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The purpose of this study was to observe and participate in management practices, to become familiar with performance testing, and to evaluate bull groups used for one calf crop in the beef cattle research program of the Animal Husbandry Department at Ames Plantation, Grand Junction, Tennessee. Data from the 1958 spring calf crop were used. A feeding test in progress was also included in this study.

The author observed and assisted in all phases of management throughout one calving season. There was considerable variation in performance of the nine bulls used in this study. Indexes on the progeny of the various bulls ranged from 100 to 124.

Income from beef cattle in Fayette County could be increased by applying management practices described in this study. There is also an opportunity in the county for the production of performance tested bulls. Purchasing of bulls with known production characteristics could also add much to the income derived from the beef cattle enterprise in the county.

November 3, 1961

I am submitting herewith a problem in lieu of thesis (Animal Husbandry 501a) written by Everett E. Carrell entitled "Management and Performance of Beef Cattle at Ames Plantation". I recommend that it be accepted for three quarter hours credit in partial fulfillment of the requirements for the degree of Master of Science, with a major in Animal Husbandry.

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MANAGEMENT AND PERFORMANCE OF BEEF CATTLE
AT AMES PLANTATION

ANIMAL HUSBANDRY 501a
Problem in Lieu of Thesis

Submitted
in
Partial Fulfillment of the Requirements
for the degree of Master of Science

by
Everett E. Carrell
November 1961

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Everett E. Carrell

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CHAPTER I

INTRODUCTION

In recent years there has been considerable interest in beef cattle production in Fayette County, Tennessee. According to the latest agricultural census there were approximately 33,190 head of cattle on Fayette County farms. Receipts from beef cattle accounts for approximately fifteen per cent of the agricultural income in the county.

Fayette County is primarily an agricultural county with approximately seventy-five per cent of the income coming from cotton. Land is owned in relatively large holdings. Much of the land is gently rolling and is well suited to growing grass. There is ample land suited to row crop for cash crops and the production of feed. Agricultural Extension workers and farm leaders are of the opinion that net income on many farms could be increased by applying proven practices in the management of the beef cattle enterprise on the farms in the county.

The University of Tennessee, College of Agriculture is involved in the management of the Ames Plantation in Fayette and Hardeman Counties. The Animal Husbandry Department in connection with the Experiment Station planned and put into action a beef cattle research program on the Plantation. Many features of this program were of a practical nature and could well be put into action on Fayette County farms.

With increasing interest in efficient management and the possibility of expansion of the beef cattle enterprise in the county

more information on sound management practices and performance of beef cattle was needed. The purpose of the author in undertaking this problem was to observe and participate in selected phases of management for one calving season at the Ames Plantation and to assist in summarizing performance research on one calf crop.

The author assisted with the various phases of management of the calves dropped in the spring of 1958 from the time the calves were born until they were weaned. During this time he assisted in obtaining and summarizing performance records. Also one steer feeding test was observed and records summarized.

CHAPTER II

PROCEDURE

Period Covered in the Study. The period of time covered was from December 1957 to May 1959. During this time, the author observed and assisted with all beef cattle management practices. He participated in the weighing and grading of weaning calves, steers on feed test and registered bulls being readied for sale in a performance tested bull sale. Work was done on various records obtained. Visits were made on the following dates: December 21, 1957; January 9, 1958; April 9, 1958; April 28, 1958; May 16, 1958; February 6, 1959; May 14, 1959; and May 21, 1959.

Breeding Stock at Ames Plantation. The beef cattle herd at Ames Plantation is composed of purebred Angus cattle. This herd has made an important contribution in the advancement of beef cattle in the South and Southeast. It has consistently produced and supplied top purebred breeding animals to many purebred and commercial herds in all sections of the country. The breeding herd is made up of approximately 200 purebred females and nine breeding bulls.

Description of Visits. The first visit to Ames Plantation on this problem was a conference with Dr. C. S. Hobbs and Mr. R. P. Moorman. At this time an outline of the phases of work to be covered were discussed. Phases to be covered were as follows: (1) separating cows into calving lots and wintering, (2) starting feed test on beef calves winter of 1958, (3) separating cows into spring breeding groups, (4) end winter feed test and grouping steers for summer grazing,

(5) vaccination and castration of calves, (6) taking bulls out and grouping cows for summer grazing, (7) feed test on steers, (8) weaning calves, (9) pregnancy checking cows, obtaining blood samples, etc., (10) selling steers, and (11) working on records.

On January 9, 1958 the cattle were divided for wintering. They were separated into the following groups. The first calf heifers were put in one lot close to headquarters. This group was wintered near headquarters so they could be checked often for calving troubles. The second calf heifers were grouped and also placed in a lot where they could be checked easily. The registered cows were put in a lot and the grade cows were put in a lot. The two groups of cows are to be divided later as more wintering lots are available. At that time the cows will be grouped by condition.

During another visit on April 9, 1958 to the Ames Plantation the author worked with Mr. Moorman in weighing the group of registered bulls from the previous year's calf crop. These bulls had been fed a ration of 4 pounds corn, cob, and shuck meal and 1 to $1\frac{1}{2}$ pounds of cottonseed meal daily. They had been on a rye pasture. This was the second weighing since they were weaned. They gained from $1\frac{1}{4}$ to $1\frac{1}{2}$ pounds a day. As the bulls were weighed, tattoos and chain numbers were checked and new numbers put on when needed and the chains loosened on the necks of the bulls as needed. The bulls were then placed on an oat pasture. Plans were to feed no grain to them on the oats with a little hay as needed.

A group of commercial heifers were moved to the rye field. Two groups of commercial cows from wintering lots were separated into bull groups and one of these groups moved to pasture.

On April 28, 1958 four groups of steers on a feeding experiment were weighed and recorded. The four groups were made up of seven steers each. Group 1 received hay and concentrates; Group 2 received hay, concentrates and antibiotics; Group 3 received silage and concentrates; and Group 4 received silage, concentrates and antibiotics. The hay was mixed legume grass hay. The silage was corn sorghum mixture. Concentrates used were ear corn with shuck and cottonseed meal. The antibiotic was terramycin.

The steers were then divided into two equal groups based on average total gain and total weight. This made two groups of steers with 14 head in each group. Fourteen of the steers received 24 milligrams of stilbestrol implanted under the skin of the ear. The 28 steers were then moved to a good oat pasture.

After the weighing was done the author computed the total gain and average daily gain for each group of steers. The results are in Table XXII.

On May 16, 1958 two groups of registered calves were worked. The heifer calves were vaccinated with 5cc's of clostridium chauversepticus bacterin to prevent black leg and malignant edema. The bull calves were sorted into groups to keep for bulls and the ones that are ^{were to be} castrated. Calves showing any indication of eye trouble were treated. Registered

cows and calves were moved back to pasture and a group of commercial calves was vaccinated and castrated.

On February 6, 1959 the author worked with the beef cattle records.

calculated Indexes and 220 day weights on 55 heifers were figured. Indexes were figured as follows:

$$\text{Daily Gain} = \frac{\text{Weaning Weight} - \text{Birth Weight}}{\text{Weaned Age (In days)}}$$

Adjusted daily gain = Daily gain x correction factor for sex of calf and age of dam.

Adjusted grade = Addition of factor for cows 2 years old and cows over 10 years old.

Index for gain = (Adjusted gain x 40) - 18

Index for grade = 5x grade

Total index = Index gain + index grade

220 day weight = (adjusted gain x 220) + birth weight

These heifers had considerable difference in weight, grade and index. The sires of these calves were compared by the indexes of the fifty-five heifers. The average index of the highest group was 128 compared to 103 for the lowest.

On May 14, 1959 the fall calves were worked. Calves were vaccinated for black leg with a mixed bacterin. In addition each calf was given 5cc's of tranquilizer. Ear tags were checked and cut out. Tattoos were checked and the ones not legible were tattooed again. The calves were then weighed and each calf graded by the herdsman and myself. The steer calves were then placed in one lot and heifer calves in another lot. Cows were then checked for pregnancy.

Indexes were figured on all calves weaned. There were fourteen steers, nine bulls and twenty-seven heifers weaned in this group.

CHAPTER III

MANAGEMENT PROGRAM USED AT AMES PLANTATION

Brief Statement on Feeding and Management. The herd is set up primarily on a late winter or early spring calving program. The management of the herd is on a very practical basis and is planned as follows:

I. Breeding Season

- A. April 1 to April 20 - Cows with calves at side and heifers divided into groups and assigned to pastures.
- B. April 10 to April 20 - Bulls turned into pastures.
- C. July 1 to July 20 - Bulls taken out of pastures.
- D. Cows may be regrouped and are turned to larger pastures at this time.

II. Weaning

- A. November 1 - All calves will be weaned on approximately this date of each year.
- B. Selection of cows to be culled from herd will be made at this time.
- C. Cows will also be grouped into winter herds and assigned to winter pasture or quarters at this time.

III. Wintering and feeding of cow herd.

- A. Carry on permanent pasture as long as practical.
- B. Feed hay and silage ad libitum plus concentrates, as needed to maintain thrifty breeding condition when pasture is not available.

- C. Replacement heifers carrying calves may need 1-4 pounds of concentrates depending upon quality of feed and size of heifers.
- D. Have pasture for cows as soon as possible after calving.
- E. Heifers calving as two-year-olds and thin cows may need 3-4 pounds of concentrates after calving unless very good pasture is available.

IV. Herd Health

A. Vaccination Program.

1. When oldest calves are 2 to 3 months old, they should be vaccinated with "triple bacterin" to immunize against blackleg, malignant edema, and hemorrhagic septicemia. Double bacterin used on calves not under stress.
2. All female calves should be injected with brucella abortus strain 19 vaccine at 4 to 8 months of age. Vaccination will be done under Tennessee program by a state employed veterinarian.

B. Pink Eye.

Pink eye will be treated by the use of sulfonamide eye ointments or Collyrium liquid instilled into the eye.

C. Flies.

A back rubber soaked with a mixture of 1 pound 50% DDT powder to 5 gallons of diesel fuel.

D. Lice.

Examine cattle in fall and spring for lice. If lice are present, spraying with lindane is effective.

V. Equipment and supplies to be kept on hand.

A. Calving equipment

1. Six feet length of sash cord.
2. Baling ties for tail ties.
3. Bottle of quaternary ammonia compound.
4. Soap
5. Small bottle of tincture of iodine.
6. Two or three foot section of fork handle.

B. Vaccinating Equipment

1. Twelve needles, 16 ga. by 1 inch.
2. One 25 cc metal and glass syringe.
3. One covered enamel tray 9" by 5".
4. Six needles, 15 ga. by $1\frac{1}{2}$ inch.

C. Other equipment

1. One balling gun, large enough to handle 1 ounce capsules.
2. Two trocar and cannula sets.
3. Ropes and halters.
4. A few rolls of gauze bandage, 10 yds. by 3 inches.
5. A few 1 ounce packages of sterile cotton.

D. Medicines

1. Procaine penicillin.
2. Turcapsal.
3. Mastimycin.
4. Eye ointment.
5. Empty gelatin capsules, 1 ounce.

Records Obtained. Records are kept on each individual animal in the herd. At birth the date and the weight and sex of the calf are recorded. The sire and dam of the calf are recorded. Records on the sire and dam include the identification and age.

At weaning the date is recorded along with the calf's weight. The calves are graded at weaning and given a type grade and condition grade. From the information recorded at birth and weaning the index on the calf can be figured.

Records are also kept on animals on feed test. These include weights throughout the period, rations fed, and cost of gain. Final grades of fed animals are also recorded.

CHAPTER IV

WEANING AND SIRE SUMMARY

Records and Adjustment. Records kept to weaning on the cows and calves are those used in performance testing. Beef cattle performance testing is a tool developed by research workers for use in improving the productivity and profitableness of beef cattle. Important characteristics of profitable beef cattle include (1) regular reproduction (high per cent calf crop) (2) ability to gain rapidly and efficiently both before and after weaning (heavy weaning and yearling weights) (3) desirable type or conformation (quality) and (4) ability to produce a desirable product. Performance testing is a program for systematically evaluating animals for these traits and using the information as a basis for selecting breeding animals.

In selecting individuals emphasis should be placed on traits which are economically important and which are heritable. A recommendation based on economic values is that weight for age (daily gain) and type score be given equal emphasis in selection. This can be accomplished at weaning time through the use of a weaning selection index.

Average daily gain during the suckling period is a figure that does not require adjustments for differences in ages of calves at weaning time and is calculated by using the following formula:

$$\text{Average daily gain} = \frac{\text{Weaning weight} - \text{birth weight}}{\text{Days of age at weaning}}$$

However, adjustments must be made for other factors influencing daily gain from birth to weaning, including sex of calf and age of dam. Research work at Tennessee has shown that on the average steer calves gain about 7 per cent faster than heifer calves and that cows 6-10 years of age produce faster gaining calves than cows at other ages. The influences of sex of calf and age of dam on daily gain and correction factors for these are given in Table I.

Type grade at weaning is not significantly influenced by sex of calf and adjustment for age of dam is necessary only for grades of calves from 2 year old cows and cows over 10 years of age. This adjustment can be made by adding .5 grade point to the numerical value for type for calves of 2 year old cows and cows over 10 years of age. Since the adjustment is rather small and not many cows are involved, tables used in this report were calculated using unadjusted type scores. Table II gives the type grades and their numerical values used by the Tennessee Agricultural Experiment Station and in the Tennessee Beef Cattle Improvement Program.

Research in Tennessee and other States show that at the present time the following figures represent about average performance for beef cattle at weaning.

Adjusted daily gain - 1.70 pounds

Type grade - 10 (average good)

To give daily gain and grade the equal value in selection index, it is necessary to make a unit variation in each the same value. This is done by making $\frac{1}{4}$ of a pound per day worth 10 points and $\frac{2}{3}$ of a full

grade (2 grade points) worth 10 points. Since the average performance of calves is about 1.70 for adjusted daily gain and 10 for grade, these are used as standards and a calf with these values would have a total index of 100 (50 points for gain and 50 points for grade). To speed up calculating the following formulas are used to obtain index values:

$$\text{Index for gain} = (40 \times \text{adjusted daily gain}) - 18$$

$$\text{Index for grade} = 5 \times \text{grade}$$

For the average calf

$$\text{Index for gain} = (40 \times 1.70) - 18 = 68 - 18 = 50$$

$$\text{Index for grade} = 5 \times 10 = 50$$

$$\text{Total Index} = 50 + 50 = 100$$

Weaning indexes of the progeny of bulls used for the spring calves on Ames Plantation were used in evaluating the bulls.

Results and Conclusions. Progeny from the nine bulls used on Ames Plantation were weaned in the fall of 1958. Twelve calves sired by bull number 1234 were weaned. The average birth date of the calves was on February 25. The average birth weight of the calves was 58 pounds. The average age when weaned was 238 days. Average weaning weight was 435 pounds. These calves gained on an average 1.57 pounds per day. The adjusted daily gain was 1.70 pounds per day. The type grade was 12.8 (between low and average choice). The average index for the 12 calves was 114. Individual birth records on calves sired by bull number 1234 are given in Table III. Weaning records on these calves are given in Table XII.

Seventeen calves sired by bull number 5133 were weaned. The average birth date of these calves was March 2. Average birth weight was 59 pounds. The calves were 234 days old when weaned and averaged weighing 399 pounds. They had an average daily gain of 1.46 with an adjusted daily gain of 1.57. Average grade was high good. Average index for the 17 calves was 100. Individual birth records on calves sired by bull number 5133 are given in Table IV. Weaning records on individual calves are given in Table XIII.

Four calves sired by bull number 9035 were weaned. The calves had an average birth date of April 7. Average birth weight was 59 pounds. The average weaning age was 197 days, with average weaning weight of 341 pounds. Daily gain was 1.44 pounds with an adjusted daily gain of 1.7. The calves' average grade was high good. Average index for the group was 104. Individual birth records on calves sired by bull number 9035 are given in Table V. Weaning records of individual calves sired by bull number 9035 are given in Table XIV.

Four calves sired by bull number 9162 were weaned. The average birth date for these calves was February 7. Average birth weight was 64 pounds. Average weaning age was 256 days with an average weight of 506 pounds. The four calves had an average daily gain of 1.73 and adjusted daily gain of 1.87 pounds per day. Average grade was choice. The average index for the group was 122. Individual birth records on calves sired by bull number 9162 are shown in Table VI. Weaning records are shown in Table XV.

Seventeen calves sired by bull number 9176 were weaned. Average birth date for these calves was March 7. The average birth weight was 62 pounds. The calves were weaned at 230 days of age weighing an average of 446 pounds which represented a daily gain of 1.68 pounds. The adjusted daily gain averaged 1.79 and a type grade of between low choice and choice. Index for the group of seventeen calves sired by bull 9176 was 116. Individual birth records on this group are found in Table VII. Weaning records of individual calves sired by this bull are found in Table XVI.

Twenty calves sired by bull number 9295 were weaned. Average birth date for these calves was February 8. The average birth weight was 66 pounds. These calves were weaned when an average of 233 days of age with an average weaning weight of 462 pounds. Average daily gain was 1.70 pounds with an adjusted daily gain of 1.80 pounds. The average grade of this group was low choice. This group of 20 calves sired by bull number 9295 had an index of 114. Individual birth records are shown in Table VIII. Weaning records are shown in Table XVII.

Only three calves sired by bull number 9305 were weaned. Average birth date of these calves was March 25. They averaged weighing 52 pounds. These calves were weaned at an average age of 210 days weighing an average of 380 pounds which represented an average daily gain of 1.56 pounds. The adjusted daily gain was 1.87 pounds with a type grade of high good. Index for the group was 113. Individual birth records are shown in Table IX. Weaning records are shown in Table XVIII.

Twenty-five calves sired by bull number 9380 were weaned. Their average birth date was February 17, and they weighed an average of 54 pounds at birth. They were weaned at an average age of 245 days weighing 464 pounds with an average daily gain of 1.67 pounds. The average adjusted daily gain was 1.93 pounds, and their average type grade was choice. Index for the group of 25 calves sired by 9380 was 124. Individual birth records are shown in Table X. Weaning records are shown in Table XIX.

Thirteen calves sired by bull number 9385 were weaned. Average birth date was March 3. Average birth weight was 56 pounds. These calves were weaned at an average age of 232 days weighing an average of 412 pounds. They had an average daily gain of 1.53 pounds. Adjusted daily gain was 1.66 pounds and their type grades averaged between high good and low choice. Average index for this group was 106. Individual birth records on calves sired by bull number 9385 are shown in Table XI. Weaning records are shown in Table XX.

A summary of the indexes of the bull groups show a range in bull indexes on these groups of cows for the year 1958 from 100 to 124. Adjusted daily gains ranged from 1.57 pounds to 1.93 pounds per day. Average weaning weight varied from 341 to 464 pounds. Type grade ranged from slightly below high good to choice. The 115 calves sired by the nine bulls had an average weaning weight of 437 pounds. Average type grade was slightly above low choice. Average index for the nine bulls was 113. A summary of individual bull indexes are shown in Table XXI.

Income from beef cattle in Fayette County could be increased by applying management practices described in this study. There is also an opportunity in the county for the production of performance tested bulls. Purchasing of bulls with known production characteristics could also add much to the income derived from the beef cattle enterprise in the county.

CHAPTER V

FEEDING TEST

Twenty-eight steers were used in a feeding test to study the effects of various roughages and an antibiotic upon winter performance of beef calves. The calves were divided into four uniform groups of seven calves per group. All of the calves received the same concentrate mixture of five pounds of corn, cob, and shuck meal plus 1.5 pounds of cotton seed meal per day. In addition group 1 received mixed hay, group 2 mixed hay plus terramycin, group 3 corn-sorghum silage, and group 4 corn-sorghum silage plus terramycin. The highest daily gain was 1.30 pounds per day made by group 4. Lowest daily gain was 1.02 pounds per day made by group 2. Group 4 had the lowest cost at 19.5 cents per pound of gain. Group 2 had the highest cost at 23.9 cents per pound of gain. The difference in rates of gain of the four groups were not statistically significant. Results of this test are shown in Table XXII.

CHAPTER VI

SUMMARY

The purpose of this study was to observe and participate in management practices, to become familiar with performance testing, and to evaluate bull groups used for one calf crop in the beef cattle research program of the Animal Husbandry Department at Ames Plantation, Grand Junction, Tennessee. Data from the 1958 spring calf crop were used. A feeding test in progress was also included in this study.

The author observed and assisted with selected phases of management throughout one calving season. There was considerable variation in performance of the progeny of the nine bulls used in this study. Indexes on the progeny of the various bulls ranged from 100 to 124.

Much valuable information was obtained through study of the records and through informal discussion with Experiment Station personnel working with this project.

TABLE I

CORRECTION FACTORS FOR ADJUSTING DAILY GAIN FOR SEX OF CALF AND AGE OF DAM

Multiply daily gain by the following to adjust to a mature dam, steer equivalent basis.		
Age of Dam (Years)	Steer and Bull Calves	Heifer Calves
2	1.15	1.22
3	1.10	1.17
4	1.06	1.13
5	1.03	1.10
6-10	1.00	1.07
11	1.02	1.09
12	1.05	1.12
13 and older	1.08	1.15

TABLE II
TYPE GRADES AND NUMERICAL VALUES

Grade	Numerical Value	Grade	Numerical Value
High Fancy	17	High Good	11
Fancy	16	Good	10
Low Fancy	15	Low Good	9
High Choice	14	High Medium	8
Choice	13	Medium	7
Low Choice	12	Low Medium	6

TABLE III

BEEF CATTLE BIRTH RECORDS FOR CALVES Sired BY BULL 1234

Calf Number	Sex	Birth Date	Year	Birth Weight	Number	Dam Year Born
18	2	20	58	50	2403	53
128	2	29	58	50	2024	54
308	1	34	58	y65*	2463	53
378	2	36	58	y60*	9123	47
428	2	40	58	68	1720	50
510	1	49	58	60	213	53
738	1	57	58	55	9037	52
918	1	71	58	60	2171	51
928	1	71	58	65	9279	49
938	2	71	58	55	9503	53
1068	2	87	58	60	2413	53
2008	2	102	58	55	2844	54
Av. on 12 calves		56		58		

*Birth weight estimated.

NOTE: Birth weights preceded by a "y" were estimated as follows:

Sex of calf	Cow's First Calf	Later Calves
Male	60	65
Female	55	60

TABLE IV
BEEF CATTLE BIRTH RECORDS FOR CALVES SIRED BY BULL 5133

Calf Number	Sex	Birth Date	Year	Birth Weight	Dam Number	Year Born
28	1	21	58	60	1135	55
108	1	28	58	60	9133	47
168	2	30	58	55	2814	54
178	1	30	58	60	9022	45
198	1	30	58	55	9422	52
208	2	31	58	50	80	48
318	2	38	58	58	2529	49
488	2	44	58	60	9039	52
506	1	48	58	60	1904	54
588	2	49	58	60	1750	50
648	2	52	58	55	985	55
778	2	61	58	55	9135	47
1208	1	93	58	y65*	3054	54
2308	1	108	58	65	0715	55
2808	2	115	58	60	9583	53
2938	2	119	58	65	9143	48
2968	1	124	58	62	2694	54
Av. on 17 calves		61		59		

*Birth weight estimated.

TABLE V

BEEF CATTLE BIRTH RECORDS FOR CALVES SIRED BY BULL 9035

Calf Number	Sex	Birth Date	Year	Birth Weight	Dam	
					Number	Year Born
1078	1	89	58	55	556	56
1308	1	94	58	65	496	56
1508	2	96	58	60	426	56
2508	2	109	58	55	8416	56
Av. on 4 calves		97		59		

TABLE VI

BEEF CATTLE BIRTH RECORDS FOR CALVES SIRED BY BULL 9162

Calf Number	Sex	Birth Date	Year	Birth Weight	Dam	
					Number	Year Born
188	2	30	58	60	9453	53
238	1	33	58	65	9175	55
258	1	34	58	67	9014	54
668	1	53	58	62	9114	54
Av. on 4 calves		38		64		

TABLE VII

BEEF CATTLE BIRTH RECORDS FOR CALVES SIRED BY BULL 9176

Calf Number	Sex	Birth Date	Year	Birth Weight	Dam Number	Year Born
48	2	22	58	50	9142	48
298	1	35	58	y65*	8343	52
328	2	37	58	65	9128	47
368	1	38	58	65	2020	47
388	1	34	58	y65*	0127	47
398	2	34	58	y60*	120	46
507	1	48	58	65	1629	49
628	2	51	58	45	1468	48
758	2	61	58	65	2004	44
788	2	61	58	60	9523	53
878	1	69	58	55	1478	48
1048	1	85	58	80	9012	44
1058	1	86	58	65	9144	54
1608	1	97	58	65	1669	49
1808	2	98	58	65	9513	53
2948	2	125	58	65	9134	54
Av. on 16 calves		66		62		

*Birth weight estimated.

TABLE VIII

BEEF CATTLE BIRTH RECORDS FOR CALVES SIRED BY BULL 9295

Calf Number	Sex	Birth Date	Year	Birth Weight	Dam Number	Year Born
248	1	33	58	63	9051	51
268	2	33	58	62	1569	49
278	1	34	58	58	9174	54
338	1	35	58	y65*	9372	52
348	2	35	58	y60*	1458	48
438	1	42	58	60	9055	55
458	2	43	58	50	9124	54
504	1	47	58	60	9125	55
5088	1	48	58	60	613	53
5081	1	46	58	65	9034	54
638	1	51	58	70	9132	47
658	1	52	58	59	9064	54
678	1	53	58	55	9115	46
908	2	71	58	45	9015	55
1018	1	79	58	60	2563	53
1028	1	84	58	50	9045	55
1038	1	85	58	70	9129	47
1108	1	93	58	52	9085	55
2958	1	126	58	73	9643	53
2708	2	111	58	75	9024	54
Av. on 20 calves		59		66		

*Birth weight estimated.

TABLE IX

BEEF CATTLE BIRTH RECORDS FOR CALVES SIRED BY BULL 9305

Calf Number	Sex	Birth Date	Year	Birth Weight	Dam	
					Number	Year Born
958	2	71	58	45	206	56
968	1	71	58	50	266	56
2408	2	109	58	60	116	56
Av. on 3 calves		84		52		

TABLE X

BEEF CATTLE BIRTH RECORDS FOR CALVES Sired BY BULL 9380

Calf Number	Sex	Birth Date	Year	Birth Weight	Dam	
					Number	Year Born
38	2	21	58	45	296	56
68	2	23	58	45	3385	55
78	2	24	58	45	9255	55
88	2	24	58	45	3135	55
118	2	29	58	55	76	56
138	1	29	58	66	3225	55
148	1	29	58	60	3475	55
218	2	33	58	52	3425	55
228	2	34	58	52	406	56
408	1	33	58	y60*	3515	55
418	1	35	58	y60*	3085	55
478	2	44	58	50	3255	55
598	2	50	58	40	9165	55
608	2	50	58	59	3535	55
698	1	54	58	50	3365	55
708	2	53	58	y55*	3405	55
718	1	53	58	60	0226	56
728	2	56	58	60	9155	55
768	2	61	58	60	9145	55
798	1	64	58	60	9225	55
808	1	65	58	50	1150	55
978	1	69	58	55	3235	55
998	1	75	58	60	3415	55
1408	2	96	58	60	9154	54
2608	2	108	58	60	66	56
Av. on 25 calves		48		54		

*Birth weight estimated.

TABLE XI

BEEF CATTLE BIRTH RECORDS FOR CALVES Sired BY BULL 9385

Calf Number	Sex	Birth Date	Year	Birth Weight	Dam Number	Year Born
98	1	28	58	60	2443	54
288	1	37	58	54	0745	55
358	2	37	58	60	1110	50
498	1	45	58	y65*	2944	54
505	2	48	58	50	1213	53
509	1	47	58	65	1531	51
818	1	65	58	65	1701	51
828	2	66	58	45	2885	54
858	2	70	58	52	0435	55
1008	2	79	58	50	2639	53
1088	1	91	58	55	0425	55
1098	1	91	58	y60*	0415	55
1708	2	97	58	60	2674	54
Av. on 13 calves		62		56		

*Birth weight estimated.

TABLE XII

BEEF CATTLE WEANING RECORDS ON CALVES SIRED BY BULL 1234

Calf Number	Weaning Date	Weaning Age in days	Weaning Weight	Gain Birth to Weaning	Daily Gain	Correction Factor	Adj. daily gain	Type Grade	Cond. Grade	Index
18	294	274	400	350	1.28	1.10	1.41	13.5	11.0	106
128	294	265	405	355	1.34	1.13	1.51	14.0	11.0	112
308	294	260	355	290	1.12	1.03	1.15	12.0	9.0	88
378	294	258	480	420	1.63	1.09	1.78	12.5	10.5	116
428	294	254	490	422	1.66	1.07	1.78	12.5	10.5	116
510	273	244	515	485	1.86	1.03	1.92	11.0	8.0	114
738	293	236	485	430	1.82	1.00	1.82	11.5	9.0	112
918	294	223	400	340	1.52	1.00	1.52	14.0	9.5	113
928	293	222	460	395	1.78	1.00	1.78	12.0	9.5	113
938	294	223	405	350	1.57	1.10	1.73	14.5	11.5	124
1068	294	207	410	350	1.69	1.10	1.86	12.0	10.5	116
2008	294	192	410	355	1.85	1.13	2.09	14.5	11.5	138
Av. on 12 calves		238	435		1.59		1.70	12.8		114

TABLE XIII

BEEF CATTLE WEANING RECORDS ON CALVES SIRED BY BULL 5133

Calf Number	Weaning Date	Weaning Age in days	Weaning Weight	Gain Birth to Weaning	Daily Gain	Correction Factor	Adj. daily gain	Type Grade	Cond. Grade	Index
28	294	273	425	365	1.34	1.10	1.47	9.5	7.5	88
108	294	266	310	250	.94	1.02	.96	8.0	6.5	60
168	294	264	330	275	1.04	1.13	1.18	11.5	9.5	82
178	294	264	440	380	1.44	1.08	1.56	10.5	8.0	97
198	293	263	575	510	1.94	1.00	1.94	15.0	10.5	135
208	294	263	410	360	1.37	1.07	1.47	11.0	9.5	96
318	294	256	495	437	1.71	1.07	1.83	12.5	10.5	118
488	294	250	440	380	1.52	1.07	1.63	11.5	9.0	105
506	294	246	420	360	1.46	1.06	1.55	10.0	7.5	94
588	294	245	315	255	1.38	1.07	1.40	10.0	8.0	76
648	294	242	385	330	1.36	1.17	1.59	12.0	9.0	106
778	294	233	435	370	1.59	1.09	1.73	12.5	10.0	114
1208	293	200	445	380	1.90	1.06	2.01	10.5	8.5	115
2308	294	186	355	290	1.56	1.10	1.72	9.5	6.5	98
2808	294	179	340	280	1.56	1.10	1.72	13.0	10.0	116
2938	294	175	375	310	1.77	1.07	1.89	11.0	9.0	113
2968	294	168	285	223	1.33	1.06	1.41	11.5	8.5	96
Av. on 17 calves		234	399		1.46		1.57	11.1		100

TABLE XIV

BEEF CATTLE WEANING RECORDS ON CALVES SIRED BY BULL 9035

Calf Number	Weaning Date	Weaning Age in days	Weaning Weight	Gain Birth to Weaning	Daily Gain	Correction Factor	Adj. daily gain	Type Grade	Cond. Grade	Index
1078	294	205	300	245	1.20	1.15	1.38	10.5	8.0	90
1308	293	199	410	345	1.73	1.15	1.99	11.5	8.5	119
1508	294	198	330	270	1.36	1.22	1.66	11.0	9.5	103
2508	294	185	325	270	1.46	1.22	1.78	10.5	8.5	106
Av. on 4 calves		197	341		1.44		1.70	10.9		104

TABLE XV

BEEF CATTLE WEANING RECORDS ON CALVES Sired BY BULL 9162

Calf Number	Weaning Date	Weaning Age in days	Weaning Weight	Gain Birth to Weaning	Daily Gain	Correction Factor	Adj. daily gain	Type Grade	Cond. Grade	Index
188	293	263	500	440	1.67	1.10	1.84	13.0	10.0	121
238	292	260	505	440	1.69	1.10	1.36	13.5	10.5	124
258	293	259	555	488	1.77	1.06	1.99	14.0	11.0	132
668	293	240	465	403	1.68	1.06	1.78	11.5	8.5	111
Av. on 4 calves		256	506		1.73		1.87	13.0		122

TABLE XVI

BEEF CATTLE WEANING RECORDS ON CALVES Sired BY BULL 9176

Calf Number	Weaning Date	Weaning Age in days	Weaning Weight	Gain Birth to Weaning	Daily Gain	Correction Factor	Adj. daily gain	Type Grade	Cond. Grade	Index
48	294	272	370	320	1.18	1.07	1.26	10.5	09.0	085
298	293	258	535	470	1.82	1.00	1.82	14.5	08.0	107
328	294	257	525	460	1.79	1.09	1.95	12.0	09.0	120
368	293	255	475	410	1.61	1.02	1.64	09.5	07.5	095
388	293	259	555	490	1.89	1.02	1.93	13.0	09.5	124
398	294	260	505	445	1.71	1.12	1.92	14.0	11.0	129
507	294	246	385	320	1.30	1.00	1.30	10.0	07.5	084
628	294	243	415	370	1.52	1.07	1.63	12.5	11.0	110
758	294	233	385	320	1.37	1.15	1.58	11.0	09.0	100
788	294	233	485	425	1.82	1.10	2.00	14.5	11.5	134
878	293	224	460	405	1.81	1.00	1.81	15.0	10.0	129
1048	293	208	425	345	1.66	1.08	1.79	10.5	08.5	106
1058	293	207	460	395	1.91	1.06	2.02	15.0	10.0	138
1608	294	207	410	350	1.69	1.10	1.86	12.0	10.5	116
1808	294	196	390	325	1.66	1.10	1.83	14.0	11.0	125
2948	294	169	330	265	1.57	1.13	1.77	14.5	11.5	125
Av. on 17 calves		230	446		1.68		1.79	12.5		116

TABLE XVII

BEEF CATTLE WEANING RECORDS ON CALVES SIRED BY BULL 9295

Calf Number	Weaning Date	Weaning Age in days	Weaning Weight	Gain Birth to Weaning	Daily Gain	Correction Factor	Adj. daily gain	Type Grade	Cond. Grade	Index
248	293	260	515	452	1.74	1.00	1.74	11.5	09.5	109
268	294	261	500	438	1.68	1.07	1.80	13.5	11.0	122
278	294	260	400	342	1.32	1.06	1.40	10.5	08.0	090
338	293	258	450	385	1.49	1.00	1.49	13.0	09.5	107
348	294	259	440	380	1.47	1.07	1.57	12.0	10.0	105
438	293	251	530	470	1.87	1.10	2.06	13.0	09.5	129
458	294	251	495	445	1.77	1.13	2.00	12.0	10.0	122
504	293	246	560	500	2.03	1.10	2.23	11.5	08.5	129
5088	293	245	530	470	1.88	1.03	1.97	10.5	08.5	110
5081	293	247	490	425	1.73	1.06	1.82	11.5	09.0	112
638	293	242	605	535	2.21	1.02	2.25	12.5	09.5	134
658	293	241	440	381	1.58	1.06	1.67	11.5	08.5	106
678	294	241	410	355	1.47	1.05	1.54	09.5	08.0	091
908	294	223	430	385	1.73	1.17	2.02	13.0	11.0	128
1018	293	214	425	365	1.71	1.03	1.76	13.0	10.0	117
1028	293	209	425	375	1.79	1.10	1.97	13.0	09.5	126
1038	293	208	450	380	1.83	1.02	1.87	09.5	07.5	104
1108	293	200	375	323	1.62	1.10	1.78	12.0	08.5	113
2958	293	167	365	292	1.76	1.03	1.80	13.0	09.0	122
2708	294	183	400	225	1.23	1.13	1.39	13.0	10.5	103
Av. on 20 calves		233	462		1.70		1.80	12.0		114

TABLE XVIII

BEEF CATTLE WEANING RECORDS ON CALVES Sired BY BULL 9305

Calf Number	Weaning Date	Weaning Age in days	Weaning Weight	Gain Birth to Weaning	Daily Gain	Correction Factor	Adj. daily gain	Type Grade	Cond. Grade	Index
958	294	223	400	355	1.59	1.22	1.94	13.5	12.0	127
968	293	222	400	350	1.58	1.15	1.82	10.5	08.5	107
2408	294	185	340	280	1.51	1.22	1.84	09.5	07.5	103
Av. on 3 calves		210	380		1.56		1.87	11.2		113

TABLE XVIX

BEEF CATTLE WEANING RECORDS ON CALVES SIRED BY BULL 9380

Calf Number	Weaning Date	Weaning Age in days	Weaning Weight	Gain Birth to Weaning	Daily Gain	Correction Factor	Adj. daily gain	Type Grade	Cond. Grade	Index
38	294	273	450	405	1.48	1.22	1.81	12.5	09.5	117
68	294	271	515	470	1.73	1.17	2.02	14.5	11.5	135
78	294	270	480	435	1.61	1.17	1.88	11.5	10.0	115
88	294	270	495	450	1.67	1.17	1.95	14.5	11.5	132
118	294	265	450	395	1.49	1.02	1.82	13.5	11.5	122
138	294	265	500	440	1.66	1.15	1.91	13.0	09.5	123
148	294	265	455	395	1.49	1.15	1.71	09.5	07.0	098
218	294	261	475	423	1.62	1.17	1.80	13.5	11.0	126
228	294	260	470	418	1.61	1.22	1.96	13.0	11.0	125
408	294	261	500	440	1.69	1.10	1.86	13.0	11.0	121
418	294	259	555	495	1.91	1.10	2.10	11.0	08.0	121
478	294	250	505	455	1.72	1.17	2.80	15.0	11.5	142
598	294	244	420	380	1.56	1.17	1.83	15.0	12.0	130
608	294	244	500	441	1.81	1.17	2.12	12.5	11.5	129
698	294	240	400	350	1.46	1.10	1.61	09.5	07.0	094
708	294	241	505	450	1.87	1.17	2.19	15.0	12.5	145
718	293	240	435	375	1.56	1.15	1.79	13.0	09.0	119
728	294	238	440	380	1.60	1.17	1.87	14.5	11.0	129
768	294	233	445	385	1.65	1.17	1.93	14.0	11.5	129
798	293	229	490	430	1.88	1.10	2.07	13.5	10.0	132
808	293	228	500	450	1.97	1.10	2.17	15.0	10.0	144
978	293	224	530	475	2.12	1.10	2.33	13.5	10.5	143
998	294	219	285	227	1.04	1.10	1.14	10.0	07.0	078
1408	294	198	410	350	1.77	1.13	2.00	12.0	10.5	127
2608	294	186	395	335	1.80	1.22	2.20	10.5	09.0	122
Av. on 25 calves		245	464		1.67		1.93	12.9		124

TABLE XX

BEEF CATTLE WEANING RECORDS ON CALVES SIRED BY BULL 9385

Calf Number	Weaning Date	Weaning Age in days	Weaning Weight	Gain Birth to Weaning	Daily Gain	Correction Factor	Adj. daily gain	Type Grade	Cond. Grade	Index
98	294	266	350	290	1.09	1.06	1.16	11.0	08.0	080
288	294	257	425	381	1.48	1.10	1.63	12.0	09.5	107
358	294	257	445	385	1.50	1.07	1.60	12.0	10.0	106
498	294	249	490	405	1.63	1.06	1.73	11.0	09.0	106
505	294	246	490	440	1.79	1.10	1.97	11.5	11.0	118
509	294	247	470	405	1.64	1.00	1.64	12.5	09.5	110
818	294	229	395	330	1.44	1.00	1.44	10.5	07.5	092
828	294	228	380	335	1.47	1.13	1.66	11.5	10.5	106
858	294	224	380	328	1.46	1.17	1.71	13.5	10.0	118
1008	294	215	375	325	1.51	a		11.5	09.0	
1088	294	203	395	340	1.67	1.10	1.84	10.5	08.0	108
1098	294	203	385	325	1.60	1.10	1.76	09.5	07.5	100
1708	294	197	380	320	1.62	1.13	1.83	12.0	10.0	115
Av. on 13 calves		232	412		1.53		1.66		11.5	106

^aAge of dam not known.

TABLE XXI

SUMMARY OF BULLS USED AT AMES PLANTATION FOR SPRING CALF CROP 1958

Bull Code No.	Name of Bull	No. of Calves Weaned	Birth Date	Birth Weight	Weaning Age	Weaning Weight	Ave. Daily Gain	Adj. Daily Gain	Type Grade	Index
1234	UT G Bardolier 3	12	56	58	238	435	1.59	1.70	12.8	114
5133	UT C General	17	61	59	234	399	1.46	1.57	11.1	100
9035	Pride Evaders Best 3	4	97	59	197	341	1.44	1.70	10.9	104
9162	Black Eileenmere 97	4	38	64	256	506	1.73	1.87	13.0	122
9176	Pardolier 44	17	66	62	230	446	1.68	1.79	12.5	116
9295	Black Eileenmere 169	20	59	66	233	462	1.70	1.80	12.0	114
9305	Eric Bardolier GA	3	84	52	210	380	1.56	1.87	11.2	113
9380	Black Eileenmere 241	25	48	54	245	464	1.67	1.93	12.9	124
9385	Black Eileenmere 90	13	62	56	232	412	1.53	1.66*	11.5	106*
Average			59	59	235	437	1.61	1.77	12.1	113

*Figures on 12 calves.

TABLE XXII

EFFECT OF VARIOUS ROUGHAGES AND AN ANTIBIOTIC UPON
WINTERING PERFORMANCE OF BEEF CALVES

(December 23, 1957 to April 28, 1958-126 days)

	Lot Number and Treatment			
	1	2	3	4
	Mixed hay	Mixed hay + terra- mycin	Corn- sorghum silage	Corn-sorghum silage and terramycin
No. calves/lot	7	7	7	7
Av. wt. and gain/head, lbs.				
Initial weight	497	499	499	498
Final weight	642	627	654	662
Total gain	145	128	155	164
Daily gain ^a	<u>1.15</u>	<u>1.02</u>	<u>1.23</u>	<u>1.30</u>
Av. daily ration, lbs.				
Corn, cob, and shuck meal	5.0	5.0	5.0	5.0
Cottonseed meal	1.5	1.5	1.5	1.5
Mixed hay	9.0	8.4	---	---
Silage	---	---	28.9	28.9
Antibiotic	---	75 mg.	---	75 mg.
Av. feed req./cwt. gain				
Corn, cob, and shuck meal	435	490	406	385
Cottonseed meal	130	147	122	115
Hay	783	824	---	---
Silage	---	---	2350	2223
Total	<u>1348</u>	<u>1461</u>	<u>2878</u>	<u>2723</u>
Av. feed cost/day ^b	24.3¢	24.4¢	24.6¢	25.4¢
Feed cost/lb. gain	21.1¢	23.9¢	20.0¢	19.5¢
Initial type grade	G+	G+	G+	G+

^aDifferences in rates of gain are not statistically significant.^bCosts based on following feed prices: corn-sorghum silage, \$8/ton; mixed hay, \$25/ton, ear corn with shuck, \$1.25/bu.; C.S.M., \$55/ton; terramycin, 0.8¢ per head daily.