0	51.9	53.8	55.7	57.7
Hip Height (Inches)									

Example: A heifer born on March 15th with a hip height measurement of 46.1 inches on October 15th will have a Frame Score of 6.

#### Frame Score for Males

Age (months)	Frame Score for Steers								
	1	2	3	4	5	6	7	8	9
5	33.5	35.5	37.5	39.5	41.6	43.6	45.6	47.7	49.7
6	34.8	36.8	38.8	40.8	42.9	44.9	46.9	48.9	51.0
7	36.0	38.0	40.0	42.1	44.1	46.1	48.1	50.1	52.2
8	37.2	39.2	41.2	43.2	45.2	47.2	49.3	51.3	53.3
9	38.2	40.2	42.3	44.3	46.3	48.3	50.3	52.3	54.3
10	39.2	41.2	43.3	45.3	47.3	49.3	51.3	53.3	55.3
11	40.2	42.2	44.2	46.2	48.2	50.2	52.2	54.2	56.2
12	41.0	43.0	45.0	47.0	49.0	51.0	53.0	55.0	57.0
13	41.8	43.8	45.8	47.8	49.8	51.8	53.8	55.8	57.7
14	42.5	44.5	46.5	48.5	50.4	52.4	54.4	56.4	58.4
15	43.1	45.1	47.1	49.1	51.1	53.0	55.5	57.0	59.0
16	43.6	45.6	47.6	49.6	51.6	53.6	55.6	57.5	59.5
17	44.1	46.1	48.1	50.1	52.0	54.0	56.0	58.0	60.0
18	44.5	46.5	48.5	50.5	52.4	54.4	56.4	58.4	60.3
19	44.9	46.8	48.8	50.8	52.7	54.7	56.7	58.7	60.6
20	45.1	47.1	49.1	51.0	53.0	55.0	56.9	58.9	60.9
21	45.3	47.3	49.2	51.2	53.2	55.1	57.1	59.1	61.0
Hip height (Inches)									

Example: A steer born on February 1st with a hip height measurement of 49.3 inches on October 1st will have a Frame Score of 7.

## Reference Sheet

### Estimating Finish Weight

---

Frame Score is used to estimate the finished or mature weight at which the animal will be ready for market or breeding. After producers determine the frame score, they use this chart to estimate the finished weight:

Frame Score	Finished Weight (estimated in pounds)
2	850
3	950
4	1050
5	1150
6	1250
7	1350
8	1450
9	1550

Example: A steer with a Frame Score of 6 would have an estimated finished weight of be 1250 pounds.

## Reference Sheet

### Average Daily Gain

---

Once producers know the estimated finished weight of an animal, they can calculate the Average Daily Gain they need to achieve in order to reach a desired finished weight at the time they'd like to market or breed the animal.

#### Step 1


$$\begin{array}{r} \text{Target Weight} \quad 1250 \\ \text{Current Weight} \quad - 650 \\ \hline \text{Weight to Gain} \quad 600 \end{array}$$

Target Weight or Estimated Finished Weight (pounds)

-

Current Weight or Weight at Weigh-In Day (pounds)

---

Weight to Gain or Pounds needed to gain to reach Target Weight (pounds)

#### Step 2


$$\begin{array}{r} 5.5 \text{ months} \times 30 \text{ days} \\ \hline 165 \text{ Days} \end{array}$$

Months Until Desired Sale or Breeding Date

x

30 (days)

---

Number of Days Until Desired Sale or Breeding Date

#### Step 3


$$\begin{array}{r} \text{Weight to Gain} \quad 600 \\ \text{Number of Days} \quad / 165 \\ \hline 3.64 \text{ pounds/day} \end{array}$$

Weight to Gain

÷

Number of Days Until Desired Sale or Breeding Date

---

Average Daily Gain

## Member Activity Sheet

### Deetermining Frame Score, Finished Weight & Average Daily Gain

---

Instructions: Work through the following process to determine the average daily gain needed to achieve a desired finished weight for your project animal.

#### **Frame Score**

Your steer calf or heifer calf's age in months: a. \_\_\_\_\_

Current hip height of your steer calf or heifer calf in inches: b. \_\_\_\_\_

Referring to the appropriate Frame Score Chart, use the age in months (a.) and the hip height in inches (b.), to determine the frame score of your steer calf or heifer calf: c. \_\_\_\_\_

#### **Estimated Finished Weight**

Referring to the Estimated Finish Weight Chart, use the frame score (c.), to determine your steer calf or heifer calf's approximate finished weight: d. \_\_\_\_\_

#### **Average Daily Gain**

Estimated Finished Weight (d). \_\_\_\_\_

-

Current Weight of your Steer Calf or Heifer Calf: e. \_\_\_\_\_

---

Weight to Gain f. \_\_\_\_\_

Months Until Desired Sale or Breeding Date g. \_\_\_\_\_

x

30 (days in a month) h. \_\_\_\_\_

---

Days Until Desired Sale or Breeding Date i. \_\_\_\_\_

Weight to Gain (f). \_\_\_\_\_

÷

Days Until Desired Sale or Breeding Date (i). \_\_\_\_\_

---

Average Daily Gain (j). \_\_\_\_\_

## Reference Sheet

### Beef Grading In Canada

---

It is important for beef producers to understand the grading system because carcasses with top quality grades are sold at a premium, and the information collected from the grading process can be used to improve production and marketing techniques.

Grading gives customers a consistent way of selecting beef and therefore greater consistency and predictability in the eating quality of specific grades of beef. Beef grading is overseen by the Canadian Beef Grading Agency and is conducted by certified graders after a carcass has been inspected and approved for health and safety standards and bears a federal or provincial meat inspection legend or stamp.

The grader assesses a carcass based on several criteria influencing carcass quality and the lean yield.

**Quality** – Predicted tenderness, juiciness, customer acceptability and shelf life are assessed based on maturity (age), sex, conformation (muscling), fat (colour, texture and cover) and meat (colour, texture and marbling). The assessment of marbling is based on the average amount, size and distribution of fat particles or deposits in the rib eye.

**Yield** – Carcasses qualifying for Canada Prime or any of the Canada A grades are also assessed for an estimation of lean meat yield. This is done by graders using a yield ruler to determine the rib-eye size and fat class between the 12th and 13th ribs.

Each of the characteristics assessed while grading has an influence on quality.

- **Maturity.** Affects tenderness.
- **Sex.** Pronounced masculinity affects meat colour and palatability.
- **Muscling.** Meat yield is influenced by the degree of muscling.
- **Fat.** Colour and texture of fat influence consumer acceptability whereas fat cover affects yield.
- **Meat.** Marbling affects eating quality for juiciness and tenderness. Colour and texture influence consumer acceptability.

The grades that all feedlots feeding youthful cattle strive for is Canada A, Canada AA, Canada AAA and Canada Prime with a lean meat yield of around 60%.

## Chart

### Quality Grades

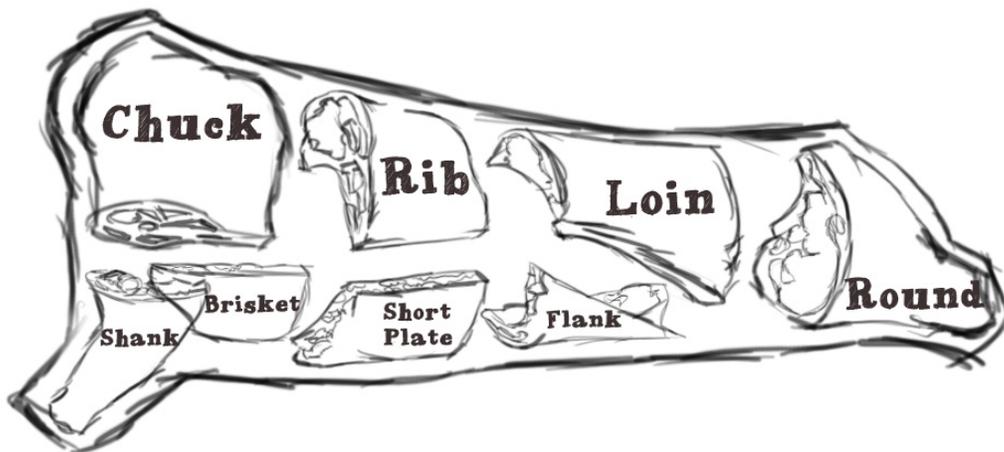
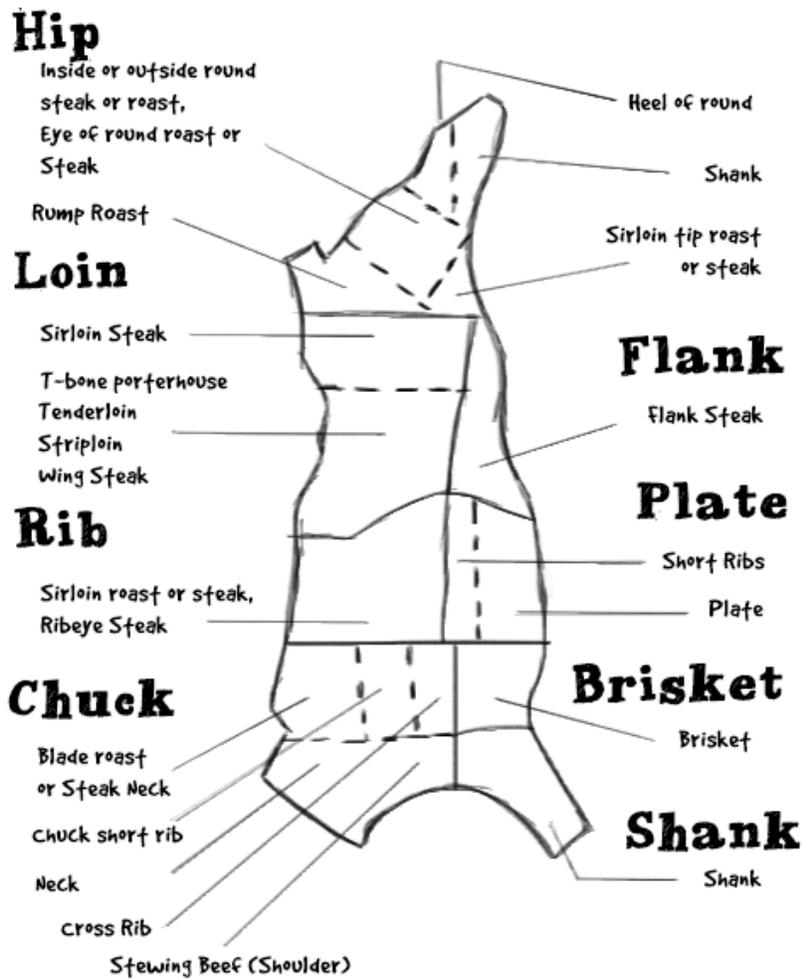
This chart shows what characteristics are required for many of the quality grades.

The Quality Grades						
Grade	Maturity (Age)	Muscling	Rib Eye Muscle	Marbling	Fat colour & Texture	Fat Measure
Canada prime	Youthful	Good to Excellent with some deficiencies	Firm, Bright Red	Slightly Abundant	Firm, White or Amber	2mm or more
Canada A, AA, AAA	Youthful	Good to Excellent with some deficiencies	Firm, Bright Red	A- Trace AA- Slight AAA- Small	Firm, White or Amber	2mm or more
B1	Youthful	Good to Excellent with some deficiencies	Firm, Bright Red	No requirement	Firm, White or Amber	Less than 2mm
B2	Youthful	Deficient to Excellent	Bright Red	No requirement	Yellow	No requirement
B3	Youthful	Deficient to Good	Bright Red	No requirement	White or Amber	No requirement
B4	Youthful	Deficient to Excellent	Dark Red	No requirement	No requirement	No requirement

# Diagram

## Cuts of Meat

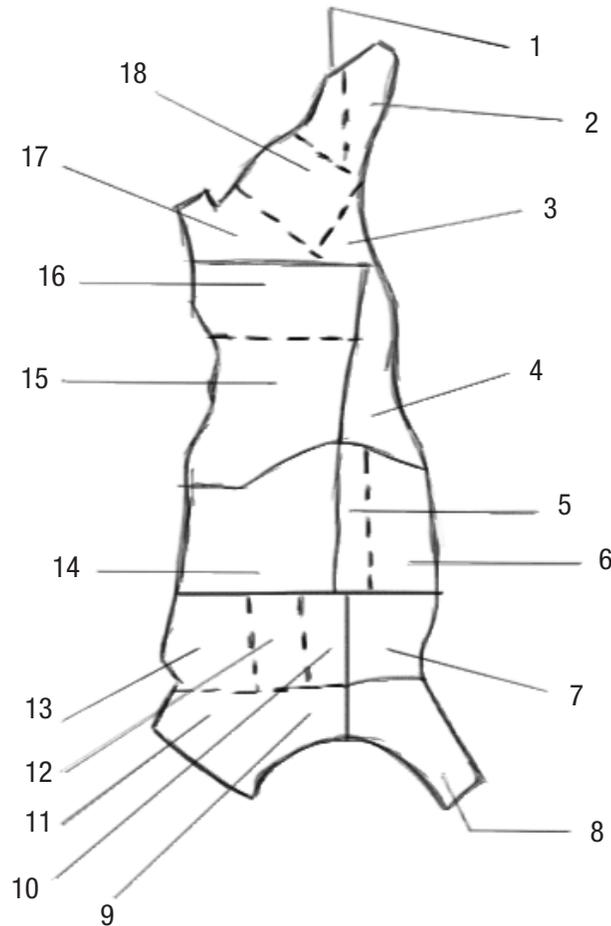
Consumers are drawn to different cuts of meat for different uses. The values associated with each cut vary as a result.



## Member Activity Sheet

### *Cuts of Meat*

Instructions: Match each cut of meat to the location on the carcass that it comes from.



\_\_\_\_ Sirloin roast or steak,  
Ribeye steak

\_\_\_\_ Heel of round

\_\_\_\_ Chuck short rib

\_\_\_\_ Plate

\_\_\_\_ Stewing Beef (Shoulder)

\_\_\_\_ Short ribs

\_\_\_\_ Shank

\_\_\_\_ Inside or outside round  
steak or roast, eye of  
round roast or steak

\_\_\_\_ Shank

\_\_\_\_ Brisket

\_\_\_\_ T-bone  
Porterhouse  
Tenderloin  
Striploin  
Wing steak

\_\_\_\_ Blade roast or  
Steak neck

\_\_\_\_ Sirloin tip roast  
or steak

\_\_\_\_ Flank steak

\_\_\_\_ Neck

\_\_\_\_ Rump roast

\_\_\_\_ Sirloin steak

\_\_\_\_ Cross rib

## Reference Sheet

### Selecting Beef Breeds

---

There are a lot of different breeds of beef in Alberta. Each breed has some important trait differences. For instance, some breeds have been bred with an emphasis on carcass and growth characteristics while some have been bred for their hardiness and maternal qualities.

Producers make decisions on breed or breeds based on what type of operation they're running and the breed traits that are mostly likely to help them meet their production, marketing and profit goals.

It's not unusual for a group of beef producers to end up in a friendly debate about the various breeds! Learn more at the various breed association websites.