

Appendix



BULL HIP HEIGHTS (INCHES) AND FRAME SCORES*

Age in Months	Frame Score								
	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	55.0	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

Frame Score = $-11.548 + (0.4878 \times \text{Ht}) - (0.0289 \times \text{Age}) + (0.00001947 \times \text{Age}^2) + (0.0000334 \times \text{Ht} \times \text{Age})$,
 where Age = days of age.

HEIFER HIP HEIGHTS (INCHES) AND FRAME SCORES*

Age in Months	Frame Score								
	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	45.5	47.5	49.5	51.5	53.5	55.5
14	40.1	42.1	44.1	46.1	48.0	50.0	52.0	54.0	56.0
15	40.6	42.6	44.5	46.5	48.5	50.5	52.4	54.4	56.4
16	41.0	43.0	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

Frame Score = $-11.7086 + (0.4723 \times \text{Ht}) - (0.0239 \times \text{Age}) + (0.0000146 \times \text{Age}^2) + (0.0000759 \times \text{Ht} \times \text{Age})$,
 where Age = days of age.

* Taken from *Beef Improvement Federation (BIF) Guidelines for Uniform Beef Improvement Programs*, Eighth Edition, 2002. Hip height measurement should be taken at a point directly over the hip bones (hooks) with the animal standing on a level surface.

GESTATION TABLE – BASED ON 283 DAYS PREGNANCY

Date of Service	Calf Due	Date of Service	Calf Due	Date of Service	Calf Due	Date of Service	Calf Due	Date of Service	Calf Due	Date of Service	Calf Due
Jan	Oct	Mar	Dec	May	Feb	Jul	Apr	Sep	Jun	Nov	Aug
1	10	1	8	1	7	1	9	1	10	1	10
2	11	2	9	2	8	2	10	2	11	2	11
3	12	3	10	3	9	3	11	3	12	3	12
4	13	4	11	4	10	4	12	4	13	4	13
5	14	5	12	5	11	5	13	5	14	5	14
6	15	6	13	6	12	6	14	6	15	6	15
7	16	7	14	7	13	7	15	7	16	7	16
8	17	8	15	8	14	8	16	8	17	8	17
9	18	9	16	9	15	9	17	9	18	9	18
10	19	10	17	10	16	10	18	10	19	10	19
11	20	11	18	11	17	11	19	11	20	11	20
12	21	12	19	12	18	12	20	12	21	12	21
13	22	13	20	13	19	13	21	13	22	13	22
14	23	14	21	14	20	14	22	14	23	14	23
15	24	15	22	15	21	15	23	15	24	15	24
16	25	16	23	16	22	16	24	16	25	16	25
17	26	17	24	17	23	17	25	17	26	17	26
18	27	18	25	18	24	18	26	18	27	18	27
19	28	19	26	19	25	19	27	19	28	19	28
20	29	20	27	20	26	20	28	20	29	20	29
21	30	21	28	21	27	21	29	21	30	21	30
22	31	22	29	22	28	22	30		Jul	22	31
	Nov	23	30		Mar		May	22	1		Sep
23	1	24	31	23	1	23	1	23	2	23	1
24	2		Jan	24	2	24	2	24	3	24	2
25	3	25	1	25	3	25	3	25	4	25	3
26	4	26	2	26	4	26	4	26	5	26	4
27	5	27	3	27	5	27	5	27	6	27	5
28	6	28	4	28	6	28	6	28	7	28	6
29	7	29	5	29	7	29	7	29	8	29	7
30	8	30	6	30	8	30	8	30	9	30	8
31	9	31	7	31	9	31	9	---	---	---	---
Feb	Nov	Apr	Jan	Jun	Mar	Aug	May	Oct	Jul	Dec	Sep
1	10	1	8	1	10	1	10	1	10	1	9
2	11	2	9	2	11	2	11	2	11	2	10
3	12	3	10	3	12	3	12	3	12	3	11
4	13	4	11	4	13	4	13	4	13	4	12
5	14	5	12	5	14	5	14	5	14	5	13
6	15	6	13	6	15	6	15	6	15	6	14
7	16	7	14	7	16	7	16	7	16	7	15
8	17	8	15	8	17	8	17	8	17	8	16
9	18	9	16	9	18	9	18	9	18	9	17
10	19	10	17	10	19	10	19	10	19	10	18
11	20	11	18	11	20	11	20	11	20	11	19
12	21	12	19	12	21	12	21	12	21	12	20
13	22	13	20	13	22	13	22	13	22	13	21
14	23	14	21	14	23	14	23	14	23	14	22
15	24	15	22	15	24	15	24	15	24	15	23
16	25	16	23	16	25	16	25	16	25	16	24
17	26	17	24	17	26	17	26	17	26	17	25
18	27	18	25	18	27	18	27	18	27	18	26
19	28	19	26	19	28	19	28	19	28	19	27
20	29	20	27	20	29	20	29	20	29	20	28
21	30	21	28	21	30	21	30	21	30	21	29
	Dec	22	29	22	31	22	31	22	31	22	30
22	1	23	30		Apr		Jun		Aug		Oct
23	2	24	31	23	1	23	1	23	1	23	1
24	3		Feb	24	2	24	2	24	2	24	2
25	4	25	1	25	3	25	3	25	3	25	3
26	5	26	2	26	4	26	4	26	4	26	4
27	6	27	3	27	5	27	5	27	5	27	5
28	7	28	4	28	6	28	6	28	6	28	6
---	---	29	5	29	7	29	7	29	7	29	7
---	---	30	6	30	8	30	8	30	8	30	8
---	---	---	---	---	---	31	9	31	9	31	9

GUIDELINES FOR CATTLE PRODUCTION IN ARKANSAS

Soil –	Typical; medium to low fertility; not shallow	
Annual Rainfall –	45"-55"	
Average Temperature –	North: 58°-60°	South: 62°-64°
Growing Season –	North: 190-210 days	South: 210-230 days
Land –	North: 3 grazable acres per cow (Range 2-5)	South: 2 grazable acres per cow (Range 2-4)
Pasture –	North: 2 parts tall fescue 1 part bermuda	South: 1 part tall fescue 1 part bermuda
Annual Fertilization –	Fescue: 200# Ammonium Nitrate/Acre 300# 10-20-20/Acre Bermuda: 300# Ammonium Nitrate/Acre 400# 0-20-20/Acre	
Lime –	2 tons per acre every five years	
Clover Seed –	North: Adapted White – 2#/A of fescue pasture. Red or Arrowleaf – 10#/A of bermuda pasture.	South: Adapted White – 2#/A of fescue pasture. Crimson – 20#/A or Red or Arrowleaf – 10#/A of bermuda pasture.

COW HERD MANAGEMENT

	Fall Calves	Spring Calves
January	Cows and calves with bulls grazing on deferred tall fescue receiving 5#/day legume-bermuda hay. (Bulls put with cows December 23.)	Dry cows grazing deferred tall fescue; hay during bad weather Heifer calving starts Permanently identify calves at birth Record birth dates Castrate at birth Implant steer calves
February	Continue grazing deferred tall fescue with 5#/day legume-bermuda hay Castrate and implant bull calves Dehorn Vaccinate calves for Blackleg 7-way and IBR-BVD-PI ₃ Vaccinate heifers for Brucellosis Vaccinate cow herd for Lepto, IBR-BVD-PI ₃ and vibriosis	Cows grazing deferred tall fescue and fescue and legume; hay in bad weather Cow calving starts Permanently identify calves at birth Record birth dates Castrate at birth Implant steer calves
March	Graze tall fescue and legume Get egg count on fresh manure Remove bulls from cows March 24	Graze tall fescue and legume Permanently identify calves at birth Record birth dates Castrate at birth Fertility test bulls Start heifer breeding March 26 Implant steer calves
April	Graze tall fescue and legume Deworm cows if egg check indicates	Graze tall fescue and legume with 5# legume-bermuda hay per day to have cows gaining weight on lush grass before breeding Treat for external parasites Put bulls with cows for breeding April 25 Dehorn Re-implant calves if needed

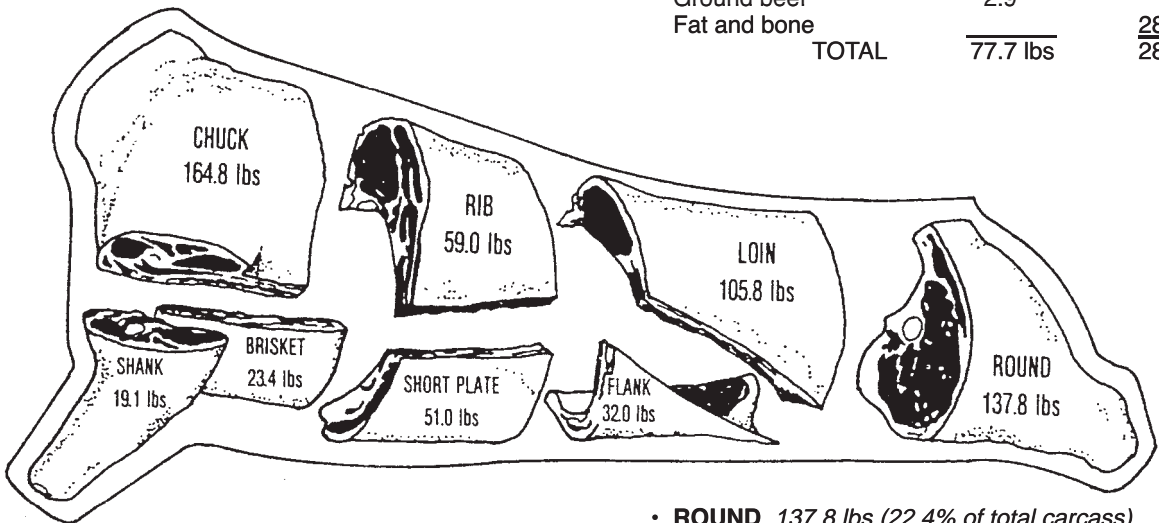
COW HERD MANAGEMENT (cont.)

	Fall Calves	Spring Calves
May	<p>Graze tall fescue and legume Re-implant calves if needed Treat for external parasites if present</p>	<p>Graze tall fescue and legume Treat for external parasites Move to bermuda-legume after haying Treat calves for internal parasites</p>
June	<p>Graze tall fescue and legume Move to bermuda and legume after haying Weigh and evaluate calves Pregnancy test first calf heifers Pregnancy test all cows Sell open cows Treat for external parasites</p>	<p>Graze bermuda and legume Vaccinate calves for Blackleg 7-way and IBR-BVD-PI₃ Vaccinate all heifers for Brucellosis Vaccinate cow herd for Lepto, IBR-BVD-PI₃ and vibriosis Treat for external parasites Remove bulls from cows after 60-90 day breeding season</p>
July	<p>Graze bermuda and legume Treat for external parasites Market calves in dry years Market cull cows</p>	<p>Graze bermuda and legume Treat for external parasites</p>
August	<p>Graze bermuda and legume Treat for external parasites Market calves most years Market cull cows Fertilize for stockpiled bermuda for fall grazing</p>	<p>Graze bermuda and legume Treat for external parasites Fertilize for stockpiled bermuda for fall grazing</p>
September	<p>Graze bermuda and legume Pour on for grubs and lice Treat for external parasites Check manure for egg count Deworm cows if egg check indicates Market calves in wet years Market cull cows Fertilize to stockpile fescue for winter pasture</p>	<p>Graze bermuda and legume Weigh and evaluate calves Pregnancy check first-calf heifers Pregnancy check all cows Sell open cows Pour on for grubs and lice Treat for external parasites Deworm cows if egg check indicates Fertilize to stockpile fescue for winter pasture</p>
October	<p>Graze tall fescue and legume Calving starts Permanently identify calves at birth Record birth dates Castrate at birth Implant steer calves Begin grazing stockpiled bermuda Sod-seed winter annuals and legume in bermuda</p>	<p>Graze bermuda and legume and move to fescue and legume Market calves in dry years Market cull cows Begin grazing stockpiled bermuda Sod-seed winter annuals and legume in bermuda</p>
November	<p>Graze tall fescue and legume Permanently identify calves at birth Record birth dates Fertility test bulls Graze stockpiled bermuda pastures</p>	<p>Graze tall fescue and legume Market calves most years Market cull cows Graze stockpiled bermuda pastures</p>
December	<p>Graze tall fescue and legume Permanently identify calves at birth Record birth dates Put heifers with bulls for early breeding December 1 Turn bulls with cows December 23 Begin grazing stockpiled fescue pastures</p>	<p>Graze tall fescue and legume Market calves in years that fall weather is good Market cull cows Treat for internal parasites if needed Begin grazing stockpiled fescue pastures</p>

A STEER IS NOT ALL STEAK...

An important factor in the price you pay for beef.

	Saleable Beef—lbs	Other lbs		Saleable Beef—lbs	Other lbs
• CHUCK 164.8 lbs (26.8% of total carcass)			• RIB 59.0 lbs (9.6% of total carcass)		
Blade roast	59.3		Rib roast	24.2	
Stew or ground beef	32.1		Rib steak	12.4	
Arm pot-roast	22.3		Short ribs	4.7	
Cross rib pot-roast	20.6		Braising beef	2.7	
Fat and bone		30.5	Ground beef	3.5	
TOTAL	134.3 lbs	30.5 lbs	Fat and bone		11.5
			TOTAL	47.5 lbs	11.5 lbs
• BRISKET 23.4 lbs (3.8% of total carcass)			• LOIN 105.8 lbs (17.2% of total carcass)		
Boneless	9.4		Porterhouse steak	18.7	
Fat and bone		14.0	T-bone steak	9.5	
TOTAL	9.4 lbs	14.0 lbs	Top loin steak	5.2	
			Sirloin steak	41.4	
• SHANK 19.1 lbs (3.1% of total carcass)			Ground beef	2.9	
			Fat and bone		28.1
			TOTAL	77.7 lbs	28.1 lbs

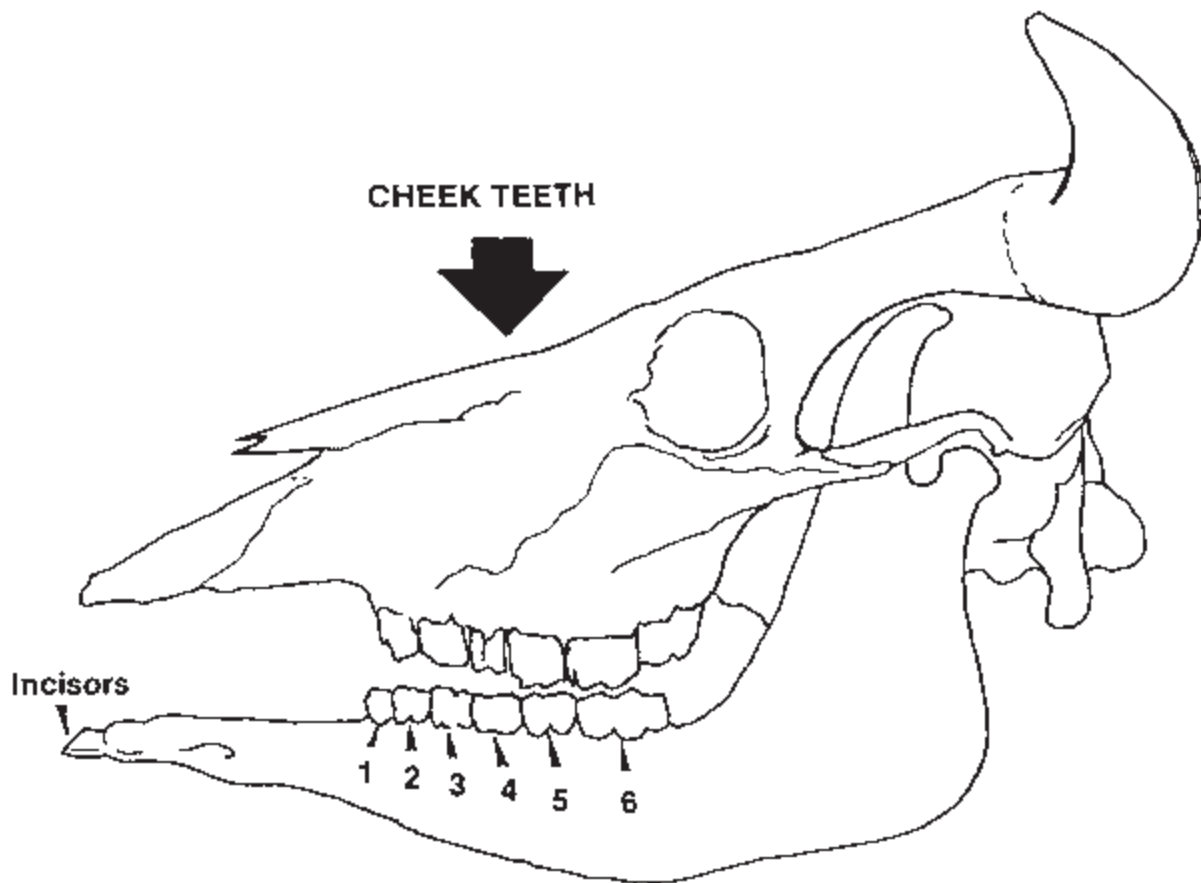


• SHORT PLATE 51.0 lbs (8.3% of total carcass)			• ROUND 137.8 lbs (22.4% of total carcass)		
Plate, stew, short ribs	40.8		Top round (inside)	21.0	
Fat and bone		10.2	Bottom round (outside)	20.3	
TOTAL	40.8 lbs	10.2 lbs	Tip	13.1	
			Stew	8.3	
• FLANK 32.0 lbs (5.2% of total carcass)			Rump	4.8	
Flank	3.2		Kabobs or cubes	2.1	
Ground beef	12.6		Ground beef	14.2	
Fat and bone		16.2	Fat and bone		54.0
TOTAL	15.8 lbs	16.2 lbs	TOTAL	83.8 lbs	54.0 lbs
• MISC. 22.1 lbs (3.6% of total carcass)					
Kidney, hanging tender	3.6				
Fat, suet, cutting losses		18.5			
TOTAL	3.6 lbs	18.5 lbs			

SUMMARY	
<i>(1,000 lb choice steer)</i>	
Dresses out	61.5%
Fat, bone, loss	183 lbs
Retail beef cuts	432 lbs

Supply and demand are major factors in the determination of retail prices for beef. This is readily seen when prices for various cuts are compared (i.e., a carcass yields only 9½ pounds of T-bone steaks but more than 65 pounds of ground beef). In addition to the 435 pounds of beef, a 1,000-pound steer yields more than 25 pounds of variety meats (i.e., kidney, heart, tongue, brains, tripe, liver, etc.). Cattle are also sources for important by-products used in manufacturing processes of a wide variety of products as well as life-saving, life-improving pharmaceuticals. Were it not for the valuable by-products derived from cattle, the price for beef would certainly be higher.

ESTIMATING THE AGE OF CATTLE USING TEETH



Premolars: 1, 2, 3

Temporary: birth- 1 month

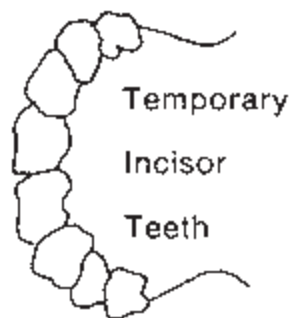
Permanent: 2-3½ years

Molars (permanent)

4 5-6 months

5 1-1½ years

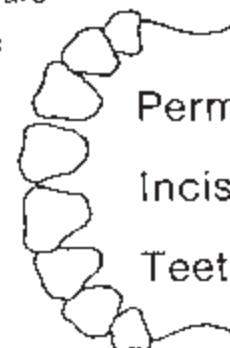
6 2-2½ years



Temporary
Incisor
Teeth









*Are present at birth or
appear at 2-4 weeks.*

Corners, 3½-4 years
Laterals, 36 months
Medials, 24-30 mos.
Centrals, 18-24 mos.



Permanent
Incisor
Teeth

HANDY GUIDE TO DETERMINING THE AGE OF ADULT CATTLE BY THE TEETH¹

Drawing of Teeth	Age of Animal	Description of Teeth
	at birth to 1 month	Two or more of the temporary incisor teeth present. Within first month, entire eight temporary incisors appear.
	2 years	As a long-yearling, the central pair of temporary incisor teeth or pinchers is replaced by the permanent pinchers. At 2 years, the central permanent incisors attain full development.
	2 1/2 years	Permanent first intermediates, one on each side of the pinchers, are cut. Usually these are fully developed at 3 years.
	3 1/2 years	The second intermediate or laterals are cut. They are on a level with the first intermediates and begin to wear at 4 years.
	4 1/2 years	The corner teeth are replaced. At 5 years the animal usually has the full complement of incisors with the corners fully developed.
	5 to 6 years	The permanent pinchers are leveled, both pairs of intermediates are partially leveled, and the corner incisors show wear.
	7 to 10 years	At 7 or 8 years the pinchers show noticeable wear; at 8 or 9 years the middle pairs show noticeable wear; and at 10 years the corner teeth show noticeable wear.
	12 years	After the animal passes the 6th year, the arch gradually loses its rounded contour and becomes nearly straight by the 12th year. In the meantime, the teeth gradually become triangular in shape, distinctly separated, and show progressive wearing to stubs. These conditions become more marked with increasing age.

¹The illustrations for this table were prepared by R. F. Johnson.