B-809

Performance

As a Guide to Beef Herd Selection

TEXAS AGRICULTURAL EXTENSION SERVICE - - - TEXAS AGRICULTURAL EXPERIMENT STATION

College Station, Texas

ON THE COVER

The two bulls at right were sired by a high-gaining bull mated to registered Hereford cows at Bluebonnet Farm, McGregor, Texas. These bulls in turn were high-gaining individuals on test after weaning. The bull on the left was high-gaining individual at the Coastal Plain Experiment Station, Tifton, Georgia.

Performance as a Guide to
BEEF HERD SELECTION

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CATTLE BREEDERS are due much credit for developing beef cattle to their present standard of excellence and production. Several of the breed associations are cooperating with research in beef cattle breeding, and the American National Cattlemen's Association has an active research committee backing the National Beef Cattle Breeding Research being carried on cooperatively by the land-grant colleges and the U. S. Department of Agriculture. There is sound basis for improvement based on performance and this cooperative spirit of the breeders will carry production to new heights.

Great differences exist in "doing ability" among cattle that outwardly appear alike. These differences form the basis for the selection program outlined herein.

Economic Characteristics Relative to Production

Adaptability to Production Conditions

This factor is probably more important in Texas than in most other states because of its wide range of environments. From a production standpoint, ability to thrive under a given set of conditions is more important than almost any other characteristic. It involves ability to withstand climatic changes, to travel for feed and water, to utilize feed and to resist the effects of parasites and diseases.

Cattle brought from temperate climates to tropical and subtropical areas tend to degenerate and become unproductive. In the south and southwest United States this problem is not as critical as in some parts of the world, but it particularly concerns the Gulf Coast and South Texas. Cattle from temperate regions begin to show signs of distress when the temperature reaches about 85° F. Temperatures this high or higher have been recorded for all months by the U. S. Weather Bureau Station at Waco. At the Lufkin Experiment Station selection of cattle that measure up to weight, production and conformation standards has led automatically to retaining in the breeding herd those cattle best adapted to the climate. Their hair coats are glossy, rather than long and wooly. Weight gain during the summer on pasture appears useful in selecting replacement stock as does regular reproduction and calf-raising.

In purchasing breeding stock it is wise to obtain good animals from an area of similar climatic conditions, preferably from a herd having been selected and maintained in that area for a long period. When cattlemen go long distances to buy breeding stock they should consider differences in climate, elevation and general feed conditions.

Size

Cattle are sold on the basis of weight and quality. Commercial breeders feel that short-legged, compact, early-maturing types have contributed to a decrease in size and weight and made it more difficult for breeders to obtain bulls with the ability to maintain size.

Studies comparing large and small type cattle (Figure 1) were conducted by the Texas Agricultural Experiment Station and other stations. In general, the larger type cattle tend to have heavier weight at birth, weaning and maturity. They also tend to gain faster (Figure 2) when placed on feed for fattening. In one

case they reached low choice slaughter grade weighing 20 percent more than the smaller, compact type, yet they did not require a significantly longer time to do it. The smaller cattle usually fatten a little earlier, reaching a given grade a trifle sooner, and tend to grade a little higher on foot and in the carcass. Efficient feed utilization apparently is not related to size since both the larger and smaller cattle sometimes excel in this respect. If both types are fed to the same degree of finish, feed efficiency should not differ.

Table 1. A suggested schedule of weights for beef breeding cattle and calves.

Weight class	Bulls[1]	Cows[2]	Calves[3]
	All weights in pounds		
Heavy weight	2000 up	1200 up	500 up
Medium weight	1700-2000	1000-1200	400-500
Light weight	1400-1700	800-1000	300-400
Cull	1400 down	800 down	300 down

[1]Bulls 6 years of age in good breeding condition.

[2]Cows weighed at 5 years of age and at time calves are weaned.

[3]Calves from 5-year old cows, given no extra feed during the sucking period and weaned at 7 months.

This weight classification is presented only as a guide since variations in environment make vast differences in size of cattle. Cattle grown in poor soil areas with nutritive deficiencies, heavy parasitism and little care do well to reach the lower limits of the light-weight bracket. Similarly, in the best soil areas or where feed and management conditions are the best, cattle may weigh considerably more than the minimum shown for the heavy-weight bracket.

Figure 1. Representative steers of the small (right) and large types used in the Texas study.

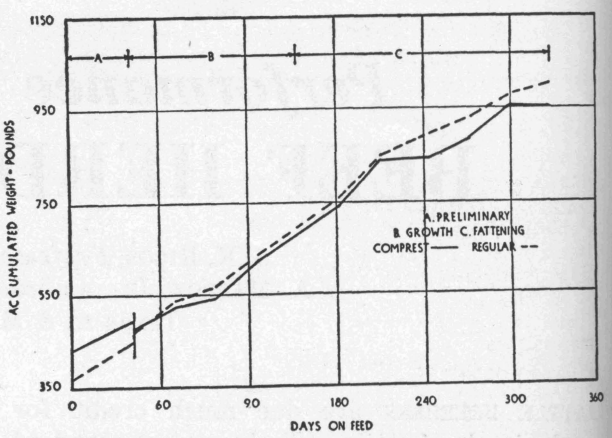

Figure 2. Average accumulated weight of "comprest" and "regular" type steers during a 28-day feeding period.

Among breeding cattle the medium to large within the range usually are the best in regard to general adaptability, vigor, reproduction, calf-raising and long productive life. Excessive size of brood stock frequently is accompanied by coarseness, poor fleshing ability, slow maturity, late fattening, loose, unattractive conformation and inability to get around effectively. Extremely small size is associated with undue refinement, lack of vigor and difficulty in travelling. Along with size must be the right degree of early maturity so that cattlemen can produce desirable market steers weighing 800 to 1,200 pounds under practical feeding and management.

Ability To Gain Rapidly and Utilize Feed Efficiently

Certain feeder cattle, selected for uniform quality and fed alike for finishing, make above-average gains while others fall below average. Cattle-feeding records from the Texas Agricultural Experiment Station involving 761 steers in 15 experiments show that the high-gaining 30 percent of the steers made 14 percent greater gain than the medium 40 percent and 36 percent greater gain than the low-gaining 30-percent (Figure 3). A part of this difference in gain has been thought to be due to heredity for many years but in commercially purchased feeder cattle where sires and dams are not known there is no way to be sure. Research at the Balmorhea, Bluebonnet and PanTech Stations shows that ability to gain is approximately 50 percent heritable. Table 2 shows

Table 2. Evaluation of beef bulls on the basis of performance of their progeny in the feed lot at Balmorhea.

Sires	No. of sons	Daily gain, lb. bulls	Grade	No. of daughters	Daily gain, lb. heifers	Grade
Sam Domino[1]	5	2.83	Good+	12	1.95	Good
Jones Pr. Domino 103	7	2.58	Good			
Publican Domino 128	5	2.57	Good+			
Beau Highland 33A7th	10	2.43	Good+	12	1.81	Good
J. Q. Domino 83	5	2.41	Good+			
O.J.R. Royal Domino 90	6	2.38	Good—			
NM Real Domino 136	6	2.35	Good	8	1.76	Good
J. Domino 84	9	2.29	Good+			
Chief Lamplighter	6	2.21	Good			
Domestic Mischief 53	7	2.13	Good+	8	1.75	Good
Pete's Letston 5th	9	2.03	Good—			

[1]Underlined sires are those whose progeny, sons and daughters, gained in the same order during a 140-day feeding test.

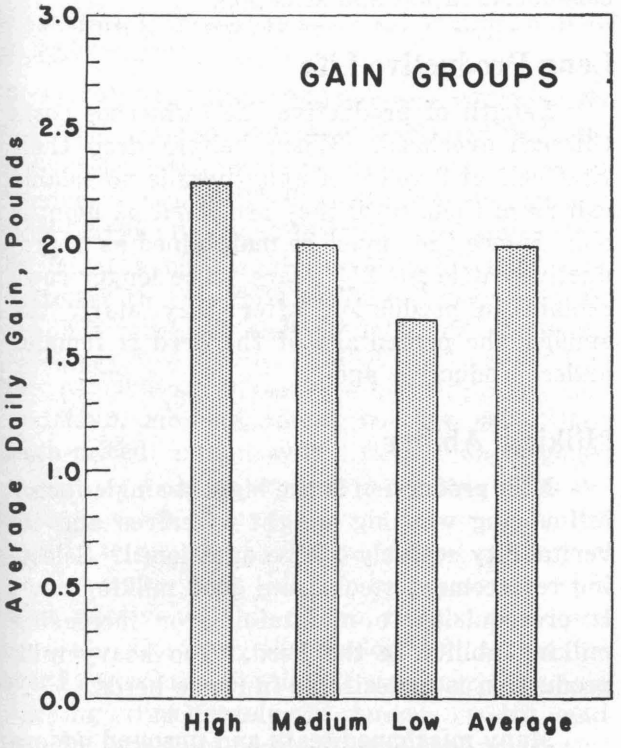

Figure 3. Average daily gains of high, medium and low-gaining groups and all groups of steers in fifteen experiments.

marked differences in rate of gain by groups of offspring by different sires and indicates that this gain pattern is repeatable.

The male get of 11 sires ranged from 2.83 to 2.03 pounds of gain per day, a difference of 28 percent. The female get of five sires varied by 9 percent. Female offspring by Sam Domino, Beau Highland 33A7th, NM Real Domino 36 and Domestic Mischief 53 gained in the same order as the male offspring. Similar evidence is available from the Montana station in the following table.

Table 3. The ability of sires to repeat their progeny tests with related and unrelated cows.

Sire No.	Average daily gain of steer offspring from unrelated cows	related cows
	Lb.	Lb.
17	1.75	1.68
15	1.79	1.69
16	1.80	1.78
22	2.07	1.94
28	2.09	2.02

Wide differences in feed required per 100 pounds gain are also evident. At Balmorhea, the offspring of two sires weighed about the same at the start and gained about the same, but the offspring of one required only 857 pounds of feed to make 100 pounds gain while 1,048 pounds were required for the offspring of the other sire. High-gaining cattle generally require less feed per unit of gain. Steers fed at Big Spring and Spur demonstrate this fact clearly (Figure 4). The low-gaining 30 percent required 1,137 pounds of feed per 100 pounds gain as compared with 982 pounds for the medium 40 percent and 958 pounds for the top-gaining 30 percent. The difference is 18 percent between high and low-gaining groups. At the PanTech Station the top-gaining third of 439 young bulls gained 2.8 pounds per day and required 805 pounds of feed per 100 pounds gain. The low-gaining third gained 2.1 pounds per day and required 913 pounds of feed per 100 pounds gain.

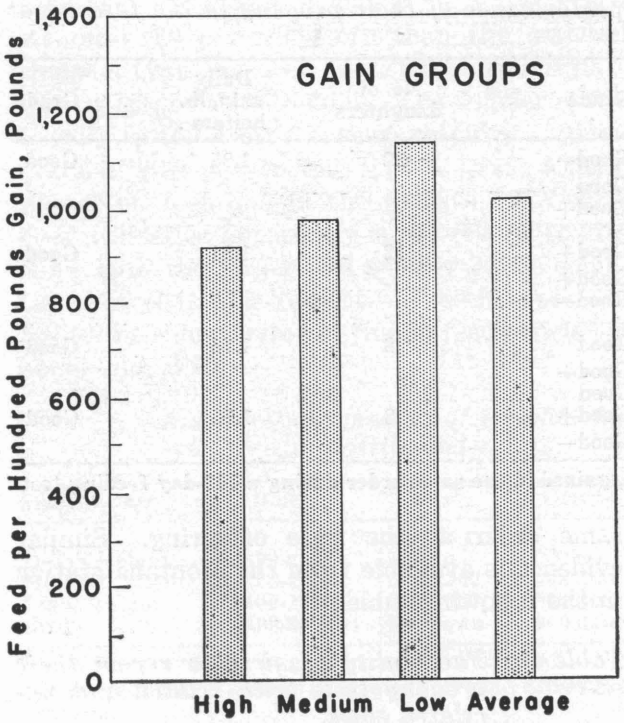

Figure 4. Feed required per hundred pounds gain for high, medium and low-gaining groups and for all groups of steers in four experiments.

Progeny and performance tests demonstrate conclusively that rate and economy of gain are highly hereditary. Thus selection for such characteristics can be accomplished successfully. Two top-gaining bulls from the Balmorhea station used in the herd at Bluebonnet Farm consistently sired progeny which were top gainers during the past 5 years. On the average they sired calves gaining 62 pounds per head more in a 154-day feeding period following weaning than progeny of 39 untested sires.

At PanTech Farms, three of the highest gaining and three of the lowest gaining bulls tested were mated for 2 years to groups of cows selected at random. Sixty-seven calves sired by the high-gaining bulls weighed 38 pounds more at weaning than the same number of calves sired by the low-gaining bulls.

Ability To Reproduce Regularly

A high percent calf crop is one of the most important factors in a profitable breeding operation. The cost of producing a calf increases about 120 percent when the calf crop drops from 95 to 45 percent. An increase of over 20 percent in cost per calf occurs for each drop of 10 percent in calf crop under Texas conditions.

Extremely low reproductive performance generally is due to poor feed conditions, poor management and diseases. Under these conditions it does not condemn the herd. When these factors are corrected, however, carefully kept reproduction records reveal inherent differences in reproductive capacity among individual cows and bulls. Once these differences are brought to light, intelligent culling and selection of replacement stock from good producing parents logically will follow. A calf crop in Texas 12 percent below the U. S. average warrants close observation and selection.

Long Productive Life

Length of productive life influences costs through overhead. When heifers drop their first calf at 3 years of age, there is no salable calf from them until they are about 42 months old. Hence they must be maintained as unproductive cattle for 3½ years. The longer cows remain in production after they start, the smaller the percentage of the herd is females under productive age.

Milking Ability

Milk production is the biggest single factor influencing weaning weight of calves and its heritability scarcely can be questioned. Selecting replacement stock from good milking cows is prerequisite to maintaining or increasing milking ability in the herd. Too heavy milk production is undesirable in range herds.

Many misshaped teats and unsound udders are found among beef cows. Close observation of udder and teat development from weaning to maturity yields useful information in this regard. Misshaped teats and poor udders frequently can be detected early and the animal can be disposed of before the first calving.

Conformation

Slaughter and carcass grade are determined by conformation, finish and quality of cattle. Cattle of the most desirable beef conformation can be fattened sufficiently to make them grade prime or choice as slaughter ani-

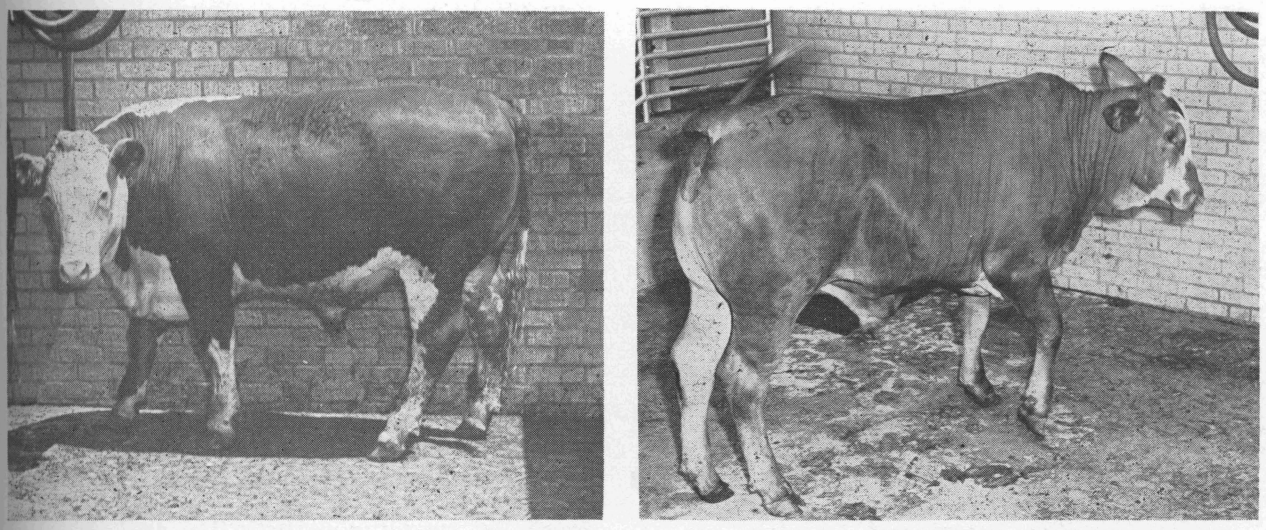

Figure 5. Typical Hereford and Brahman x Hereford crossbred steers used in cut-out tests. Note differences in conformation.

mals which in turn yield carcasses which grade prime or choice. Cattle of distinctly undesirable beef conformation cannot be made to produce prime or choice carcasses no matter how fat they become. If groups of feeder cattle of equal age, weight and conformation are fattened to distinctly different degrees they produce carcasses varying in grade according to finish.

Loin, rib and round, in that order, are high-priced cuts, while flank, short-plate, brisket and shank are relatively low. The increased value of higher grade carcasses is due mostly to increased value per pound of the loin and rib cuts. With this in mind, carcasses with high relative weights of loin, rib and round are desired. However, the tendency is strong toward normal distribution of weight in carcasses varying considerably in length, width and depth. The chief virtue of good beef conformation commonly is believed to be its effect on yield of various wholesale cuts. This belief is not supported by recent TAES data on cattle of about equal carcass grade but widely different conformation (Figure 5). Brahman x Hereford crossbred steers with over 2 inches more length of leg, and deep but flatsided body conformation, drooping rumps, easy backs, long necks, and heavy dewlap and navel folds, when compared with Hereford steers, showed amazingly similar Federal carcass grades and percentage of principal wholesale cuts. Total percentage of loin, rib and round was practically identical and difference in total edible portion (lean plus fat) was less than 0.5 percent.

Table 4. Carcass characteristics of two types of beef cattle.

Components	Hereford	Brahman x Hereford
Number	18	20
Age (days)	435.00	427.00
Slaughter wt. (lb.)	740.78	795.05
Chilled carcass wt. (lb.)	466.50	501.25
Dressing percent	60.25	63.05
Chilled wt. per day of age (lb.)	1.03	1.17
Carcass grade	High good	Med. good
Length of body (in.)	43.59	44.77
Length of leg (in.)	27.08	29.46
Area of rib eye (sq. in.)	8.39	9.15
Forequarter percent	50.25	49.86
Hindquarter percent	49.75	50.14
Rib percent	9.14	8.99
Chuck percent	24.89	25.09
Short loin percent	7.47	7.32
Loin end percent	8.19	8.06
Round, rump off percent	20.31	20.90
Total rib, loin, round percent	45.11	45.27
Estimated percentage composition of carcass:		
bone percent	15.02	15.33
fat percent	29.50	27.37
lean percent	56.71	58.40

Cattle with a high percentage of loin, rib and round are difficult to select on foot. The steer with a deep, plump, full round tends to be thick and plump elsewhere, and the actual percentage of round may be less than for a longer-legged, flatter-rounded steer. Since loin and rib are the highest priced cuts, compactness attained by shortening the back seems unjustifiable. For example, dwarf steers, considered super-compact, have a low percentage

of loin. A normal number of vertebrae is in the spinal column but each appears shortened.

There is little reason to strive for perfect conformation in beef cattle from the standpoint of high priced cuts, but it is necessary to stay within the limits of acceptable conformation from a sales standpoint. Cattle with conformation which will produce desirable carcasses, yet remain adapted to production conditions, probably are the most desirable. The most promising plan for increasing the weight of high-priced cuts is to use efficient cattle which will produce more carcass weight rather than attempt to change the distribution of weight among the wholesale cuts.

Soundness

There is evidence that certain characteristics which lead to eye cancer are also inherited. It seems wise to avoid selecting replacement stock from parents which suffer from this malady, misshaped teats, unsound udders or others if at all possible.

A Plan for Selecting More Productive Breeding Cattle

Beef cattle performance and progeny tests conducted by TAES in cooperation with USDA and Texas beef cattle breeders have demonstrated conclusively that many of the factors of economic value in cattle are hereditary.

The importance of beef conformation should not be minimized but more importance should be attached to actual production. Since most breeders know the type of cattle they prefer, use of a grade on each animal and opportunity for individual breeders to stress production and conformation as they see fit, permits a flexible program suitable to most producers. A qualified outsider might do the grading since the owner could be prejudiced by too intimate knowledge of his cattle.

For these herd improvement plans to be effective (1) each group must receive the same treatment (feed and care); and (2) direct comparisons must not be made between weaning weights of calves or weights of yearling cattle calved in different years or at different seasons within one year. An accurate means of comparison is included in this outline.

Beef cattle improvement based on actual production should include the following:

1. Use of production records, including weaning weights, ability to gain or weight for age, as well as grade in selecting breeding bulls.
2. Selection of replacement heifers based on grade, weaning weights and weight for age.
3. Evaluation of breeding cattle, culling those which produce light undesirable calves and cows which do not calve regularly.

Selecting Breeding Bulls

The bull plays a more important part than the female in increasing the productive ability in the herd because he sires a full crop of calves each year while most females drop only one per season. Use of a bull whose weaning weight and ability to gain are not known could more than offset the progress a breeder made in working with his cow herd. Bulls should be tested for gaining ability between weaning and breeding ages. Commercial cowmen will find it advantageous to purchase bulls which show production records above average.

The following plan is suggested for use by registered breeders to test gaining ability of bull calves:

A. Selecting Young Bulls To Be Tested
   1. Bull calves should be weighed and graded as shown for weaning calves on page 9. Only calves from cows of sufficient milking ability to raise them to heavy weaning weight should be considered.
   2. The bulls should be culled using Form 2 (Page 16). Cull from the bottom up and from right to left.

B. Performance Testing Young Bulls
   1. One hundred forty days is the minimum time for effective testing.

2. Start the calves on feed or pasture and allow them a two-week adjustment period before weighing them onto the test.

3. Record the weight and grade of the calves at the beginning of the test.

4. Notes on degree of fatness (i. e. fat, medium or thin) at the beginning and end as well as on general thrift of the individuals during the course of the test are helpful in selection at the close.

5. Record weights and grades of all bulls at the end of the test.

6. List bull's tattoo numbers on Form 2a according to adjusted weaning weight plus gain and grade. Include in parentheses after the tattoo number the weight groups for weaning weight and gain. (See Table 6, page 12).

7. Select bulls according to position on Form 2a. The best bull appears in the upper left-hand corner.

8. The following methods are suggested for testing the gaining ability of young bulls:

   a. Dry-lot testing: For this purpose the calves may be self-fed a mixture composed of 10 percent cottonseed meal, 15 percent ground alfalfa hay, and 75 percent ground grain sorghum fodder, with steamed bonemeal and salt free-choice. A mixture containing a heavier allowance of concentrate feeds may be used by those desiring fatter bulls.

   b. Pasture testing: The use of good small grain or permanent pastures, adequate to put good gains on the calves without substantial amounts of additional feed, can make an effective test. Supplements may be added as needed to assure normal weight gains.

   c. Where cattle are wintered on dry grass and protein supplements and make small gains, an effective test can be conducted if weights at weaning time and 6 to 12 months later are used.

Selecting Replacement Heifers

A. For Registered and Small Commercial Breeders

1. Weaning Calves

   a. Calves must be worked at the same time between 155 and 250 days of age. If calves do not fall within these age limits, work the younger calves at a later date.

   b. Put the calves through a chute to read the tattoo. The tattoo number should be put on each calf by using auction sale numbers or paint brands.

   c. Weigh and record weights of each calf. Use Form 1 for recording c, d, e and f.

   d. Grade and record that of each calf. Suggested grades are: Fancy, Choice+, Choice, Choice− and Good.

   e. Adjust calf weights to a uniform age by using Figure 6.

   f. Correct calf weight for age of dam. Add to the adjusted weight of the calves 10 percent if from 2- and 11-year-old or older dams and five percent if from 3- and 10-year-old dams.

   g. List each calf's tattoo number on Form 2 opposite adjusted weight and under the proper grade.

   h. Select replacement calves according to position on Form 2, allowing sufficient numbers for further culling as yearlings. The best heifers appear in the upper left-hand corner. Cull from the bottom up and from right to left on this form.

2. Yearling Cattle

   a. All yearling cattle to be worked, weighed and graded at the same time should be calved in a 90-day period

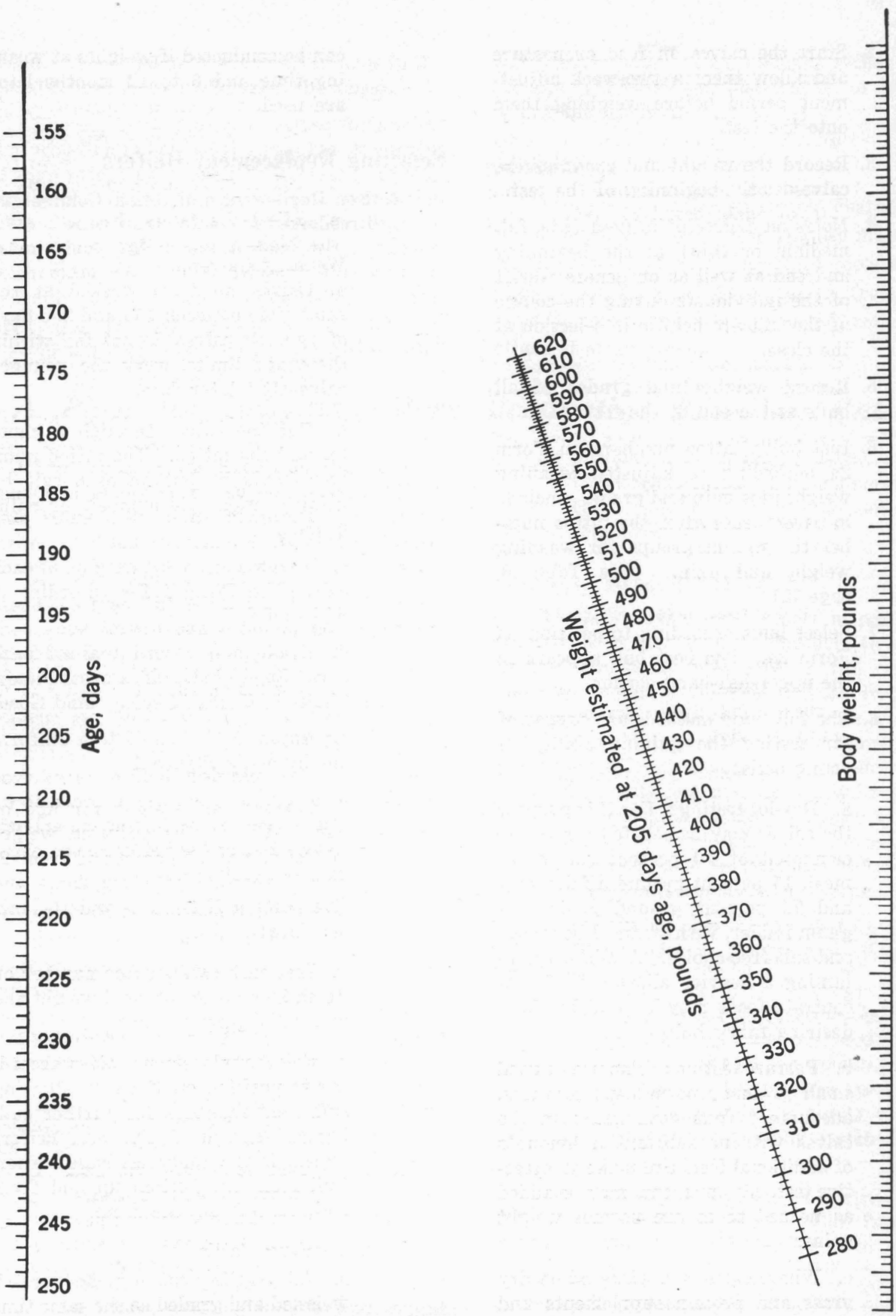

Figure 6. A means of estimating the weights of calves at a constant 205 days of age. Use a straight edge to connect actual age in days at left with actual weaning weight at right and read off the estimated weight at 205 days on the center scale. (Journal of Animal Science, 1945, Vol. 4, p. 287.)

and should have been weaned for at least 6 months, preferably a year.

b. If yearling cattle are not horn-branded or neck-chained, the tattoo must be read and the tattoo number placed on each yearling by using auction sale numbers or paint brands.

c. Record weight and grade of each yearling. Use Form 1a for recording c, d, e and f.

d. Adjust all yearling weights by adding total gain after weaning to adjusted weaning weight, *or* divide yearling weight by days of age and use weight per day of age instead of adjusted yearling weight.

e. List yearling tattoo numbers on Form 2a, according to adjusted weight and grade.

f. Make final selection of replacement cattle according to position on the form. The better replacement heifers appear in the upper left-hand corner. Cull from the bottom up and from right to left.

g. In cases near the culling line, consider the dam's record for undesirable production characteristics.

B. For Commercial Breeders

Many methods of beef herd improvement based on actual production involve considerable individual information and records. Such methods, primarily for registered cattle breeders or for small commercial breeders, may be impractical for large commercial herds. The method outlined here eliminates individual records and requires only minimum extra labor. To be most effective, the calves should be weighed individually but considerable progress can be made if the owner, or a qualified outsider, divides the calves into groups as outlined and selects his replacement heifers as suggested.

1. Selecting Replacement Heifers by Using an "A" Herd

This method consists of selecting the high producing cows and placing them in a separate pasture to be mated to the highest rating bulls. It should be as beneficial in large registered herds as in commercial herds.

a. Select the calves that will grade the highest and weigh the heaviest at weaning time and mark their mothers.

b. Place these cows in a separate pasture with the top rating bull(s). This becomes the "A" herd.

c. Each year, cull from the "A" herd those cows that produce low-grade calves, light calves or show unsoundness, cancer eyes, bad teats, bad legs, etc., and sell them or place them in the regular herd.

d. Some replacement cows may be obtained for the "A" herd by repeating points a and b each year.

e. Use either method of herd improvement on the "A" herd and retain most of the heifers for replacements.

f. The heaviest heifer calves from the "A" herd will be returned to the "A" herd as replacements and the remainder of the heifer calves placed in the regular herd.

2. Selecting Replacement Heifers from the Entire Herd

a. Grouping calves according to date of birth.

1. Identify all calves dropped in each 2-week period by earmarks, ear tags or tattoos.

2. At weaning time individually identify all calves, weigh and grade each calf, and select as replacement heifers those grading highest and weighing heaviest. Go as far down the line as needed to get the number of heifers required.

b. Selecting replacement heifers without birth dates.

1. At weaning time select approximately 50 percent of the heifers based on type, size and bloom, as a group from which to select replacement heifers.

2. Weigh and grade heifers individually at weaning time and again 6 to 12 months later. Select as replacement heifers those grading highest and gaining the most. Go as far down the line as necessary to get the number of replacement heifers required.

Evaluating Breeding Cattle and Culling Low Producers

A. For Registered Breeders

1. Set up individual production record on Form 4 for each breeding cow.

2. Divide calves into weight groups according to adjusted weaning weights as shown in Table 5.

Table 5. Suggested grouping for calves on the basis of adjusted weaning weight.

Group 1	Heaviest 10%	Group 4	Next 25%
Group 2	Next 15%	Group 5	Next 15%
Group 3	Next 25%	Group 6	Lightest 10%

3. Record on cow's production record (Form 4) the weaning data on each calf. The calf *rating* is taken from Table 6 or 7 according to the calf's weight group and grade.

Table 6. Rating values for calves, giving equal emphasis to weaning weight and grade.

Weight groups	Fancy	Choice+	Choice	Choice—	Good
1	2	3	4	5	6
2	3	4	5	6	7
3	4	5	6	7	8
4	5	6	7	8	9
5	6	7	8	9	10
6	7	8	9	10	11

Table 7. Rating values for calves, giving two-thirds emphasis to weaning weight and one-third to grade.

Weight groups	Fancy	Choice+	Choice	Choice—	Good
1	3	4	5	6	7
2	5	6	7	8	9
3	7	8	9	10	11
4	9	10	11	12	13
5	11	12	13	14	15
6	13	14	15	16	17

4. The cow's production index will be an average of the ratings of all the calves she has produced. This index must be revised each year after the last calf has been rated.

5. Cull breeding cows according to their production index, the lower the index number, the better the cow. (Example: Form 3.)

6. In culling breeding cows also consider such points as:

   a. Regularity of production

   b. Milk production

   c. Soundness (freedom from bad udders, cancer eyes and other physical defects)

   d. Length of productive life

   e. Hardiness

7. Full information regarding the above five points should be entered on the cow's record sheet each year.

8. If herd bulls are mated to uniform groups of cows in similar pastures, a direct comparison of grade and weaning weight between calves sired by different bulls will reveal differences between sires.

B. For Commercial Breeders

1. Selecting cows to be culled before weaning time

   a. If calves are dropped in a 3 to 6-months season, cull all cows which do not calve.

   b. Before weaning time, spot the undesirable calves (those light in weight and poor in type) and cull their dams from the herd.

2. Selecting cows to be culled at weaning time

   a. At weaning time, earmark all dry cows in the top of the right ear.

   b. Select the undesirable calves (those light in weight and poor in type), and use one of the two following plans:

1. Pair the calves with their dams and earmark the cows in the end of the right ear *or*

2. Do not wean these undesirable calves at the regular weaning time, and 3 or 4 weeks later earmark, in the end of the right ear, all cows still nursing calves.

c. Repeat these steps each year and cull the cows that have been previously earmarked either in the top or the end of the right ear which come up at weaning time either dry or with undesirable calves.

3. Selecting cows and bulls on the basis of weight and grade of first calves.

a. Whenever practical divide replacement heifers into similar groups to be bred in single-sire herds to young bulls.

b. Cull both young cows and bulls on the basis of weight and grade of first calf crop.

c. If replacement heifers cannot be divided into single sire herds the heifers can still be culled on weight and grade of the first calf.

FORM 1—WEANING RECORD

Use Separate Sheets for Bulls and Heifers

Bulls.....

Heifers..... X

Name: Address: Date: 10-29-53

Herd No.	Dam	Sire	Date of Birth	Age in Days	Actual Weight	Dropped by 2-3	Adjusted Weight	Weight Group	Grade	Rating	Remarks
509	481	21	2-18	253	390		351	5	C	8	X
513	84	21	2-19	252	545		470	1	F	2	
514	87	21	2-19	252	500		435	3	C+	5	
515	96	21	2-20	251	520		451	2	F	3	
516	296	11	2-22	249	490		430	3	F	4	
519	375	21	2-26	245	495		439	3	C+	5	
520	72	21	2-26	245	570		500	1	F	2	
521	83	21	2-28	243	500		446	2	C+	4	
523	290	11	3-1	241	490		436	3	C	6	2 YR. OLD COW - CALF NURSED OLDER COW
524	630	21	3-2	242	460		414	4	C+	6	2 YR. OLD COW - CALF NURSED OLDER COW
526	80	21	2-23	248	475		418	4	C-	7	
527	235	11	2-28	244	355		329	6	C	9	X
529	105	21	2-26	246	525		462	1	C	4	
532	203	11	3-6	238	390		361	5	C-	9	X
533	83	21	3-14	230	460		426	3	F	4	
534	805	21	3-17	227	415		393	4	F	5	
535	220	11	3-18	226	445		419	4	C-	8	X
536	199	11	3-19	225	380		362	5	C	8	X
537	217	11	3-21	223	410		391	4	C-	8	X LUMP JAW
538	201	11	3-29	215	340		332	6	G	11	X
540	67	21	3-30	214	380		372	5	C+	7	X
542	294	11	4-16	196	325		365	5	G	10	X LINE BACK
543	23	21	4-18	194	435		453	2	F	3	
547	255	11	5-2	180	355		382	5	C-	8	X
548	108	11	5-12	170	390		440	2	C-	6	
549	78	21	6-2	150	355		433	3	C	6	

X = Culled as YEARLINGS

FORM 1a—YEARLING RECORD

Use Separate Sheets for Bulls and Heifers

Bulls.....

Heifers X

Name: Address: Date: 7-20-54

				Weaning Data			Yearling Data				
Herd No.	Dam	Sire	Date of Birth	Actual Weight	Adjusted Weight	Wt. Group & Grade	Actual Weight	Gain	Adjusted Weight	Grade	Remarks
513	64	21	2-19-53	545	470	1/F	820	275	745	C	
514	87	21	2-19-53	500	435	3/C+	750	250	685	C-	X
515	96	21	2-20-53	520	451	2/F	760	240	691	C+	
516	296	11	2-22-53	490	430	3/F	770	280	710	F	
519	375	21	2-26-53	495	439	3/C+	820	325	764	C	
520	72	21	2-26-53	570	500	1/F	880	310	810	F	
521	83	21	2-28-53	500	446	2/C+	770	270	716	C	
523	290	11	3-1-53	490	436	3/C	800	310	746	C+	
524	630	21	3-2-53	460	414	4/C	750	290	704	C+	
526	80	21	2-23-53	475	418	4/C	740	265	683	C	X
529	105	21	2-26-53	529	462	1/C	795	266	728	C	
533	82	21	3-14-53	460	426	3/F	740	280	706	F	
534	805	21	3-17-53	415	393	4/F	710	295	688	F	
543	23	21	4-18-53	435	453	2/F	700	265	718	G	X
548	108	11	5-12-53	390	440	2/C	640	250	690	G	X
549	78	21	6-2-53	355	433	3/C	740	385	818	C+	

X = Culled as Yearlings

FORM 2—SELECTION SHEET FOR WEANING CALVES

Use Separate Sheets for Bulls and Heifers

Name ..... Sex Heifers

Address ..... Date 10-29-53

Weight	Fancy	Choice +	Choice	Choice −	Good
550 +					
545-549					
540-544					
535-539					
530-534					
525-529					
520-524					
515-519					
510-514					
505-509					
500-504	520				
495-499					
490-494					
485-489					
480-484					
475-479					
470-474	513				
465-469					
460-464			529		
455-459					
450-454	515 - 543				
445-449		521			
440-444			548		
435-439		514 - 519	523		
430-434	516		549		
425-429	533				
420-424					
415-419			526	535	
410-414		524			
405-409					
400-404					
395-399					
390-394	534				
385-389				537	
380-384					
375-379				547	
370-374		540			542
365-369					
360-364			536		
355-359					
350-354					
345-349					
340-344					
335-339					
330-334					538
325-329			527		
320-324					
315-319					
310-314					
305-309					
305 ——					

1 2 3 4 5 6

FORM 2a—SELECTION SHEET FOR YEARLINGS

Use Separate Sheets for Bulls and Heifers

Name..... Sex Heifers

Address..... Date 10-29-53

Weight	Fancy	Choice +	Choice	Choice —	Good
850 +					
845-849					
840-844					
835-839					
830-834					
825-829					
820-824					
815-819		549			
810-814	520				
805-809					
800-804					
795-799					
790-794					
785-789					
780-784					
775-779					
770-774					
765-769					
760-764					
755-759			519		
750-754					
745-749		523	513		
740-744					
735-739					
730-734					
725-729			529		
720-724					
715-719			521		543
710-714	516				
705-709	533				
700-704		524			
695-699					
690-694		515			
685-689	534				548
680-684			526	514	
675-679					
670-674					
665-669					
660-664					
655-659					
650-654					
645-649					
640-644					
635-639					
630-634					
625-629					
620-624					
615-619					
610-614					
605-609					
605 ——					

FORM 3—SELECTION SHEET FOR BREEDING COWS ACCORDING TO PRODUCTION INDEX

Name: Address: Date: 12-1-54

Cows Production Index	Cows Tatoo Numbers
2.0 -2.25	062
2.33-2.50	
2.66-2.75	
3.0 -3.25	950, 954, 010
3.33-3.50	
3.67-3.75	940
4.0 -4.25	531, 986
4.33-4.50	
4.67-4.75	
5.0 -5.25	469, 534, 840, 004, 036
5.33-5.50	494, 619, 848, 928, 930
5.67-5.75	593
6.0 -6.25	730, 752, 810, 932, 980, 018
6.33-6.50	290
6.67-6.75	453, 497, 627
7.0 -7.25	416, 418, 585, 828, 904, 912, 982, 998, 020, 030
7.33-7.50	522, 626, 734, 942, 946
7.67-7.75	511, 559, 603, 663, 707, 874
8.0 -8.25	506, 906
8.33-8.50	500, 972
8.97-8.75	533
9.0 -9.25	611, 768, 006, 072
9.33-9.50	606, 611, 842, 844
9.67-9.75	806
10.0-10.25	052
10.33-10.50	
10.67-10.75	826
11.00-	936, 968, 028, 058

Suggest Culling these cows as soon as possible

FORM 4—BEEF CATTLE INDIVIDUAL LIFE RECORD Name..... Herd No. 914

Date of Birth 2-11-49 Bred by Reg. No..... Horn or Chain No.....

SIRE

Grade Adj. Wt.
Breeder No.

DAM

Grade Adj. Wt.
Breeder No.

Grade Adj. Wt.
Breeder No.

Grade Adj. Wt.

Grade Adj. Wt.
Breeder No.

Grade Adj. Wt.

Grade Adj. Wt.
Breeder No.

Grade Adj. Wt.

Grade Adj. Wt.
Breeder No.

Grade Adj. Wt.

Grade Adj. Wt.
Breeder No.

Grade Adj. Wt.

WEANING DATA	
Date:	10-20-49
Age in Days:	251
Actual Wt:	520
Adjusted Wt:	451
Wt. Group:	2
Grade:	F
Rating:	3

YEARLING DATA	
Date:	10-10
Actual Wt:	910
Gain:	390
Adjusted Wt:	841
Grade:	C+

Remarks:

PRODUCTION RECORD

WEANING DATA									YEARLING DATA						
Herd No.	Sex	Date of Birth	Sire	Date	Actual Weight	Adjusted Weight	Wt. Group & Grade	Rating	Initial Weight	Final Weight	Gain	Days on Test	Adjusted Weight	Grade	Remarks
124	Cow	3-20-51	7	10-10	346	374	5/C-	9	culled as a calf						
241	Cow	3-6-52	9	10-15	490	436	3/C+	5		880	310	300	746	C+	
327	Bull	2-15-53	21	10-10	546	492	2/C+	4	559	936	377	140		C+	FAN TECH TOP 1/3
414	Cow	2-28-54	21	11-1	495	439	3/C+	5							

BREEDING RECORD

Breeding Dates and Bull Used					Calving Date	Gestation, Days	Remarks

Description of animal and other information on life history:

FORM 4a—BEEF CATTLE SIRE RECORD

Name..... Sire Name..... NO.....

Address..... Calf Crop 1954

WEANING DATA—Bull Calves			
Herd No.	Wt. Group	Grade	Rating
188	6	G	11
185	5	C-	9
190	4	C	7
194	6	C	9
198	5	G	10
199	3	C	6
200	4	F	5
203	2	C+	4
205	1	F	2
206	1	C+	3
210	2	C+	4
214	4	C-	8
216	3	C	6
218	3	C-	7
Total	49.		91.
Average	3.5		6.3

WEANING DATA—Heifer Calves			
Herd No.	Wt. Group	Grade	Rating
181	1	F	2
183	1	C+	3
184	4	F	5
186	3	C	6
187	4	C	7
189	3	G	8
190	4	C+	6
193	3	C+	5
197	6	C+	8
201	2	C	5
202	2	F	3
204	3	C-	7
207	6	F	7
208	5	F	6
209	3	F	4
211	3	F	4
212	5	C-	9
Total	58		95
Average	3.4		5.6

Remarks:

TABLE FOR CALCULATING DAYS OF AGE

	1 Jan.	2 Feb.	3 March	4 April	5 May	6 June	7 July	8 Aug.	9 Sept.	10 Oct.	11 Nov.	12 Dec.	
1	1 **365**	32 **334**	60 **306**	91 **275**	121 **245**	152 **214**	182 **184**	213 **153**	244 **122**	274 **92**	305 **61**	335 **31**	1
2	2 **364**	33 **333**	61 **305**	92 **274**	122 **244**	153 **213**	183 **183**	214 **152**	245 **121**	275 **91**	306 **60**	336 **30**	2
3	3 **363**	34 **332**	62 **304**	93 **273**	123 **243**	154 **212**	184 **182**	215 **151**	246 **120**	276 **90**	307 **59**	337 **29**	3
4	4 **362**	35 **331**	63 **303**	94 **272**	124 **242**	155 **211**	185 **181**	216 **150**	247 **119**	277 **89**	308 **58**	338 **28**	4
5	5 **361**	36 **330**	64 **302**	95 **271**	125 **241**	156 **210**	186 **180**	217 **149**	248 **118**	278 **88**	309 **57**	339 **27**	5
6	6 **360**	37 **329**	65 **301**	96 **270**	126 **240**	157 **209**	187 **179**	218 **148**	249 **117**	279 **87**	310 **56**	340 **26**	6
7	7 **359**	38 **328**	66 **300**	97 **269**	127 **239**	158 **208**	188 **178**	219 **147**	250 **116**	280 **86**	311 **55**	341 **25**	7
8	8 **358**	39 **327**	67 **299**	98 **268**	128 **238**	159 **207**	189 **177**	220 **146**	251 **115**	281 **85**	312 **54**	342 **24**	8
9	9 **357**	40 **326**	68 **298**	99 **267**	129 **237**	160 **206**	190 **176**	221 **145**	252 **114**	282 **84**	313 **53**	343 **23**	9
10	10 **356**	41 **325**	69 **297**	100 **266**	130 **236**	161 **205**	191 **175**	222 **144**	253 **113**	283 **83**	314 **52**	344 **22**	10
11	11 **355**	42 **324**	70 **296**	101 **265**	131 **235**	162 **204**	192 **174**	223 **143**	254 **112**	284 **82**	315 **51**	345 **21**	11
12	12 **354**	43 **323**	71 **295**	102 **264**	132 **234**	163 **203**	193 **173**	224 **142**	255 **111**	285 **81**	316 **50**	346 **20**	12
13	13 **353**	44 **322**	72 **294**	103 **263**	133 **233**	164 **202**	194 **172**	225 **141**	256 **110**	286 **80**	317 **49**	347 **19**	13
14	14 **352**	45 **321**	73 **293**	104 **262**	134 **232**	165 **201**	195 **171**	226 **140**	257 **109**	287 **79**	318 **48**	348 **18**	14
15	15 **351**	46 **320**	74 **292**	105 **261**	135 **231**	166 **200**	196 **170**	227 **139**	258 **108**	288 **78**	319 **47**	349 **17**	15
16	16 **350**	47 **319**	75 **291**	106 **260**	136 **230**	167 **199**	197 **169**	228 **138**	259 **107**	289 **77**	320 **46**	350 **16**	16
17	17 **349**	48 **318**	76 **290**	107 **259**	137 **229**	168 **198**	198 **168**	229 **137**	260 **106**	290 **76**	321 **45**	351 **15**	17
18	18 **348**	49 **317**	77 **289**	108 **258**	138 **228**	169 **197**	199 **167**	230 **136**	261 **105**	291 **75**	322 **44**	352 **14**	18
19	19 **347**	50 **316**	78 **288**	109 **257**	139 **227**	170 **196**	200 **166**	231 **135**	262 **104**	292 **74**	323 **43**	353 **13**	19
20	20 **346**	51 **315**	79 **287**	110 **256**	140 **226**	171 **195**	201 **165**	232 **134**	263 **103**	293 **73**	324 **42**	354 **12**	20
21	21 **345**	52 **314**	80 **286**	111 **255**	141 **225**	172 **194**	202 **164**	233 **133**	264 **102**	294 **72**	325 **41**	355 **11**	21
22	22 **344**	53 **313**	81 **285**	112 **254**	142 **224**	173 **193**	203 **163**	234 **132**	265 **101**	295 **71**	326 **40**	356 **10**	22
23	23 **343**	54 **312**	82 **284**	113 **253**	143 **223**	174 **192**	204 **162**	235 **131**	266 **100**	296 **70**	327 **39**	357 **9**	23
24	24 **342**	55 **311**	83 **283**	114 **252**	144 **222**	175 **191**	205 **161**	236 **130**	267 **99**	297 **69**	328 **38**	358 **8**	24
25	25 **341**	56 **310**	84 **282**	115 **251**	145 **221**	176 **190**	206 **160**	237 **129**	268 **98**	298 **68**	329 **37**	359 **7**	25
26	26 **340**	57 **309**	85 **281**	116 **250**	146 **220**	177 **189**	207 **159**	238 **128**	269 **97**	299 **67**	330 **36**	360 **6**	26
27	27 **339**	58 **308**	86 **280**	117 **249**	147 **219**	178 **188**	208 **158**	239 **127**	270 **96**	300 **66**	331 **35**	361 **5**	27
28	28 **338**	59 **307**	87 **279**	118 **248**	148 **218**	179 **187**	209 **157**	240 **126**	271 **95**	301 **65**	332 **34**	362 **4**	28
29	29 **337**	— —	88 **278**	119 **247**	149 **217**	180 **186**	210 **156**	241 **125**	272 **94**	302 **64**	333 **33**	363 **3**	29
30	30 **336**	— —	89 **277**	120 **246**	150 **216**	181 **185**	211 **155**	242 **124**	273 **93**	303 **63**	334 **32**	364 **2**	30
31	31 **335**	— —	90 **276**	— —	151 **215**	— —	212 **154**	243 **123**	— —	304 **62**	— —	365 **1**	31
	Jan. **1**	**Feb.** **2**	**March** **3**	**April** **4**	**May** **5**	**June** **6**	**July** **7**	**Aug.** **8**	**Sept.** **9**	**Oct.** **10**	**Nov.** **11**	**Dec.** **12**	

EXAMPLE: A calf born November 10, 1954 and weighed May 31, 1955. Looking across from 10 under November, the heavy number shows that it was 52 days before January 1. Looking across from 31 and May, the light number shows that it was 151 days since January 1. By adding both numbers we find the calf is 203 days of age on May 31, 1955.

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Have You Met . . . . . .

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Texas Agricultural Experiment Station, R. D. Lewis, Director, College Station, Texas