

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

Cow Herd Management

Month	Fall Calves	Spring Calves
January	<p>Cows and calves with bulls grazing on stockpiled tall fescue. Fertilize small grains and ryegrass. Monitor body condition. Apply herbicides for winter annual weeds in dormant bermudagrass. Graze cool-season annuals. Plant red and white clovers.</p>	<p>Heifer calving season. Permanently identify calves at birth. Record birth dates. Castrate at birth. Implant steer calves. Vaccinate replacement heifers. Sire selection for breeding season. Fertilize small grains and ryegrass. Monitor body condition. Apply herbicides for winter annual weeds in dormant bermudagrass. Graze cool-season annuals. Plant red and white clovers.</p>
February	<p>Continue grazing stockpiled tall fescue. Castrate and implant bull calves. Dehorn. Cow breeding season. Watch for grass tetany. Vaccinate calves for Blackleg 7-way and IBR-BVD-PI₃. Vaccinate cow herd for Lepto, IBR-BVD-PI₃ and vibriosis. Fertilize small grains and ryegrass. Fertilize cool-season grasses and clover. Spray for buttercup and other winter weeds. Plant annual lespedeza, red and white clover. Graze cool-season annual grasses.</p>	<p>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. Fertility test bulls (BSE). Watch for grass tetany. Fertilize small grains and ryegrass. Fertilize cool-season grasses and clover. Spray for buttercup and other winter weeds. Plant annual lespedeza, red and white clover. Graze cool-season annual grasses.</p>
March	<p>Graze tall fescue and legume. Get egg count on fresh manure for deworming. Remove bulls from cows. Watch for grass tetany. Fertilize cool-season grasses and clover. Spray for buttercup and other winter weeds. Graze cool-season annual grasses.</p>	<p>Cow calving season continues. Heifers breeding season begins. Get egg count on fresh manure for deworming. Graze tall fescue and legume. Permanently identify calves at birth. Record birth dates. Castrate at birth. Fertility test bulls. Implant steer calves. Watch for grass tetany. Fertilize cool-season grasses and clover. Spray for buttercup and other winter weeds. Graze cool-season annual grasses.</p>
April	<p>Graze tall fescue and legume. Deworm cows if egg check indicates. Vaccinate heifers for Brucellosis. Pregnancy test heifers. Vaccinate calves prior to weaning. Watch for grass tetany. Spray for summer annual broadleaf weeds. Begin grazing warm-season grasses. Hay cool-season perennial grasses.</p>	<p>Graze tall fescue and legume. Cow breeding season. Heifer breeding season. Watch for grass tetany. Spray for summer annual broadleaf weeds. Begin grazing warm-season grasses. Hay cool-season perennial grasses.</p>
May	<p>Vaccinate heifers for Brucellosis. Evaluate heifer target weights. Precondition and wean calves. Fly control. Re-implant calves if needed. Treat for external parasites if present. Fertilize bermudagrass and other warm-season grasses. Spray for summer annual broadleaf weeds. Apply brush control herbicides. Spray for summer perennial broadleaf weeds. Hay season. Plant bermudagrass.</p>	<p>Cow breeding season. Heifer breeding season comes to an end. Fly control . Fertilize bermudagrass and other warm-season grasses. Spray for summer annual broadleaf weeds. Apply brush control herbicides. Spray for summer perennial broadleaf weeds. Hay season. Plant bermudagrass.</p>
June <i>(continued)</i>	<p>Vaccinate heifers for Brucellosis. Weigh and evaluate calves. Pregnancy test all cows. Sell open cows. Treat for external parasites. Fertilize bermudagrass and other warm-season grasses.</p>	<p>Vaccinate calves for Blackleg 7-way and IBR-BVD-PI₃. Treat for external parasites. Remove bulls from cows. Fertilize bermudagrass and other warm-season grasses. Spray for summer annual broadleaf weeds. Apply brush control herbicides.</p>

Month	Fall Calves	Spring Calves
June <i>(cont.)</i>	Spray for summer annual broadleaf weeds. Apply brush control herbicides. Spray for summer perennial broadleaf weeds. Hay season.	Spray for summer perennial broadleaf weeds. Hay season.
July	Graze bermuda and legume. Treat for external parasites. Fertilize bermudagrass and other warm-season grasses. Apply brush control herbicides. Spray for summer perennial broadleaf weeds. Hay season.	Monitor body condition. Treat for external parasites. Fertilize bermudagrass and other warm-season grasses. Apply brush control herbicides. Spray for summer perennial broadleaf weeds. Hay season.
August	Evaluate heifers for target weights. Graze bermudagrass and legume. Treat for external parasites. Fertilize for stockpiled bermudagrass for fall grazing. Apply brush control herbicides. Spray for summer perennial broadleaf weeds. Hay season.	Pregnancy test heifers. Vaccinate heifers for Brucellosis. Vaccinate calves prior to weaning. Graze bermudagrass and legume. Treat for external parasites. Fertilize for stockpiled bermudagrass for fall grazing. Apply brush control herbicides. Spray for summer perennial broadleaf weeds. Hay season.
September	Heifer calving season. Sire selection and management. Forage test. Pour-on for grubs and lice. Treat for external parasites. Check manure for egg count and deworm cows if egg check indicates. Fertilize to stockpile fescue for winter pasture. Apply brush control herbicides. Spray for summer perennial broadleaf weeds. Finish haying season. Plant small grains and ryegrass.	Pregnancy test cows. Evaluate heifer target weights. Vaccinate heifers for Brucellosis. Wean calves. Graze bermudagrass and legume. Weigh and evaluate calves. 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. Apply brush control herbicides. Spray for summer perennial broadleaf weeds. Finish haying season. Plant small grains and ryegrass.
October	Graze tall fescue and legume. Cow calving starts. Permanently identify calves at birth. Record birth dates. Castrate at birth. Implant steer calves. Heifers continue calving. Prepare sires for breeding season (BSE). Begin grazing stockpiled bermudagrass. Sod-seed winter annuals and legume in bermudagrass.	Graze bermuda and legume and move to fescue and legume. Market cull cows. Vaccinate heifers for Brucellosis. Evaluate heifer target weights. Wean calves. Begin grazing stockpiled bermudagrass. Sod-seed winter annuals and legume in bermuda.
November	Finish cow calving season. Heifer breeding season begins. Care of newborn calves. Apply herbicides for winter annual weeds in dormant bermudagrass. Spray for buttercup and other winter annual weeds. Graze tall fescue and legume. Fertility test bulls. Graze stockpiled bermudagrass pastures. Graze cool-season annuals grasses. Graze cool-season perennial grasses.	Monitor body condition. Market calves most years. Market cull cows. Graze stockpiled bermudagrass pastures. Graze tall fescue and legume. Apply herbicides for winter annual weeds in dormant bermudagrass. Spray for buttercup and other winter annual weeds. Graze cool-season annuals grasses. Graze cool-season perennial grasses.
December	Cow breeding season. Heifer breeding season comes to an end. Graze tall fescue and legume. Graze cool-season annuals grasses. Graze cool-season perennial grasses. Apply herbicides for winter annual weeds in dormant bermudagrass. Spray for buttercup and other winter annual weeds.	Heifer breeding season begins. Evaluate heifer target weights. Prepare for calving season. Deworm cows. 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. Graze cool-season annuals grasses. Graze cool-season perennial grasses. Apply herbicides for winter annual weeds in dormant bermudagrass. Spray for buttercup and other winter annual weeds.

Carcass Breakdown of a Feedlot Steer

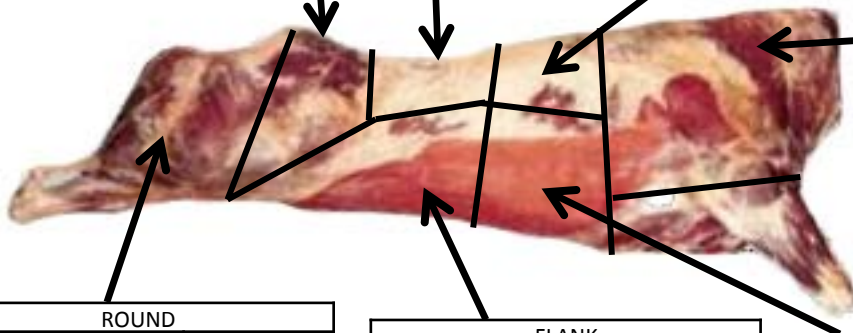


DROP CREDIT	
By-product	Weight, lbs
Hide	65.0
Edible tallow	16.5
Bleachable tallow	64.8
Tongue	3.3
Cheek meat	4.4
Head meat	1.79
Oxtail	3.3
Heart	5.2
Lips	1.8
Liver	13.2
Scalded tripe	8.9
Honeycomb tripe	2.1
Inedible lungs	6.5
Spleen	1.9
Meat & bone meal	50.8
Blood meal	8.2
TOTAL:	254.7

SIRLOIN	
Primal/subprimal cut	Weight, lbs.
Top sirloin butt	26.8
Bottom sirloin flap	7.4
Bottom sirloin tri-tip	6.6
Bottom sirloin ball-tip	5.0
TOTAL:	45.8

LOIN	
Primal/subprimal cut	Weight, lbs.
Boneless strip loin	25.1
Tenderloin	12.6
TOTAL:	37.7

RIB	
Primal/subprimal cut	Weight, lbs.
Ribeye roll	30.6
Blade meat	7.1
Back ribs	8.8
TOTAL:	46.5



CHUCK	
Primal/subprimal cut	Weight, lbs.
Chuck roll	48.6
Chuck tender	7.3
Flat iron steak	4.0
Shoulder clod	39.4
Petite tender	1.7
Pectoral meat	5.2
Bnls chuck short ribs	3.8
TOTAL:	109.9

ROUND	
Primal/subprimal cut	Weight, lbs.
Inside round	48.2
Outside round	31.3
Eye of round	11.7
Peeled knuckle	22.3
TOTAL:	113.5

FLANK	
Primal/subprimal cut	Weight, lbs.
Flank steak	4.3
Inside skirt	4.1
Outside skirt	3.3
TOTAL:	11.7

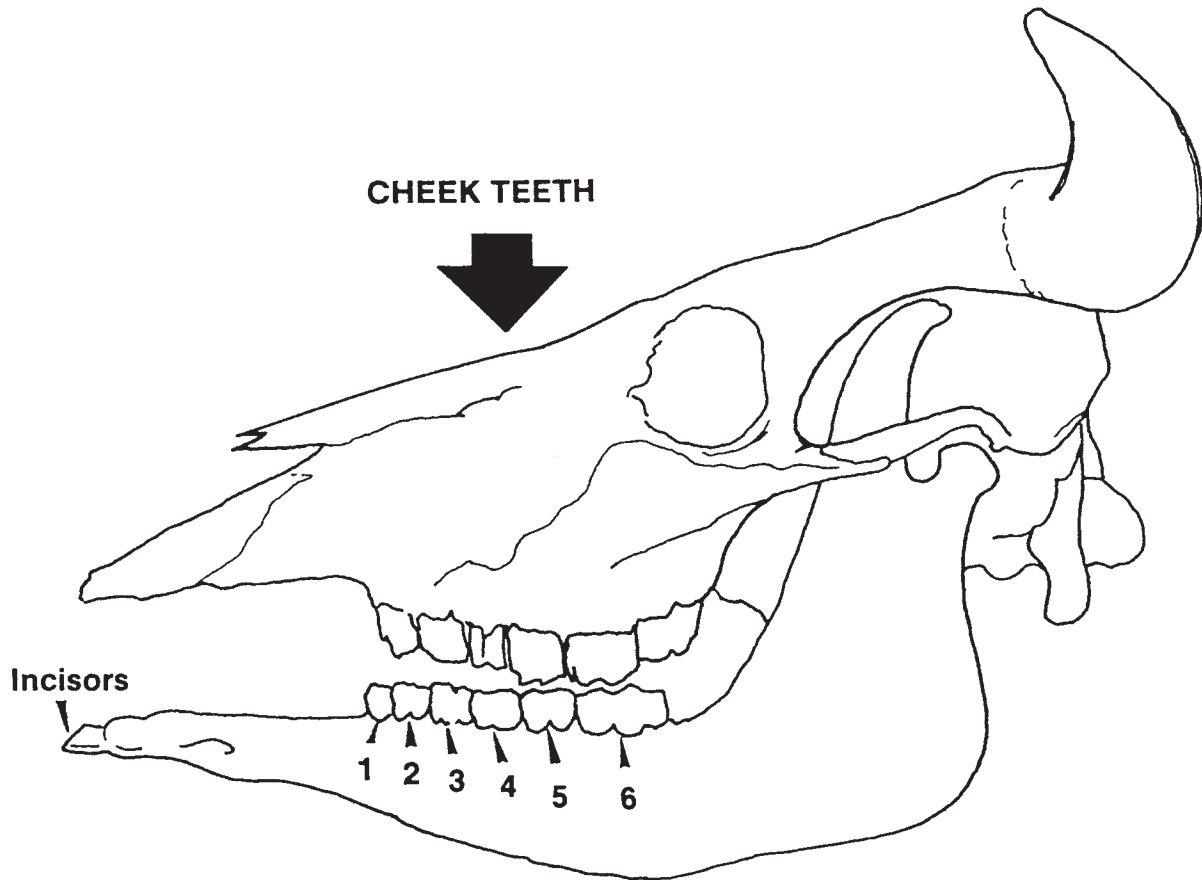
PLATE	
Primal/subprimal cut	Weight, lbs.
Short plate	29.5
Short ribs	11.4
TOTAL:	40.9

SUMMARY	
(1,350-lb Choice, YG 3 steer that dresses 64%)	
	Weight, lbs.
Saleable by-product	254.7
Harvest loss	231.3
Saleable product	787.1
Cutting losses	76.9
TOTAL:	1,350.0

MISCELLANEOUS	
Primal/subprimal cut	Weight, lbs.
Boneless brisket	24.7
80:20 coarse ground	71.9
Fat	134.8
Bone	149.6
TOTAL:	381.0

Compiled by Dr. Jason Apple, University of Arkansas, Department of Animal Science

Estimating the Age of Cattle Using Teeth



Premolars: 1, 2, 3

Temporary: birth- 1 month

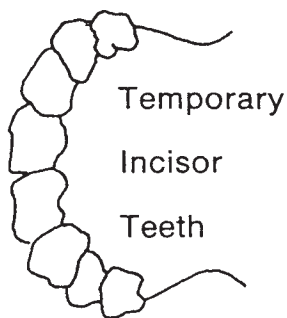
Permanent: 2-3½ years

Molars (permanent)

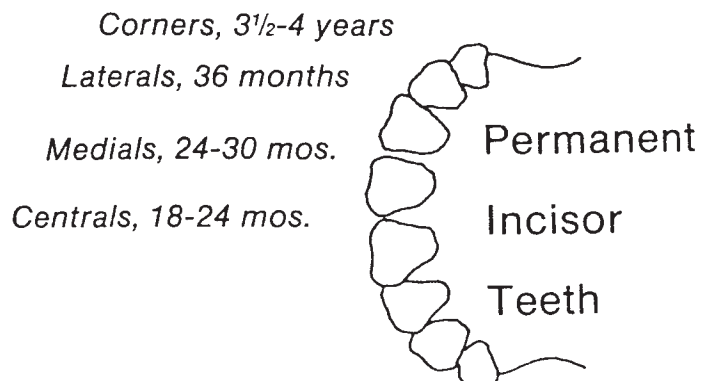
4 5-6 months

5 1-1½ years









6 2-2½ years



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



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.