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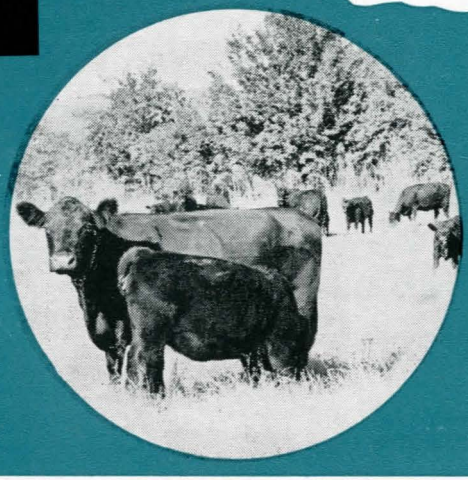
BEEF HERD IMPROVEMENT

WITH RECORD OF PERFORMANCE



- SUPERIOR CARCASSES
- FASTER GROWTH
- MORE EFFICIENT GAINS
- MORE PRODUCTIVE COWS

EXTENSION SERVICE
UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE
AND U. S. DEPARTMENT OF AGRICULTURE
COOPERATING
E. F. FROLIK, DEAN E. W. JANIKE, DIRECTOR

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Issued February, 1963, 7,500

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SUMMARY

1. Performance records provide information for increasing accuracy in selecting and culling breeding stock.

2. Factors of major economic importance to the beef industry should be emphasized.

3. The relative importance of each of these factors will vary in different herds. Thus, selection pressure for each of these traits will vary from herd to herd.

4. Purebred breeders will want to develop a complete herd improvement program with high standards of culling and selection.

5. Rate of improvement in commercial herds can be increased by using records of performance to evaluate (1) future sires, (2) replacement heifers, and (3) cows in production.

Beef Herd Improvement With Record of Performance

Paul Q. Guyer and Leo E. Lucas[1]

Introduction

Land and grass are among the basic resources of Nebraska. In some areas, beef cattle provide the only means of making these resources profitable. Beef cattle producers are constantly challenged to improve management so as to get the most from these resources.

To be successful, the producer must have a sound program of improvement that will result in efficient production of the highest quality beef. Herd improvement is based on the long established practice of selecting the superior bulls and mating them to the best cows available, but success will depend more and more on improved accuracy in identifying superior animals. Research has shown that systematic measurement of performance and evaluation of the records gives the necessary information for more accurate identification of superior bulls and cows.

Herefords on the range.

[1] Paul Q. Guyer is Extension Animal Husbandman and Leo E. Lucas is Assistant Extension Animal Husbandman.

For a most prosperous beef industry all segments (the purebred breeder, producer, feeder and packer) must recognize superior beef animals—those that most efficiently produce carcasses with high consumer acceptance.

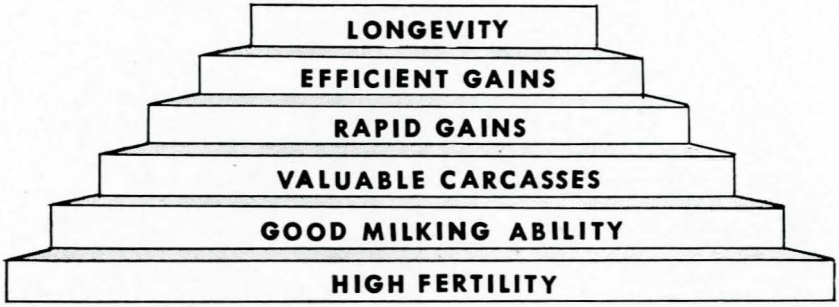
Why Is a Herd Improvement Program Important?

The primary purpose of a herd improvement program is to help you improve the performance of your herd in terms of your needs, the needs of the cattle feeder, and the needs of the beef consumer.

Genetic improvement in the beef cattle industry must come through superior seed stock. Thus, the purebred breeder has the greatest responsibility in moving the industry toward its goal. The breeder who combines good judgment with sound use of performance records will be a leader in the improvement of his breed.

The commercial producer also can make effective use of performance records in selecting superior bulls, culling cows, selecting replacement heifers and evaluating bulls after they are in the herd. This will increase the effectiveness of his improvement program.

Efforts of both the purebred breeder and commercial producer will improve growth rate, efficiency of gain and carcass value of beef cattle.



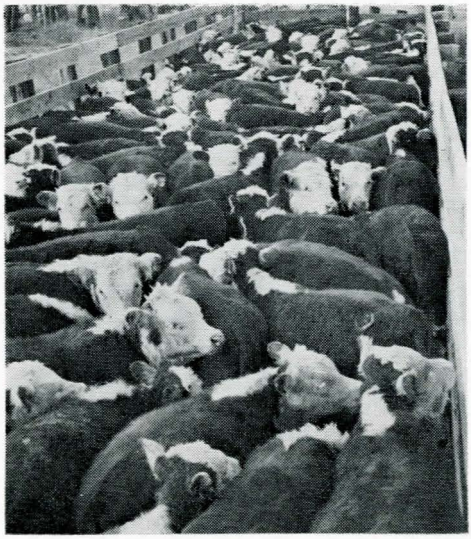
Steps to profit. Each one is economically important to our beef industry.

What Factors to Consider?

Emphasize traits of major economic value to you and the beef industry. In fact, performance is the sum total of all traits that are of economic value.

These traits include, (1) fertility or reproductive performance, (2) mothering or nursing ability, (3) conformation as it contributes to carcass desirability and longevity, (4) rate of gain, (5) efficiency of gain, (6) longevity, and (7) qualifications for breed registration and acceptance in purebred herds.

Lesser traits may be considered. However, you must realize that selection for these traits slows progress in improving characters that are more important economically.



Heavy weaning weights and desirable conformation are goals of the producer who sells feeder calves.

What Records Should I Keep?

Following are the suggested records for measuring performance, with a short discussion of the reasons for their inclusion.

Birth Records

Birth date is needed to determine growth rates at weaning and yearling ages.

Notes on undesirable marking, calving difficulty or abnormalities can be used to evaluate the sire and dam for undesirable traits not involved in growth and carcass desirability.

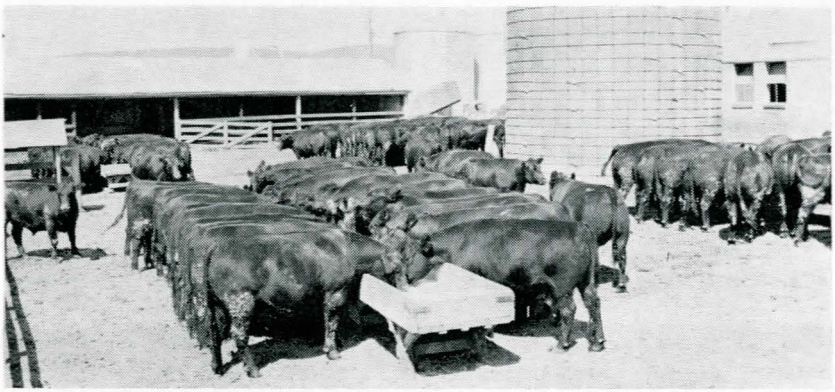
Weaning Records

Conformation score at weaning is an indication of carcass desirability and soundness of the animal. This record should be used primarily for the first cut of replacements and for culling sires and dams whose progeny are undesirable in conformation at this age.

Weaning weight or gain per day from birth is a measure of (1) ability of the calf to gain, (2) milking ability of the dam, and (3) efficiency of production up to this age. Slow-growing calves should be eliminated as replacements. Poor producing cows should be culled in purebred herds.

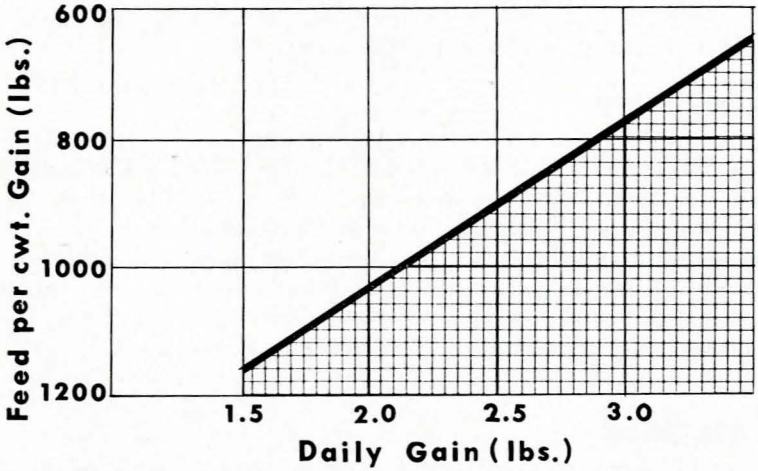
Yearling Records

Yearling conformation score is an indicator of carcass desirability and soundness. Conformation scores at 18 to 20 months of age are usually more accurate than those made at weaning. Therefore, you should put more emphasis on yearling score than weaning score in selecting replacement bulls and heifers or in culling sires. Carcass information on slaughter animals should supplement the yearling score and help evaluate the meatiness of each sire's progeny.



The feeder seeks cattle that will make rapid and efficient gains and produce carcasses with high retail value.

Yearling weight is a measure of both growth rate and efficiency of gain. Cattle which gain rapidly usually produce more economical gains than those without this bred-in ability. Research has shown that each 1/10 pound increase in daily gain saves about 25-40 pounds of feed per hundred pounds gain. While it would be desirable to have a more accurate method of evaluating efficiency of feed utilization, it is difficult to make accurate comparisons except where animals are individually fed.



Rate and efficiency of gain are beneficially correlated. As daily gains increase efficiency of feed utilization increases.

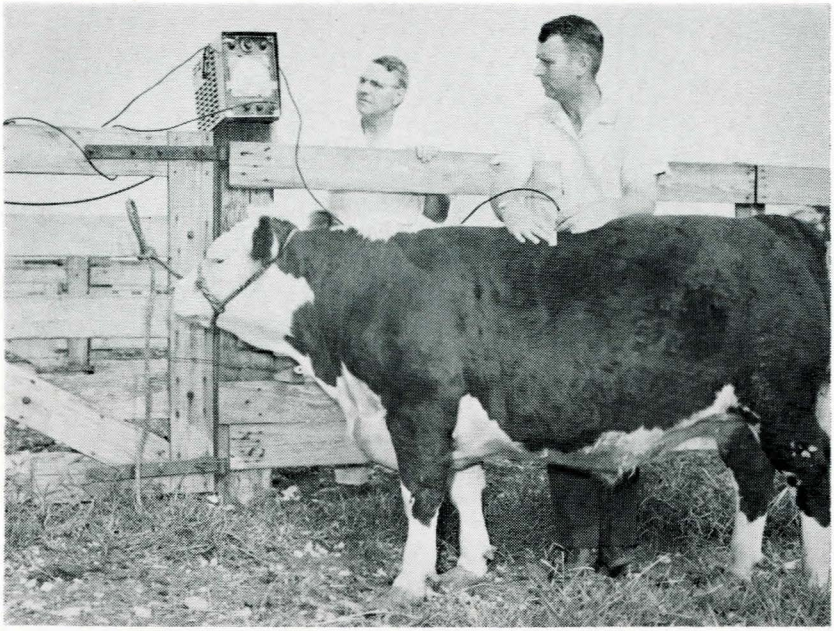
Reproductive Performance and Longevity

This can be evaluated by a study of progeny records kept during the productive life of cows and bulls in the herd. Herd bulls, especially, should be selected from cows with good fertility records and should be sired by bulls of high fertility.

Discussion of reasons for keeping the above records has been very brief. For more complete information, get a copy of N.C. Regional Publication 119, "Principles of Record of Performance in Beef Cattle," from your county agent.

How Much Progress Can I Expect Each Year?

To some, the genetic improvement from a well-planned breeding program may seem slow. However, the improvement tends to be permanent and each year's progress builds on the preceding year. The expected annual genetic improvement within a herd should be approximately 2 pounds for weaning weight, 10 pounds for 18-month weight, and .5 of a grade for conformation, if these are the only traits emphasized. This progress becomes sizable in 10 years.



Ultrasonic equipment or other devices may become useful for indicating carcass desirability of replacement heifers and bulls.

The genetic improvement you make will be difficult to measure accurately because of changes in management and environmental factors from year to year. These environmental factors tend to mask genetic improvement. Large increases in performance in a short time can often be attributed to improved environment. Declines in performance will occur with below average environmental conditions for your herd, even though you may be making some genetic improvement. The actual amount of progress you make each year depends primarily on:

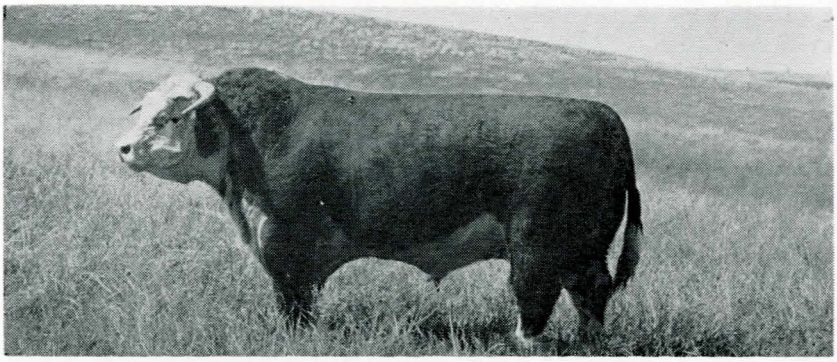
1. The percentage of available heifers selected for replacement and the accuracy of these selections.

Since 30 to 40 percent of the heifers are required for replacement each year, improvement through the cow herd is slow. However, careful use of accurate records assures sounder decisions in selecting heifers and culling cows.

2. The genetic superiority of the bulls you select compared to the present performance of your herd.

The major source of herd improvement will be through rigid selection of herd bulls. You should use all individual and progeny records available to help you select your herd sire.

3. The relative influence heredity has on the traits considered in your program.



Superior herd sires are the "key" to genetic improvement.

Most traits of major importance in beef cattle are affected both by the environment (management, feeding, disease, etc.) and heredity. The relative influence of each of these varies for most traits. Since the effect heredity has on a trait (heritability) is the only portion which is passed on from parent to offspring, knowing the amount of heritability (the heritability estimate) allows you to plan your expected progress.

Traits affected slightly by heredity (low heritability—below 20%) will respond more slowly to selection than traits with high heritability (over 20%).

Heritability estimates are as follows for the traits suggested for your beef herd improvement program.

Trait	Heritability (%)
Weaning Weight	30
Mothering Ability	40
Weaning Score	25
Yearling Weight	45
Yearling Score	40

4. The number of traits used in selecting breeding stock is a fourth factor which affects yearly progress.

Selection for points without real value to the industry slows the rate of progress for important traits. Therefore, you'll want to limit the number of traits you are using to those of major economic importance.

5. Generation interval, or the average age of the breeding herd, is a fifth factor affecting yearly progress.

The generation interval can be shortened and yearly progress increased by replacing present breeding stock as soon as possible with genetically superior cows and bulls.

Heifers should be grown—not fattened. Bulls should be fed for desirable sale condition at the age they are normally sold.

Must I Feed Calves and Yearlings a Heavy Grain Ration?

No. Where the final yearling evaluation is made at approximately 18 months of age, grain feeding is not necessary for heifers. In the case of bulls, feeding a relatively low level (4-5 lb.) of concentrates from weaning to 1 year of age, with enough increase from 12 to 18 months to develop desirable sale condition, will give a good appraisal of growth.

Where the final appraisal is made at approximately 1 year of age, a higher level of feeding will be necessary to evaluate growth rate with enough accuracy. Bulls should be started on feed when they are weaned and brought to a full feed of a fairly high concentrate ration (½ to ⅔ concentrate—⅓ to ½ roughage) fairly quickly. The minimum length of time on feed should be 140 days.

Research indicates that a high level of concentrate feeding may interfere with future reproductive performance and mothering ability of heifers. These data indicate that heifers should gain about 1 lb. or less per head daily during the first winter. At this level, the opportunity for effective selection for growth rate at 12 months of age is small. Thus, final selection of heifers at 18 months of age is preferable.

What Is the Best Way to Use These Records?

The best method for using these records may vary according to herd improvement needs and system of management. The data recorded will supply the information necessary for estimating the relative producing ability of each animal under the conditions in which the record was kept. Thus, the herd or group average for traits being measured provides the basis for evaluation of individuals. A study of performance of the herd will reveal areas of strength and

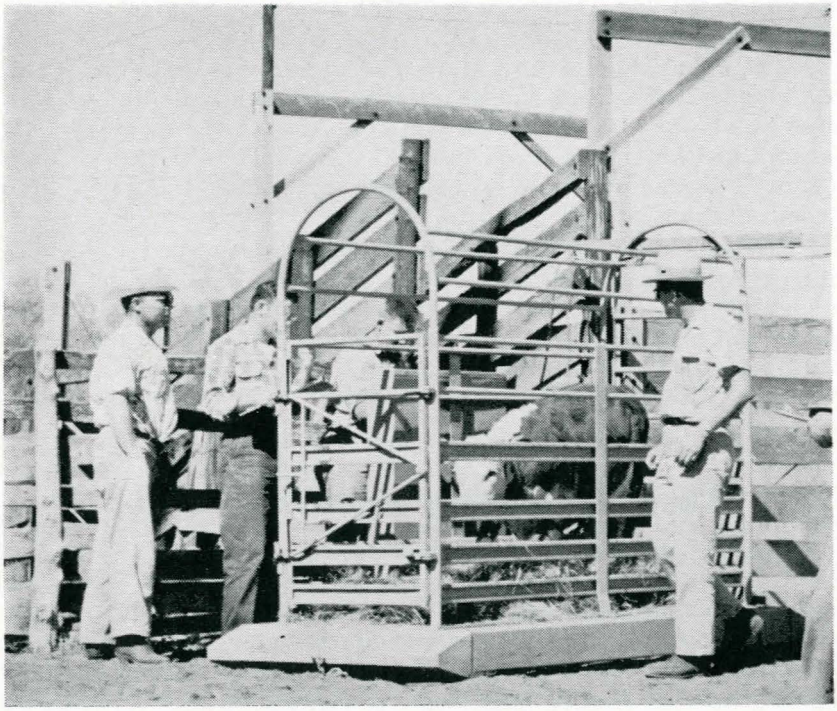
weakness. Traits that need strengthening can be emphasized in your selection program.

Herd comparisons for calves, yearlings, dams, or sires can be made as long as all have been under similar management. Where differences in management occur, comparisons should be made only in groups that have been handled alike. For example, spring, summer, and fall calves should each be treated as separate groups in evaluating them for replacements.

How Much Time and Equipment Will Be Needed?

The additional time required for selection is not great. The amount of time will vary with completeness of record keeping before starting this program. For the purebred breeder with 100 to 200 cows, two or three extra days should be enough to obtain and prepare the records for evaluation.

Scales, identification equipment and record forms are basic equipment needs. You may secure suitable record forms from your county agent.

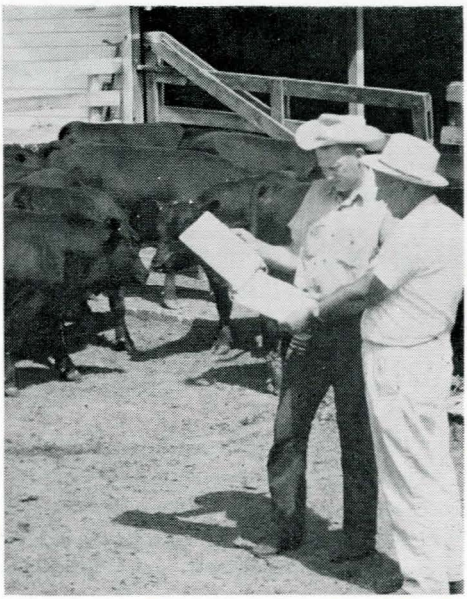


Scales are necessary to accurately measure weights.

Are My Records of Benefit to Other Cattlemen?

Yes. Records on bulls and, in some cases, heifers can be useful to prospective buyers who are interested in increasing rate of improvement in their herds. Your records on weaning weight and score and yearling weight will permit more complete evaluation of the desirability of each individual in comparison to others you have for sale. Dam and sire records should be helpful, too.

Mechanical processing of records will reduce the time required to summarize and evaluate performance data.



Records can help the producer choose the "right" bulls for his herd.

PROCEDURES FOR RECORD PERFORMANCE PROGRAMS

For Registered Herds

At Birth

Tattoo each calf soon after birth. Record the calf's number, date of birth, and dam's number in a pocket record book. Transfer these records to the calf-yearling record (Form I—Column 1 through 4) shown on page 23 at least once each week during the calving season.

Permanent identification is a necessity for accurate evaluation.

At Weaning

1. Work calves in groups between 150 and 250 days of age. If younger than 150 days, obtain information at a later date. A chart to assist in calculation of age at weaning (Form I—Column 5) is shown in Figure 1, page 19.

2. Weigh accurately. Record weight on Form I (Column 6). In large herds, handle calves so that they will all have comparable fill when weighed.

3. Score each calf individually. Record scores in Column 11, Form I. Use a committee composed of the owner and one or two other competent, unbiased graders. Do not let weights influence conformation scores, otherwise weight may be overemphasized. A suggested scoring system and guide is shown on page 20.

4. Adjust weights for age of calf (Columns 7 & 8, Form I) and age of dam (Columns 9 & 10) so that weights of all calves of the same sex are comparable. A chart for adjusting weight (to 200 days) and sex is shown in Figure 2, page 21. Suggested adjustments for age of dam are shown below.

Age of Dam Adjustment

to be added after adjusting for age of calf	
Age of Dam	Lbs. to be added
2	60
3	40
4	20
5-8	0
9	10
10 or older	25

5. Determine the weaning weight ratio for each individual. This is done by dividing each individual's adjusted weight by the average adjusted weaning weight for its group. A chart for quick determination of this figure is shown in Figure 3, page 22.

6. List each calf's herd number on the selection sheet (see Form II, page 24) opposite proper ratio or weight and under the proper score. This will show graphically the relative position of each calf for two important factors. Recording on this chart can be modified to help evaluate other aspects of your breeding program. For example, in one herd, calf numbers were entered with colored pencils coded according to the maternal grand sire. This showed, to some extent, the influence of former herd sires on the productivity of their heifers kept in the herd.

7. Record weaning information on cow and sire record. A cow record form is shown on page 26. A sire record sheet is shown on page 27.

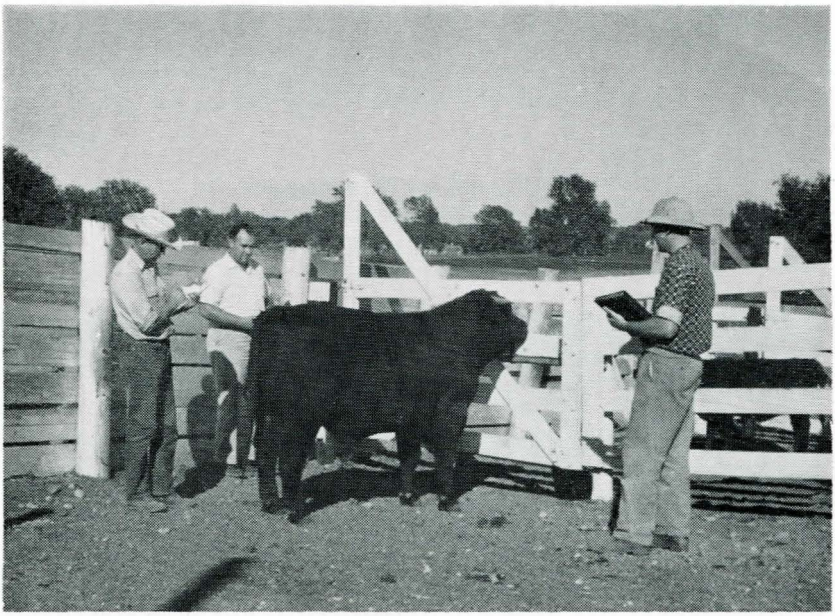
8. Study records and . . .

a. Cull bulls and heifers with weaning records below those acceptable for your herd. Identify the rest as possible replacements for the breeding herd.

b. Evaluate the weaning records of each dam and cull those which fail to produce the desired weight and grade of calves.

c. Evaluate performance of sires in the herd.

d. Use weaning weights as a starting point for evaluating growth ability.



Conformation of each animal should be evaluated carefully at both weaning and yearling ages.

As Yearlings

1. Weigh and score each animal at 12 to 20 months of age and record the data on the calf-yearling record (Form I, Column 14 through 19). Weights will be more accurate if taken after 12 to 18 hours off feed and water. Final records taken at older ages, up to 20 months, generally produce the most reliable information on weight and grade.

Several factors may influence the age at which you take your final records. For example, final selection of replacement heifers which are to calve as 2-year-olds may have to be made at 12 to 13 months of age unless you sell bred yearlings. You may find it desirable to make final selection of heifers which will calve as 3-year-olds as early as 16 to 18 months so that you can sell cull heifers on a stronger yearling feeder heifer market. You may need to take final weights on bulls as early as 12 months of age if you offer them for sale that young.

2. Obtain adjusted yearling weight by adding the gain after weaning (Form I, Column 14, minus Column 6) to the weaning weight adjusted for age of calf only (Form I, Column 8). To determine average age for adjusted yearling weight, add 200 days to the number of days in the period following weaning (convert to months if you desire).

3. Determine yearling weight ratio by dividing individual adjusted yearling weights by the average adjusted yearling weight for its sex.

4. List the herd number for each yearling on the selection sheet (see page 25) opposite the proper ratio and under the proper score.

5. Record yearling information on sire sheets and cow record.

6. Study records and . . .

a. Select final replacements for your own herd.

b. Market as slaughter bulls or feeder heifers yearlings with growth rates or conformation not acceptable to commercial producers.

c. Evaluate each herd sire for ability to transmit growth and conformation to his offspring. The extent of culling at weaning will influence the reliability of this record; therefore, weaning information should be considered in this evaluation. In evaluating new herd sires, avoid bias by mating to a group of cows that are comparable to the herd average. This group should include some top cows and some cows below average.

Evaluating Reproduction and Longevity

1. Study the cow record and . . .

a. Give due emphasis to selecting herd replacements from cows with high average productivity over a long productive life.

b. Consider culling dry cows with below average productivity. Cows producing heavy and high-grading calves should receive more favorable consideration the first time dry.

For Commercial Herds

The completeness of record keeping and emphasis on the use of records may vary between the purebred breeder and commercial producer. While long-range goals are the same, methods of achieving the objectives most economically are different.

The purebred operation is more intensive and high standards should be used for culling and replacements so that a high percentage of superior breeding stock will be produced. On the other hand, net profits in the commercial operation depend on selling a maximum number of pounds of high quality feeder cattle produced efficiently.

The commercial producer may not be able to justify the additional fencing required for breeding in one-sire pastures or culling standards as high as those needed in purebred herds. While high culling standards will contribute to faster genetic improvement, their use may reduce the pounds of saleable feeder cattle because (1) more heifer replacements will be needed, and (2) a high percentage of the producing herd will be young cows which have not yet reached their peak of production.

In addition to following a plan similar to that outlined for purebred breeders, commercial producers use record of performance information in various ways.

The simplest method is that of purchasing bulls having records of superior performance. Replacement heifers are selected without the aid of performance records. A considerable portion of the total improvement possible can be made by using this system if selection of the bulls is based on accurate records and sound judgment. The bulls are usually selected from herds that have a reputation for producing good range bulls and where a sound herd improvement program is followed. Where several bulls are needed, uniformity of the herd will be increased if bulls of similar breeding are purchased.

To increase the rate of improvement, others divide their cows and bulls into top and bottom herds. The bulls are divided on the basis of their performance records and the cows either on their own performance as calves and yearlings or on the performance of their progeny for at least two calf crops, or both. Most of the replacement heifers are selected from the top herd without the aid of performance records.

Many producers go one step farther and obtain performance records on each calf produced. In this case they use the weaning or yearling records as an aid in selecting replacement heifers and the progeny records to aid in the division of the cow herd each year.

The most complete use of records will contribute to the fastest improvement. Yet, practical limitations may prevent your use of one of the more complete systems. In this case one of the less complex programs of herd improvement will still permit you to use records for faster progress.

Figure 1. Chart for quick calculation of age of calf. Example—A calf is born February 25 and weighed October 10. February 25 is day No. 56 and October 10 is day No. 283. 283—56=227 days of age (add one if leap year).

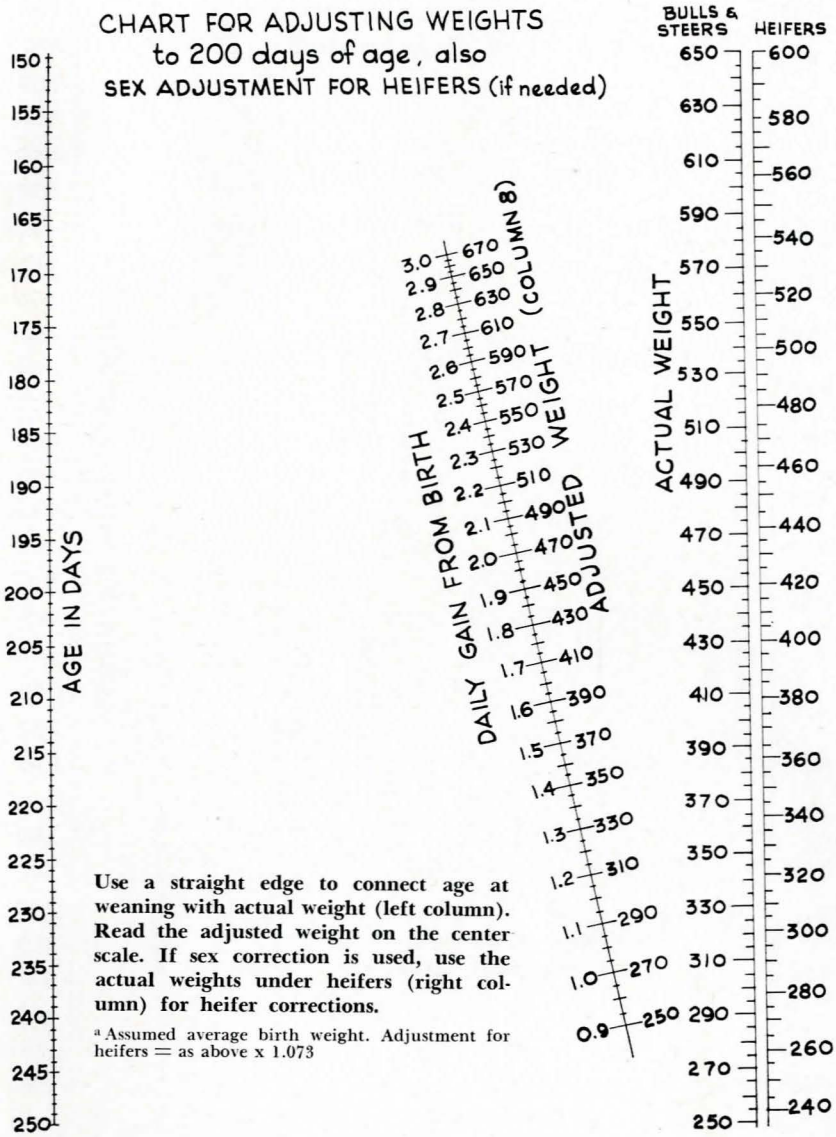
Day of Month	1 Jan.	2 Feb.	3 Mar.	4 Apr.	5 May	6 Jun.	7 Jul.	8 Aug.	9 Sept.	10 Oct.	11 Nov.	12 Dec.	Day of Month
1	1	32	60	91	121	152	182	213	244	274	305	335	1
2	2	33	61	92	122	153	183	214	245	275	306	336	2
3	3	34	62	93	123	154	184	215	246	276	307	337	3
4	4	35	63	94	124	155	185	216	247	277	308	338	4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

[a] In leap years, after February 28, add 1 to the tabulated number

BEEF CONFORMATION SCORING GUIDE

GRADES	FANCY	CHOICE	GOOD	MEDIUM
SCORES	15 14 13	12 11 10	9 8 7	6 5 4
PARTS CONSIDERED:				
Beef Character	Very heavy muscling	Heavy muscling	Moderate muscling	Light muscling
Body width	Wide	Moderately wide	Slightly narrow	Narrow
Balance	Uniform width and depth	Slightly lacking in uniformity of width or depth	Definitely lacking in uniformity of width and/or depth	Unbalanced
Rump	Very long and level	Long and level	Moderately long and level	Slightly short and/or drooping
Feet and Legs	Correct & Sound	Slight "deviations" from correct permitted	Moderate "deviations" from correct permitted	Crooked
DESCRIPTIVE EVALUATION:	Excellent breeding animals in conformation, quality and soundness. Better conformation than the average of top quality registered herds. Show animals	Good enough to fit well in purebred herds but not show cattle. Good range bulls. Tops have conformation suitable for herd bulls.	Average commercial cattle; cows culled from purebred herds. Bulls rarely will improve conformation.	Plain, upstanding, slow maturing cattle.

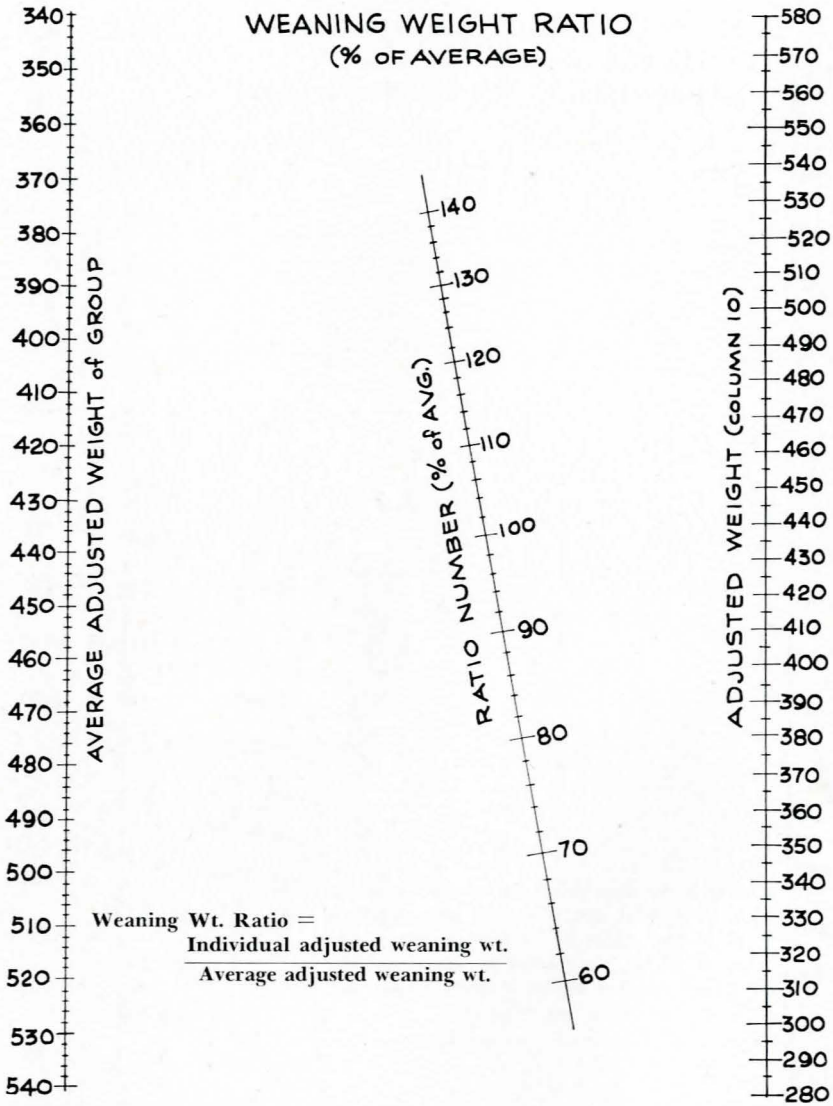
Figure 2. A quick means of adjusting weight of calves. Adjustment for age only = $\frac{\text{Weaning weight} - 70 \times 200 \times 70^{a}}{\text{Age in days}}$



Use a straight edge to connect age at weaning with actual weight (left column). Read the adjusted weight on the center scale. If sex correction is used, use the actual weights under heifers (right column) for heifer corrections.

[a] Assumed average birth weight. Adjustment for heifers = as above x 1.073

Figure 3. Chart for quick determination of weaning weight ratio.



Weaning Wt. Ratio = $\frac{\text{Individual adjusted weaning wt.}}{\text{Average adjusted weaning wt.}}$

FORM I—CALF/YEARLING RECORD

Bulls (X)
Heifers (___)
Steers (___)

Owner: _____ Address: _____ Calf Crop: *1959*

WEANING (Date *Oct. 8, '59*) YEARLING (Date Weighed *Sept. 29, '60*)

1 Calf No.	2 Dam No. & Age	3 Sire No.	4 Day Born	5 Age at Wean.	6 Wean Wt.	7 Da. Gn. From Birth	8 Adj. Wt. 200 Da.	9 Adj. for Age Dam	10 Adj. Wean Wt.	11 Wean Score	12 Wean. Wt. Ratio	13 Remarks	14 Ylg. Wt.	15 Gn. From Wean *356* Days	16 Gn. / day From Wean	17 Adj. Ylg. Wt. *18½* Mos.	18 Ylg. Score	19 Ylg. Wt. Ratio	20 Remarks
901	25/9	1	2/27	223	495	1.95	460	10	470	10.5	96		1359	864	2.43	1324	11.0	95	
902	48/6	1	3/4	218	545	2.18	510	....	510	11.0	104		1439	894	2.51	1404	11.5	101	
903	21/9	2	3/4	218	450	1.75	420	10	430	12.0	88								steered at weaning
904	51/9	1	3/13	209	475	1.95	460	10	470	10.0	96								steered at weaning
905	84/4	1	3/17	205	480	2.00	470	20	490	10.5	100		1485	1005	2.81	1475	10.5	106	
906	10/8	2	3/22	200	460	1.95	460	....	460	11.5	94		1308	848	2.39	1308	11.5	94	
907	61/6	2	3/25	197	490	2.13	495	....	495	11.0	102		1287	797	2.24	1292	11.0	93	
908	27/7	2	3/25	197	435	1.85	440	....	440	11.0	90								steered at weaning
909	23/8	1	3/26	196	505	2.23	515	....	515	10.5	106				foundered				
910	31/6	2	3/30	192	460	2.03	475		475	12.0	98		1352	892	2.50	1367	12.0	98	
911	42/9	2	3/31	191	440	1.93	455	10	465	11.5	95		1293	853	2.40	1308	12.5	94	
912	32/5	1	3/31	191	465	2.06	480	....	480	13.0	99		1374	909	2.55	1389	12.0	100	
913	47/6	2	4/7	184	445	2.03	475	....	475	11.5	98		1277	832	2.34	1307	11.5	94	
914	33/9	2	4/8	183	420	1.94	455	10	465	10.0	95								steered at weaning
915	39/8	1	4/12	179	475	2.25	520	....	520	11.0	106		1473	998	2.81	1518	12.5	109	
916	80/10	1	4/17	174	470	2.28	525	25	550	11.0	113		1448	978	2.74	1503	11.5	108	
917	52/5	2	4/19	172	480	2.38	545	....	545	12.0	112		1410	930	2.61	1485	12.5	106	
918	03/6	1	4/26	165	455	2.32	530	....	530	11.5	108		1379	924	2.59	1454	12.0	104	

FORM II—SELECTION SHEET AT *Weaning* AGE

Name _____ Date Wts. Obtained *Oct. 8, '59*

Address _____ Sex *Bulls*

Adj Wean. ~~or Mg. Wean~~ Ratio		SCORE						
		13	*12.5*	*12.0*	*11.5*	*11.0*	*10.5*	*10.0*
126	*113*					*16*		
124	*112*			*17*				
122	*111*							
120	*110*							
118	*109*							
116	*108*				*18*			
114	*107*							
112	*106*					*15*	*9*	
110	*105*							
108	*104*					*2*		
106	*103*							
104	*102*					*7*		
102	*101*							
100	*100*						*5*	
98	*99*	*12*						
96	*98*			*10*	*13*			
94	*97*							
92	*96*						*1*	*4*
90	*95*				*11*			*14*
88	*94*				*6*			
86	*93*							
84	*92*							
82	*91*							
80	*90*					*8*		
78	*89*							
76	*88*			*3*				

(Under score enter grades covering the range in your herd. Numbers under weight ratio may be changed to fit your herd ratios as in the above example or adjusted weights may be used)

FORM II—SELECTION SHEET AT *Yearling* AGE

Name _____ Date Wts. Obtained *Sept. 29, '60*

Address _____ Sex *Bulls*

Adj ~~Weanling~~ Ylg. ~~Wt.~~ Ratio		SCORE						
		13	*12.5*	*12.0*	*11.5*	*11.0*	*10.5*	*10.0*
126								
124								
122								
120								
118	*109*		*15*					
116	*108*				*16*			
114	*107*							
112	*106*		*17*				*5*	
110	*105*							
108	*104*			*18*				
106	*103*							
104	*102*							
102	*101*				*2*			
100	*100*			*12*				
98	*99*							
96	*98*			*10*				
94	*97*							
92	*96*							
90	*95*					*1*		
88	*94*		*11*		*6, 13*			
86	*93*					*7*		
84								
82								
80								
78								
76								

(Under score enter grades covering the range in your herd. Numbers under weight ratio may be changed to fit your herd ratios as in the above example or adjusted weights may be used)

(Front Side of 5"x8" Card)

Form III—Cow Record

Cow No. 215

4/10/49

Date of Birth

Adj. Wean. Wt. _____

Wean. Wt. Ratio _____

Wean. Score _____

Ylg. Wt. ___ ___ Mos. _____

Ylg. Wt. Ratio _____

Ylg. Score _____

Sire 15

Dam 120

Year	Calf No.	Sex	Sire	Calving Date	Adj. Wean. Wt.	Wean. Wt. Ratio	Wean. Score	Ylg. Wt. *18* Mos.	Ylg. Wt. Ratio	Ylg. Score	Remarks
51	153	B	127	4/10	418	104	10	1194	99	9	
52	233	B	117	3/24	460	116	10	1232	100	9	
53	320	B	323	3/23	489	112	10	1330	109	11	Herd Bull
54	449	B	340	3/23	456	113	11	1364	113	11	Herd Bull
55	597	B	323	3/30	357	104	11	1190	106	12	Herd Bull
56	666	B	445	3/2	390	95	9	1226	114	10	Died
57	789	B	567	3/6	432	102	11	1196	105	13	White
58	870	B	567	2/19	467	105	13	1240	113	13	Herd Bull
59	901	H	3084	2/26	359	94	12	645	91	11	
60	032	H	6825	2/19	384	94	11	748	98	11	

(Back Side of 5"x8" Card)

Cow No. 215

TABULATED PEDIGREE

Madge B2

Via Bozato 15th

Vee's Madge

Via Bocaldo 118

Lady Clayton

Via Bocaldo 171

Asters Madge D

Mary's Bocaldo

Hazford Buleen

Clayton Domino 5

Lady Domino 2

Hazford Tone 167

Miss Way Caldo 6

Mischief Asterbo

Madge Domino

REMARKS

Form IV—GET OF SIRE RECORD

Name of Cooperator _____

Sire—Name & No. 1 _____ Calf Crop *1959*

	Calf No.	Weaning Wt.	Adj. Wean. Wt.	Wean. Score	Wean. Wt. Ratio	Ylg. Wt.	Gain From Weaning	Adj. Ylg. Wt. *18½* Mo.	Ylg. Score	Ylg. Wt. Ratio	Remarks
MALES	901	495	470	10.5	96	1359	864	1324	11.0	95	
	902	545	510	11.0	104	1439	894	1404	11.5	101	
	904	475	470	10.0	96		steered				
	905	480	490	11.5	94	1308	848	1308	11.5	94	
	909	505	515	10.5	106		foundered				
	912	465	480	13.0	99	1374	909	1389	12.0	100	
	915	475	520	11.0	106	1473	998	1518	12.5	109	
	916	470	550	11.0	113	1448	978	1503	11.5	108	
	918	455	530	11.5	108	1379	924	1454	12.0	104	
Total		4365	4535	100.0	922	9780	6415	9900	82.0	711	
Avg.		485	504	11.1	102	1393	916	1414	11.7	102	
FEMALES	920	480	480	11.5	106	974	494	974	12.0	105	
	921	385	390	10.5	87		culled				
	922	435	450	10.5	100	910	475	915	11.0	98	
	923	465	470	10.0	104	943	478	948	10.5	102	
	924	490	535	11.0	118	984	494	1004	12.0	108	
	925	375	420	10.0	93	841	466	866	11.5	93	
	926	405	460	10.5	102	840	435	895	10.0	96	
	927	465	530	11.5	117	977	512	1032	12.0	111	
	928	360	430	11.0	95	760	400	810	11.0	87	
Total		3860	4165	96.5	922	7229	3754	7444	90.0	800	
Avg.		429	463	10.7	102	904	469	931	11.3	100	

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The College of Agriculture of your University of Nebraska has a "local office" convenient to you, wherever you may live in this wide state.

These "local offices," of course, are the County Extension offices in most Nebraska counties. There also are the Experiment Stations at Ft. Robinson, North Platte, Mitchell, Alliance and Concord.

Your County Agent has a wide variety of free bulletins written by Nebraska agricultural scientists and directed at Nebraska conditions and problems. We urge you to use your County Agent and your County Home Agent. They are there to serve you.

Dean E. F. Frolik,
College of Agriculture
University of Nebraska