Management and Performance of Beef Cattle at Ames Plantation

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Recommended Citation

To the Graduate Council:

I am submitting herewith a thesis written by Everett E. Carrell entitled "Management and Performance of Beef Cattle at Ames Plantation." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Animal Science.

Charles S. Hobbs, Major Professor

We have read this thesis and recommend its acceptance:

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Accepted for the Council:
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Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)
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Note: The student should consult with his major professor and follow his advice concerning the general format of the abstract. Additional pages, if required, should be 8½ x 11 inches and of quality equivalent to that required in the case of the thesis.

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 the 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.

[Signatures]
Major Professor

We have read this problem and recommend its acceptance:

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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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For their counsel and guidance on this problem, the author wishes to express his appreciation to Dr. R. J. Cooper and Dr. C. S. Hobbs, University of Tennessee, Department of Animal Husbandry.

The author would like also to express his appreciation to Mr. R. P. Moorman and other Ames Plantation personnel for their interest and assistance.

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,
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 1½ pounds of cottonseed meal daily. They had been on a rye pasture. This was the second weighing since they were weaned. They gained from 1¼ to 1½ 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 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. 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 hemmorhagic 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.
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 5½".
4. Six needles, 15 ga. by 1½ 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 XIV.
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.
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.
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**Av. on 12 calves**

56  58

*Birth weight estimated.*

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

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</tr>
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**BEF CATTLE BIRTH RECORDS FOR CALVES Sired BY BULL 5133**

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<th>Birth Year</th>
<th>Birth Weight</th>
<th>Dam Number</th>
<th>Dam Year Born</th>
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<td>1955</td>
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<td>55</td>
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<td>1954</td>
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**Av. on 17 calves**

*Birth weight estimated.*
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<th>Year</th>
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**Av. on 4 calves**

97 59
### TABLE VI

**BEEF CATTLE BIRTH RECORDS FOR CALVES Sired BY BULL 9162**

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Av. on 4 calves: 38 lbm 64
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Av. on 16 calves: 66 62

*Birth weight estimated.
TABLE VIII

BEEF CATTLE BIRTH RECORDS FOR CALVES Sired BY BULL 9295

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<th>Birth Year</th>
<th>Birth Weight</th>
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Av. on 20 calves: 59 66

*Birth weight estimated.
TABLE IX
BEEF CATTLE BIRTH RECORDS FOR CALVES SIRED BY BULL 9305

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<th>Dam Year Born</th>
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Av. on 3 calves:

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Av. on 25 calves: 48 54

*Birth weight estimated.
TABLE XI

BEEF CATTLE BIRTH RECORDS FOR CALVES Sired BY BULL 9385

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Av. on 13 calves 62 56

*Birth weight estimated.
TABLE XII

BEET CATTLE WEANING RECORDS ON CALVES Sired BY BULL 1234

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<th>Adj. daily Gain</th>
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<th>Cond. Grade</th>
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Av. on 12 calves: 238 435 1.59 1.70 12.8 114
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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

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<th>Daily Gain</th>
<th>Correction Factor</th>
<th>Adj. daily gain</th>
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<th>Cond. Grade</th>
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Av. on 4 calves | 197 | 341 |

1.44 | 1.70 | 10.9 | 104
TABLE XV

REEF CATTLE WEANING RECORDS ON CALVES Sired BY BULL 9162

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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

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<th>Adj. daily gain</th>
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Av. on 20 calves

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### TABLE XVIII

**HEEP CATTLE WEANING RECORDS ON CALVES Sired BY BULL 9305**

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**Table Notes:**
- Weaning Age in days, Weight, Gain Birth to Weaning, Daily Gain, Correction Factor, Adj. daily gain, Type Grade, Cond. Grade, and Index are recorded for each calf.
- The table includes the average for the three calves.
TABLE XVII

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<td>1.07</td>
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<td>11.0</td>
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<td>385</td>
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<td>11.5</td>
<td>118</td>
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<td>294</td>
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<td>360</td>
<td>385</td>
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<td>1.10</td>
<td>11.5</td>
<td>10.0</td>
<td>118</td>
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<td>09.5</td>
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<td>197</td>
<td>380</td>
<td>320</td>
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<td>10.0</td>
<td>115</td>
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</tbody>
</table>

Av. on 13 calves: 232 412 1.53 1.66 11.5 106

*Age of dam not known.*
### TABLE XXI

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

<table>
<thead>
<tr>
<th>Bull Code No.</th>
<th>Name of Bull</th>
<th>No. of Calves Weaned</th>
<th>Birth Date</th>
<th>Birth Weight</th>
<th>Weaning Age</th>
<th>Weaning Weight</th>
<th>Ave. Daily Gain</th>
<th>Adj. Daily Gain</th>
<th>Type Grade</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1234</td>
<td>UT G Bardolier 3</td>
<td>12</td>
<td>56</td>
<td>58</td>
<td>238</td>
<td>435</td>
<td>1.59</td>
<td>1.70</td>
<td>12.8</td>
<td>114</td>
</tr>
<tr>
<td>5133</td>
<td>UT C General</td>
<td>17</td>
<td>61</td>
<td>59</td>
<td>234</td>
<td>399</td>
<td>1.46</td>
<td>1.57</td>
<td>11.1</td>
<td>100</td>
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<tr>
<td>9035</td>
<td>Pride Evaders Best 3</td>
<td>4</td>
<td>97</td>
<td>59</td>
<td>197</td>
<td>341</td>
<td>1.44</td>
<td>1.70</td>
<td>10.9</td>
<td>104</td>
</tr>
<tr>
<td>9162</td>
<td>Black Eileenmere 97</td>
<td>4</td>
<td>38</td>
<td>64</td>
<td>256</td>
<td>506</td>
<td>1.73</td>
<td>1.87</td>
<td>13.0</td>
<td>122</td>
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<tr>
<td>9176</td>
<td>Pardolier 144</td>
<td>17</td>
<td>66</td>
<td>62</td>
<td>230</td>
<td>446</td>
<td>1.68</td>
<td>1.79</td>
<td>12.5</td>
<td>116</td>
</tr>
<tr>
<td>9295</td>
<td>Black Eileenmere 169</td>
<td>20</td>
<td>59</td>
<td>66</td>
<td>233</td>
<td>462</td>
<td>1.70</td>
<td>1.80</td>
<td>12.0</td>
<td>114</td>
</tr>
<tr>
<td>9305</td>
<td>Eric Bardolier GA</td>
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<td>84</td>
<td>52</td>
<td>210</td>
<td>380</td>
<td>1.56</td>
<td>1.87</td>
<td>11.2</td>
<td>113</td>
</tr>
<tr>
<td>9380</td>
<td>Black Eileenmere 241</td>
<td>25</td>
<td>48</td>
<td>54</td>
<td>245</td>
<td>464</td>
<td>1.67</td>
<td>1.93</td>
<td>12.9</td>
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<tr>
<td>9385</td>
<td>Black Eileenmere 90</td>
<td>13</td>
<td>62</td>
<td>56</td>
<td>232</td>
<td>412</td>
<td>1.53</td>
<td>1.66*</td>
<td>11.5</td>
<td>106*</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>59</td>
<td>59</td>
<td>235</td>
<td>437</td>
<td>1.61</td>
<td>1.77</td>
<td></td>
<td>12.1</td>
<td>113</td>
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</tbody>
</table>

*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)

<table>
<thead>
<tr>
<th>No. calves/lot</th>
<th>Lot Number and Treatment</th>
<th>Mixed hay</th>
<th>Mixed + terramycin</th>
<th>Corn-sorghum silage</th>
<th>Corn-sorghum silage and terramycin</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Av. wt. and gain/head, lbs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial weight</td>
<td>497</td>
<td>499</td>
<td>499</td>
<td>498</td>
<td></td>
</tr>
<tr>
<td>Final weight</td>
<td>642</td>
<td>627</td>
<td>654</td>
<td>662</td>
<td></td>
</tr>
<tr>
<td>Total gain</td>
<td>145</td>
<td>128</td>
<td>155</td>
<td>164</td>
<td></td>
</tr>
<tr>
<td>Daily gaina</td>
<td>1.15</td>
<td>1.02</td>
<td>1.23</td>
<td>1.30</td>
<td></td>
</tr>
<tr>
<td>Av. daily ration, lbs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corn, cob, and shuck meal</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>Cottonseed meal</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Mixed hay</td>
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<td>8.4</td>
<td>8.4</td>
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<tr>
<td>Silage</td>
<td>---</td>
<td>---</td>
<td>28.9</td>
<td>28.9</td>
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<tr>
<td>Antibiotic</td>
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<td>---</td>
<td>75 mg.</td>
<td>75 mg.</td>
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<tr>
<td>Av. feed req./cwt. gain</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corn, cob, and shuck meal</td>
<td>4.35</td>
<td>4.90</td>
<td>4.06</td>
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<tr>
<td>Cottonseed meal</td>
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</tr>
<tr>
<td>Hay</td>
<td>783</td>
<td>824</td>
<td>---</td>
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<tr>
<td>Silage</td>
<td>---</td>
<td>---</td>
<td>2350</td>
<td>2223</td>
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</tr>
<tr>
<td>Total</td>
<td>1348</td>
<td>1461</td>
<td>2878</td>
<td>2723</td>
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<tr>
<td>Av. feed cost/dayb</td>
<td></td>
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<td></td>
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<tr>
<td>2 l. 3¢</td>
<td>2 l. 4¢</td>
<td>24.6¢</td>
<td>25.4¢</td>
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<tr>
<td>Feed cost/lb. gain</td>
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<td></td>
<td>23.9¢</td>
<td>20.0¢</td>
<td>19.5¢</td>
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<tr>
<td>Initial type grade</td>
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<td>G+</td>
<td>G+</td>
<td>G+</td>
</tr>
</tbody>
</table>

*Differences 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.