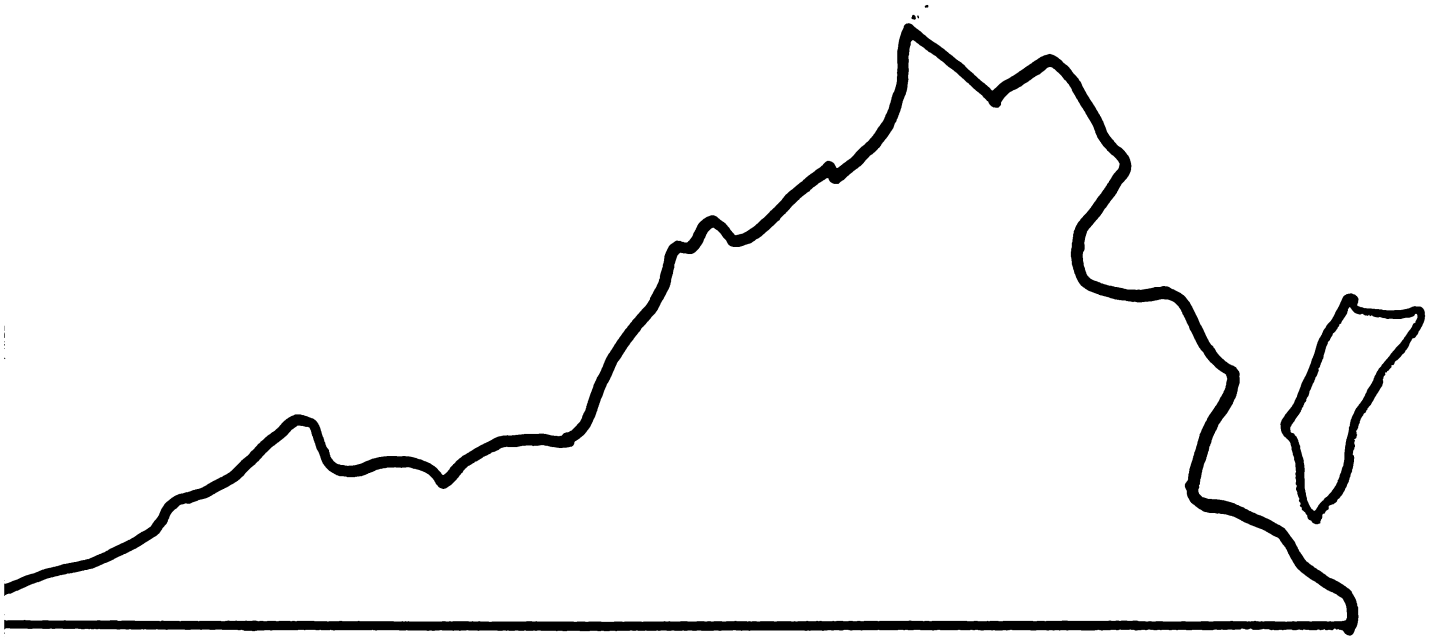


VIRGINIA
BEEF CATTLE
IMPROVEMENT
GUIDE

AS-8011
September 1980
Revised



FOR USE WITH

VIRGINIA BCIA PERFORMANCE RECORDS

**VIRGINIA COOPERATIVE EXTENSION SERVICE
EXTENSION DIVISION • VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY**

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Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, and September 30, 1977, in cooperation with the U. S. Department of Agriculture. W. R. Van Dresser, Dean, Extension Division, Cooperative Extension Service, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061; M. C. Harding, Sr., Administrator, 1890 Extension Program, Virginia State University, Petersburg, Virginia 23803.

VIRGINIA BEEF CATTLE IMPROVEMENT GUIDE

(September, 1980)

Prepared by: A. L. Eller, Jr., Extension Specialist, Animal Science

A. OFFICIAL PROGRAM

I. INTRODUCTION

Beef production, like all of agriculture, is becoming more specialized, more sophisticated, and thus, more dependent on accurate management decisions. Production records that are accurate and up-to-date are a must if herd owner or manager is to make correct and timely decisions for greater profit. The key is profit. No longer can the inefficient, unproductive animal be tolerated or propagated in the registered or the commercial herd. This is where performance records come in.

1. What is Performance Testing and How does It work?

Performance testing is simply a systematic method for measuring the economically important traits in cattle within a herd so that selection can be more accurate and herd improvement more rapid.

Fortunately, the economically important traits are mostly moderately to highly heritable which means they are readily passed on from parent to offspring. It means further that these traits respond to selection. The traits and their heritabilities are as follows:

<u>TRAIT</u>	<u>HERITABILITY</u>
Fertility (calving interval)	10%
Birth weight	40%
Weaning weight	30%
Weaning conformation	25%
Mothering ability	40%
Feedlot gain	45%
Yearling weight	40-50%
Yearling conformation	40%
Carcass grade	30%
Carcass cutability	60-70%

The breeder should place most emphasis on traits of highest heritability such as yearling weight. Most improvement in fertility will come through nutrition, management, and crossbreeding.

Three things control the speed of improvement. They are:

- (1) Selection Differential (reach) - Selection differential is the superiority of the animals selected for breeding compared with the average of the group from which they come. For example, if the average adjusted weaning weight for a set of selected heifers and bulls to be mated is 500 pounds, where the herd average is 400 pounds, the selection differential or reach is 100 pounds. The higher the selection differential the more intense the selection and the greater the improvement that should be expected in the offspring produced.
- (2) The Heritability (H) of the trait - This is the portion of the variability in the trait due to genetics. The balance will be due to environment and will not respond to selection. The higher the heritability in a trait, the more rapid should be the progress.

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c. d

- (3) Generation Interval (GI) - This is actually the average age of the parents. If rapid genetic progress is the goal, then generations must be turned as rapidly as possible. In the average herd, generation interval is 5 or 6 years.

Putting this all together by example - where the selection differential (SD) is 100 pounds, the heritability (H) is 30% and the generation interval (GI) is 5 years:

$$\begin{aligned} \text{Progress per generation} &= \text{SD} \times \text{H} \\ &= 100 \times .30 = 30 \text{ pounds} \end{aligned}$$

$$\begin{aligned} \text{Progress per year} &= \frac{\text{SD} \times \text{H}}{\text{GI}} \\ &= \frac{100 \times .30}{5} = 6 \text{ pounds} \end{aligned}$$

If only one parent is selected and superior such as may be the case in bull selection, then the selection differential, and thus the progress, must be halved.

2. The Virginia Program

The Virginia Beef Cattle Improvement Association is the official performance testing organization in the state. About 35 other states have such organizations to carry out beef performance programs. The Virginia BCIA was organized in 1955 after several years of experimental work done by the VPI&SU Animal Science Department. The Virginia BCIA headquarters is located in the VPI&SU Animal Science Department in Blacksburg. The non-profit association employs a full time office secretary-manager and is administered by an elected board of directors. An Extension Specialist in the Animal Science Department serves as Educational Advisor and program coordinator.

Services offered to the membership are:

- (1) Complete on-the-farm records program for weaning and yearling records.
- (2) Central bull test stations - three stations are supervised and operated for the testing and sale of members' bulls. These stations are located at Culpeper, Red House, and Wytheville, Va.
- (3) Computer processing of weaning and yearling records.
- (4) Official grading and scoring of animals. Official grading is optional. The member may choose not to have cattle officially graded, preferring to use the services of a local Extension agent, Vo-Ag teacher, another breeder, do the grading himself, or not use conformation grading or scoring at all.
- (5) Summary records - Annually, dam summaries are provided.

The Cooperative Extension Service has quite a stake in the Virginia program. The educational advisor and program supervisor for the program is an Extension Animal Science Specialist. In addition, organizational and educational thrust and coordination is given through county unit offices throughout the state.

The Virginia program is a cooperative effort. Research workers use the program for data for developing new knowledge. Extension workers use the program for education. The Virginia Department of Agriculture and Consumer Services cooperates in providing official graders.

II. HOW TO GET STARTED

1. Who is Eligible?

Any Virginia cattleman with a herd of at least 20 registered and/or commercial cows is eligible. All breeds straight or crossed are acceptable.

2. Positive Identification is Necessary.

The cow herd must be identified numerically by some visual means such as hot or freeze brands, ear tags, neck chains, or horn brands. Permanent identification such as a tattoo or brand is desirable also.

3. Enrollment of the Herd. (See sample enrollment forms in back of book)

The proper forms are available through either the Virginia BCIA office or any unit Extension office. The prospective members must:

- (1) Complete the APPLICATION FOR MEMBERSHIP form.
- (2) List all cows and bred heifers on the INFORMATION SHEET ON NEW OR UNLISTED COWS. Fill out as completely as possible on commercial cows, putting the words "commercial cow" in the Registered Name column. Be sure to code the breed correctly. See codes on sample listing sheet.
- (3) List all herd sires on the INFORMATION SHEET ON NEW OR UNLISTED SIRES.
- (4) Mail the APPLICATION FOR MEMBERSHIP, the cow and sire listings, and a check for annual dues (according to dues schedule on application) to Virginia BCIA, Animal Sci. Dept., VPI&SU, Blacksburg, Virginia, 24061, or to your unit Extension agent who will forward it on to the Virginia BCIA.
- (5) BCIA will assign your herd a permanent herd code number and will create an inventory of your breeding herd and store this on magnetic tape. This herd inventory will be updated annually.
- (6) BCIA will mail you a set of CALF DATA SHEETS with dams pre-listed in order of 'other' number for your use in listing the first calf crop you will weigh at weaning. These sheets provide a space for recording weights, grades, and scores.
- (7) Equipment needed - The breeder must have adequate handling facilities and a set of scales or access to a set of scales suitable for weighing one animal at a time. Purebred breeders need a special scale for weighing calves at birth.

III. WEANING RECORDS

1. Updating your Herd Inventory.

At the beginning of each calendar year, you are asked to update your inventory of cows and herd sires. The BCIA office mails a current listing to you. You are asked to put a 'D' for delete by cows and sires that have died, been culled, etc., which are no longer in the herd. You will list new or previously unlisted cows and sires on blank listing sheets provided. Mail the old listing with deletes and the new listings to the BCIA office. The inventory is then made current. A copy of the updated listing is mailed to each member.

2. Calf Data Sheets

CALF DATA SHEETS, in triplicate, with cows prelisted in order of herd or other number, are mailed to you early in the calendar year.

3. Recording Calf Birth Data

As calves are born, or at a convenient time, take calf birth data from your pocket calving record and record properly on the CALF DATA SHEETS adjacent to the proper dam. This will include sire tattoo, registration number, and breed; calf tattoo (if tattooed) and other (tag) number, sex (1=bull, 2=heifer, 3=steer), birth date, and birth weight. In lieu of actual birth weight, you may use breed averages. Breed average birth weights are as follows:

	<u>MALE</u>	<u>FEMALE</u>
Polled Hereford, Hereford and Shorthorn	70 pounds	65 pounds
Angus, Red Angus, Red Polled	65 pounds	60 pounds
Charolais, Simmental, Limousin, Chianina, Maine Anjou, Holstein, Brown Swiss, and their crosses	85 pounds	80 pounds

4. Weighing, Grading, Scoring, and Recording Data on CALF DATA SHEETS.

- (1) Birth Weight - Must be taken within 24 hours after birth. Record actual birth weight.
- (2) When to weigh and grade - Calves should be weighed and graded in groups when calves are between 160 and 250 days of age or between 5 and 8 months of age. Calves may be weighed at weaning or prior to weaning in this age range. Every calf in the herd raised to weaning should be included. If calving is not in a single season, they will need to be weighed and graded in two or more age groupings. The actual weight and weigh date must be accurately recorded on the CALF DATA SHEETS.
- (3) Who may do the weighing and scoring? The breeder is responsible and may do the weighing and grading. Virginia BCIA provides official graders and schedules them to make herd visits to weigh and grade calves as requested by the breeder. Official grading, however, is optional. The breeder may choose to have an Extension agent, Vo-Ag teacher, or another competent breeder grade and score calves, may grade and score his own calves, or elect not to grade and score at all. Weights should be verified by a disinterested party, who may initial the CALF DATA SHEETS at the bottom. The member needs to inform the BCIA office as to whether official graders are to be used and scheduled for visits to his farm.
- (4) Grading and Scoring - The following traits are scored on a numerical basis (any or all of these may be used).
 - (a) Frame Score - This subjective or measured (hip height) score is very useful. A 1 to 7 scale is used to correspond to the following drawings (Figure 1) which contain applicable weight ranges for choice grade

slaughter steers and may be applied by visual appraisal or measured hip height to correspond to the hip heights in Figure 2 on both calves and yearlings.

FIGURE 1. FRAME OR BODY TYPES SHOWING EXPECTED WEIGHT RANGE

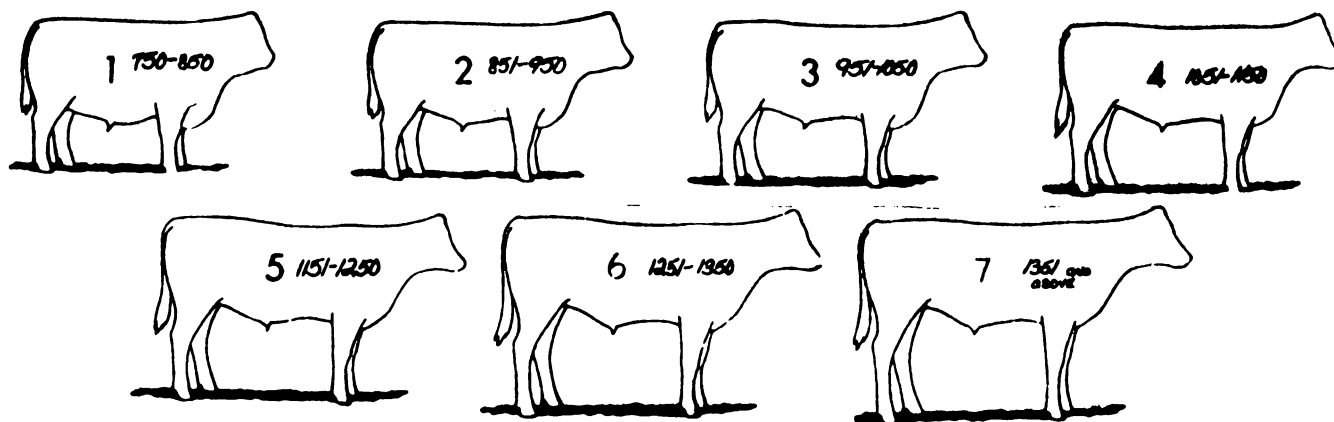


FIGURE 2. BEEF CATTLE SKELETAL SIZE CHART - Virginia BCIA-BIF

BULLS - HIP HEIGHT (IN.) - FRAME SCORE

AGE IN MONTHS	FRAME SCORES						
	1	2	3	4	5	6	7
5	34	36	38	40	42	44	46
6	35	37	39	41	43	45	47
205 day	35.75	37.75	39.75	41.75	43.75	45.75	47.75
7	36	38	40	42	44	46	48
8	37	39	41	43	45	47	49
9	38	40	42	44	46	48	50
10	39	41	43	45	47	49	51
11	40	42	44	46	48	50	52
12	41	43	45	47	49	51	53
13	41.75	43.75	45.75	47.75	49.75	51.75	53.75
14	42.5	44.5	46.5	48.5	50.5	52.5	54.5
15	43	45	47	49	51	53	55
16	43.5	45.5	47.5	49.5	51.5	53.5	55.5
17	43.75	45.75	47.75	49.75	51.75	53.75	55.75
18	44	46	48	50	52	54	56
19	44.25	46.25	48.25	50.25	52.25	54.25	56.25
20	44.5	46.5	48.5	50.5	52.5	54.5	56.5
21	44.75	46.75	48.75	50.75	52.75	54.75	56.75
22	45	47	49	51	53	55	57
23	45.25	47.25	49.25	51.25	53.25	55.25	57.25
24	45.5	47.5	49.5	51.5	53.5	55.5	57.5
Mature:	47	49	51	53	55	57	58

FIGURE 2 CONT'D:

HEIFERS - HIP HEIGHT (IN.) - FRAME SCORE

AGE IN MONTHS	FRAME SCORES						
	1	2	3	4	5	6	7
5	33.75	35.75	37.75	39.75	41.75	43.75	45.75
6	34.5	36.5	38.5	40.5	42.5	44.5	46.5
205 day	35	37	39	41	43	45	47
7	35.25	37.25	39.25	41.25	43.25	45.25	47.25
8	36	38	40	42	44	46	48
9	36.75	38.75	40.75	42.75	44.75	46.75	48.75
10	37.5	39.5	41.5	43.5	45.5	47.5	49.5
11	38.25	40.25	42.25	44.25	46.25	48.25	50.25
12	39	41	43	45	47	49	51
13	39.75	41.75	43.75	45.75	47.75	49.75	51.75
14	40.25	42.25	44.25	46.25	48.25	50.25	52.25
15	40.75	42.75	44.75	46.75	48.75	50.75	52.75
16	41.25	43.25	45.25	47.25	49.25	51.25	53.25
17	41.75	43.75	45.75	47.75	49.75	51.75	53.75
18	42.25	44.25	46.25	48.25	50.25	52.25	54.25
19	42.5	44.5	46.5	48.5	50.5	52.5	54.5
20	42.75	44.75	46.75	48.75	50.75	52.75	54.75
21	43	45	47	49	51	53	55
22	43	45	47	49	51	53	55
23	43.25	45.25	47.25	49.25	51.25	53.25	55.25
24	43.25	45.25	47.25	49.25	51.25	53.25	55.25
Mature:							
Calved-2 yr.	44	46	48	50	52	54	56
-3 yr.	45	47	49	51	53	55	57

NOTE: Record frame score as the first digit in the Conformation Score Column on the CALF DATA SHEET.

(b) Muscle Score - Scoring muscle expression is not as accurate nor repeatable as scoring frame but is quite useful in characterizing extremes and is useful in a set of records. Scores are as follows:

<u>SCORE</u>	<u>DESCRIPTION</u>
1	-Extremely thin muscled. Muscles are flat or concave.
2	-Below average for the breed. Cattle in this category are generally flat muscled and walk with legs close together.
3	-Average for the breed. Cattle in this category show typical beef cattle muscling. Some muscle definition can be seen and muscles show slight bulge.
4	-Above average in muscle expression. Cattle in this category show bulge in musculature and walk wide.
5	-Extremely thick muscled but not homozygus double-muscled. Cattle in this category show extreme bulge and definition of muscling and walk extremely wide.

NOTE: Record muscle score as the second digit in the Conformation Score Column on the CALF DATA SHEET. Example: Frame score 4, muscle score 3 Record as 43.

- (c) Soundness Score - Soundness scores in a set of records are valuable for categorizing cattle into structural soundness groups. This simplified scoring system is as follows:

<u>SCORE</u>	<u>DESCRIPTION</u>
1	-Cattle in this category are structurally unsound for any reason and should be culled.
2	-Cattle in this category are sound but have some fault or faults such as crooked legs, humped back, open shoulders, slight lameness, or other deviations from ideal.
3	-Cattle in this category are definitely sound and basically correct. Most cattle will fall in this group.

NOTE: Record Soundness Scores in Comment Codes Column on the CALF DATA SHEET.

- (d) Condition Score - This is simply an eyeball appraisal of relative degree of fatness, and is applied as follows:

17	Extremely	14	Above	11		8	Below	5	Extremely
16	Fat	13	Average	10	Average	7	Average	4	Thin
15		12		9		6		3	

- (5) Management Code - Management code must be recorded on each calf and is most important. Calves which are truly contemporaries (same age group, same feed and management conditions) should have the same management code. Only the breeder can properly code into proper contemporary groups for ratioing purposes. Management codes to use are as follows:

- 1 -Dam only (non-creep fed).
- 2 -Dam and creep fed (6 weeks or longer on creep feed).
- 3 -Irregulars - for all records not to appear in averages such as twin calf raised as a twin; calf raised on foster mother or nurse cow; sick, injured, or deformed calf.

Codes for other equal groups such as separate units on different pasture or management within the same herd:

- 4 -Dam and creep (as 2).
- 5 -Dam only (as 1).
- 6 -Dam and creep (as 2).
- 7 -Dam only (as 1).
- 8 -Dam and creep (as 2).
- 9 -Dam only (as 1).

Calves in each management code group will be handled as a separate group in computing averages and adjusted 205-day weight ratios.

- (6) Comment Codes - These codes are for the breeder's use if he cares to use them. Record appropriate comments in the Comment Codes column. The available codes are as follows:

CALF CODES:

- C0 Twin, raised on foster dam.
- C1 Twin, raised on dam as twin.
- C2 Sick calf.

CALF CODES CONT'D:

- C3 Calf sold prior to weighing.
- C4 Calf not weighed.
- C5 Calf weighed under 160 days old.
- C6 Calf weighed over 250 days old.
- C7 Calf died at calving.
- C8 Calf died, disease.
- C9 Calf died, other reason.

DAM CODES:

- D0 Cow died at calving.
- D1 Cow died, disease.
- D2 Cow died, other reason.
- D3 Cow failed to calve.
- D4 Cow aborted.
- D5 Cow sold as breeder.
- D6 Cow sold, old age.
- D7 Cow sold, physical defect.
- D8 Cow sold, poor fertility.
- D9 Cow sold, low production.

SIRE CODES:

- S1 Sire owned by another breeder.
- S2 Sire unknown.
- S3 Infertile bull.

TEMPERAMENT CODES:

- T1 Satisfactory.
- T2 Fair.
- T3 Poor.

GRADER CODES:

- G1 Official BCIA grader.
- G2 Extension Specialist
- G3 Extension Agent, Ag. instructor, other professional worker.
- G4 Another breeder
- G5 Breeder himself.

5. Sending CALF DATA SHEETS to the BCIA Office for Computation.

When each group of calves is weighed and scored, record all data complete on each calf. Check to be sure all applicable columns are filled. Send one complete copy of the CALF DATA SHEETS to the BCIA office. BCIA will return your computed data on the CALF PERFORMANCE RECORD usually within 10 days. The second and third copies of the CALF DATA SHEETS can be used for recording weights and scores on later groups.

6. CALF (WEANING) PERFORMANCE RECORD.

The records on all calves weighed as a group and sent into the BCIA office on the CALF DATA SHEETS are processed immediately. You are mailed back a single copy of the CALF PERFORMANCE RECORD on that group of calves for your use in making selection, culling, and management decisions. A second copy is sent to your unit Extension office and a third copy will be retained in the BCIA office.

HERD I. D.		
STATE	CO	HERD
52	60	2500

PAGE NO.
1

NAME AND ADDRESS
RALPH BEEFMAKER
BULL RUN FARM
ANYWHERE, VIRGINIA 00000

PERFORMANCE ORGANIZATION
VIRGINIA BEEF CATTLE
IMPROVEMENT ASSOCIATION

**CALF (WEANING)
DATA SHEET**

D A M						S I R E			REPORT CALF DATA HERE															
TATTOO NUMBER	OTHER NUMBER	BIRTH DATE			REGISTRATION NUMBER	BREED (4)	TATTOO NUMBER	REGISTRATION NUMBER	BREED (7)	TATTOO NUMBER	OTHER NUMBER	S E X	BIRTH DATE			RIPHT WT	WEIGH DATE			ACTUAL WEIGHT	CONF SCORE	MGT CODE	COND SCORE OR FAT THICK	COMMENT CODES
		MO	DAY	YR									MO	DAY	YR		MO	DAY	YR					
032		04	06	70	15528018	2222	652	17070776	22	993		1	09	07	79	85	04	07	80	425	43	2	9	2
114		03	02	71	15768495	2222	7345	17305219	22	922	11	2	09	02	79	80				500	43		10	3
139		09	04	71	15953788	2222	652	17070776	22	998		1	09	27	79	70				475	43		10	3
224		04	01	72	16037174	2222	652	17070776	22	994		1	09	07	79	85				480	33		10	3
242		09	04	72	16185224	2222	7345	17305219	22	997		1	09	22	79	85				465	33		10	3
401		01	11	74	16586730	2222	7345	17305219	22	930		2	10	01	79	80				450	33		10	3
405		03	01	74	16586739	2222	7345	17305219	22	996		1	09	15	79	90				575	43		11	3
411		03	01	74	16586744	2222	7345	17305219	22	9991		2	10	12	79	80				480	34		9	2
419		03	10	74	16586766	2222	7345	17305219	22	929		2	09	26	79	80				440	33		10	3
424		03	12	74	16586781	2222	652	17070776	22	923		2	09	02	79	80				485	33		9	2
439		09	07	74	16747855	2222	7345	17305219	22	925	13	2	09	04	79	80				535	33		10	3
441		09	26	74	16747844	2222	7345	17305219	22	995		1	09	13	79	80				565	54		11	3
511		02	12	75	16834067	2222	7345	17305219	22	990		1	09	02	79	85				645	43		12	3
524		03	10	75	16834106	2222	652	17070776	22	924		2	09	03	79	85				545	43		10	3
526		03	16	75	16834104	2222	652	17070776	22	931		2	10	12	79	80				390	43		9	2
3291	0329	09	08	73	16532129	2222	652	17070776	22	991		1	09	03	79	85	✓			610	54	✓	10	3

COPY 1

SEE BACK OF SHEET FOR INSTRUCTIONS & CODES
(BE SURE DATA REPORTED IS ACCURATE AND COMPLETE)

GRADER
NAME & DATE

V I F G I N I A B F F F C A I L L E I M P R O V E M E N T A S S O C I A T I O N
 CALF (MEANING) PERFORMANCE RECORD

STOCK HERD		NAME:		Ralph Beefmaker		ADDRESS:		Bull Run Farm		Anywhere, Virginia		00000		PAGE						
52	60	2500	TATI	OTHER	NO.	BK.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.				
REGISIR *		TAIL REGISIR *		SIRE		DAUGHTER		WEIGHT		WEIGHT		WEIGHT		WEIGHT		WEIGHT				
NO.		NO.		NO.		NO.		NO.		NO.		NO.		NO.		NO.				
3241	0324	73	16532129	652	17070776	591	1	2222	050579	2	040780	216	610	583	554	108	54	10	3	
032	70	15528028	652	17070776	593	1	2222	050779	2	040780	212	425	414	393	77	43	43	9	2	
224	72	16037174	652	17070776	944	1	2222	090779	2	040780	212	480	467	444	87	33	33	10	3	
139	71	15953788	652	17070776	598	1	2222	092779	2	040780	192	475	502	477	93	43	43	10	3	
424	74	16586781	652	17070776	523	2	2222	090279	2	040780	217	465	463	495	97	33	33	9	2	
524	75	16834106	652	17070776	924	2	2222	090379	2	040780	216	545	531	568	111	43	43	10	3	
526	75	16834104	652	17070776	931	2	2222	101279	2	040780	177	390	448	479	94	43	43	9	2	
SIKE		652	AVERAGE	(71)															
511	75	16834067	7345	17305219	590	1	2222	090279	2	040780	217	645	623	592	116	43	43	12	3	
441	74	16747844	7345	17305219	955	1	2222	091379	2	040780	206	565	563	535	104	54	54	11	3	
405	74	16586739	7345	17305219	996	1	2222	091579	2	040780	204	575	577	548	107	43	43	11	3	
242	72	16185224	7345	17305219	997	1	2222	092279	2	040780	197	465	480	456	89	33	33	10	3	
114	71	15766495	7345	17305219	922	11	2	2222	090279	2	040780	217	500	477	510	100	43	43	10	3
439	74	16747855	7345	17305219	925	13	2	2222	090479	2	040780	215	535	514	550	107	33	33	10	3
419	74	16586766	7345	17305219	929	2	2222	092679	2	040780	193	440	462	494	96	33	33	10	3	
401	74	16586750	7345	17305219	930	2	2222	100179	2	040780	188	450	483	517	101	33	33	10	3	
411	74	16586744	7345	17305219	9991	2	2222	101279	2	040780	177	480	543	581	113	34	34	9	2	
SIKE		7345	AVERAGE	(91)															
CREEP-FED HEKU AVERAGE (MC-2)		(16)																	
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)				

SEX: 1-BULL 2-PHEIK 3-STEER 4-HELPER TWIN TU BULL
 MANAGEMENT CODES: 1-DAM ONLY 2-DAM AND CREEP 3-IRREGULAR
 * ADJUSTED FOR AGE OF DAM ONLY ** ADJUSTED FOR AGE OF DAM + SEX (STEER BASIS)
 ** ADJUSTED FOR AGE OF DAM + SEX (STEER BASIS)

The performance data on each calf is printed individually. Calf records are sorted and printed according to:

- (1) Management code - non-creep fed and creep fed groups, etc., are printed separately with appropriate herd averages.
- (2) Sire within management code group. All calves by a sire are printed together with sire averages.
- (3) Sex within sire groups. Bulls are printed first, followed by heifers, and steers.
- (4) Calf other number within sex. In each sex, calf records are printed in order of lowest to highest number.

Each calf record will include the following information on the CALF PERFORMANCE RECORD (from left to right):

- (1) Dam Identification:
 - (a) Tattoo number
 - (b) Other number (chain, brand, etc.)
 - (c) Year of birth and dam age at calving in years (high print)
 - (d) Registration number (if any)
- (2) Sire Identification:
 - (a) Tattoo or ID number
 - (b) Registration number.
- (3) Calf Identification & Performance:
 - (a) Tattoo number (if registered)
 - (b) Other number (tag)
 - (c) Sex: 1=Bull
2=Heifer
3=Steer
 - (d) Breed - The first digit is for breed of sire, the second for breed of sire of dam, the third for breed of sire of maternal grandam, and the fourth for breed of sire of maternal great grandam.
Example:
1222 = 1/2 Angus, 1/2 Hereford (by an Angus bull)
1122 = 3/4 Angus, 1/4 Hereford
1112 = 7/8 Angus, 1/8 Hereford
1111 = 15/16 Angus or Straightbred (Purebred)
 - (e) Birth date and birth weight (high print). Additive birth weight adjustments for age of dam are:

<u>Age of Dam</u>	<u>Adjustment Factor</u>
2 yr. old	+ 8 pounds
3 yr. old	+ 5 pounds
4 yr. old	+ 2 pounds
5-10 yr. old	0
11 & older	+ 3 pounds
 - (f) Management code
 - (g) Weigh date
 - (h) Days of age when weighed
 - (i) Actual weight
 - (j) *Adjusted 205 day weight (adjusted for age of dam only).

FORMULA:

$$*Adj. 205 \text{ Day Wt.} = \left[\left(\frac{\text{Actual Wt.} - \text{Birth Wt.}}{\text{Days of Age}} \times 205 \right) + \text{Birth Wt.} \times \text{Additive Age of Dam Factor} \right]$$

ADDITIVE AGE OF DAM FACTORS FOR BREEDS

<u>Breed</u>	<u>Age of Dam</u>	<u>Age of Dam Additive Factor (ADAF) Lbs.</u>	
		<u>*Male</u>	<u>Female</u>
ANGUS	2 yr. old - (< 2 yr. 9 mo.)	45	37
	3 yr. old - (2 yr. 9 mo to 3 yr 9 mo)	21	18
	4 yr. old - (3 yr. 9 mo to 4 yr 9 mo)	9	7
	5-10 yr. old - (4 yr. 9 mo to 10 yr 9 mo)	0	0
	11 & over - (10 yr 9 mo & over)	9	9
HEREFORD	2 yr. old - (< 2 yr. 9 mo.)	44	44
	3 yr. old - (2 yr. 9 mo to 3 yr 9 mo)	23	23
	4 yr. old - (3 yr. 9 mo to 4 yr 9 mo)	9	9
	5-11 yr. old - (4 yr. 9 mo to 11 yr 9 mo)	0	0
	12 & over - (11 yr 9 mo & over)	12	12
CHAROLAIS	2 yr. old - (< 2 yr. 9 mo.)	69	59
	3 yr. old - (2 yr. 9 mo to 3 yr 9 mo)	35	30
	4 yr. old - (3 yr. 9 mo to 4 yr 9 mo)	10	11
	5-10 yr. old - (4 yr. 9 mo to 10 yr 9 mo)	0	0
	11 & over - (10 yr 9 mo & over)	30	30
ALL OTHER BREEDS	2 yr. old - (< 2 yr. 9 mo.)	60	54
	3 yr. old - (2 yr. 9 mo to 3 yr 9 mo)	40	36
	4 yr. old - (3 yr. 9 mo to 4 yr 9 mo)	20	18
	5-10 yr. old - (4 yr. 9 mo to 10 yr 9 mo)	0	0
	11 & over - (10 yr 9 mo & over)	20	18

- (k) **Adjusted 205 day weight (adjusted for age of dam and sex to a steer basis). This adjusted weight is useful for comparing performance on all calves of all sexes in a herd.

FORMULA:

$$**Adj. 205 Day Wt. = \left[\left(\frac{\text{Actual Wt.} - \text{Birth Wt.}}{\text{Days of Age}} \times 205 \right) + \text{Birth Wt.} \right] \times \text{Sex Adj. Factor}$$

SEX WEIGHT ADJUSTMENT FACTORS:

<u>Sex</u>	<u>Factor</u>
Bull (1)	.95
Steer (3)	1.00 (no adjustment)
Heifer (2)	1.07

- (1) Weight Ratio - This measure simply ranks each calf based on **adjusted 205 day weight (adjusted for age of dam and sex) in relation to the herd average on the calves weighed and processed at any one time. Weight ratios are most useful in that management and seasonal variation between groups is virtually eliminated.

FORMULA:

$$\text{Weight Ratio} = \frac{\text{Individual 205 day Wt}}{\text{Herd average 205 day wt. within mgt. code}}$$

- (m) Frame score and muscle score
- (n) Condition score
- (o) Soundness score

7. DAM WEANING SUMMARY

The dam summary is regularly run once a year to include all records processed through the past calendar year. This weaning summary is most useful and is printed out in order of cow age, oldest to youngest. Information contained includes:

- (1) Dam identification
- (2) Current age of dam
- (3) Date of last calving
- (4) Number of progeny weaning records
- (5) Average adjusted 205 day weight of progeny
- (6) Average weaning ratio
- (7) Most Probable Producing Ability - MPPA is actually computed as follows:

$$MPPA = \bar{H} + \frac{NR}{1 + (N - 1)R} \times (\bar{C} - \bar{H})$$

Where: \bar{H} = 100, the herd average weaning ratio

N = the number of calves included in the cow's average

R = .4, the repeatability factor for weaning weight ratio

\bar{C} = average weaning weight ratio for all calves the cow has produced.

MPPA is, of course, in ratio terms and is more accurate than average weaning ratio.

8. Using Weaning Records

Records are really useless unless you use them in making selection, culling, and management decisions!

When you get the CALF PERFORMANCE RECORD on a set of calves, sit down right then and study it and do these things:

- (1) Evaluate cows - record individual calf performance on his dam's INDIVIDUAL COW PRODUCTION RECORD CARD. These loose-leaf cards are available in two sizes. The 5" x 8" cards are available free from your unit Extension office. The larger 8½" x 11" cards are available from the BCIA office at a cost of 7¢ each. Evaluate each cow based on:
 - (a) Calving date - calving interval is important. Make sure each cow calves early in the season she was bred to calve in.
 - (b) Growth rate of her calf - adjusted 205 day weight ratio tells the tale as to how she ranks in your herd. Mark the bottom ones to cull.
 - (c) Calf conformation - the main thing to determine is, was the calf of acceptable conformation or not acceptable in your program.
- (2) Evaluate sires - Pay close attention to each sire's progeny average adjusted 205 day weight. The ratio, again will tell you how he ranks if you have a multiple-sire situation.

VIRGINIA BEEF CATTLE IMPROVEMENT ASSOCIATION
(DAM WEANING SUMMARY)

HERD ID	NAME:	Carl Cattleman																		PAGE
ST CD HERD	ADDRESS:	Green Pastures Farm																		1
52 15 9800	Anywhere, Virginia					00000														
TATTOO	* OTHER	* REGISTER	* BREED	* DATE OF BIRTH	* AGE OF DAM	* LAST 17* OF CALVED	* NO. OF CALVES	* AVERAGE 205-DAY WEIGHT	* PROGENY	* AVG. WEAN	* MPPA	* REMARKS								
318	70	T3088687	9999	102683	17	102777	7	524		107		105.7								
334	72	13088690	9999	100863	17	110678	7	517		106		104.9								
803	803	X20201340	9999	111168	12	031279	8	432		93		94.1								
888	888	X20199020	9999	110368	12	050379	7	420		95		95.9								
892	892	X20214321	9999	110668	12	110277	7	492		100		100.0								
907	907	X20357602	9999	102469	11	102278	7	487		103		102.5								
924	924	X20362209	9999	103069	11	102978	7	484		100		100.0								
932	932	X20362204	9999	110269	11	102178	6	520		105		104.0								
964	964	X20362181	9999	112369	11	111578	6	490		101		100.8								
971	971	X20362185	9999	120369	11	111778	8	508		102		101.7								
005	005	X20516043	9999	102670	10	031979	7	439		98		98.4								
009	009	X20516045	9999	102870	10	032279	7	486		108		106.6								
014	014	X20516046	9999	103070	10	041179	6	478		111		108.8								
018	018	X20516048	9999	110270	10	032279	7	444		99		99.2								
020	020	X20516050	9999	110370	10	101678	6	519		117		113.6								
022	022	X20516051	9999	110370	10	031879	7	472		107		105.7								
023	023	X20516052	9999	110570	10	032279	6	458		104		103.2								
048	048	X20516005	9999	111670	10	031479	7	442		100		100.0								
055	055	X20516008	9999	112270	10	050379	7	455		101		100.8								
057	057	X20516009	9999	112870	10	032979	7	426		97		97.5								
063	063	X20516011	9999	120570	10	040279	7	431		99		99.2								
067	067	X20516014	9999	121270	10	010479	4	494		109		106.5								
140	140	X20686709	9999	110671	9	050479	6	501		103		102.4								
144	144	X20696680	9999	110771	9	042379	5	453		102		101.5								
149	149	X20696676	9999	111071	9	110878	6	490		102		101.6								
189	189	X20696688	9999	122671	9	041379	6	411		93		94.4								
206	206	X20890162	9999	103172	8	032679	5	442		97		97.7								
216	216	X20890171	9999	110672	8	062579	8	476		104		103.0								
226	226	X20893695	9999	111172	8	040979	5	448		101		100.8								
229	229	X20893693	9999	111272	8	032779	5	450		104		103.0								
245	245	X20893680	9999	112172	8	110878	4	472		102		101.4								
256	256	X20893670	9999	112372	8	031679	4	457		98		98.6								
268	268	X20917360	9999	121072	8	031878	3	478		103		102.0								
281	281	X20917372	9999	122872	8	103078	4	472		103		102.2								
305	305	X20917380	9999	032473	7	102778	4	526		106		104.3								
307	307	X20917387	9999	032673	7	112778	4	517		102		101.4								
309	309	X20917383	9999	032773	7	121478	4	547		109		106.5								
310	310	X20917388	9999	032973	7	111078	4	523		105		103.6								
315	315	X20917391	9999	040573	7	111478	3	506		107		104.6								
318	318	X20917386	9999	040873	7	110378	4	555		111		107.9								
322	322	X20917393	9999	041073	7	111478	3	538		109		105.9								
329	329	X21067804	9999	102373	7	101778	4	528		106		104.3								
330	330	X21067833	9999	102373	7	111478	4	494		104		102.9								
331	331	X21067829	9999	102373	7	031079	4	452		103		102.2								
337	337	C21067814	9999	103173	7	033179	3	454		97		98.0								

1/ DATE OF BIRTH OF LAST CALF INCLUDED IN SUMMARY AS LAST CALVED DATE.
AVERAGE 205 DAY WT. ADJUSTED FOR AGE OF DAM AND SEX TO A STEER BASIS.
ALL IRREGULARS WITH NO WEANING RATIO ARE OMITTED.

- (3) Evaluate calves - In a registered herd, evaluate bull calves on the basis of birth weight, adjusted 205 day weight ratio, frame size, muscling, and soundness. Cull those that are undesirable as bull prospects. Gain test the remaining ones that are good prospects and get yearling weights. In both purebred and commercial herds, replacement heifers, if they must be picked as calves, should come from the top half to two-thirds of the available heifers of the right age based on weight ratio and individuality. Most progress may be made if selection is not completed until the yearling stage, basing decisions then on yearling weight also.

Weaning records are useful in cow culling and replacement selection and are quite essential. Growth rate is the key trait, but remember weaning weights are only 30% heritable, whereas yearling weights are nearly twice as heritable.

IV. YEARLING RECORDS

Postweaning gains and adjusted yearling weights are highly heritable and are thus quite essential in making accurate selection decisions to improve growth traits.

1. YEARLING DATA SHEETS:

The YEARLING DATA SHEETS in duplicate are mailed to you along with each set of CALF PERFORMANCE RECORDS. All dam, sire, and calf information, including adjusted 205 day weight and ratio, is preprinted for each bull and heifer calf. The bulls are on separate sheets from the heifers. In each sex, they are prelisted in the order of birth date, oldest to youngest.

Keep the YEARLING DATA SHEETS until yearlings are to be weighed.

2. Weighing, grading, and scoring yearlings:

- (1) When the Postweaning Test should begin - In general, the start test weight and date should be the actual weaning weight and date. Doing so accounts for the whole life of the animal. Record starting weight and date on the YEARLING DATA SHEETS. The length of test will depend on which adjusted yearling weight (365, 452, or 550 day) is desired. For bulls being adjusted to 365 days, the test should be no less than 140 days.
- (2) When to Weigh and Score - This will depend somewhat on the postweaning level of energy. In general, heifers should be weighed in groups when they will average 15 or 18 months of age. Bulls will usually be grown on a fairly high level of energy and should be weighed at 330 to 450 days for calculating adjusted 365 day weights. Bulls on lower energy rations may be weighed for 15 or 18 month adjusted weights if desirable. No yearling animal should be weighed under 330 days of age. Record actual final weight and date for each animal on the YEARLING DATA SHEETS.
- (3) Who may do the Weighing and Scoring? The situation is exactly the same as with the weaning records (see page 4). Virginia BCIA will provide official graders and schedule them to make

herd visits to weigh and grade yearlings if requested by the breeder. Official grading is optional and the breeder may choose to have his yearlings officially graded, have another competent person grade and score them, grade and score them himself, or not use grades and scores at all. Weights should be verified by a disinterested person, who may initial YEARLING DATA SHEETS at the bottom. In many instances, yearlings can be scheduled for weighing and grading at the same time a group of calves are being weighed and graded for their weaning records.

- (4) Grading and Scoring - Though of limited value, visual appraisal will be somewhat more accurate on yearlings than on calves because environmental effects on the appearance of yearlings are not as great.

The same numerical system described on page 4 is recommended for use. Any or all may be used:

(a) Frame score - 1 to 7 scale. Measured hip height transformed to frame score using Figure 2 on page 5 is recommended.

(b) Muscle Score on a 1 to 5 scale.

NOTE: Record Frame and Muscle scores together in Conformation Score Column on YEARLING DATA SHEET. Example: Frame 4, Muscle 3 - Record as 43.

(c) Soundness Score - same as for weaning. Record in Remarks Column.

(d) Condition Score - same as for weaning. Record in Condition Score Column.

- (5) Management Code - This must be recorded as 2 digits on each animal. The first digit designates appropriate adjusted yearling category as follows:

<u>Code</u>	<u>Yearling Weight Adjustment</u>
1 -	Adjustment to 365 days (12 months)
2 -	Adjustment to 452 days (15 months)
3 -	Adjustment to 550 days (18 months)

All bulls or heifers of a particular age grouping should be coded alike.

The second digit indicates level of feeding in the postweaning period and should be coded as follows:

<u>Code</u>	<u>Feed Level</u>
4 -	For fitted cattle
5 -	For full-fed cattle. This usually applies to bulls that have been feed tested on a relatively high energy level.
6 -	For cattle on an intermediate feeding regime in the postweaning phase. Usually refers to a full-feed of roughage and limited grain.
7 -	For cattle on basically roughage and/or pasture programs in the postweaning phase. Heifers generally fall in this category.

3. Sending YEARLING DATA SHEETS to the BCIA office for Computation

When each group of yearlings are weighed and scored, record all data complete on each animal. Check to be sure all applicable

columns are filled. Send one complete copy of the YEARLING DATA SHEETS to the BCIA office. BCIA will return your computed data on the YEARLING PERFORMANCE RECORD usually within 10 days. The second copy of the YEARLING DATA SHEETS may be used, if needed, to report a group of yearlings weighed at a later date.

4. YEARLING (Postweaning) PERFORMANCE RECORD

The records on all yearlings weighed as a group and sent into the BCIA office on the YEARLING DATA SHEETS are processed immediately. You are mailed a single copy of the YEARLING PERFORMANCE RECORD on that group of yearlings for your use in making selection, culling, and management decisions. A second copy is sent to your unit Extension office for confidential, educational use, and a third copy is retained in the BCIA office.

The complete performance record on each yearling is printed individually. Yearling records are sorted and printed according to:

- (1) Sex - Bulls and heifers are printed separately with appropriate herd-sex and management code averages.
- (2) Adjusted yearling weight group within sex - If yearling weights are adjusted to more than one age category, they are handled separately: 365 day weights, for example, are kept separate from 550 day weights.
- (3) Sire, within sex and age group - Sire averages are printed at the bottom of each sire group.
- (4) Animal other number within sire group, from low to high.

Note: This breakdown allows accurate and comparable adjusted yearling weight ratios to be calculated.

YEARLING PERFORMANCE RECORD - Explanation of data from left to right:

- (1) Dam identification:
 - (a) Tattoo number
 - (b) Other number
 - (c) Birth year and age in years at calving (high print)
 - (d) Registration number (if any)
- (2) Sire Identification
 - (a) Tattoo or ID number
 - (b) Registration number (if any)
- (3) Yearling Identification & Performance
 - (a) Tattoo number
 - (b) Other number (tag)
 - (c) Sex: 1-Bull
2-Heifer
3-Steer
 - (d) Breed - The first digit is for breed of sire, the second for breed of sire of dam, the third for breed of sire of maternal grandam and the fourth for breed of sire of maternal great grandam.

EXAMPLE:

- . 1222 = 1/2 Angus, 1/2 Hereford (by Angus sire)
- 1122 = 3/4 Angus, 1/4 Hereford
- 1112 = 7/8 Angus, 1/8 Hereford
- 1111 = 15/16 or Purebred (Straightbred) Angus

HERD I D		
STATE	CO	HERD
52	60	9622

PAGE NO.
1

NAME AND ADDRESS
Bill Breeder
Old Dominion Farm
Anywhere, Virginia 00000

PERFORMANCE ORGANIZATION
Virginia Beef Cattle
Improvement Association

YEARLING (POSTWEANING)
DATA SHEET

D A M					S I R E			WEANING							REPORT YEARLING DATA HERE										REMARKS			
TATTOO NUMBER	OTHER NUMBER	YEAR BORN	REGISTRATION NUMBER	BREED (4)	TATTOO NUMBER	REGISTRATION NUMBER	BREED (7)	TATTOO NUMBER	OTHER NUMBER	S E X	BIRTH DATE			AGE IN DAYS	ACTUAL WEIGHT	* 205 DAY ADJUSTED WEIGHT	WEIGHT RATIO	** STARTING			FINAL							
											MO	DAY	YR					MO	DAY	YR	ACTUAL WEIGHT	CONF SCORE	MGT CODE	COND SCORE		FAT TH		
146	242	6 72	X20698434	9999	602	X21447680	99	814	814	1	11	21	78	224	705	652	115	08	14	79	830	01	01	80	1315	43	15	
687	87	2 77	X21598103	9999	602	X21447680	99	902	902	1	01	03	79	181	525	643	115	10	30	79	795	03	18	80	1100	33	15	

18.

HERD I D		
STATE	CO	HERD
52	60	9622

PAGE NO.
2

NAME AND ADDRESS
Bill Breeder
Old Dominion Farm
Anywhere, Virginia 00000

PERFORMANCE ORGANIZATION
Virginia Beef Cattle
Improvement Association

YEARLING (POSTWEANING)
DATA SHEET

D A M					S I R E			WEANING							REPORT YEARLING DATA HERE										REMARKS			
TATTOO NUMBER	OTHER NUMBER	YEAR BORN	REGISTRATION NUMBER	BREED (4)	TATTOO NUMBER	REGISTRATION NUMBER	BREED (7)	TATTOO NUMBER	OTHER NUMBER	S E X	BIRTH DATE			AGE IN DAYS	ACTUAL WEIGHT	* 205 DAY ADJUSTED WEIGHT	WEIGHT RATIO	** STARTING			FINAL							
											MO	DAY	YR					MO	DAY	YR	ACTUAL WEIGHT	CONF SCORE	MGT CODE	COND SCORE		FAT TH		
87H	41	2 76	X21595939	9999	7G	X21555893	99	825	825	2	12	30	62 78	185	360	431	85	07	03	79	360	05	13	80	810	33	36	9
696	48	2 77	X21598124	9999	7G	X21555893	99	904	904	2	01	09	68 79	175	385	486	96	07	03	79	385	05	13	80	825	33	36	9
H57	H57	3 76	X21640999	9999	7G	X21255893	99	J900	J900	2	01	19	65 79	251	630	579	113	09	27	79	630	05	13	80	885	33	36	9
699	99	2 77	X21598104	9999	602	X21447680	99	914	914	2	03	08	65 79	180	380	465	94	09	04	79	380	05	13	80	775	33	16	9
772	772	2 77	X21666920	9999	602	X21447680	99	915	915	2	03	17	67 79	171	425	543	110	09	04	79	425	05	13	80	750	33	16	9
P73A	325	7 72	X20846025	9999	602	X21447680	99	916	916	2	03	26	70 79	162	435	529	108	09	04	79	435	05	13	80	755	33	16	10

K

VIRGINIA BEEF CATTLE IMPROVEMENT ASSOCIATION
YEARLING (POSTWEANING) PERFORMANCE RECORD

PAGE 1

HERD ID: 52 60 9622
NAME: Bill Breeder
ADDRESS: Old Dominion Farm
Anywhere, Virginia 00000

TATT NO.	OTHER NO.	DAM YR BR.	REGISTR NO.	SIRE TATT NO.	REGISTR NO.	TATT NO.	OTHER NO.	SEX	BIRTH DATE	WEANING DATE	DAYS OF AGE	205 DAY ADJ. WT.	WEIGHT RATIO	WEIGH DATE	M C	DAYS OF AGE	YEARLING ACT. WT.	POST ADC	WEIGHT PER DAY	ADJ. YEAR. WT.	WT. RATIO	C O N C	C O N C
----------	-----------	------------	-------------	---------------	-------------	----------	-----------	-----	------------	--------------	-------------	------------------	--------------	------------	-----	-------------	-------------------	----------	----------------	----------------	-----------	---------	---------

AVERAGE YEARLING WEIGHT - 365 DAYS

146	242	72	X20698434	602	X21447660	814	814	1	9999	1121	70	224	652	1.15	010160	15	406	1315	3.46	3.24	1188	1.09	43
687	87	77	X21598103	602	X21447680	902	902	1	9999	0103	79	181	643	1.15	031880	15	440	1100	2.18	2.50	998	.91	33
											202	647	1.15			423	1207	2.82	2.87	1093	1.00		
											202	647	1.15			423	1207	2.82	2.87	1093	1.00		

AVERAGE YEARLING WEIGHT - 365 DAYS

699	99	77	X21598104	602	X21447680	914	914	2	9999	0308	65	180	465	.94	051360	16	432	775	1.57	1.79	716	.98	33
772	772	77	X21666920	602	X21447680	915	915	2	9999	0317	67	171	543	1.10	051380	16	423	750	1.29	1.77	749	1.02	33
P73A	325	72	X20846025	602	X21447680	916	916	2	9999	0326	79	162	529	1.08	051380	16	414	755	1.27	1.82	732	1.00	33
											171	512	1.04			423	760	1.38	1.79	732	1.00	9	
											171	512	1.04			423	760	1.38	1.79	732	1.00	9	

AVERAGE YEARLING WEIGHT - 550 DAYS

87H	41	76	X21595939	7G	X21555893	825	825	2	9999	1230	62	185	431	.85	051380	36	500	810	1.43	1.62	924	.97	33
696	48	77	X21598124	7G	X21555893	904	904	2	9999	0109	68	175	486	.96	051380	36	490	825	1.40	1.66	968	1.01	33
H57	H57	76	X21640999	7G	X21255893	J900	J900	2	9999	0119	65	251	579	1.13	051380	36	480	885	1.11	1.84	963	1.01	33
											204	499	.98			490	840	1.31	1.71	952	1.00	9	

(a) (b) (c) (d) (e) (f) (g) (h) (i) (j) (k) (l) (m) (n) (o) (p) (q) (r) (s)

SEX / MANAGEMENT CODES
1 - BULL / (1ST DIGIT)
2 - HEIFER /
4 - HEIFER / (TWIN) /
3 - 550 DAY ADJ. WT.

4 - FITTED
5 - FULL FED
6 - INTERMEDIATE FLEADING
7 - ROUGHAGE/PASTURE

IRREGULARS
* BY AGE IN DAYS - WEIGHED AT LESS THAN 350 DAYS
* BY POST ADG - LESS THAN 140 DAYS ON TEST

- (e) Birth date and birth weight (high print)
- (f) Weaning days of age when weighed
- (g) Adjusted 205 day weight, adjusted for age of dam
- (h) Adjusted 205 day weight ratio
- (i) Final (yearling) weigh date
- (j) Management code
- (k) Final yearling days of age
- (l) Actual final (yearling) weight
- (m) Postweaning average daily gain

FORMULA:

$$ADG = \frac{\text{Final Weight} - \text{Starting Test Weight}}{\text{Days on Postweaning Test}}$$

- (n) Weight-per-day-of-age

FORMULA:

$$WDA = \frac{\text{Actual Final Weight}}{\text{Days of Age}}$$

- (o) Adjusted Yearling Weight (adjusted for age of dam)

FORMULAE:

1 - Adjusted 365 day weight =

$$\left[\left(\frac{\text{Final Wt.} - \text{Actual Weaning Wt.}}{\text{Days Between}} \times 160 \right) + *Adj. 205 \text{ Day Wt.} \right]$$

2 - Adjusted 452 day weight =

$$\left[\left(\frac{\text{Final Wt.} - \text{Actual Weaning Wt.}}{\text{Days Between}} \times 247 \right) + *Adj. 205 \text{ Day Wt.} \right]$$

3 - Adjusted 550 day weight =

$$\left[\left(\frac{\text{Final Wt.} - \text{Actual Weaning Wt.}}{\text{Days Between}} \times 345 \right) + *Adj. 205 \text{ Day Wt.} \right]$$

*Adjusted for age of dam

The adjusted yearling weight is the most important single measure of growth rate. It encompasses both weaning and postweaning performance and removes the differences due to age and age of dam.

- (p) Yearling weight ratio - This measure simply ranks animals of the same management and sex group based on adjusted yearling weight. The ratio is expressed as a percent. An animal with a ratio of 108 is 8% above average of the group, etc.

FORMULA:

$$\text{Weight Ratio} = \frac{\text{Individual Adjusted Yearling Weight}}{\text{Average Adj. Yearling Wt. of the Group}}$$

- (q) Frame and muscle score
- (r) Condition score
- (s) Soundness score

5. Using Yearling Records

Again, records are useless if they are not put to use in making selection, culling, and management (including pricing and marketing) decisions.

Postweaning ADG and adjusted yearling weight are highly heritable. Both of these, and particularly adjusted yearling weight, should be used heavily in selection to improve growth rate.

When you get the YEARLING PERFORMANCE RECORD on a set of yearlings, go right to work in using them as follows:

- (1) Evaluate cows - Again, list yearling data on each dam's INDIVIDUAL COW PRODUCTION RECORD CARD. Mark low-end cows for culling and/or make plans for next mating.
- (2) Evaluate sires - Gain tests and yearling records are the "acid" test as to whether the progeny of a sire will grow and whether or not they will be the desired kind. Cull sires and develop future breeding plans based on yearling records.
- (3) Evaluate the Individual Yearling Bull:
 - (a) On Growth Rate - Use the whole record on the YEARLING PERFORMANCE RECORD, but especially the Yearling Weight Ratio. If a bull is outstanding, plan to use him in your herd if possible. Cull any bulls that are significantly below average. Price and merchandise satisfactory bulls based on performance.
 - (b) On Kind or Conformation - You must use scores and best judgement here. Basically, you should cull unsound or small framed bulls and those with extremely poor composition of weight.
 - (c) Reproductive - All bulls should be given a reproductive exam which includes palpation of internal sex organs and measurement of scrotal circumference. The following chart gives guidelines as to scrotal circumference:

<u>SCROTAL CIRCUMFERENCE (cm.) BY AGE</u>				
<u>AGE</u>	<u>VERY GOOD</u>	<u>GOOD</u>	<u>FAIR</u>	<u>POOR</u>
12-14 mo.	>34 cm.	30-34	<30	<30
15-20 mo.	>36 cm.	31-36	<31	<31
21-30 mo.	>38 cm.	32-38	<32	<32
Over 31 mo.	>39 cm.	34-39	<34	<34

- (4) Evaluate the Individual Yearling Heifer:
 - (a) On Growth Rate - Look at the 205 day weight ratio, the postweaning ADG, and especially the yearling weight ratio. Select for replacements those that have the best gain records.
 - (b) On Kind or Conformation - Insist that replacement heifers selected from the group be average or larger framed, sound, and feminine. Remove to cull or sell to other breeders those that do not suit on either weight or conformation.

V. END OF YEAR SUMMARY RECORDS - At the end of each year, a copy of the following records are routinely mailed to each participating breeder in the OFFICIAL PROGRAM:

1. PRODUCE OF DAM WEANING SUMMARY - This annual dam summary gives the number of progeny records and average performance including age, adjusted 205 day weight, weight ratio, and Most Probably Producing Ability (MPPA) ratio. See page 11.

B. UNOFFICIAL PROGRAM - COMMERCIAL BREEDERS PROGRAM

This special lower-cost program is designed to fill the need for commercial cow-calf producers who have no need for official records nor detailed summaries. The unofficial program is handled at the state level through the Virginia BCIA office in the VPI&SU Animal Science Department and at the local level through the unit Extension office.

I. ELIGIBILITY & ENROLLMENT (See sample enrollment form in back of book)

1. Eligibility - Any commercial herd owner may enroll and participate.
2. Enrollment - To enroll, obtain an application for membership form from your county or unit Extension office. Complete the application and return it to the county or unit office along with a check for dues. The local Extension office mails the completed application to the Virginia BCIA office where a unique herd number is assigned. The application is mailed back to the county office for the files. No herd listing is required in this program.

II. PROGRAM OPERATION

1. Calf Data Sheets - Blank Calf Data Sheets are furnished from the county Extension office. The member uses these sheets to list complete dam, sire, and calf information including weaning weight, date, and grade.
2. Weighing & Grading Calves - Calves should be weighed individually at weaning or just before. The recommended age range is 5 to 8 months. No official grading service is offered. Grading and scoring is the same as described in the official program and may be done by the breeder himself, another breeder, an Extension agent, or Vo-Ag teacher, or the breeder may elect not to grade and score at all. Record carefully all applicable information on the Calf Data Sheets.
3. Obtaining the Computed Record - The top copy of the Calf Data Sheets must be sent to the county Extension office where they are checked for completeness and then mailed to the BCIA office for computation. Once computed, one copy of the Calf (Weaning) Performance Record is mailed to the breeder and one copy is sent to the county Extension office for their files.
4. Use of Weaning Records - Refer to the information under OFFICIAL PROGRAM. The same principles apply.
5. YEARLING RECORDS - When the Calf (Weaning) Performance Record is mailed to you, preprinted Yearling Data Sheets in duplicate will also be enclosed. Use these as indicated under the OFFICIAL PROGRAM for recording yearling weights, grades, and scores. Once completed, they must go back through the county Extension office to the BCIA office for computation. Once computed, one copy of the Yearling (Postweaning) Performance Record is mailed to the breeder and one copy is sent to the county Extension office for their files.
6. Use of Yearling Records - Refer to the information under OFFICIAL PROGRAM. The same principles apply.

OFFICIAL PROGRAM

APPLICATION FOR MEMBERSHIP
IN
VIRGINIA BEEF CATTLE IMPROVEMENT ASSOCIATION
ANIMAL SCI. DEPT., VPI&SU
BLACKSBURG, VIRGINIA

I _____ owner or manager of _____ Farm,
(Please Print Name) (Please Print)
hereby make application for membership in the Virginia Beef Cattle Improvement Association
and to enter my herd in the Va. BCIA Performance Testing Program. At present, there are
_____ purebred females of breeding age and _____ commercial females of breeding
(Number) (Number)
age in my herd of _____ cattle. These cows will be bred to _____
(Breed) (Number)
purebred _____ bulls.
(Breed)

/FILL IN/

(1) Farm Address _____ County _____
(2) Owner's Name _____ Address _____ Phone No.:
Home _____
Office _____
(3) Manager's Name _____ Address _____ Phone No.:
Home _____
Office _____

/CHECK TWO/

I am enclosing a check (or money order) made payable to the Virginia Beef Cattle Improvement Association in the amount of _____ dollars for my annual membership dues.

I shall forward a check (or money order) in the amount of _____ dollars made payable to the Virginia Beef Cattle Improvement Association prior to June 30.

I do , do not have a livestock scale suitable for weighing cattle on my farm. I have read the Policies & Procedures of the Virginia BCIA Program and agree to abide by these and other Policies & Procedures as may be established by the Board of Directors.

I understand that my cancelled check or money order is my receipt.

SIGNED _____

DATE _____

MEMBERSHIP DUES SCHEDULE

HERDS OF 25 COWS OR LESS - \$20.00
HERDS OF 26-50 COWS ----- \$25.00
HERDS OF 51-100 COWS ----- \$30.00
HERDS OF OVER 100 COWS --- \$35.00
ASSOCIATE MEMBERSHIP ----- \$20.00

NOTE: Please enclose a complete listing of each cow and each herd bull in the herd along with the application.

INFORMATION SHEET ON NEW OR UNLISTED COWS

List on this sheet(s) any cow in the herd which is new or has not been previously listed that will produce a calf this year.

TATTOO NUMBER Max.-4 digits	OTHER NUMBER (Chain, Brand, Etc)Max-4 digits	BIRTH DATE			REGISTRATION NUMBER	BREED CODE (4)	REGISTERED NAME
		MO.	DAY	YEAR			

BREED CODES: Codes indicate 1/2 to 15/16 blood animals and straightbreds. Use 4 digits and/or letters for dams and 2 for sires. The first digit or letter is for sire, the second is for sire of the dam, the third is for sire of the maternal grandam and the fourth is for sire of the maternal great-grandam.

- 1-Angus
- 2-Hereford
- 3-Shorthorn
- 4-Red Angus
- 5-Brahman
- 6-Santa Gertrudis
- 7-Charolais
- 8-Brangus
- 9-Polled Hereford
- 0-Devon
- A-Simmental
- B-Beefmaster
- C-Highlander
- D-South Devon
- E-Red Brangus
- F-Milking Shorthorn
- G-Galloway
- H-Holstein
- J-Jersey
- K-Murray Grey
- L-Limousin
- M-Maine Anjou
- N-Charbray
- R-Red Polled
- S-Brown Swiss
- T-Texas Long Horn
- U-Guernsey
- Z-Chianina
- V-Lincoln Red

EXAMPLES OF USAGE
 1222 = 1/2 Angus X 1/2 Hereford
 1122 = 3/4 Angus X 1/4 Hereford
 1112 = 7/8 Angus X 1/8 Hereford
 1111 = 15/16 Angus or Straightbred (purebred)

UNOFFICIAL PROGRAM

APPLICATION FOR MEMBERSHIP
IN THE
VIRGINIA BEEF CATTLE IMPROVEMENT ASSOCIATION
COMMERCIAL BREEDERS PROGRAM
ANIMAL SCI. DEPT., VPI&SU
BLACKSBURG, VIRGINIA

BCIA OFFICE USE
Permanent Herd
Code No.
Date

PROSPECTIVE NEW MEMBER: Complete this form and send to your County Extension Agent*.

I owner or manger of Farm,
(Please Print Name) (Please Print)

hereby make application for membership in the Virginia BCIA COMMERCIAL BREEDERS PERFORMANCE
TESTING PROGRAM. At present there are females of breeding age in my herd of
(Number)

cattle. These cows will be bred to of bulls.
(Breed) (Number)

FILL IN

(1) Farm Address County

(2) Owner's Name Address Phone No.:
Home
Office

(3) Manager's Name Address Phone No.:
Home
Office

CHECK ONE

I have mailed a check for dollars for annual membership dues to
Virginia BCIA, Animal Science Dept., VPI&SU, Blacksburg, Va. 24061.

I prefer to be billed by Virginia BCIA for my annual dues.

I understand that my cancelled check is my receipt.

I have read the Policies and Operating Procedures of the Virginia BCIA COMMERCIAL
BREEDERS PROGRAM and agree to abide by these and other policies and procedures as
may be established by Virginia BCIA and the Virginia Cooperative Extension Service.

DATED SIGNED

MEMBERSHIP DUES SCHEDULE
HERDS OF 25 COWS OR LESS - \$20.00
HERDS OF 26-50 COWS ----- \$25.00
HERDS OF 51-100 COWS ----- \$30.00
HERDS OF OVER 100 COWS --- \$35.00

*The County Extension Agent forwards application to Virginia BCIA for assignment of
permanent herd code number.

