

Brahman Herd Improvement Records

BHIR

*Instruction Manual
for Participating Breeders*



Brahman

AMERICAN BRAHMAN BREEDERS ASSOCIATION

Your Step by Step Guide to Participating

BHIR

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www.brahman.org



The Brahman Herd Improvement Records (BHIR) Program has been specifically designed for Brahman cattle as a systematic method for identifying the genetically superior individuals in a breeding herd. The program provides a comprehensive profile of your herd through data you and other breeders across the country submit. BHIR is a valuable tool and should guide the progressive cattleman in decisions on management, culling and selection by identifying those animals that excel in reproductive efficiency, growth, mothering ability, longevity, conformation, and disposition.

BHIR is designed to enable breeders to maintain a complete set of records of performance and production with minimum effort and maximum simplicity.

How do you get started?

The first step towards participating in BHIR is a commitment to accurately recording data. First and foremost, a breeder should record accurate birth dates and birth weights of all calves born in your herd. Later, you will need to record weaning weights, weaning dates, and other information. **Only calves with birth dates, (and birth weights, if possible), weaning weights and a weaning date for the group of calves can be enrolled in BHIR.** All of this information is submitted on the "Application for Registration and BHIR Enrollment" form.

Which Calves Should Be Reported?

Every calf! Breeders can enroll any Brahman calf in BHIR regardless of quality, or registration status. In fact, an accurate evaluation of a calf's genetic superiority (or inferiority) cannot be made unless it is compared to all of the other calves that were raised in the same environment. Therefore, reporting calves who are not good enough to register makes the good calves look even better.

It is also important to report the births of calves that are born dead or die at a later time. This insures that your cow is given credit for calving that year and keeps her calving interval current.

Contemporary Groups

Only performance records between contemporary animals can be used for accurately making valid genetic comparisons and herd improvement. Calves who belong in different contemporary groups but are submitted at the same time should be grouped separately and clearly marked as being in different groups. It is helpful, to separate bulls and heifers on the application. The following guidelines help you as a breeder to identify contemporary groups.

- All calves should have received the same management from birth to weaning. For example, calves getting creep feed should only be compared to other creep-fed calves. Embryo transfer calves should not be compared to calves reared by their natural mothers.
- Calves should have been reared at the same location. Even within the same general area, environmental differences exist.
- Calves must all be born in the same season. This way, one is not comparing spring calves to fall calves, for example. A rule of thumb is that a fair comparison probably cannot be made if calves are born more than 180 days apart.
- A contemporary group must contain at least two calves of the same sex and management. This helps improve accuracy of ratios. Also, a calf does not count toward the two head if it was not between 120 and 300 days old when weighed.

The Application for Registration and BHIR Enrollment Form

APPLICATION FOR REGISTRATION & BHIR ENROLLMENT

AMERICAN BRAHMAN BREEDERS ASSOCIATION
P.O. BOX 14100
KANSAS CITY, MO 64101-4100
(816) 595-2442

ABBA MEMBERSHIP
NUMBER
1
DATE Nov. 1, 2015

MEMBERSHIP NAME/REGISTERING BREEDER
Larry Brahman
STREET, ROUTE AND BOX
123 Brahman Street
COWTOWN TX 12345
CITY STATE ZIP

HOLDING BRAND
LB

PRIVATE HERD NUMBER	SEX B BULL C COW	BIRTHDATE MO/DAY/YR	SIRE PH NUMBER	SIRE ABBA NUMBER	TYPE SERVICE AI N=NATURAL E=EMBRYO	SERVICE DATE MO/DAY/YR	DAM PH NUMBER	DAM ABBA NUMBER	H = HORN P = POLLED S = SCURRED	COLOR S Speckle G Gray R Red B Black	ANIMAL NAME (LIMITED TO 24 LETTERS SPACES AND NUMBERS)								
1	B	4-1-2015	2015	123456	N	6-17-14	30/3	654321	H	G	Mr. Brahman 10/5								
(b) BREEDER — owner of dam at time of service			RECIP PH NUMBER	RECIP BREED	RECIP AGE	BIRTH WEIGHT	BW GROUP CODE	C.E.	UDDER SCORE	TEAT SCORE	NURSE CODE	CALF SURV.	WEAN WEIGHT	DATE WEIGHED	HIP HEIGHT	TEMP CODE	MGT CODE	GROUP CODE	PRIVATE CODE
(c) OWNER — owner of dam at time of calving				1		75	2	1	9	9	1	1	600	10/25/2015	47.0	1	1	2	

The "Application for Registration and BHIR Enrollment" serves two important but separate functions: 1) Registering your cattle in the ABBA herd book, and 2) Enrolling your cattle in the BHIR program. Here is an overview of the form.

Form Field	Description	Required to Register Calves	Required to Enroll in BHIR
Membership Number	Always list the ABBA membership number of the owner.	✓	✓
Ownership Information	Properly complete the owner's name, address and signature.	✓	✓
Holding Brand	All registered Brahman cattle must be branded with a holding brand identifying breeder and/ or first owner. Brand MUST be on file at ABBA to be printed on certificates.	✓	
Private Herd Number	Enter the individual identification number (i.e. brand) of each calf. Each individual should have a unique number that must be different from any other private herd number in your herd.	✓	✓
Sex	Enter "C" for cow, "B" for bull, and "S" for steer.	✓	✓
Birthdate	Enter the month, day and year born.	✓	✓
Sire and Dam	Enter the private herd number and registration number of both the sire and dam as shown on their registration certificates.	✓	✓
Type of Service	Enter one of the following codes for type of services: AI - Artificial Insemination • N - Natural Service • E - Embryo Transfer *If gestation length is to be calculated, include date of service. If ET calf and submitting performance fill in recipient PHN, Breed & Age.	✓	✓
Horn Status	Enter "P" for Polled, "S" for Scurred, "H" for Horned. If left blank calf will be assigned Horned.	✓	
Color	Enter one of the following codes indicating the predominant color of the calf to be registered. (G-grey, R-red, B-black, S-speckled)	✓	
Name	The animal's name is limited to 24 letters, spaces and numbers.	✓	
Birth Weight	Enter ACTUAL birth weight of the calf within 24 hours of birth BW Group Code: This code is used to better evaluate the influences affecting BW. Submit a Group Code for cows that were managed the same prior to calving. Suggested codes are 1,2,3, etc.		✓
Weaning Weights and Date Weighed	It is necessary to submit actual weaning weights of all calves and the date weighed to enroll in BHIR. Only calves between 120 and 300 days of age can be adjusted and have ratios calculated. Calves weighed out of this range will only have weight per day of age (WDA) calculated and will receive no adjustments or ratios. It is important to weigh as many calves as possible on the same day.		✓

Note: If you only submit performance data, you will receive all the computed weaning reports after completing the basic BHIR information. However, you will not receive a registration paper on the calf. We encourage all breeders to register the calves in their herd. However, instances where submitting performance only could be helpful to you would include any time you desire the computed weaning performance to aid you in making selection decisions or when you do not desire to register every calf in a contemporary group.

Optional Data for BHIR

The following information is not mandatory in order to enroll your herd in BHIR. However, space has been provided to allow you to objectively describe each animal as completely as possible. This optional performance data ranks BHIR as the most comprehensive performance program available for Brahman cattle. It is recommended that you complete as much of the optional information as is possible on every animal and that you utilize this information in your selection decisions.

Calving Ease (C.E.)

Calving ease is one digit code that reports performance during calving. Report calving ease by entering one of the following codes:

1. No assistance
2. Some assistance
3. Mechanical assistance
4. Cesarean section
5. Abnormal presentation

Udder and Teat Scores

Udder and Teat scores are a one digit code that reports the suspension of the dams udder and teat size. Report the udder's suspension and teat size by entering one of the codes:

	Udder Suspension	Teat Size Score
9	Very tight, level	Very small
8		
7	Tight, Fairly level	Small
6		
5	Intermediate	Intermediate
4		
3	Pendulous, broken floor	Large
2		
1	Very Pendulous, broken down	Very large, balloon shape

*See Diagrams on Page 5

Nurse Code

Nurse code is one digit code that reports the nursing activity of the calf. Enter one of the following codes to denote the nursing score:

1. Calf nursed vigorously with no assistance
2. Assistance needed – calf's fault
3. Assistance needed – cow's fault
4. Assistance needed – environment

Calf Survival/Disposal

Calf survival or disposal is a one digit code that reports the weaning results for a calf. Enter one of the following codes to report the survival or disposal of a calf.

1. Calf weaned
2. Calf died at calving
3. Calf died before 7 days of age
4. Calf died after 7 days of age
5. Calf died after one month of age
6. Calf died after three months of age
7. Calf died after five months of age
8. Calf sold before weaning weight date

Hip Height

Measure and record hip height to the nearest one-half inch on the same day the calf is weighed for weaning. The calf should be standing as normal as possible and the height measured in inches over the hooks (hip).

Temperment Code

Temperament code is a one digit code that denotes the disposition of the calf. The temperament should be evaluated in a pen situation with the animal and an additional two-four animals being placed in a pen and scored.

	Description
1	Non-aggressive (Docile). Walks slowly, can approach closely, not excited by humans or facilities.
2	Slightly aggressive. Runs along fences, will stand in corner if humans stay away, may pace fence.
3	Moderately aggressive. Runs along fences, head up and will run if humans move closer, stops before hitting gates and fences, avoids humans.
4	Aggressive. Runs, stays in back of group, head high and very aware of humans, may run into fences and gates even with some distance, will likely run into fences if alone in pen.
5	Very aggressive. Excited, runs into fences, runs over humans, and anything else in path, crazy.

Management Codes

Tells how calves were handled prior to weaning:

1. Natural dam, no creep
2. Natural dam, with creep feed
3. Raised on a foster dam (i.e. recip cow, nurse cow, etc.)
4. On show feed ration

Group Code

Animals that need to be evaluated separately due to a difference in environment, forage or any other differences should be assigned a different group code. It is recommended that these be as simple as 1,2,3.

Service Date

Enter the date that the dam was bred for the calf being registered if it is known. This date should be entered if the cow was conceived by AI, pen breeding or witnessed being served naturally.

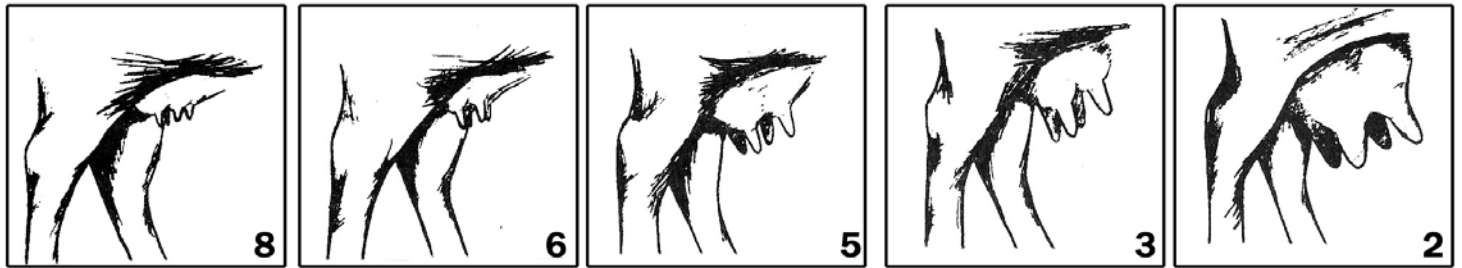
Private Codes *Optional

One optional private code space is available for entering any one-digit code that the breeder chooses.

Udder Suspension Scores



Teat Scores



Weaning Summary and Yearling Worksheet

After submitting your registration application with the appropriate weight columns completed, you will receive a weaning report, a weaning sire summary and a weaning produce of dam summary (which will be discussed on Page 13). The weaning report lists the calves by sex while the Weaning Sire Summary

groups them by sire to allow comparisons of bulls used to produce that calf crop. These two summaries provide a complete overview of weaning performance and are designed to be used in making selection decisions. A worksheet for recording and reporting yearling performance to ABBA and an ultrasound barn sheet are also provided.

American Brahman Breeders Association																										
P.O. Box 14100, Kansas City, Missouri, 64101-4100, fax: 816-842-6931, e-mail: ABBA@abraonline.org																										
Weaning Summary and Yearling Worksheet																										
Breeder: _____															2008/Spring			Date: September 28, _____								
																		Page: 1								
WEANING DATA																	YEARLING DATA									
Private Herd Number	Reg. Nr/ Birth Date	Sex	Adj Birth Wght	C E	Sire Private Herd Nr	Dam Private Herd Nr	Age of Dam	Udder Test	Nurse Code	Days of Age	Actual WeanWt/ WDA	M g t	Grp Code	Adj 205 Wt	Ra tio	Frme Score	Gest Lgth	T e m p	D i s p	P r i v	Actual Weight	Date Weighed	Mgt Code	Group Code	Hip Ht.	
1/1	87574 03/22/2008	C	68		893	915	1	9/9	1	216	510 2.36	1		514	97				3							
2/1	87797 08/24/2008	C	70	1	893	699	5	6/7	1	249	504 2.02	1		427	96											
3/1	87860 09/22/2008	C	67	1	922	775	4	9/9	1	220	484 2.2	1		464	104											
4/1	88016 09/29/2008	C	65	1	539/8	673	6	8/8	1	213	426 2	1		412	99				2							
5/1	88018 10/25/2008	C	80	1	905	863	3	7/7	1	187	430 2.3	1		482	116				2							
6/1	88018 09/26/2008	C	65	1	300/2	850	2	7/6	1	216	360 1.67	1		363	87				2							
7/1	88018 09/21/2008	C	75	1	539/8	859	2	7/7	3	221	430 1.95	1		422	102				1							
8/1	88016 10/31/2008	C	65	1	905	893	2	8/9	1	181	380 2.1	1		440	106				3							
9/1	88016 08/31/2008	C	60	1	863	642	7	7/7	1	242	464 1.92	1		402	97				2							
10/1	88016 09/22/2008	C	67	1	770	763	4	6/5	1	220	530 2.41	1		507	122				2							
11/1	88018 09/07/2008	C	73	1	539/8	358	14	9/9	1	235	300 1.28	1		280	67				3							
12/1	88018 09/09/2008	C	83	3	539/8	851	2	9/9	1	233	502 2.15	1		478	115				2							
13/1	88016 09/10/2008	C	60	1	893	757	4	8/7	1	232	480 2.07	1		431	104				1							
14/1	88016 09/02/2008	C	70	1	539/8	489	11	8/8	1	240	472 1.97	1		413	100				2							
15/1	88016 09/16/2008	C	63	1	300/2	889	2	8/8	1	226	364 1.61	1		362	87				2							
16/1	88016 10/01/2008	C	67	1	863	817	3	8/8	1	211	470 2.23	1		487	113				2							
17/1	88017 09/10/2008	C	80	1	893	581	8	7/7	1	232	515 2.22	1		464	112				3							

Adjusted Birth Weight

Because of the economic importance of ease of calving and the relationship of birth weight to this trait, it is important to identify calves that are too heavy at birth. To make the birth weights of all calves in a group comparable, the birth weight is adjusted for differences in age of dam. The following additive factors are used as adjustments:

Age of Cow	Adjustments (lbs)
2 years	+8
3 years	+5
4 years	+2
5 to 12 years	0
Over 13 years	+3

The code "NR" appearing in the birth weight column indicated that no weight was reported. In this case a standard weight of 70 pounds for heifer calves and 75 pounds for bull calves is used for all the following calculations.

Weaning Summary and Yearling Worksheet

Age of Dam

The age of dam affects birth, weaning and yearling weights. The age reported on the summary is the age at the time of calving and is reported in years. The following range in days is used to identify age of dam.

Age in Days at Calving	Age in Years
639-1003	2
1004-1338	3
1339-1703	4
1704-4623	5-12
4624 and over	13 and over

Days of Age

The age of the calf when weighed. In order to receive weight adjustments and ratios, the age must fall between 120 and 300 days of age. Individuals weighed outside of this range will receive no adjustment and will be denoted as "irregular."

WDA – Weight per day of age

Calculated as:

$$\text{WDA} = \frac{\text{Actual weaning weight}}{\text{Days of age when weighed}}$$

Adjusted 205 Day Weight

Weaning weight reflects both the milking ability of the dam and the growth potential of the calf. In order to compare calves of different ages and from different aged dams it is necessary to adjust the actual reported weight to a constant number of days of age and a mature cow constant.

$$\text{Adj. 205 Day Wt.} = \frac{(\text{Actual weaning wt.} - \text{Actual Birth wt.})}{\text{Age in Days}} \times 205$$

+ actual birth weight
+ age of dam adjustment

The age of the dam adjustment factors are:

Age of Dam	Male Calves	Female Calves
2 years	+30	+27
3 years	+20	+18
4 years	+10	+9
5 to 12 years	0	0
Over 13 years	+10	+9

Weaning Weight Ratio

This ratio is calculated using the adjusted 205 day weight and is the single most important item which appears on the Weaning Summary and Yearling Worksheet report. The weaning weight ratio describes a calf's preweaning growth in terms of a percentage of the herd average for that sex and should be the primary tool used when ranking calves for making selections. A weight alone does not adequately describe a calf's genetic growth potential until some measure of comparison is made to the growth of the calf's contemporaries, and the ratio is the calculation which makes this comparison.

$$\text{Weaning Wt. Ratio} = \frac{\text{Calf's Adj. 205 Day Wt.}}{\text{Avg. 205 Day Wt. of Cont. Group}} \times 100$$

Frame Scores

Frame is an additional method of describing an animal. A column is provided on the registration application to report actual hip height from which frame scores are derived. In order to compare calves of different sexes, different ages, and from different aged dams it is necessary to adjust heights to a constant.

For male calves

$$\text{Adj. ht.} = (\text{Actual height in inches}) + \frac{[(205 \text{ days} - \text{age in days when measurement is taken}) \times .033]}{1}$$

Female calves

$$\text{Adj. ht.} = (\text{Actual height in inches}) + \frac{[(205 \text{ days} - \text{age in days when measurement is taken}) \times .025]}{1}$$

Since the dam effects play such a large role in all preweaning data, calf heights are also adjusted for age of dam according to the following factors:

Age of Dam	Multiply Adj. Ht. By
2	1.02
3	1.015
4	1.01
5-10	no adjustment
11	1.01
12	1.015
13+	1.02

The adjusted height is now converted to frame score and is reported on the summaries you receive. The following is a chart indicating the heights and corresponding frame scores.

Frame Score Chart for Bulls

Age In Mos.	Frame Score 1	Frame Score 2	Frame Score 3	Frame Score 4	Frame Score 5	Frame Score 6	Frame Score 7	Frame Score 8	Frame Score 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	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	55.2	57.1	59.1	61.0

Frame Score Chart for Females

Age In Mos.	Frame Score 1	Frame Score 2	Frame Score 3	Frame Score 4	Frame Score 5	Frame Score 6	Frame Score 7	Frame Score 8	Frame Score 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 = $-0.548 + 0.4878 (\text{Ht}) - .0289 (\text{Days of Age}) + 0.00001947 (\text{Days of Age})^2 + 0.0000334 (\text{Ht}) (\text{Days of Age})$.

Frame Score = $-0.7086 + 0.4723 (\text{Ht}) - .0239 (\text{Days of Age}) + 0.0000146 (\text{Days of Age})^2 + 0.0000759 (\text{Ht}) (\text{Days of Age})$.

Weaning Sire Summary

This report contains the same information as the weaning report and is grouped by sire. All calves by the same sire are listed together and averages of their performance-actual and adjusted weights, weight per day of age and weight ratios – are printed for each sire group containing more than one calf.

This report can be used to make selection decisions regarding the sires that have been used to produce this calf crop. However, consideration must be given to the production ability of the dams that the sires were bred to.

American Brahman Breeders Association												
P.O. Box 14100, Kansas City, Missouri, 64101-4100, fax: 816-842-6931, e-mail: ABBA@abraonline.org												
Weaning Averages Summary Report												
Progeny Averages by Sire, Management Group and Sex.												
Breeder:			2008/Spring				Date: April 02, 2009 Page: 1					
Sire Ident	Sire PHN	Sire Name	Management Group	Sex of Progeny	Number Weighed	Number Ratioed	Average Actual Wean Wt	Average Progeny Age	Average Adj. 205 day Wt.	Average Progeny WDA	Average Weaning Ratio	
77925	539/8	LL MR DOC HOLIDAY 539	1	Female	2	2	564	206	561	2.74	107	
			1	Male	6	6	597	214	577	2.80	96	
80985	754	MSP ESTO CHERRA 754	1	Female	3	3	512	188	561	2.73	106	
			1	Male	6	6	628	223	587	2.82	99	
81879	770	MSP MELITON 770	1	Female	4	4	513	210	508	2.45	96	
			1	Male	12	12	590	206	592	2.87	100	
				Male	1	1	530	206	528	2.57	100	
83782	893	MSP SIR DUBO BOY 893	1	Female	10	10	520	208	521	2.49	99	
			1	Male	7	7	617	212	607	2.91	103	

Submitting Yearling Data

Weaning performance reports are only the first step. The information reported on the yearling worksheet is probably the most important weight data reported for the individual calf. Weights and measurements that are taken at this time are a good indication of an individual's ability to perform and are not as heavily influenced by maternal difference as are measurements taken at weaning time. Actual weight, date weighed and management code are the only items required on the yearling worksheet. Other items are optional but recommended.

Actual Weight and Date Weighed

Actual yearling weight should be reported for all calves appearing in the weaning contemporary group if they have not been culled

or sold prior to the weigh date. If no weight is available, leave this space blank.

Cattle may be adjusted to any one of three yearling weight constants: 365, 452, or 550 days. All cattle in a contemporary group should be weighed within the same age range. Acceptable age ranges are:

Age in Days	Weights Adjusted to
320-410 days	365 days
411-501 days	452 days
502-600 days	550 days

Management Codes

Enter one of the following codes indicating how the calves were handled from weaning to yearling age.

1. Pasture with supplement feed
2. Pasture with no supplement feed
3. Dry lot – full feed and no pasture
4. On show ration

Group Code

Animals that have the same management but need to be evaluated separately due to a difference in pasture, environment or any other difference should be assigned a different group code. Animals with the same group code will be analyzed together. It is recommended that groups be numbered 1,2,3, etc.

Hip Height

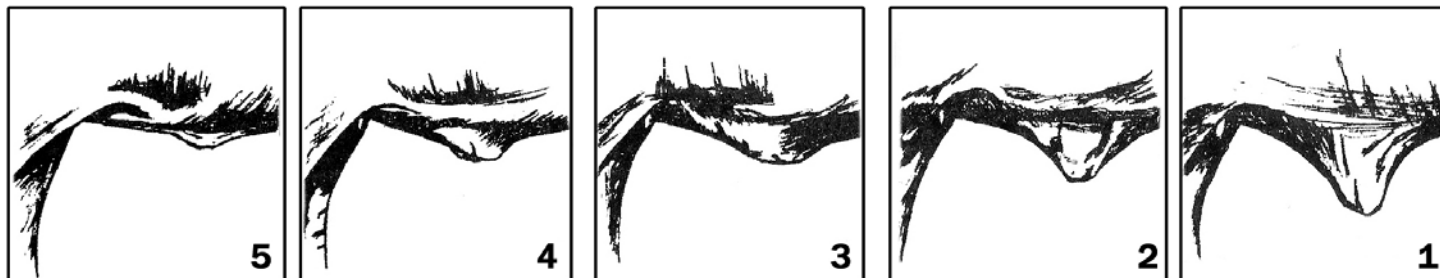
This measurement should be taken at the time of weaning and yearling. Actual height, to the nearest half inch, should be reported. Measurements are made in the same manner described for weaning hip height.

Scrotal Circumference

Only in the last decade has any importance been placed on scrotal circumference. However, there are several studies indicating high correlations between scrotal circumference and total semen output, and between scrotal circumference in yearling bulls and age at puberty of their paternal half-sibs.

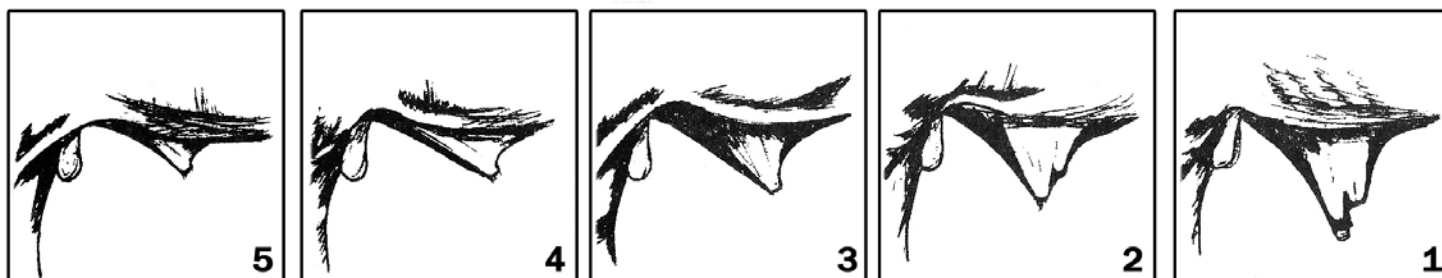
The measurement should be taken at the same time yearling weight is taken. The bull should be confined in the chute and both testicles should be pulled down into the scrotum. Place the measuring tape snugly around the widest portion of the scrotum. The tape should be snug but not tight enough to wrinkle the skin. The measurement should then be recorded in centimeters and reported on the Yearling Worksheet.

Navel Scores



Note: Navel and sheath scores will be reported by breeders on the yearly worksheets.

Sheath Scores



Sheath Scores

	Description
5	Excessively Clean
4	Optimum; sheath hangs at a 45° angle and is well controlled.
3	Acceptable; sheath hangs at a 45° angle but has slightly more leather than desired.
2	Marginal; excessive loose leather in navel area, slight pendulous sheath that opens at a 90° angle to the body.
1	Unacceptable; extremely pendulous sheath at 90° angle or extremely large prepuce opening.

P = Denote distended prepuce by assigning a "P" following sheath score.

Navel Scores

	Description
5	Excessively Clean
4	Optimum; no excessive leather in navel area
3	Acceptable; leather in navel slight more than desired.
2	Marginal; excessive leather in navel area and length of underline.
1	Unacceptable; Pendulous navel flap, leather in underline in excess of desired amount.

Private Codes

Enter codes in the same manner as they were entered for weaning data on page 4.

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P.O. Box 14100, Kansas City, Missouri, 64101-4100, fax: 816-842-6931, e-mail: ABBA@abraonline.org																													
Weaning Summary and Yearling Summary																													
Breeder: _____														2008/Spring							Date: September 28, 2008								
Page: 1																													
WEANING DATA														YEARLING DATA															
Private Herd Number	Reg. Nr/ Birth Date	S e x	Adj Birth Wght	C E	Sire Private Herd Nr	Dam Private Herd Nr	Age of Dam	Udder Test	Nurse Code	Days of Age	Actual Wean/W WDA	M t g t	Grp	Adj 205 Wt	Ra tio	Prime Score	Gest Lgth	T e m p	D i s p	P r i v	Birth Navel	Days of Age	Actual Yearling WDA	M t g t	Grp Code	Adjusted Yling Wght	Ra- tio	P r i v	
1/1	87574 03/22/2008	C	68		893	915	569	9/9	1	216	510 2.36	1		514	97			3				422	760 1.8	1		705	96		
981	87573 04/16/2008	C	65		893	798	1258	8/8	1	191	440 2.3	1		486	92			2				397	680 1.71	1		672	90		
982	87573 04/19/2008	C	70		754	881	2304	8/8	1	185	512 2.72	1		552	104			1				364	750 1.9	1		737	99		
983	87573 04/08/2008	C	75		539/8	537	3740	8/8	2	200	538 2.68	1		548	104			1				405	814 2.01	1		765	103		
984	87573 05/09/2008	C	70		754	805	1304	8/8	1	168	450 2.65	1		553	105			2				374	730 1.95	1		770	104		
985	87573 03/31/2008	C	72		754	749	1556	9/9	1	207	575 2.78	1		579	110			2				413	870 2.11	1		805			
986	87573 03/11/2008	C	65		770	661	2344	8/8	1	227	562 2.56	1		532	101			2				433	880 2.03	1		763			
987	87574 04/05/2008	C	75		893	819	1204	7/8	1	202	484 2.4	1		508	96			2				408	790 1.94	1		745			
988	87573 03/26/2008	C	60		539/8	651	2584	8/7	1	212	592 2.79	1		574	109			1				418	900 2.22	1		837	11		
989	87574 03/07/2008	C	65		893	549	3438	7/7	1	232	584 2.52	1		524	99			4				437	780 1.78	1		677	91		
990	87574 03/16/2008	C	65		893	585	3054	7/7	1	222	624 2.81	1		581	110			1				428	920 2.15	1		811			
991	87574 04/17/2008	C	70		893	522	3813	8/8	1	190	470 2.47	1		502	95			2				396	730 1.84	1		704			
992	87573 03/03/2008	C	62		893	751	1622	8/7	1	235	642 2.73	1		577	109			2				441	890 2.02	1		769			
994	87573 03/28/2008	C	65		893	813	1212	9/9	1	210	590 2.67	1		566	107			1				416	820 1.97	1		768			
995	87574 03/23/2008	C	62		770	753	1534	5/8	1	215	506 2.35	1		494	93			2				421	800 1.9	1		722			
996	87574 03/30/2008	C	55		893	791	1234	9/9	1	206	482 2.32	1		494	93			1				414	710 1.71	1					
997	87573	C	65		770	657	2427	8/7	1	162	428	1		524	99			2				368	903 2.45	1					

Yearling Summary

Two yearling reports will be returned to you: the Yearling Report and the Yearling Sire Summary. Both reports provide the same information on individual calves, but the Yearling Report lists the cattle by sex while the Yearling Sire Summary groups them by sire.

Sheath or Navel Score

Sheath or navel codes appear as they were reported on the yearling worksheet and receive no adjustment.

Days of Age

Age of the calf at the time of weighing. Calves weighed outside the adjustment period will not have an adjusted weight or ratio calculated and will be reported as "irregular".

W.D.A. - Weight per Day of Age

This trait is printed beneath the actual yearling weight and is calculated by the formula:

$$\text{W.D.A.} = \frac{\text{Actual Yearling Weight}}{\text{Days of Age at Weighing}}$$

Adjusted Yearling Weight

This weight is adjusted to the age shown at the top of the form (365, 452, or 550 days).

Adjusted Yearling Weight is calculated by:

$$\text{Adjusted Yearling Wt.} = \frac{\text{Actual Year Wt.} - \text{Actual Wean wt.}}{\text{No. of days between weights}} \times D + \text{Adjusted 205 weight}$$

Where D =
160 for 365 day adjustment
247 for 452 day adjustment
345 for 550 day adjustment

If no weaning weight is available (or if the weaning weight is irregular), adjusted yearling weight is calculated as follows:

$$\text{Adjusted Yearling Wt.} = \frac{\text{Actual Year Wt.} - \text{Actual Birth Wt.}}{\text{Age in Days at Weighing}} \times L$$

+ Adjusted Birth Weight
+ Age of Dam Adj. for WW

Where L = Length of adjustment period (365, 452, or 550 days)

Adjusted Yearling Weight Ratio

As with the weaning reports, the yearling weight ratio is the primary trait of importance when ranking the yearling group for selection purposes. Since some calves which were part of the weaning contemporary group may not be kept until yearling data is collected, it is necessary to adjust their yearling ratios for culling. Ratios are biased downward in situations where the lower end is culled and not fed through yearling stage. To compensate for culling, yearling weight ratio is calculated as:

$$\text{Ratio: } \frac{W + P}{\overline{W} + \overline{P}} \times 100$$

Where: $\overline{W}$ = Calf's adj. 205 wt.

$\overline{P}$ = Calf's post weaning gain

$\overline{W}$ = Average 205 day wt. of all contemporaries

$\overline{P}$ = Average post-weaning gain of all contemporaries having a yearling weight

Note:

$$\text{Post weaning gain} = \frac{(\text{Actual Yearling wt.} - \text{Actual Weaning wt.})}{\# \text{ of days between weights}} \times D$$

D = Length of gain period (160, 247, or 345 days, depending on length of adjustment period.)

Yearling Sire Summary

The Yearling Sire Summary contains the same information as the Yearling Report, in addition to grouping the cattle by sire to allow comparisons of the transmitting ability of the bulls used to produce the calf crop. Averages of the performance traits are calculated for sire groups containing more than one calf.

The average yearling weight ratio of sire groups accounts for culling in the same manner as the individual ratios and is calculated as:

Frame Score

Frame score, when used with weights and weight ratios, helps to describe a more complete picture of an individual's growth and maturity pattern. The yearling frame score is derived from the adjusted score. Adjusted yearling hip heights are obtained by using these formulas:

For bulls under 365 days old:

$$\text{Adj. Hip Ht.} = \text{Actual height} + [(365 - \text{age}) \times .033]$$

For bulls over 365 days old and for all heifers:

$$\text{Adj. Hip Ht.} = \text{Actual Height} + [(365 - \text{age}) \times .025]$$

To convert adjusted hip heights to frame scores, see the table on page 8.

Scrotal Circumference

Scrotal circumference appears on the summaries as it was reported; no adjustments are made. When making selections based on this measurement, the breeder should remember that weight at the time of measurement has an effect on scrotal circumference.

$$\text{Average Ratio of Sire Group: } \frac{\overline{W_s} + \overline{P_s}}{\overline{W} + \overline{P}} \times 100$$

Where: $\overline{W_s}$ = avg. adjusted 205 day wt. of sire group

$\overline{P_s}$ = avg. post weaning gain of all calves in sire group having yearling weights

$\overline{W}$ = Average 205 day wt. of all contemporaries

$\overline{P}$ = Average post-weaning gain of all contemporaries having a yearling weight

American Brahman Breeders Association

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Yearling Averages Summary Report

Progeny Averages by Sire, Management Group and Sex.

2008/Spring

Date: July 15, 2009

Page: 1

Breeder Name:

Sire Ident	Sire PHN	Sire Name	Management Group	Sex of Progeny	Number Weighed	Number Indexed	Average Actual Year. Wt	Average Progeny Age	Average Adjusted Year Wt.	Average Progeny WDA	Average Progeny Ratio
77925:	539/8	LL MR DOC HOLIDAY 539	1	Female	2	2	872	412	801	2.12	108
			1	Male	6	6	888	421	802	2.11	101
80985:	754	MSP ESTO CHERRA 754	1	Female	3	3	783	394	772	1.99	104
			1	Male	6	6	845	430	754	1.96	95
81879:	770	MSP MELITON 770	1	Female	4	4	835	416	758	2.03	102
			1	Male	13	13	859	413	798	2.08	101
		MSP SIR DUBO BOY 893	1	Female	10	10	772	414	717	1.86	96



Review Through Yearling Phase

A review of the information gathered and compiled after the computed Yearling Summary is returned to you reveals several very useful items.

As a BHIR participant you now have an adjusted birthweight, calving ease, actual weaning weight and weight per day of age, adjusted weaning weight and ratio as well as the other information you submitted at weaning.

Your yearling information includes actual yearling weight and weight per day of age, adjusted yearling weights and yearling weight ratios that have been calculated to account for any culling that occurred at weaning in addition to any of the other information you submitted (sheath/navel, scrotal circumference, etc.) Both the weaning and yearling information is separated into contemporary groups and into sire groups.

By comparing the weaning ratios and frame scores to yearling ratios and frame scores, you gain a better picture of an animal's growth pattern. Remember that the yearling data is more nearly free of the maternal effects that influence weaning characteristics.

With the availability of the above information as an additional management tool, better selection and culling decisions can be made. And as a BHIR participant, you have this information readily available on each calf in your herd and compiled in a readable, well organized manner.

In addition, you will also receive a calving record on each dam in your herd summarizing her production and the performance of her offspring. This is covered in the next section.

Dam Summary

The Dam Summary provides a complete summary of the individual performance records of a dam and an up to date record of the dam's progeny and their performance records.

The Dam Summary is a full size page on which is printed a two generation pedigree along with the dam's actual performance data and current EPD's.

The Dam Summary lists all of the dam's production including calves that are Performance Only or animals that had records submitted but never registered. Each calf is identified by its private herd number, sire's registration number and sire's private herd number as well as its birth date, sex, calving ease score and actual birth weight. The weaning information includes the actual weaning weight, age in number of days at time weaning weight was taken, the adjusted 205 day weaning weight, the ratio, rank with in contemporary group, frame score and weight per day of age at weaning. The yearling data includes the actual yearling weight, age in number of days when the yearling weight was taken, the adjusted yearling weight, ratio, rank, frame score and weight per day of age at yearling weight.

Below the calving performance are several charts that summarize the dam's production. These include the number of sires she has calved to, the average calving interval, the number of male and female progeny and the weights and average weights taken at weaning and yearling.

Dam Summary

Date Issued: Sep 30, 2009

P.O. Box 14100 Kansas City Missouri 64101-4100
Tel: 816-595-2442 Fax: 816-842-0931 Email: ABBA@brahmanline.org

Regnum: 76090 Tattoo: 470 Name: MSP MISS COUNTRY SUGARA

Birthdate: 02 January 1997

Sire: B 351134 +HCK SIR SUGAR PRIDE 717 (717) B 351134
B 687462 MSP BLANCA SUGARA 363 (363) B 687462

C 586511 MSP LADY BLANCA 41 (41) C 586511

Dam: C 613777 MSP COUNTRY GAL 93 (93) C 613777
B 376197 VM COUNTRY BOY 81 (81) B 376197

C 344056 HPS MARCIE NIX R 528 (528/3RT) C 344056

Fall 2009 EPDs				
	Birth Weight	Weaning Weight	Yearling Weight	Milk
EPD	0.2	0.9	0.6	4.7
ACC	.42	.38	.34	.41

Performance Data:

Act. BW: 65 Adj. Wean: 570 Adj. Yrling: Calving Ease: 1

Progeny: Natural

Progeny: Natural							Weaning							Yearling							
PHNo	Sire Reg	Sire PHNo	Birthdate	Sex	CE	B.Wt	Act. Wght	Age	Adj. Wght	Ratio	Rank	Frame Score	WDA	Act. Wght	Age	Adj. Wght	Ratio	Rank	Frame Score	WDA	Conf Score
727	35300	38/1	09/16/1999	B	1	60	550	248	497	90	9/10		2.22								
647	74831	528	02/12/2001	C	1	65	526	212	520	107	1/8		2.48	784	470					1.67	15.00
817	74831	528	02/04/2002	B	1	71	602	209	592	108	1/3		2.88								
817	74831	528	02/04/2002	B																	
859	74741	790/5	01/12/2003	B	3	75	596	239	522	102	5/10		2.49								
894	74741	790/5	02/16/2004	B	1	80	530	177	604	105	3/5		2.99								
829	80985	754	01/08/2005	C	1	85	529	229	480	100	5/11		2.31								
985	80985	754	12/27/2005	B	1	93	555	190	591	113	1/24		2.92	762	440	796	92	20/24		1.73	
109/1	77925	539/8	03/22/2008	B		70	614	216	586	99	15/31		2.84	920	423	823	104	9/31		2.17	

No of Sires:	5
Avg Calving Int:	433
Progeny Averages:	
Male:	7
Female:	2
Total:	9

Act. BW	Count
Male: 75	6
Female: 65	2
Total: 72	8

Weaning			
Adj Wght	Index	Frame Score	Count
Male: 565	102.8		
Female: 500	103.5		
Total: 549	103.0		

Yearling					
Adj Wght	Index	Frame Score	Count	Conf Score	Count
Male: 809	98.0				
Female:				15	1
Total: 809	98.0			15	1

Ultrasound Scanning Results

The Ultrasound Scanning Results Report consists of the final analysis of cattle that producers have scanned for carcass traits. Once your cattle are scanned by an approved Ultrasound Guidelines Approved Technician and have been interpreted by an approved lab these results are reported to ABBA, added to your animals file and then sent to you in this format. To obtain a copy of the ultrasound guidelines visit the ABBA website or contact the ABBA Office.

This report consists of the animal's registration number, private herd number, date of birth, sex, sire and dam information and the weight and age in days at the time of scanning.

The report gives the actual and adjusted ribeye area as well as a ratio and rank for comparisons with in the contemporary group. The ribeye area measurement is taken between the 12th & 13th rib. This measurement is a common estimator of total muscle.

The next columns give the results for Percent IMF (Intramuscular Fat or Marbling). The actual and adjusted measurements are given as well as the ratio and rank among the contemporaries for this trait. The IMF measurement provides an estimate of the degree of marbling or intramuscular fat deposited in the ribeye that ultimately affects the USDA Quality Grade.

The next two sets of columns report the actual and adjusted measurements for rib fat and rump fat as well as give the ratios and rank among the contemporary group for these two traits. The rib fat measurement is the most common measure of external fat on a carcass, and is directly related to carcass yield grade. The rump fat measurement is an indicator of the total amount of carcass fat and is correlated to percent retail product. The more rump fat the less pounds of lean product.

Intramuscular Fat to Quality Grade Conversion

% IMF	USDA Quality Grade
2.3-3.0	Low Select
3.1-3.9	High Select
4.0-5.7	Low Choice
5.8-7.6	Choice
7.7-9.7	High Choice
9.9 & Higher	Prime

Ribeye Area

The expected base Ribeye Area is 1.1 sq. inches/100 lbs of live weight. This would equate to a 1,000 lb. animal having an 11.0 sq. in. REA. Anything under this would be less than ideal while anything over this would be exceptional.

Light Muscle Cattle	0.8 sq in/cwt
Average Muscle Cattle	1.1 sq in/cwt
Heavily Muscle Cattle	1.3 sq in/cwt

USDA Carcass Preliminary Yield Grade Fat Thickness Base

Fat Thickness (in.)	Yield Grade
0.10	2.25
0.20	2.50
0.30	2.75
0.40	3.00
0.50	3.25
0.60	3.50
0.70	3.75
0.80	4.00

American Brahman Breeders Association

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Ultrasound Scanning - Results

Breeder Name:
Membership Number:
Address:

Calving Year/Season: 2008/Spring
Date: September 30, 2009
Page: 1

Calf	Id	Birth Date	Sex	Dam	Sire	Scan Age	Scan Wt	RIBEYE (sq ins)			PERCENT IMF			RIB FAT (ins)			RUMP FAT (ins)		
								Actual	Adjust	Ratio	Actual	Adjust	Ratio	Actual	Adjust	Ratio	Actual	Adjust	Ratio
87534	8107	04/10/2008	M	82/2	853	329	856	10.5	11.05	96	4.10	4.16	120	0.26	0.26	110	0.32	0.34	110
				82332	82948					2/2			1/2			2/2			2/2
87534	8109	03/23/2008	M	5144	853	347	910	11.7	11.97	104	2.77	2.80	80	0.22	0.23	90	0.27	0.28	90
				84555	82949					1/2			2/2			1/2			1/2
87535	8112	02/11/2008	F	5122	853	388	728	9.3	8.95	107	4.72	4.68	112	0.27	0.26	116	0.37	0.36	107
				84554	82949					1/2			1/2			2/2			2/2
87535	8114	02/15/2008	F	5114	853	384	742	8.1	7.81	93	3.72	3.69	88	0.19	0.18	82	0.32	0.31	93
				82949	82949					2/2			2/2			1/2			1/2

Glossary of Terms

Actual Birth Weight The weight of a calf taken within 24 hours after birth. Heavy birth weights tend to be correlated with calving problems, but the conformation of the calf and the cow are contributing factors.

Adjusted Birth Weight Weight taken within 24 hours of birth and adjusted to a mature cow (5-12 years old) basis.

Adjusted Weaning Weight Weight taken between 120 and 300 days of age and adjusted to 205 days of age and to a mature cow basis.

Actual Yearling Weight Post weaning weight adjusted to 365, 452, or 550 days and to a mature cow basis.

Average Daily Gain Measurement of daily change in body weight when animals are fed for tests.

Calving Interval The average length of time in days between successive calvings.

Contemporary Group A group of cattle that are of the same breed and sex and have been raised in the same management group (same location on the same feed and pasture). Contemporary groups should include as many cattle as can be accurately compared and should contain at least 5 head.

Culling The process of eliminating less productive or less desirable cattle from a herd.

Dystocia (Calving Difficulty) Abnormal or difficult labor, causing difficulty in delivering the fetus and placenta.

Environment All external (nongenetic) conditions which influence the reproduction, production, and carcass merit of cattle.

Frame Score A score based on subjective evaluation of the height or measurement of height. This score is related to slaughter weights at which cattle will grade choice or have half an inch of fat cover over the loin eye at the 12-13th rib.

Genotype Average genetic makeup (constitution) of an individual determined by its genes or germplasm. For example, there are two genotypes for the polled phenotype [PP (homozygous dominant) and Pp (heterozygote)].

Half-Sibs Individuals having the same sire or dam. Half-brothers and half-sisters.

Heredity The transmission of genetic or physical traits of parents to their offspring.

Most Probable Producing Ability (MPPA) An estimate of a cow's future productivity for a trait (such as progeny weaning weight ratio) based on her past productivity. For example, a cow's

MPPA for weaning ratio is calculated from the cow's average progeny weaning ratio, the number of her progeny with weaning records, and the repeatability of weaning weight.

Number of Contemporaries The number of animals of similar breed, sex, age, against which an animal was compared in performance tests. The greater the number of contemporaries, the greater the accuracy of comparisons.

Performance Data The record of the individual animal for specific traits such as birth weight, weaning weight, yearling weight, etc.

Phenotype The visible or measurable expression of a character; for example, weaning weight, post-weaning gain, reproduction, etc. Phenotype is influenced by genotype and environment.

Progeny The offspring of animals.

Random Mating A system of mating where every female (cow and/or heifer) has an equal or random chance of being assigned to any bull used for breeding in a particular breeding season. Random mating is required for accurate progeny tests.

Rate of Genetic Improvement Rate of improvement per unit of time (year). The rate of improvement is dependent on: (1) heritability of traits considered; (2) selection differentials; (3) genetic correlations among traits considered; (4) generation interval in the herd; and (5) the number of traits for which selections are made.

Selection Causing or allowing certain individuals in a population to produce offspring in the next generation.

Selection Differential (Reach) The difference between the average for a trait of the selected cattle and the average of the group from which they came. The expected response from selection for a trait is equal to selection differential times the heritability of the trait.

Trait Ratio An expression of an animal's performance for a particular trait relative to herd or contemporary group average. It is usually calculated for most traits as:

$$\frac{\text{Individual Record}}{\text{Average of animals in group}} \times 100$$

Weight Per Day Of Age (WDA)

Weight of an individual divided by days of age.

Brahman Herd Improvement Record

Gestation and Age Measurement Table

To determine expected birth date of calf add 291 to the “day-number” of the date bred.

To find the date on which a calf becomes 205 days of age locate the “day number” of its birth date. Add 205 and locate the date he becomes 205 days old. For yearling measures at 365 days of 550 days follow the same procedure. The table applies to ordinary years only. For leap years, one day must be added after February 28.

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