

# 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

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

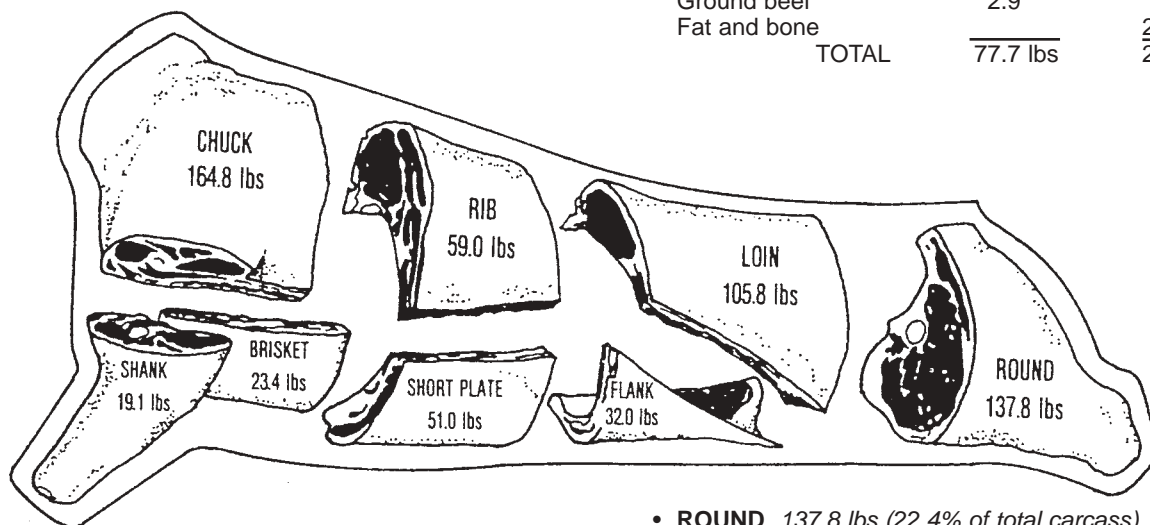
	Fall Calves	Spring Calves
<b>January</b>	Cows and calves with bulls grazing on deferred tall fescue receiving 5#/day legume-bermuda hay. (Bulls put with cows December 23.)	Dry cows grazing deferred tall fescue; hay during bad weather Heifer calving starts Permanently identify calves at birth Record birth dates Castrate at birth Implant steer calves
<b>February</b>	Continue grazing deferred tall fescue with 5#/day legume-bermuda hay Castrate and implant bull calves Dehorn Vaccinate calves for Blackleg 7-way, IBR-BVD-PI <sub>3</sub> , and Lepto Vaccinate heifers for Brucellosis Vaccinate cow herd for Lepto, IBR-BVD-PI <sub>3</sub>	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
<b>March</b>	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
<b>April</b>	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

	<b>Fall Calves</b>	<b>Spring Calves</b>
<b>May</b>	<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>
<b>June</b>	<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, IBR-BVD-PI<sub>3</sub>, and Lepto  Vaccinate all heifers for Brucellosis  Vaccinate cow herd for Lepto, IBR-BVD-PI<sub>3</sub>  Treat for external parasites  Remove bulls from cows after 60-90 day breeding season</p>
<b>July</b>	<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>
<b>August</b>	<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>
<b>September</b>	<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>
<b>October</b>	<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>
<b>November</b>	<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>
<b>December</b>	<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
• <b>CHUCK</b> 164.8 lbs (26.8% of total carcass)			• <b>RIB</b> 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	
<b>TOTAL</b>	<b>134.3 lbs</b>	<b>30.5 lbs</b>	Fat and bone		11.5
			<b>TOTAL</b>	<b>47.5 lbs</b>	<b>11.5 lbs</b>
• <b>BRISKET</b> 23.4 lbs (3.8% of total carcass)			• <b>LOIN</b> 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	
<b>TOTAL</b>	<b>9.4 lbs</b>	<b>14.0 lbs</b>	Top loin steak	5.2	
			Sirloin steak	41.4	
• <b>SHANK</b> 19.1 lbs (3.1% of total carcass)			Ground beef	2.9	
			Fat and bone		28.1
			<b>TOTAL</b>	<b>77.7 lbs</b>	<b>28.1 lbs</b>



• <b>SHORT PLATE</b> 51.0 lbs (8.3% of total carcass)			• <b>ROUND</b> 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	
<b>TOTAL</b>	<b>40.8 lbs</b>	<b>10.2 lbs</b>	Tip	13.1	
			Stew	8.3	
• <b>FLANK</b> 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
<b>TOTAL</b>	<b>15.8 lbs</b>	<b>16.2 lbs</b>	<b>TOTAL</b>	<b>83.8 lbs</b>	<b>54.0 lbs</b>
• <b>MISC.</b> 22.1 lbs (3.6% of total carcass)					
Kidney, hanging tender	3.6				
Fat, suet, cutting losses		18.5			
<b>TOTAL</b>	<b>3.6 lbs</b>	<b>18.5 lbs</b>			

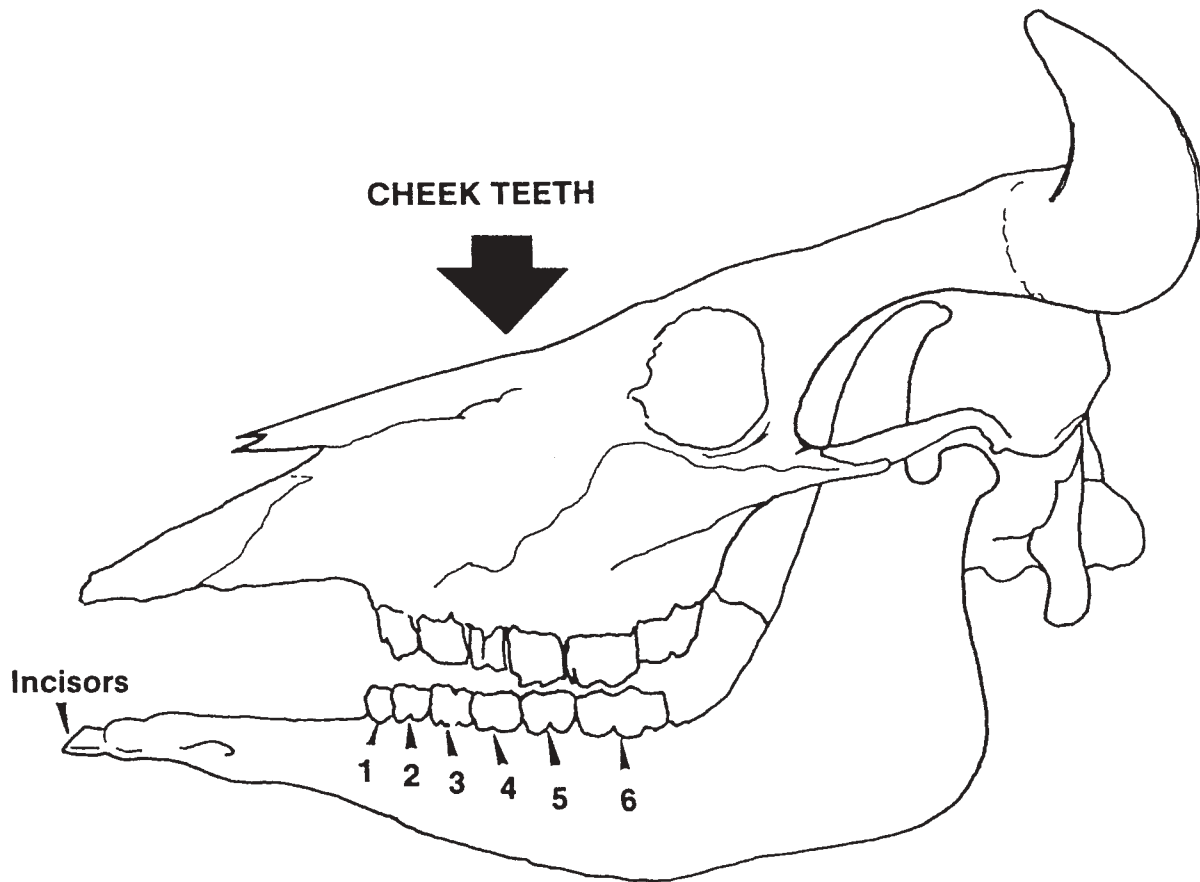
## SUMMARY

(1,000 lb choice steer)

Dresses out	61.5%	615 lbs
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 9 1/2 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*

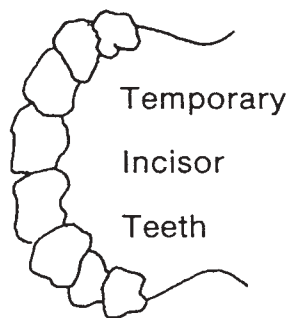
*Permanent: 2-3½ years*

## Molars (permanent)

4 5-6 months

5 1-1½ years

6 2-2½ years



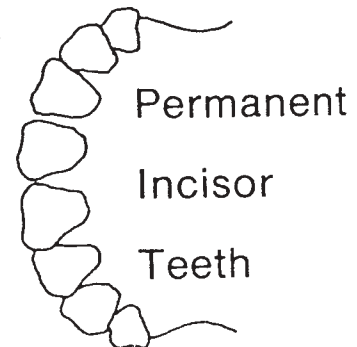
Temporary

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 TEETH<sup>1</sup>

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.

<sup>1</sup>The illustrations for this table were prepared by R. F. Johnson.