THE UNIVERSITY OF TENNESSEE

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ABSTRACT OF EDUCATIONAL RESEARCH STUDY COMPLETED

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Abstract approved by _____
(signature of major professor)

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 management practices and evaluate performance of straightbred and crossbred swine in the swine research program of the Animal Husbandry-Veterinary Science Department at Ames Plantation, Grand Junction, Tennessee. Data from straightbred Duroc, Hampshire, and Landrace and crossbred H X D and H X P X L pigs farrowed in the fall of 1956 and sold in the spring of 1957 at Ames Plantation were used in the study.

The author observed and assisted in all phases of management and production throughout one season. The management practices used are practical and could be adopted to the production of swine on farms in Fayette County. Application of these practices in swine production could increase income from hogs in the county. In the swine program on the Plantation, pasture and home grown grain are used. Buildings of simple structure are used. Crossbred pigs were superior to straightbred pigs from the standpoint of economical production of pork. Crossbred sows produced larger litters and faster gaining pigs than purebred sows. Performance of two groups of Duroc sows from different sources and mated to the same boar showed that sows from Source N farrowed and raised more pigs per litter than sows from Source I. Pig and litter weights from sows of Source N were heavier at birth and 154 days as compared with sows of Source I.

Form G-20

October 24, 1961

I am submitting herewith a problem in lieu of thesis (Animal Husbandry 502a) written by Everett E. Carrell entitled "Management and Performance of Swine 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 SWINE

AT AMES PLANTATION

ANIMAL HUSBANDRY 502a

Problem in Lieu of Thesis

Submitted

in

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

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by

Everett E. Carrell

October 1961

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EVERETT E. CARRELL

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CHAPTER I

INTRODUCTION

During the past few years there has been an increased interest in swine production in Fayette County. As of January 1, 1960 there were approximately 25,060 hogs on Fayette County farms valued at $415,996. The receipts from hogs in 1958 was approximately $1,082,619. This is about a 35 per cent increase in hog numbers in the past five years.

Fayette County is primarily an agricultural county with 75 per cent of the income coming from cotton. Due to governmental programs reducing cotton acreage in the county in recent years farmers are looking for other sources of income. Much of the land taken out of cotton could be devoted to corn production. Agricultural extension workers and farm leaders are of the opinion that net income on many farms could be increased by adding a swine enterprise to the farm.

At approximately the same time, 1955, the University of Tennessee had become involved in the management of the Ames Plantation in Fayette and Hardeman County. The Animal Husbandry-Veterinary Science Department of the University of Tennessee Agricultural Experiment Station planned and put into action a swine 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 and the possibility of expansion of the swine enterprise in the county more information on sound management

practices and performance of hogs was needed. The purpose of the writer in undertaking this problem was to observe and participate in selected phases of management for one farrowing season at Ames Plantation and to assist in summarizing the performance of pigs and results in different breeding projects being carried on at the time.

The writer assisted with selected phases of management through a season from the time the pigs were born until they were slaughtered. During this time he assisted in obtaining and summarizing performance records. Management and performance of swine farrowed during the fall of 1956 are included in this problem.

CHAPTER II

PROCEDURE

Period Covered in the Study. The period of time covered in this study was from August, 1956 to June, 1957. During this time hogs from the spring farrowing of 1956 were weighed, probed for backfat thickness and sold. Fall pigs (1956) also were farrowed during this period. I observed and assisted with all management practices. Visits were made on the following dates: August 22, 1956; September 11, 1956; September 19, 1956; September 21, 1956; March 11, 1957; and May 14, 1957.

Foundation Breeding Stock at Ames Plantation. The foundation breeding stock for the Ames Plantation swine herd was started in the fall of 1955 with 16 Duroc, 12 Hampshire, 5 Poland China, 10 Landrace, and 7 Landrace x Poland China crossbred gilts.

The following is a summary by breeds and sources of the foundation herd:

I. Hampshire:
   - A. Twelve gilts from two breeders in Tennessee.
   - B. Two boars, one from the University of Tennessee herd at Knoxville and one from a breeder in Tennessee.

II. Duroc:
   - A. Ten gilts from a breeder in Tennessee.
   - B. Six gilts from Iowa State College.
   - C. One boar from Iowa State College.

III. Poland China:

A. Five gilts from Iowa State College.

B. One boar from Iowa State College.

IV. Landrace:

A. Ten gilts from Iowa State College.

B. One boar from Iowa State College.

V. Poland x Landrace:

A. Seven crossbred gilts from Iowa State College.

B. No Poland China gilts were bred in the spring of 1956 to farrow in the fall of 1956.

Description of Visits. When I arrived at the swine farrowing house at the Ames Plantation on the first visit the herdsman was working with new-born pigs. I assisted the herdsman in working with the pigs. Each pig was weighed and the weight recorded, litter number notches were placed in the left ear and the pig number notches were placed in the right ear. Sharp tusks were cut off and painted with iodine. Iodine was also put on the ear notches and navel of the pigs. Three cc's of serum to prevent swine erysipelas were subcutaneously injected under the front leg of the pig. The pigs were then put back with the sows.

On another visit we worked a group of pigs four weeks of age. In this group of pigs the first selection of boars to keep was made in purebred litters. The other boar pigs were castrated and all of the pigs were vaccinated with EVA (Erysipelas Vaccine live culture avirulent) and mixed bacterin. The pigs having erysipelas in advance stages were given penicillin. Ears were checked for markings and those

that were becoming difficult to read were renotched. The system used is:

Right  Left

Pig Number Litter Number

Another older group of pigs was worked to obtain weaning weight (56-day weights). The pigs were separated from the sows and the sows moved to another lot in order to wean the pigs. Each individual pig was vaccinated for cholera, rung, weighed, and a teat count made. This information was recorded. Another selection of boars to be kept was made at this time.

Mr. Moorman and I then worked in the office and adjusted individual pig weights to standard 56-day weights. We reviewed the over-all management of the swine herd. On two other visits I assisted in weighing groups of hogs to obtain approximate 154-day weights. Mr. Moorman and I then checked the swine record book for records of sows. He explained the record book and its use and also the procedure used in adjustment of weights to standard 154-day weights. I then calculated adjusted 154-day weights.

During another visit to the Plantation we weighed and probed a group of hogs for backfat thickness before taking them to market. After Mr. Moorman showed me the procedure to follow in probing for backfat thickness, I took the backfat measurement on the group of hogs. Plans were made to follow some of these hogs into the packing plant. Mr. Moorman and I went to the Wilson and Company Packing Plant to make

measurements on the swine carcasses. One of the purposes of this trip was to get some information on the accuracy of the probing. The information that we took at the packing plant was backfat thickness at the first and last rib and at the last lumbar vertebrae. We also made a measurement at the point where we had probed the live hogs (7th rib). Measurements of carcass length were also made.

During all the visits management practices being used were discussed.

Brief Statement on Feeding and Management Program. The Ames Plantation swine enterprise is set up on the basis of farrowing two litters per year--one litter in the spring and another in the fall. Sows are bred to begin spring farrowing around March first and fall farrowing around October first. The program makes maximum use of pasture. A practical central farrowing house is used. Sow groups are bred with two-week intervals between groups to allow time to clean and disinfect the house between litters.

Sows and litters are moved to pasture at a week to 10 days after farrowing. Four acre pastures are stocked at the rate of about 20 pigs per acre. At weaning time sows are removed from the lots and the pigs remain to be finished to market weight. Two groups of pastures are used. A permanent type pasture of orchardgrass, alfalfa, and ladino clover is used for spring farrowed litters. A temporary type pasture of oats and crimson clover is used for fall farrowed litters.

Portable type hog houses that can be used for shelter or shade are used in each pasture lot. Running water is piped into all lots. After hogs are removed from an area it is left free of hogs for approximately 6 months.

Hogs are fed grain grown on the Plantation and a protein supplement mixed on the Plantation. Bred sows are hand fed corn, cob, and shuck meal ground at the farm. Hogs being finished are self-fed ear corn and supplement free choice.

Sows are pasture bred in groups. Boars are cared for in such a manner as to keep them in good breeding condition. They are handled similar to the sows. A disease prevention and control program is worked out with local veterinarians. A definite parasite control program is carried on at all times.

Replacement breeding stock is selected at the time 154-day weights are taken and at market time on the basis of performance and appearance. Top hogs are marketed at a terminal market in Memphis. Excess replacement stock is sold at the Plantation.

Records Obtained. The following individual animal and litter records are obtained:

1. Breeding and farrowing dates of sows.
2. Number of pigs farrowed (both live and stillborn), number of pigs alive at 56 days (weaning), 154 days, and at market time.
3. Teat count of all pigs at birth.

4. Individual pig weights at birth (both live and stillborn), at approximately 56 days, 154 days, and at market time.
5. Backfat probe (at 7th rib about three inches from center) at marketing time (200-220 lbs.).
6. Meat-type scores for all boars and gilts retained as potential breeding stock.

These records are used in computing and completing sow performance records (Figure 1), litter summaries (Figure 2), and breed summaries (Figure 3). Since all weights are not made at exactly 56 and 154 days the following formulas are used in adjusting weights to 56 and 154 days:

$$\frac{\text{Weaned wt. - birth wt.}}{\text{Days of age when weighed (weaned wt.)}} \times 56 + \text{birth wt.}$$

= adjusted 56-day weight.

$$\frac{\text{Final wt. - 56 day adj. wt.}}{\text{Days of age at final wt. - 56}} \times 98 + \text{56 day wt.}$$

= adjusted 154-day weight.

CHAPTER III

THE FEEDING AND MANAGEMENT OF SWINE ON AMES PLANTATION

Feeding and Management Program. The management program has proved successful in producing hogs on the Plantation. The plan is practical and applicable to farms in West Tennessee. This program makes use of crops and pasture grown on the farm plus additional protein supplement bought in the area. This additional protein is mixed on the farm.

The buildings were constructed from materials produced on the farm and primarily with farm labor. The hogs were handled by farm labor under the supervision of Experiment Station personnel. Buildings and equipment being used on the Plantation could be adapted to the productive size unit desired on a given farm.

The actual procedure in handling the hogs in breeding and feeding groups is practical and works very satisfactory. Each job was performed at the time that it should be done and paid off in good results. Unexpected problems were worked out as they arose. Much valuable information was gained by informal discussion with personnel involved in this project on the Plantation.

I. Sow Herd

A. Breeding

1. The sows are pasture bred. One boar is used on eight to ten sows depending on the age and size of the boar and length of breeding season.

2. Ninety to one hundred sows are divided into three groups for breeding at different periods. This is so that all sows can be farrowed in a central farrowing house which can accommodate only about thirty-five sows in a two week period.
3. Each boar group is divided into three groups and the sow groups are put in with the boar at two week intervals to allow time at farrowing to clean and disinfect the stalls and house between groups.
4. The sows are bred to farrow about October 1 for fall pigs and March 1 for spring pigs.
5. Herdsman obtains breeding dates of sows whenever possible.

B. Feeding

1. The following feed groups are used in preparing a ration with the numbers showing unit parts by weight within a group and will be referred to by letter:

   A - Ground corn, cob, and shuck meal.

   B - Tankage (1), and soybean oil meal (1).

   C - Tankage (1), soybean oil meal (1), and alfalfa leaf meal (1).

   D - Tankage (1), and soybean oil meal (2).

   E - Salt (1), steam bone meal (1), and feeding limestone (1); or salt (1) and Di Calcium phosphate (1).

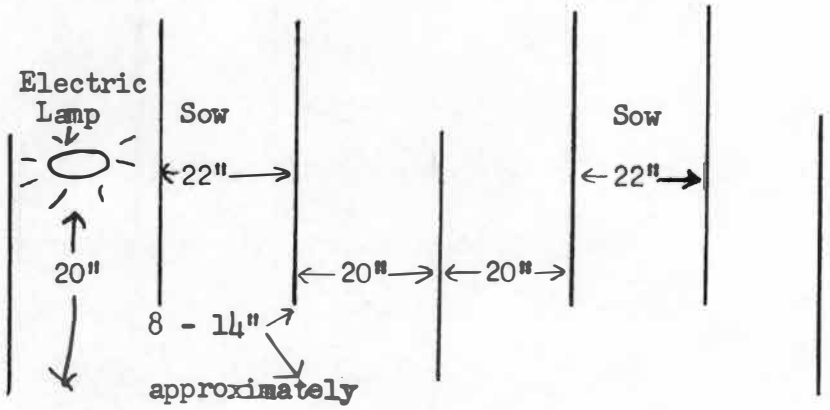
2. Supplement B and C have mineral mix E added at the rate of twelve pounds per one hundred.
3. Weaning to Breeding: a) The sows are hand fed two to five pounds, depending on their condition, of feed A daily along with one-half pound of supplement B on pasture. b) When not on pasture, or if pastures are poor, supplement C is used instead of B.
4. Breeding to Farrowing: The sows are continued on ration AB (as in No. 3a) with B being increased to one pound the last month before farrowing.
5. Farrowing Time: The sows remain on feed A and supplement C when they are in the barn. The amount of feed is regulated by appetite of the sow, the length of time out of the farrowing stall, and age of the pigs. The sows are fed twice daily. The amount of alfalfa leaf meal is increased.
6. Farrowing to Weaning of Pigs: Seven to ten days after farrowing, sows and pigs are moved to pasture and self-fed free-choice ear corn and supplement B.
7. Weaning: Sows are moved to another pasture and are not fed until their udders are dry. Then they are put back on the same ration as before breeding, if there is good pasture, otherwise, limited amount of A is fed.

C. Care

1. Four to seven days before farrowing sows are moved to farrowing quarters.
2. Sows are wormed with piperazine at the time they are moved to farrowing quarters.
3. Three to four days before farrowing, sows are washed and then put in their respective farrowing stall so that they can become accustomed to the stall.

Diagram of Stall

Dimensions in Inches, End View



The width of a farrowing stall is varied according to the size of sow by spreading the bottom part of stall from 22" to 25". Height of the walls on side of the farrowing stalls are raised for large sows to allow pigs to nurse.

4. During farrowing period each sow is let out of the stall twice daily for water and feed.
5. Sows are usually wormed twice during the year in addition to the worming when they go into the farrowing house.
6. Between weaning and breeding, sows are given EVA vaccine once each year.
7. Once each year crystal violet vaccine is administered to the sows for the prevention of hog cholera.
8. Rings are put in nose of swine as needed to prevent excessive rooting.
9. Sows are tested twice each year for Brucella Abortus between weaning and breeding.
10. A sow performance record is kept on each sow. (Figure 1)
11. Sows are retained in the herd on the basis of their production and research information they provide to the program.

II. Boar Herd

A. Generally the boars are fed and handled similar to the sows.

B. During the non-breeding season they run together in groups based on age and size.

C. Boars are wormed, rung, and tusks trimmed as deemed necessary.

III. Pigs (Birth to market or replacement age)

A. Birth to four weeks.

Day of Birth: Pigs are ear notched with litter number in left ear and pig number within litter in right ear. Needle teeth are nipped. Iodine is put on ear notches, needle teeth and navel. Pigs are weighed to the nearest one tenth of a pound. They are given three cc's of erysipelas serum.

B. Four weeks.

1. The first selection is made of the boars to keep. All other boar pigs are castrated.
2. All pigs are vaccinated with EVA and mixed bacterin.

C. Fifty-six days.

1. Pigs are weaned, weighed, teat count made, rung, and vaccinated for cholera.
2. An attempt is made to put pigs in groups of uniform size by separating small and/or runt pigs into a separate group. They are given extra feed and care and later added to younger age groups as they are weaned.
3. A second selection is made for boars to keep. The boars selected are moved to a separate lot.

D. Weaning to one hundred fifty-four days.

1. Pigs are self fed corn and supplement B free-choice

to four months of age then supplement D is used instead of B until market age.

2. Pigs are wormed two weeks after weaning and again depending on the level of infestation, at four week intervals.

E. One hundred fifty-four days.

Hogs are weighed and divided into weight groups, 200 and above; 185-200 pounds; 165-185 pounds; and below 165 pounds.

F. Marketing

1. Hogs are marketed at approximately 220 pounds live weight.
2. They are weighed and backfat measured at the seventh rib three inches from center. A knife and steel ruler is used to take the measurement.
3. Replacement gilts and boars are selected, using all information available sow performance record, litter summary, and breed summary and individual type.
4. Hogs are sent to market in a sixteen foot truck.
   a) Approximately thirty head of 220 pound hogs can be hauled per load.
   b) In hot weather sand is used on the truck bed floor, with sand and hogs being wet.
   c) In cold weather sand and straw are used to bed the truck.

IV. Replacement gilts are selected at market weights.

A. Gilts are allotted together.

B. Gilts are given EVA, wormed, and rerung.

C. Gilts are blood tested at the same time as sows.

D. Gilts are hand-fed on feed A and supplement B on pasture. The amount of feed is varied according to size and condition of gilts.

E. Gilts are bred to farrow from ten to fourteen months of age.

V. Replacement boars.

A. From 220 pounds until they are sold or used, boars are fed according to size and condition.

B. They are wormed, given EVA, and rerung.

VI. General management.

A. All portable houses and farrowing stalls are steam cleaned between litters.

B. Electric lamps are used for extra heat as needed in farrowing stalls.

C. Shade and sprinkling systems are used in summer to keep swine cool.

D. Permanent pastures of alfalfa, ladino clover, and orchard grass are provided for spring litters.

E. Temporary pastures of oats and crimson clover are provided for fall litters. Pastures are stocked with approximately twenty pigs per acre.

F. Pastures are clipped with rotary mowers when necessary.

G. Spring and fall litters are provided separate areas.

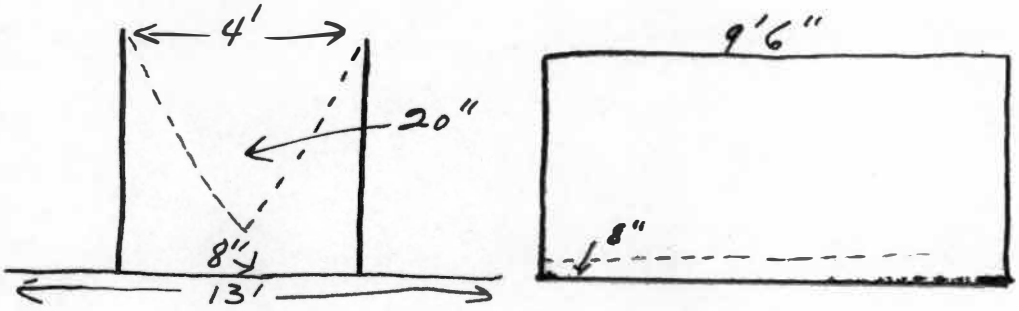
H. Pigs that die are autopsied by the local veterinarian.

I. An over-all veterinary program is worked out with local veterinarian and carried out by Plantation personnel.

VII. Equipment used.

A. Feeders.

1. Ear corn self feeders.



END VIEW SIDE VIEW

2. Commercial self-feeders are provided for protein supplement.

3. Troughs are available for hand feeding.

B. Small size ear notchers.

C. Six inch long teeth nippers.

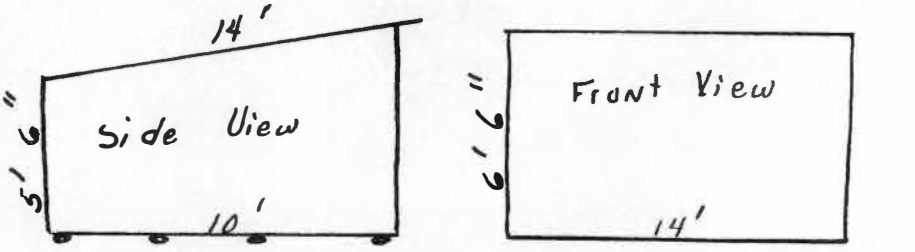
D. Vaccination equipment.

a) Two 40cc syringes.

b) One 5cc glass syringe.

E. Quaron-10, a recommended disinfectant.

F. Portable houses--10 x 14.



Removable Panel Runner Front Open

G. Hurdles.

H. Super Sioux Automatic Jet Steam cleaner.

I. John Bean, Number 32336 farm protector sprayer.

J. Paul Portable Scales, Jr. Model, Duncan, Oklahoma.

CHAPTER IV

PERFORMANCE OF STRAIGHTBRED AND CROSSBRED PIGS

Ten Hampshire, ten Duroc, six Landrace, four Hampshire x Duroc, and seven Hampshire x Poland x Landrace litters were farrowed. The summary of the performance of these litters is given in Table I. The litters of the Hampshire x Duroc cross had the largest number of pigs at birth. This cross had the highest percentage of pig survival and the greatest number of pigs weaned and marketed per litter. The three-breed (Hampshire x Poland x Landrace) cross litters went to market in the shortest time and made the highest average daily gain from birth to market. Crossbred litters (H x D and H x P x L) had the highest total litter weights at market primarily because of greater litter size and pig growth rate.

The performance of straightbred and crossbred pigs by the different boars used in the breeding program is summarized in Table II. Four Hampshire sows and six Poland x Landrace sows were bred to a Hampshire boar, 20-1. Six Hampshire sows and four Duroc sows were bred to a Hampshire boar, Monarch Packer. Ten Duroc sows were bred to a Duroc boar, 1372, and six Landrace sows to a Landrace boar, 3223. The three-way cross pigs from the Poland x Landrace sows bred to the Hampshire boar made the highest average daily gain from birth to market. The two-way cross of Duroc sows and Hampshire boar was highest in pigs farrowed and raised and was second high in average daily gain.

The performance of two different sources of Duroc sows designated

as I and N are compared in Table III. These two groups of five sows per group were bred to a Duroc boar. The sows from Source N farrowed an average of .6 more pigs per litter and raised 1.2 more pigs per litter to 154 days. Pigs from sows of Source N weighed .6 more at birth than pigs from sows of Source I. At 154 days of age the pigs from sows of Source N weighed an average of 15 pounds more than pigs from sows of Source I. At 154 days of age the average litter weight of pigs from Source N sows was 341 pounds greater than pigs from Source I sows. The average backfat for the two groups was the same. Source N sows' pigs weighed 16 pounds more per pig than Source I pigs and were marketed three days younger with an average daily gain per pig of .10 more.

The performance of two groups of sows bred to the same boar are compared in Table IV. A group of four Hampshire sows and six L x P sows were bred to a Hampshire boar (H, 20-1). The Hampshire sows farrowed and raised the most pigs per litter. The Hampshire pigs also weighed .4 pounds more at birth. The pigs from the P x L sows weighed 37 more pounds at 154 days than did the pigs from the Hampshire sows. The litters weighed approximately the same at 154 days. Hampshire pigs had .22 inches more backfat thickness than the H x P x L pigs. H x P x L pigs gained .26 pounds faster per day from birth to market than the Hampshire pigs and were marketed 16 days earlier and weighed 17 pounds more per pig.

A comparison of the best and poorest production records among the different breeds and crosses is given in Table V. The highest

number of pigs raised per litter to 154 days was found in H x D cross and the lowest in the Landrace with a difference of 6.5 pigs per litter. At 154 days of age the average pig weight was highest in the H x P x L cross and lowest in the Landrace with a difference of 46 pounds per pig. The greatest difference in average litter weight was 1,242 pounds with the H x D cross being the highest and the Landrace the lowest.

The Duroc had the highest backfat thickness and the Landrace the lowest. The Duroc backfat thickness was .5 inch greater than the Landrace.

The H x D x L cross pigs were marketed 20 days earlier than the Landrace pigs and averaged 41 more pounds per pig. H x P x L cross pigs also had the highest average daily gain and the Landrace the lowest with a difference of .35 pound per day gain from birth to market.

SUMMARY

The purpose of this study was to observe management practices and evaluate performance of straightbred and crossbred swine in the swine research program of the Animal Husbandry-Veterinary Science Department at Ames Plantation, Grand Junction, Tennessee. Data from straightbred Duroc, Hampshire, and Landrace and crossbred H x D and H x P x L pigs farrowed in the fall of 1956 and sold in the spring of 1957 at Ames Plantation were used in the study.

The author observed and assisted in selected phases of management and production throughout one season. The management practices used are practical and could be adapted to production of swine on farms in Fayette County. In the swine program on the Plantation pasture and home grown grain are used. Buildings of simple structure are used.

The crossbred pigs did the best job from an economical standpoint of producing pork. Crossbred sows produced larger litters and faster gaining pigs than purebred sows. With the exception of Landrace, in this project, the hogs did better than average for the area in which they were grown.

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

FIGURE 1

TENNESSEE STATION SOW PERFORMANCE RECORD

Name _____ Reg. No. _____ Ear No. _____ Breed _____

Breeder _____ Farrowed _____ Ear Notch

Sire _____ Dam _____

No. in litter _____ 56 Day Wt. _____; 154 Day Wt. _____; 180 Day Wt. _____; B. F. at 200 lbs. _____ Teats _____

Litter No. _____ Sire _____ Date _____

Pig No.	Sex	Birth Wt.	56 Day Wt.	154 Day Wt.	180 Day Wt.	Wt.	MARKET Age	B. F.	Teats
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
Tot.									
Av.									
Notes									

FIGURE 2

LITTER SUMMARY

Litter No. ____
Sire _____
Dam ____
Birth date ___

Number of pigs:
Farrowed ____
Born alive _____
56 days ___
154 days ____

Percent of pigs raised:
56 days ____
154 days ____

Average pig weight, lbs.:
Birth _____
56 days _____
154 days ____

Litter weight, lbs.:
Birth ____
56 days _____
154 days ____

Average backfat inches ____

Average weight backfat, lbs. ____

Average age, days ____

Average daily gain, lbs. ____

FIGURE 3

BREED SUMMARY

Number of litters ____

Number of pigs ____
  Farrowed ____
  Born alive ____
  56 days ____
  154 days ____

Per cent pigs raised:
  56 days ____
  154 days ____

Litter weight, lbs.:
  Birth ____
  56 days ____
  154 days ____

Average backfat, inches ____

Average weight backfat, lbs. ____

Average age, days ____

Average daily gain, lbs. ____

TABLE I

SUMMARY OF THE PERFORMANCE OF STRAIGHTBRED AND CROSSBRED PIGS
AMES PLANTATION, FALL 1956

	Breeding of Pigs				
	Hampshire	Duroc	Landrace	H x D	H x PL
Number of litters	10	10	6	4	7
Number of pigs per litter:					
Farrowed	10.0	9.5	5.7	11.2	10.3
56 days	8.5	7.2	3.5	9.8	8.7
154 days	8.5	7.0	3.3	9.8	8.7
Pig survival per cent					
56 day	85	87	67	87	86
154 day	85	84	63	87	86
Average pig wt., lbs.					
Birth	3.2	3.2	3.5	2.85	3.2
56 days	35	35	33	38	47
154 days	165	166	154	179	200
Average litter wt., lbs.					
Birth	30	26	18	32	30
56 days	322	238	117	370	390
154 days	1526	1142	510	1752	1694
Average backfat thickness, inches	1.87	1.90	1.40	1.78	1.66
Average wt. backfat taken	213	214	195	222	236
Average age, days	187	182	192	178	172
Age, minimum and maximum, days	175-201	169-202	178-217	167-183	169-175
Average daily gain, birth to market	1.13	1.16	1.00	1.23	1.35

TABLE II

SUMMARY OF THE PERFORMANCE OF STRAIGHTBRED AND CROSSBRED PIGS BY DIFFERENT BOARS
AMES PLANTATION, FALL 1956

Breed of boar	Hampshire, 20-1		Hampshire, Monarch Packer		Duroc, 1372	Landrace, 3323
Breeding of sow	Hampshire	P x L	Hampshire	Duroc	Duroc	Landrace
Number of litters	4	6	6	4	10	6
Number of pigs per litter:						
Farrowed	11.2	10.2	9.2	11.2	9.5	5.7
56 days	10.0	8.3	8.7	9.8	7.2	3.5
154 days	10.0	9.3	8.7	9.8	7.0	3.3
Pig survival per cent						
56 days	89	86	94.5	87	87	67
154 days	89	86	94.5	87	84	63
Average pig wt., lbs.:						
Birth	3.5	3.1	2.9	2.8	3.2	3.5
56 days	35	47	35	38	35	33
154 days	165	202	165	179	166	154
Average litter wt. lbs.:						
Birth	35	28	26	32	26	18
56 days	352	370	302	370	238	117
154 days	1658	1627	1438	1752	1142	510
Average backfat thickness, inches	1.88	1.66	1.87	1.78	1.90	1.40
Average wt. backfat taken	220	237	209	222	214	195
Average age, days	188	172	186	178	182	192
Minimum and maximum days					169-202	178-217
Average daily gain birth to market	1.15	1.36	1.12	1.23	1.16	1.00

TABLE III

PERFORMANCE OF DUROC SOWS FROM DIFFERENT SOURCES BRED TO THE SAME DUROC BOAR
AMES PLANTATION, FALL 1956

	Source - I	Source - N	Difference
Number of litters	5	5	
Number of pigs per litter:			
Farrowed	9.2	9.8	.6 (N)
56 days	6.6	7.8	1.2 (N)
154 days	6.4	7.6	1.2 (N)
Pig survival, per cent:			
56 days	80	93	13 (N)
154 days	78	90	12 (N)
Average pig weight, lbs.:			
Birth	2.9	3.5	.6 (N)
56 days	32	38	6 (N)
154 days	158	173	15 (N)
Average litter weight, lbs.:			
Birth	21	30	9 (N)
56 days	186	290	104 (N)
154 days	971	1312	341 (N)
Average backfat thickness, inches	1.94	1.94	-
Average weight backfat taken, lbs.	206	222	16 (N)
Average age, days	183	180	3 (I)
Average daily gain, birth to market, lbs.	1.11	1.21	.10 (N)

TABLE IV

PERFORMANCE OF HAMPSHIRE AND CROSSBRED SOWS BRED TO THE SAME HAMPSHIRE BOAR
AMES PLANTATION, FALL 1956

Breeding of Sows	Hampshire	P x L	Difference
Number of litters	4	6	
Number of pigs per litter:			
Farrowed	11.2	10.2	1 (H)
56 days	10.0	8.3	1.7 (H)
154 days	10.0	8.3	1.7 (H)
Pig survival, per cent:			
56 days	89	86	3 (H)
154 days	89	86	3 (H)
Average pig wt. lbs.:			
Birth	3.5	3.1	.4 (H)
56 days	35	47	12 (L x P)
154 days	165	202	37 (L x P)
Average litter weight, lbs.:			
Birth	35	28	7 (H)
56 days	352	370	22 (L x P)
154 days	1658	1627	31 (H)
Average backfat thickness, inches	1.88	1.66	.22 (H)
Average wt. backfat taken, lbs.	220	237	17 (L x P)
Average age, days	188	172	16 (H)
Average daily gain, birth to market, lbs.	1.15	1.36	.26 (L x P)

TABLE V

COMPARISON OF THE BEST AND POOREST PERFORMANCE RECORDS AMONG THE DIFFERENT BREEDING GROUP ACCORDING TO VARIOUS PERFORMANCE ITEMS
AMES PLANTATION, FALL 1956

	Best Performance		Poorest Performance		
	Performance Record	Breeding Group	Performance Record	Breeding Group	Difference
Number of pigs per litter:					
Farrowed	11.2	(H x D)	5.7	(Land.)	5.5
56 days	9.8	(H x D)	3.5	(Land.)	6.3
154 days	9.8	(H x D)	3.3	(Land.)	6.5
Pig survival per cent:					
56 days	87	(H x D)	67	(Land.)	20
154 days	87	(H x D)	63	(Land.)	24
Average pig weight, lbs.:					
Birth	3.5	(Land.)	2.85	(H x D)	.65
56 days	47	(L x P x H)	33	(Land.)	14
154 days	200	(L x P x H)	154	(Land.)	46
Average litter weight, lbs.:					
Birth	32	(H x D)	18	(Land.)	14
56 days	390	(L x P x H)	117	(Land.)	173
154 days	1752	(H x D)	510	(Land.)	1242
Average backfat thickness, inches	1.4	(Land.)	1.9	(Duroc)	.5
Average wt. backfat taken, lbs.	236	(L x P x H)	195	(Land.)	41
Average age, days	172	(L x P x H)	192	(Land.)	20
Average daily gain, birth to market, lbs.	1.35	(L x P x H)	1.00	(Land.)	.35