

# *Pasture Studies With Swine*

**influence of level of concentrate feeding  
on growth, efficiency of production  
and carcass characteristics**

by

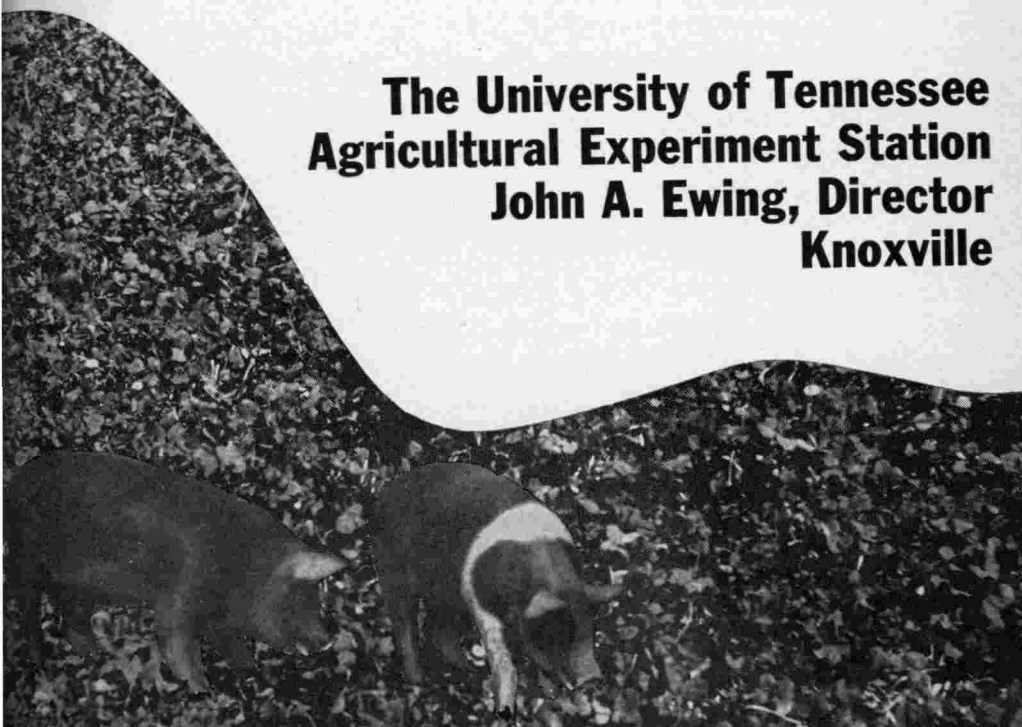
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## ***SUMMARY***

Eight different feeding experiments with growing and finishing swine were conducted during the period 1949 to 1951. All of these experiments included the following treatments: full feed in drylot; full feed on pasture; 80 percent full feed on pasture; and 60 percent full feed on pasture. A total of 365 pigs were fed in these experiments—178 at the Middle Tennessee Experiment Station and 187 at the main station at Knoxville.

Rations of corn and protein supplement were fed in six experiments and grain sorghum and protein supplement in two experiments. Three experiments included extra treatments of corn without protein supplement. The results of these experiments show that:

1. Pigs on a full feed of concentrates—including protein supplement—on pasture made somewhat faster gains, reached market weight sooner and required less concentrates for 100 pounds of gain than pigs on a full feed in drylot. Carcasses of pigs on a full feed of concentrates whether in drylot or on pasture were about the same in desirability.
2. Pigs on pasture receiving 80 percent and 60 percent of a full feed of concentrates made lower daily gains and required longer to reach market weight but required significantly less concentrates for each 100 pounds of gain as compared to pigs on full feed either in drylot or on pasture. Dressing percentages of pigs fed limited amounts of concentrates were lower than those of pigs on full feed, but limited-fed pigs produced leaner carcasses with less backfat, less fat trim and a higher percentage of primal cuts.
3. Pigs on pasture fed corn without a protein supplement gained slower and produced less desirable carcasses than pigs on pasture receiving a protein supplement in addition to corn.
4. Growth rate, feed requirements and carcass quality were similar for pigs fed either corn or grain sorghum with protein supplement.
5. The six different pastures (alfalfa, Ladino clover, Louisiana white clover, button clover and ryegrass, Crimson clover and oats, and Crimson clover and ryegrass) used in these experiments produced similar results in terms of growth rate, concentrate requirements for 100 pounds of gain, and carcass characteristics.

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# **PASTURE STUDIES with SWINE**

## **Influence of Level of Concentrate Feeding on Growth, Efficiency of Production and Carcass Characteristics**

### **INTRODUCTION**

#### **Low-Cost Feeds**

#### **Reduce Pork Costs**

The producer of market hogs constantly faces the problem of reducing costs and producing pork as cheaply as possible so that he can compete with producers of other meats. Since feed costs represent about 80-85 percent of the total costs and 85-90 percent of the costs during the growing and finishing period, the producer must continually seek new methods of feeding which will reduce these costs.

The pig is inherently one of the most efficient animals in the utilization of concentrates which are high in energy, but also relatively high in price. Limited data indicate that swine also effectively utilize limited quantities of high quality forages, including pastures. The importance of good pastures for all swine has been demonstrated conclusively in many experiments and on numerous successful swine farms. Not all of the nutrients required by swine are as yet positively known.

However, research has shown that young growing plants are one of the best sources of many identified as well as unidentified nutrients required by swine. Therefore, one way to provide adequate rations is to supply the major nutrients that are known to be essential and to put the animals on a good pasture from which they may obtain the balance of their requirements. Thus, high quality pastures may lower swine production costs by:

1. Providing nutrients that are not present in adequate amounts in certain drylot rations.
2. Providing some of the other nutrients at lower cost.
3. Facilitating a rigid sanitation program to help control diseases and parasites.

## **Pasture Produces**

### **Hogs in Market Demand**

Interest in the use of pasture in the rations of growing and finishing swine has been greatly stimulated by the development of new and improved pastures, year-round pasture programs and increasing market demands for a leaner hog. Limited feeding of concentrates to growing and finishing hogs on pasture would seem to offer the following important practical possibilities:

1. More economical production of pork.
2. Reduction in the amount of protein supplement required.
3. Production of carcasses with less fat and more lean.

### **Hogs on Pasture**

#### **Save 5-10% Grain, 30-40% Supplement**

Work pertaining to feeding of concentrates to growing and finishing pigs on pasture has been reviewed by Morrison (1948) and Zeller (1948). Their studies show that good pasture will save 5-10 percent of the grain and 30-40 percent of the protein supplement required when pigs are full-fed on pasture, as compared with full feeding in drylot. Studies by Mansfield and Trehane (1935), McMeekan and Hammond (1940), and Winters et al. (1949) indicate that the time for restricted concentrate feeding is during the finishing period. McMeekan and Hammond (1940) reported that rapid early growth and slower later gains intensified early developing tissues (skeletal framework and muscle) and inhibited later developing tissues (fat). They found that restricted feeding during early life followed by full feeding during the finishing period produced pigs with too much fat and poorly developed lean meat.

## **PURPOSE OF EXPERIMENTS**

These investigations were undertaken to obtain information on the use of high-quality pasture in the rations of growing and finishing pigs. Specifically the objectives were:

1. To investigate the extent to which high-quality pastures may be substituted for concentrates in the rations of growing and finishing pigs.
2. To compare the rate of gains and the economy of production of pigs on high-quality pasture when fed at various levels of concentrate intake.

3. To compare carcass characteristics and quality of pigs on pasture when fed at various levels of concentrate intake.
4. To compare the value of different kinds of pasture in the growing and finishing of pigs.

## EXPERIMENTAL PROCEDURE

### Swine Tests With 8 Separate Experiments

Experiments were begun in the summer of 1949 by the Animal Husbandry-Veterinary Science Department, University of Tennessee, on the main station at Knoxville and the Middle Tennessee Experiment Station, at Columbia. Eight separate experiments were conducted at these locations using the following four treatments:

1. Full feed in drylot
2. Full feed on pasture
3. 80 percent of full feed on pasture, and
4. 60 percent of full feed on pasture

Each treatment was run in duplicate in each experiment and there were 3 to 5 pigs in each lot, making a total of 6 to 10 pigs per treatment.

**Pigs Used.** All pigs in these experiments were produced at the main station, Knoxville, and were of known breeding, origin and history. Both barrows and gilts were used. The pigs used at Columbia were shipped from Knoxville soon after weaning. All pigs were full-fed on pasture from weaning time until they were placed on test. Experiments conducted in the summer of 1949 included Hampshire and crossbred (Hampshire X Duroc) pigs at Knoxville, but only Hampshire pigs at Columbia. In the winter of 1950, Hampshire pigs were used at Knoxville and Hampshire and Landroc (Landrace X Duroc) pigs were used at Columbia. In the summer of 1950 and the winter of 1951, Hampshire pigs were used at Knoxville and both Hampshire and Duroc pigs were used at Columbia.

**Rations.** Ground yellow corn (No. 2 dent) was fed in all experiments except tests conducted in the winters of 1950 and 1951 at Columbia in which grain sorghum was used as the grain concentrate. The protein supplement in all tests consisted of a mixture of equal parts of tankage (50 percent protein) and

expeller process soybean oil meal (45 percent protein). Good quality alfalfa meal equivalent to 10 percent of the protein supplement was fed in drylot rations only. A mineral mixture was self-fed to all lots and was composed of 50 percent granulated salt, 25 percent steamed bone meal, and 25 percent pulverized limestone.

The percentage of calculated total crude protein in the rations fed to pigs in drylot and on pasture was adjusted within treatments at 2 week intervals to conform with the levels of protein for various body weights as specified in Table 1.

Table 1 — *Percentage of Protein in Rations Fed at Various Body Weights of Pigs*

| Weight of Pigs<br>lb. | Crude Protein in Ration |         |
|-----------------------|-------------------------|---------|
|                       | Drylot                  | Pasture |
| Weaning - 80          | 22                      | 20      |
| 80 - 120              | 17                      | 15      |
| 120 - 160             | 15                      | 13      |
| 160 - 200             | 14                      | 12      |
| 200 - 225             | 13                      | 11      |

The pigs on full feed were fed all of the concentrates they would consume in self-feeders. Pigs on limited feed in the experiments at Columbia were hand-fed once daily in self feeders, while pigs at Knoxville were hand-fed twice daily (morning and evening) in open troughs. All pigs were weighed every 14 days. Also, the concentrate intake of the pigs on 80 percent and 60 percent of full feed on pasture was adjusted so that the pigs on limited feed on pasture were consuming about 80 and 60 percent as much concentrates as the pigs on full feed at similar body weights.

#### 4 Clovers, Ryegrass, Oats Used in Experiments

**Pastures.** At Columbia, Ladino clover and Louisiana white clover were used in summer tests, and mixtures of Button clover and ryegrass and crimson clover and ryegrass in winter tests. Alfalfa was used in summer tests and a mixture of crimson clover and winter oats in winter tests at Knoxville. An effort was made to supply pasture so that the pigs in all lots had plenty of forage at all times. Pasture lots at Columbia were all about one-fourth acre in size. At Knoxville, the size of the lots varied from one-fourth to one-half acre depending upon the pasture stand and amount of forage available.

**Carcass Data.** The carcass of each individual pig was measured except in some tests in which gilts of desirable type and conformation were saved for herd placements. All pigs were fed to a final weight of 200-225 pounds and then individually removed from the tests for slaughter as they reached this weight. All pigs were dressed packer style (head off, hams faced and leaf fat removed), except in the first summer test at Columbia (Appendix Table 4) in which the pigs were dressed a modified shipper style (head on, hams not faced and leaf fat in). Standard cutting procedures were used in cutting carcasses in all experiments.

Carcass data obtained included dressing percentage, percentage of primal cuts on both a live weight and carcass basis, percentages of the four primal cuts (ham, loin, belly and regular shoulder), carcass length, depth and width, backfat thickness, carcass firmness grade, and carcass color grade. Dressing percentage was calculated from slaughter or kill weight (24 hour shrink) and chilled carcass weight (24 hour chill at 35 degrees F).

Backfat thickness was calculated by averaging three measurements taken at the first rib, last rib and last lumbar vertebrae. Carcass length was measured as the distance from the anterior edge of the first rib to the anterior edge of the aitch bone. Carcass depth was measured as the distance from skin to skin at approximately the deepest point in a plane perpendicular to the width measurement. Carcass width was measured as the distance (width) from skin to skin at the widest point. Carcass firmness grade was determined manually after a 24 hour chill at 35 degrees F. (Grades: Hard, Medium Hard, Medium Soft and Soft).

Carcass color grades were determined visually after a 24 hour chill (Grades: Excellent, Good, Slightly Shady, Shady and Dark). At Knoxville, the East Tennessee Packing Company cooperated in obtaining much of the carcass data in tests conducted the summer of 1949 and the winter of 1950, and the Park-Harris Packing Company cooperated in all tests at Columbia. Pigs in experiments at Knoxville in the summer of 1950 and the winter of 1951 were slaughtered in the Meats Laboratory of the University of Tennessee.

## RESULTS

Complete data for each of the eight experiments are reported in Appendix Tables 1 to 16. For ease of study and interpretation, data from experiments with similar treatments have been combined in summary tables. Data will be discussed separately for

(A) growth performance and efficiency of production and (B) carcass characteristics.

### A. Growth Performance and Efficiency of Gain

Six experiments involving the use of rations composed of corn and protein supplement are summarized in Table 2, and two experiments involving the use of rations containing grain sorghum and protein supplement are summarized in Table 3. Three of the experiments included in Table 2 had additional treatments in which corn was fed without protein supplement. These three experiments are summarized separately in Table 4 to compare the performance of pigs fed corn with and without a protein supplement.

Table 2—*Performance of Pigs Fed Corn and Protein Supplement in Drylot and on Pasture at Various Levels of Concentrate Intake<sup>a</sup>*

| Number, Days on Test,<br>Weights, Gain, Feeds<br>Cost of Gain               | Level of Concentrate Intake |                            |                                |                                |
|-----------------------------------------------------------------------------|-----------------------------|----------------------------|--------------------------------|--------------------------------|
|                                                                             | Full feed<br>in<br>drylot   | Full feed<br>on<br>pasture | 80% full<br>feed on<br>pasture | 60% full<br>feed on<br>pasture |
| No. of pigs .....                                                           | 41                          | 51                         | 52                             | 52                             |
| Av. no. of days on test .....                                               | 84.6                        | 78.8                       | 95.1**                         | 109.3**                        |
| Time on test with drylot = 100% ..                                          | 100.0                       | 93.1                       | 112.4                          | 129.2                          |
| Av. initial wt., lb. ....                                                   | 75.5                        | 75.3                       | 75.2                           | 76.0                           |
| Av. final wt., lb. ....                                                     | 209.2                       | 210.2                      | 210.0                          | 209.0                          |
| Av. daily gain, lb. ....                                                    | 1.58                        | 1.71                       | 1.42                           | 1.22*                          |
| Daily gain with drylot = 100% .....                                         | 100.0                       | 108.2                      | 89.9                           | 77.2                           |
| Av. daily feed consumed, lb. ....                                           | 6.31                        | 6.23                       | 4.77                           | 3.69                           |
| Av. feed required per 100 lb. gain<br>(exclusive of pasture), lb.           |                             |                            |                                |                                |
| Corn .....                                                                  | 309.3                       | 306.0                      | 284.3                          | 257.3                          |
| Tankage .....                                                               | 39.9                        | 27.7                       | 25.3                           | 22.4                           |
| SBOM .....                                                                  | 39.9                        | 27.7                       | 25.3                           | 22.4                           |
| Alfalfa meal .....                                                          | 8.5                         |                            |                                |                                |
| Total .....                                                                 | 397.6                       | 361.4*                     | 334.9**                        | 302.1**                        |
| Feed required with<br>drylot = 100% .....                                   | 100.0                       | 90.9                       | 84.2                           | 76.0                           |
| Av. feed cost per 100 lb. gain<br>(exclusive of pasture) <sup>b</sup> ..... | \$13.36                     | \$11.94                    | \$11.05                        | \$ 9.96                        |

<sup>a</sup>Combined summary of the data from 6 experiments at the Knoxville and Columbia Stations of the University of Tennessee Agricultural Experiment Station in the summers of 1949, 1950 and winters of 1950, 1951. See Appendix Tables 1, 3, 5, 9, 11, and 13.

<sup>b</sup>Av. prices prevailing over the six experiments:

|                        |                |
|------------------------|----------------|
| Corn .....             | \$ 1.72 bushel |
| Tankage .....          | 104.00 ton     |
| Soybean oil meal ..... | 80.00 ton      |
| Alfalfa meal .....     | 45.00 ton      |

\*Significant at the 5% level when compared with full feed in drylot.

\*\*Significant at the 1% level when compared with full feed in drylot.

**Pigs receiving full feed** on pasture reached market weight several days sooner and showed a somewhat higher average daily gain than the pigs that received full feed in drylot (Tables 2 and 3). These differences, however, were not statistically significant. Pigs fed corn and supplement in drylot and on pasture required 397.6 pounds and 361.4 pounds of concentrates, respectively, for each 100 pounds of gain (Table 2). The difference of 36.2 pounds was significant. Pigs full-fed grain sorghum and supplement on pasture required 363.3 pounds of concentrates for 100 pounds of gain compared with 404.8 pounds for pigs on full feed in drylot (Table 3).

Table 3—*Performance of Pigs Fed Grain Sorghum and Protein Supplement in Drylot and Pasture at Various Levels of Concentrate Intake<sup>a</sup>*

| Number, Days on Test,<br>Weights, Gain, Feeds<br>Costs of Gain    | Level of Concentrate Intake                    |                                                            |                                                             |                                                                 |                                                                 |
|-------------------------------------------------------------------|------------------------------------------------|------------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|
|                                                                   | Full feed<br>corn +<br>supplement<br>in drylot | Full feed<br>grain<br>sorghum +<br>supplement<br>in drylot | Full feed<br>grain<br>sorghum +<br>supplement<br>on pasture | 80% full<br>feed grain<br>sorghum +<br>supplement<br>on pasture | 60% full<br>feed grain<br>sorghum +<br>supplement<br>on pasture |
| No. of pigs                                                       | 11                                             | 12                                                         | 24                                                          | 23                                                              | 24                                                              |
| Av. no. of days on test                                           | 114.9                                          | 114.7                                                      | 107.2                                                       | 121.8                                                           | 137.7**                                                         |
| Time on test with<br>drylot = 100%                                | 100.0                                          | 99.8                                                       | 83.3                                                        | 106.0                                                           | 119.8                                                           |
| Av. initial wt., lb.                                              | 51.9                                           | 51.3                                                       | 51.6                                                        | 51.1                                                            | 51.7                                                            |
| Av. final wt., lb.                                                | 226.1                                          | 226.1                                                      | 223.3                                                       | 225.4                                                           | 219.6                                                           |
| Av. daily gain, lb.                                               | 1.52                                           | 1.53                                                       | 1.60                                                        | 1.44                                                            | 1.23*                                                           |
| Daily gain with<br>drylot = 100%                                  | 100.0                                          | 100.6                                                      | 105.3                                                       | 94.7                                                            | 80.9                                                            |
| Av. daily feed<br>consumed, lb.                                   | 5.78                                           | 6.22                                                       | 5.80                                                        | 4.46                                                            | 3.40                                                            |
| Av. feed required/100 lb.<br>gain (exclusive of<br>pasture), lb.  |                                                |                                                            |                                                             |                                                                 |                                                                 |
| Corn                                                              | 289.0                                          |                                                            |                                                             |                                                                 |                                                                 |
| Grain sorghum                                                     |                                                | 315.6                                                      | 312.3                                                       | 265.7                                                           | 238.4                                                           |
| Tankage                                                           | 41.6                                           | 40.5                                                       | 25.5                                                        | 22.3                                                            | 19.6                                                            |
| SBOM                                                              | 41.6                                           | 40.5                                                       | 25.5                                                        | 22.3                                                            | 19.6                                                            |
| Alfalfa meal                                                      | 8.4                                            | 8.2                                                        |                                                             |                                                                 |                                                                 |
| Total                                                             | 380.6                                          | 404.8                                                      | 363.3                                                       | 310.3*                                                          | 277.6**                                                         |
| Feed required with<br>drylot = 100%                               | 100.0                                          | 106.4                                                      | 95.4                                                        | 81.5                                                            | 72.9                                                            |
| Av. feed cost/100 lb. gain<br>(exclusive of pasture) <sup>b</sup> | \$12.29                                        | \$12.02                                                    | \$10.35                                                     | \$ 8.86                                                         | \$ 7.91                                                         |

<sup>a</sup>Combined summary of data from two experiments conducted at the Columbia Station of the University of Tennessee Agricultural Experiment Station in the winters of 1950 and 1951. See Appendix Tables 7 and 15.

<sup>b</sup>Average prices prevailing over the two experiments:

|                  |                |
|------------------|----------------|
| Corn             | \$ 1.56 bushel |
| Grain Sorghum    | 1.41 bushel    |
| Tankage          | 114.00 ton     |
| Soybean oil meal | 80.50 ton      |
| Alfalfa meal     | 44.00 ton      |

\*Significant at 5% when compared with a full feed of corn plus supplement in drylot.

\*\*Significant at 1% level when compared with a full feed of corn plus supplement in drylot.

Table 4—*Performance of Pigs Fed Corn and Protein Supplement and Corn Only in Drylot and on Pasture at Various Levels of Concentrate Intake\**

| Number, Days on Test,<br>Weights, Gain, Feeds<br>Costs of Gain                  | Level of Concentrate Intake                    |                                                 |                                      |                                    |                            |                                    |                            |
|---------------------------------------------------------------------------------|------------------------------------------------|-------------------------------------------------|--------------------------------------|------------------------------------|----------------------------|------------------------------------|----------------------------|
|                                                                                 | Full feed<br>corn +<br>supplement<br>in drylot | Full feed<br>corn +<br>supplement<br>on pasture | Full feed<br>corn only<br>on pasture | 80% Full Feed                      |                            | 60% Full Feed                      |                            |
|                                                                                 |                                                |                                                 |                                      | Corn +<br>supplement<br>on pasture | Corn<br>only on<br>pasture | Corn +<br>supplement<br>on pasture | Corn<br>only on<br>pasture |
| No. of pigs .....                                                               | 23                                             | 21                                              | 21                                   | 22                                 | 22                         | 22                                 | 22                         |
| Av. number of days on test .....                                                | 85.9                                           | 78.0                                            | 100.8                                | 96.4                               | 105.6*                     | 113.5**                            | 116.1**                    |
| Time on test with drylot = 100% .....                                           | 100.0                                          | 90.8                                            | 117.3                                | 112.2                              | 122.9                      | 132.1                              | 135.2                      |
| Av. initial weight, lb. ....                                                    | 72.6                                           | 72.8                                            | 73.0                                 | 72.8                               | 73.6                       | 73.4                               | 73.4                       |
| Av. final weight, lb. ....                                                      | 205.2                                          | 206.2                                           | 199.1                                | 205.0                              | 205.5                      | 203.7                              | 199.0                      |
| Av. daily gain, lb. ....                                                        | 1.54                                           | 1.72                                            | 1.25*                                | 1.38                               | 1.25*                      | 1.15**                             | 1.08**                     |
| Daily gain with drylot = 100% .....                                             | 100.0                                          | 111.7                                           | 81.2                                 | 89.6                               | 81.2                       | 74.7                               | 70.1                       |
| Av. daily feed consumed, lb. ....                                               | 6.01                                           | 5.94                                            | 4.72                                 | 4.70                               | 4.55                       | 3.63                               | 3.55                       |
| Av. feed required per 100 lb. gain<br>(exclusive of pasture) lb. ....           |                                                |                                                 |                                      |                                    |                            |                                    |                            |
| Corn .....                                                                      | 312.1                                          | 298.3                                           | 381.7                                | 294.1                              | 362.7                      | 272.8                              | 328.5                      |
| Tankage .....                                                                   | 35.8                                           | 23.9                                            | —                                    | 23.9                               | —                          | 22.1                               | —                          |
| SBOM .....                                                                      | 35.8                                           | 23.9                                            | —                                    | 23.9                               | —                          | 22.1                               | —                          |
| Alfalfa meal .....                                                              | 8.3                                            | —                                               | —                                    | —                                  | —                          | —                                  | —                          |
| Total .....                                                                     | 391.2                                          | 346.2*                                          | 381.7                                | 341.9**                            | 362.7                      | 317.0**                            | 328.5**                    |
| Feed required with drylot = 100% .....                                          | 100.0                                          | 88.5                                            | 97.6                                 | 87.4                               | 92.7                       | 81.0                               | 84.0                       |
| Av. feed cost per 100 lb. gain<br>(exclusive of pasture) lb. <sup>b</sup> ..... | \$13.23                                        | \$11.52                                         | \$11.94                              | \$11.39                            | \$11.35                    | \$10.56                            | \$10.28                    |

\*Combined summary of the data from 3 experiments conducted at the Knoxville Station of the University of Tennessee Agricultural Experiment Station in the summers of 1949, 1950 and winter of 1951. See Appendix Tables 1, 9, and 13.

<sup>b</sup>Av. prices prevailing over the 3 experiments:

|                  |                |              |              |
|------------------|----------------|--------------|--------------|
| Corn             | \$ 1.75 bushel | Tankage      | \$103.00 ton |
| Soybean oil meal | 80.00 ton      | Alfalfa meal | 44.00 ton    |

\*Significant at the 5% level when compared with full feed of corn plus supplement in drylot.

\*\*Significant at the 1% level when compared with full feed of corn plus supplement in drylot.

**Pigs fed 60 percent** of a full feed of concentrates on pasture, including pigs fed either corn and supplement or grain sorghum and supplement (Tables 2 and 3), required a significantly longer period to reach market weight and had significantly slower average daily gains than did the pigs on a full feed of concentrates in drylot. They required, however, significantly less concentrates for each 100 pounds of gain. Concentrate requirements per 100 pounds of gain for pigs fed 60 percent of full feed of corn and supplement or grain sorghum and supplement on pasture were 24 percent and 27.1 percent less, respectively, compared with requirements of pigs on full feed in drylot.

**Pigs receiving 80 percent** of full feed on pasture were intermediate in performance between pigs in drylot on full feed and pigs on pasture receiving 60 percent of full feed. The amount of concentrates required per 100 pounds of gain for pigs receiving 80 percent full feed of corn and supplement on pasture (Table 2) was 52.7 pounds, or 15.8 percent less than for pigs on full feed in drylot. This difference was highly significant. For pigs fed grain sorghum and supplement (Table 3), the difference in concentrate requirements for 100 pounds of gain between 80 percent full feed on pasture and full feed in drylot was 70.3 pounds or 18.5 percent (significant at 5 percent level).

**Performance of pigs in drylot fed grain sorghum** and supplement compared very favorably with performance of pigs receiving corn and supplement in drylot (Table 3). There was essentially no difference in the number of days required to reach market weight or in the average daily gains. The pigs fed grain sorghum required 24.2 pounds more concentrates per 100 pounds of gain than did those receiving corn, but this difference was not significant. It should be pointed out that the pigs used in the experiments summarized in Table 3 were smaller in size at the beginning of the experiments (about 50 pounds in weight)—compared with those in experiments reported in Table 2, which averaged about 75 pounds each. For this reason the time required to reach market weight was considerably longer in the experiments reported in Table 3.

**Pigs on pasture receiving a full feed of corn without protein supplement** required longer to reach market weight and required more feed per 100 pounds of gain than pigs receiving a full feed of corn and supplement either on pasture or drylot. The differences, however, were not large enough to be statistically significant (Table 4). The average daily gain of the pigs on pasture receiving no supplement was significantly lower, however, than the gain of those receiving supplement in drylot. It should be pointed out that the five pigs in one lot at Knoxville during the summer of 1949 suffered a mild attack of gastro-enteritis

Table 5 — *Performance of Pigs on Different Pastures at the Various Levels of Feeding*

| Type Pastures and Feed                      | No. of pigs | Av. no. of days on test | Av. initial weight (lb.) | Av. daily gain (lb.) | Feed per 100 lb. gain (lb.) |
|---------------------------------------------|-------------|-------------------------|--------------------------|----------------------|-----------------------------|
| <b>Summer Pastures:</b>                     |             |                         |                          |                      |                             |
| Alfalfa <sup>a</sup>                        |             |                         |                          |                      |                             |
| Full feed .....                             | 15          | 75.1                    | 70.2                     | 1.80                 | 342.2                       |
| 80% full feed .....                         | 16          | 95.5                    | 68.4                     | 1.38                 | 340.0                       |
| 60% full feed .....                         | 16          | 118.2                   | 70.7                     | 1.11                 | 332.3                       |
| Average .....                               |             | 96.3                    | 69.9                     | 1.43                 | 338.2                       |
| Ladino clover <sup>a</sup>                  |             |                         |                          |                      |                             |
| Full feed .....                             | 12          | 90.2                    | 61.4                     | 1.66                 | 365.8                       |
| 80% full feed .....                         | 12          | 99.5                    | 61.2                     | 1.46                 | 316.8                       |
| 60% full feed .....                         | 12          | 116.8                   | 63.1                     | 1.26                 | 296.9                       |
| Average .....                               |             | 102.6                   | 61.9                     | 1.46                 | 326.5                       |
| Louisiana white clover <sup>a</sup>         |             |                         |                          |                      |                             |
| Full feed .....                             | 12          | 88.0                    | 63.6                     | 1.68                 | 373.2                       |
| 80% full feed .....                         | 12          | 107.2                   | 62.8                     | 1.38                 | 347.2                       |
| 60% full feed .....                         | 12          | 120.4                   | 64.0                     | 1.24                 | 302.4                       |
| Average .....                               |             | 105.2                   | 63.5                     | 1.44                 | 340.9                       |
| <b>Winter Pastures:</b>                     |             |                         |                          |                      |                             |
| Button Clover and ryegrass <sup>b</sup>     |             |                         |                          |                      |                             |
| Full feed .....                             | 12          | 111.0                   | 50.9                     | 1.56                 | 372.0                       |
| 80% full feed .....                         | 12          | 119.8                   | 50.6                     | 1.49                 | 303.2                       |
| 60% full feed .....                         | 12          | 142.2                   | 51.0                     | 1.20                 | 284.6                       |
| Average .....                               |             | 124.4                   | 50.8                     | 1.42                 | 320.0                       |
| Crimson clover and ryegrass <sup>b</sup>    |             |                         |                          |                      |                             |
| Full feed .....                             | 12          | 104.2                   | 50.6                     | 1.66                 | 351.7                       |
| 80% full feed .....                         | 11          | 126.4                   | 50.0                     | 1.38                 | 320.8                       |
| 60% full feed .....                         | 12          | 137.8                   | 50.5                     | 1.24                 | 275.6                       |
| Average .....                               |             | 122.8                   | 50.4                     | 1.43                 | 316.0                       |
| Crimson clover and winter oats <sup>a</sup> |             |                         |                          |                      |                             |
| Full feed .....                             | 12          | 73.2                    | 94.5                     | 1.68                 | 377.2                       |
| 80% full feed .....                         | 12          | 86.6                    | 94.9                     | 1.48                 | 331.3                       |
| 60% full feed .....                         | 12          | 88.8                    | 95.1                     | 1.36                 | 267.1                       |
| Average .....                               |             | 82.9                    | 94.8                     | 1.51                 | 325.2                       |

<sup>a</sup>Corn and supplement fed in rations to pigs on these pastures.

<sup>b</sup>Grain Sorghum and supplement fed in rations to pigs on these pastures.

Table 6—*Carcass Data from Pigs Fed Corn and Protein Supplement in Drylot and on Pasture at Various Levels of Concentrate Intake*

| Number. Weights,<br>Carcass Measurements<br>and Quality | Level of Concentrate Intake         |                            |                                |                                |  |  |  |  |
|---------------------------------------------------------|-------------------------------------|----------------------------|--------------------------------|--------------------------------|--|--|--|--|
|                                                         | Full feed<br>in<br>drylot           | Full feed<br>on<br>pasture | 80% full<br>feed on<br>pasture | 60% full<br>feed on<br>pasture |  |  |  |  |
| Number of pigs .....                                    | 17                                  | 34                         | 38                             | 38                             |  |  |  |  |
| Av. kill weight, lb. ....                               | 209.4                               | 212.9                      | 212.0                          | 208.9                          |  |  |  |  |
| Av. chilled carcass weight, lb. ....                    | 146.1                               | 148.8                      | 144.9                          | 142.0                          |  |  |  |  |
| Av. dressing percent <sup>a</sup> .....                 | 69.8                                | 69.9                       | 68.3**                         | 68.0**                         |  |  |  |  |
|                                                         | L.W. <sup>b</sup> C.W. <sup>c</sup> | L.W. C.W.                  | L.W. C.W.                      | L.W. C.W.                      |  |  |  |  |
| Av. percent of primal cuts:                             |                                     |                            |                                |                                |  |  |  |  |
| Ham .....                                               | 13.9 19.9                           | 13.5 19.4                  | 14.0 20.1                      | 13.9 20.4                      |  |  |  |  |
| Loin .....                                              | 11.0 15.7                           | 10.9 15.6                  | 10.8 16.0                      | 10.7 16.1                      |  |  |  |  |
| Belly .....                                             | 11.0 15.8                           | 11.0 16.1                  | 10.5** 15.4                    | 10.0** 14.8**                  |  |  |  |  |
| Shoulder .....                                          | 10.8 15.5                           | 11.6** 16.3**              | 11.0 16.1*                     | 11.5** 16.9**                  |  |  |  |  |
| Total .....                                             | 46.7 66.9                           | 47.0 67.4                  | 46.3 67.6                      | 46.1 68.2                      |  |  |  |  |
| Av. percent lean trim .....                             | 5.0 7.0                             | 5.0 7.4                    | 5.2 7.5                        | 5.4 8.2                        |  |  |  |  |
| Av. percent fat trim .....                              | 14.4 20.3                           | 14.8 21.0                  | 13.0 18.6                      | 11.8* 17.6*                    |  |  |  |  |
| Av. length of carcass (inches) <sup>d</sup> .....       | 29.2                                | 29.0                       | 29.0                           | 29.2                           |  |  |  |  |
| Av. depth of carcass (inches) <sup>e</sup> .....        | 13.6                                | 13.7                       | 13.5                           | 13.2                           |  |  |  |  |
| Av. width of carcass (inches) <sup>f</sup> .....        | 10.9                                | 11.0                       | 11.0                           | 10.6                           |  |  |  |  |
| Backfat thickness (inches) <sup>g</sup> .....           | 1.71                                | 1.80                       | 1.59*                          | 1.50**                         |  |  |  |  |
| Av. firmness grade of carcass <sup>h</sup> .....        | Hard—                               | Hard—                      | Med. Hard+                     | Med. Hard                      |  |  |  |  |
| Av. color of lean <sup>i</sup> .....                    | Excellent                           | Excellent—                 | Excellent—                     | Good                           |  |  |  |  |

<sup>a</sup>Dressed packer style—head off, hams faced and leaf fat removed.

<sup>b</sup>Based on live weight.

<sup>c</sup>Based on chilled carcass weight.

<sup>d</sup>Measured from the anterior edge of the 1st rib to the anterior edge of the aitch bone.

<sup>e</sup>Measured at the 7th rib (skin to skin).

<sup>f</sup>Measured at the 7th rib (skin to skin).

<sup>g</sup>Average of 3 measurements including the skin at the 1st rib, last rib and last lumbar vertebra.

<sup>h</sup>Firmness grades: Hard, Medium Hard, Medium Soft, Soft and Oily.

<sup>i</sup>Color grades: Excellent, Good, Slightly Shady, Shady and Dark.

\*Significant at the 5% level when compared with full feed in drylot.

\*\*Significant at the 1% level when compared with full feed in drylot.

and the average daily gain for this lot of pigs was only 1.12 pounds. This helped materially to lower the average for the three experiments summarized in Table 4.

**Pigs on pasture receiving 80 and 60 percent of full feed without protein supplement** required a few more days to reach market weight, showed a smaller average daily gain and required somewhat more concentrates per 100 pounds of gain than did pigs receiving 80 percent and 60 percent of full feed with protein supplement. However, none of these differences were statistically significant (Table 4). Concentrates required per 100 pounds of gain and average daily gain for each of the treatments in Tables 2, 3, and 4, are presented graphically in Figure 2. Those treatments which resulted in differences that were statistically significant—as compared to full feed in drylot—are indicated with one asterisk for the 5 percent level, and two asterisks for the 1 percent level. Figure 2 shows the general similarity in the results obtained for various levels of feeding among the different types of rations.

**The performance of pigs on the different kinds of pastures** at various levels of feeding are summarized in Table 5. There were no significant differences among the six different pastures studied (three summer pastures and three winter pastures) for average daily gains or for feed required for 100 pounds of gain when all levels of concentrate intake were considered.

## **B. Carcass Characteristics of Experimental Swine**

Data on carcasses from five of the experiments summarized in Table 2 are included in Table 6. Data on carcasses in one other experiment included in Table 3 are not included in Table 6. This was the experiment conducted at Columbia in the summer of 1949 and reported in Appendix Table 4. Pigs from this experiment were dressed in a slightly modified shipper style. Data on carcasses from the experiments reported in Table 3 are summarized in Table 7, and data on the carcasses from the experiments reported in Table 4 are given in Table 8. Representative carcasses from pigs full-fed corn and supplement in drylot and fed various levels of concentrates on pasture are shown in Figure 1.

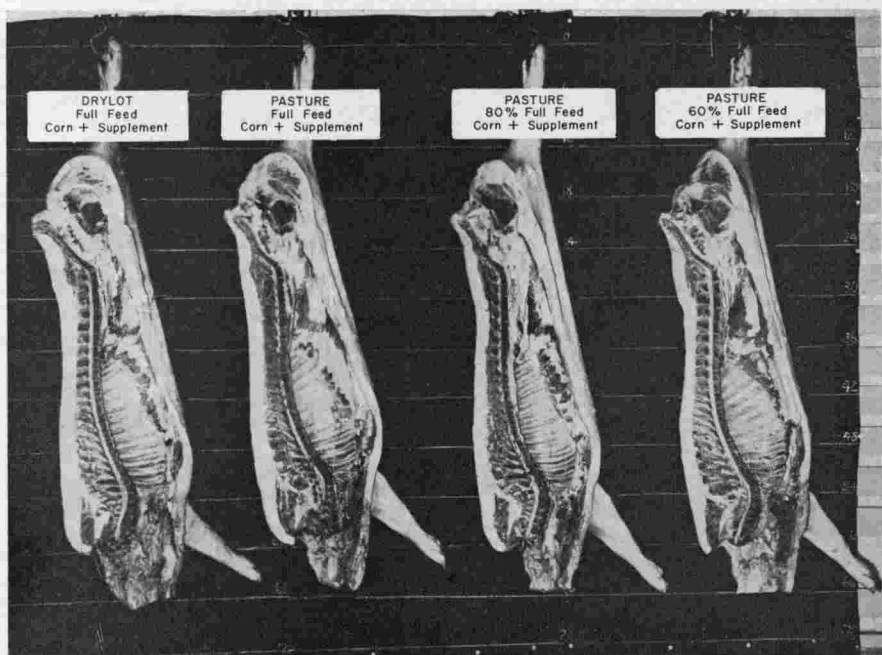


Figure 1. Representative swine carcasses from various levels of feeding in drylot and on pasture. Left to right they show: full feed in drylot; full feed on pasture; 80 percent full feed on pasture; and 60 percent full feed on pasture.

Pigs full-fed either corn or grain sorghum with supplement in drylot or on pasture produced carcasses with essentially the same characteristics (Tables 6 and 7). Differences in dressing percentage, percentages of primal cuts, carcass measurements and carcass quality were not significant. Pigs full-fed on pasture had about 0.1 inch more backfat than pigs in drylot, but this difference was not statistically significant.

Pigs fed limited amounts of concentrates on pasture produced carcasses with somewhat different characteristics than those produced by pigs on full feed either in drylot or on pasture. Comparison of characteristics of carcasses produced by pigs on full feed and limited feed will be made separately.

**Dressing percentages** for pigs fed corn and protein supplement on pasture at 80 percent and 60 percent levels of concentrate intake were 1.5 percent and 1.8 percent lower, respectively, than the dressing percentages for pigs on full

Table 7 — Carcass Data From Pigs Fed Grain Sorghum and Protein Supplement in Drylot and on Pasture at Various Levels of Concentrate Intake

| Number, Weights,<br>Carcass Measurements<br>and Quality | Level of Concentrate Intake                    |                                                            |                                                             |                                                                 |                                                                 |  |
|---------------------------------------------------------|------------------------------------------------|------------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|--|
|                                                         | Full feed<br>corn +<br>supplement<br>in drylot | Full feed<br>grain<br>sorghum +<br>supplement<br>in drylot | Full feed<br>grain<br>sorghum +<br>supplement<br>on pasture | 80% full<br>feed grain<br>sorghum +<br>supplement<br>on pasture | 60% full<br>feed grain<br>sorghum +<br>supplement<br>on pasture |  |
| No. of pigs                                             | 10                                             | 9                                                          | 20                                                          | 19                                                              | 19                                                              |  |
| Av. kill weight, lb.                                    | 227.1                                          | 229.2                                                      | 224.9                                                       | 227.3                                                           | 224.5                                                           |  |
| Av. chilled carcass weight, lb.                         | 161.2                                          | 161.2                                                      | 159.0                                                       | 158.2                                                           | 153.8                                                           |  |
| Av. dressing percent <sup>a</sup>                       | 71.0                                           | 70.4                                                       | 70.7                                                        | 69.7                                                            | 68.5                                                            |  |
|                                                         | L.W. <sup>b</sup> C.W. <sup>c</sup>            | L.W. C.W.                                                  | L.W. C.W.                                                   | L.W. C.W.                                                       | L.W. C.W.                                                       |  |
| Av. percent of primal cuts:                             |                                                |                                                            |                                                             |                                                                 |                                                                 |  |
| Ham                                                     | 14.8 20.8                                      | 14.4 20.4                                                  | 14.6 20.8                                                   | 14.8 21.2                                                       | 14.8 21.7                                                       |  |
| Loin                                                    | 10.0 14.2                                      | 9.7 13.8                                                   | 9.5 13.4                                                    | 9.8 14.2                                                        | 10.4 15.3*                                                      |  |
| Belly                                                   | 10.8 15.4                                      | 10.8 15.3                                                  | 11.5 16.0                                                   | 10.4 15.0                                                       | 9.8* 14.5*                                                      |  |
| Shoulder                                                | 10.0 14.1                                      | 10.2 14.6                                                  | 9.8 13.9                                                    | 10.1 14.4                                                       | 10.2 14.8                                                       |  |
| Total                                                   | 45.6 64.5                                      | 45.1 64.1                                                  | 45.4 64.1                                                   | 45.1 64.8                                                       | 45.2 66.3*                                                      |  |
| Av. percent lean trim                                   | 7.2 10.1                                       | 7.1 10.0                                                   | 7.4 10.6                                                    | 7.0 10.1                                                        | 7.0 10.2                                                        |  |
| Av. percent fat trim                                    | 13.1 18.9                                      | 13.6 19.3                                                  | 13.6 19.3                                                   | 12.4 17.6                                                       | 11.4* 16.6*                                                     |  |
| Av. length of carcass (inches) <sup>d</sup>             | 30.2                                           | 29.4                                                       | 29.8                                                        | 30.3                                                            | 30.7                                                            |  |
| Av. depth of carcass (inches) <sup>e</sup>              | 14.0                                           | 14.2                                                       | 13.8                                                        | 13.4                                                            | 12.8*                                                           |  |
| Av. width of carcass (inches) <sup>f</sup>              | 10.8                                           | 11.0                                                       | 11.0                                                        | 10.7                                                            | 10.4                                                            |  |
| Av. backfat thickness (inches) <sup>g</sup>             | 1.62                                           | 1.72                                                       | 1.68                                                        | 1.57                                                            | 1.44*                                                           |  |
| Av. firmness of carcass <sup>h</sup>                    | Med. Hard                                      | Med. Hard                                                  | Med. Hard+                                                  | Med. Hard                                                       | Med. Hard                                                       |  |
| Av. color of lean <sup>i</sup>                          | Good                                           | Good                                                       | Good+                                                       | Good                                                            | Good                                                            |  |

<sup>a</sup>Dressed packer style—head off, hams faced and leaf fat removed.

<sup>b</sup>Based on live weight.

<sup>c</sup>Based on chilled carcass weight.

<sup>d</sup>Measured from the anterior edge of the 1st rib to the anterior edge of the aitch bone.

<sup>e</sup>Measured at the 7th rib (skin to skin).

<sup>f</sup>Measured at the 7th rib (skin to skin).

<sup>g</sup>Average of 3 measurements including the skin at the 1st rib, last rib and last lumbar vertebra.

<sup>h</sup>Firmness grades: Hard, Medium Hard, Medium Soft, Soft and Oily.

<sup>i</sup>Color grades: Excellent, Good, Slightly Shady, Shady and Dark.

\*Significant at the 5% level when compared with full feed in drylot.

\*\*Significant at the 1% level when compared with full feed in drylot.

feed in drylot (Table 6). These differences were significant at the 1 percent level. The differences in dressing percentages for these same treatments for pigs fed grain sorghum and protein supplement were of the same order and of similar magnitude, but were not statistically significant (Table 7). Pigs fed 60 percent of a full feed of corn without protein supplement on pasture dressed significantly lower than full-fed pigs (Table 8).

In general, the carcasses of full-fed pigs in these experiments had significantly higher percentages of bacon belly and fat trim compared with limited-fed pigs on pasture. This could have contributed to the higher dressing percentage of the full-fed pigs.

**Length, width, and depth** measurements of carcasses of pigs fed limited amounts of concentrates were about the same as those for carcasses of pigs on full feed. Carcasses of pigs on a full feed of concentrates tended to be slightly wider and deeper than carcasses of limited-fed pigs, but differences were small and insignificant. One exception was a significantly smaller measurement for depth of carcasses from pigs fed grain sorghum and supplement at a 60 percent level of concentrate intake compared with the depth of carcasses for full-fed pigs (Table 7).

**The yield of primal cuts** for pigs fed a full feed of concentrates in drylot and on pasture were similar and differences were not significant. Pigs on pasture receiving limited amounts of concentrates—including protein supplement—produced carcasses with a higher percentage of ham, loin, and shoulder and a lower percentage of belly than did the carcasses of pigs on full feed (Tables 6 and 7). Thus, carcasses of pigs fed limited amounts of concentrates were, in general, leaner and the increase in percentage of primal cuts on a carcass basis was mostly in the higher priced lean cuts. Pigs on pasture fed corn without protein supplement produced carcasses which were significantly lower in yield of primal cuts (with the exception of the 60 percent level of concentrate intake)—when compared with carcasses from pigs in drylot receiving protein supplement.

Table 8—Carcass Data from Pigs Fed Corn and Protein Supplement in Drylot and Corn Only on Pasture at Various Levels of Feed Intake

| Number, Weights,<br>Carcass Measurements<br>and Quality | Level of Feed Intake                        |                   |                            |       |                                |                                |
|---------------------------------------------------------|---------------------------------------------|-------------------|----------------------------|-------|--------------------------------|--------------------------------|
|                                                         | Full feed corn +<br>supplement<br>in drylot |                   | Full feed<br>on<br>pasture |       | 80% full<br>feed on<br>pasture | 60 %full<br>feed on<br>pasture |
| No. of pigs                                             | 16                                          |                   | 14                         |       | 18                             | 21                             |
| Av. kill weight, lb.                                    | 201.8                                       |                   | 193.7                      |       | 204.2                          | 195.8                          |
| Av. chilled carcass weight, lb.                         | 140.4                                       |                   | 135.2                      |       | 140.5                          | 130.8                          |
| Av. dressing percent <sup>a</sup>                       | 69.5                                        |                   | 69.8                       |       | 68.8                           | 66.8*                          |
|                                                         | L.W. <sup>b</sup>                           | C.W. <sup>c</sup> | L.W.                       | C.W.  | L.W.                           | C.W.                           |
| Av. percent of primal cuts:                             |                                             |                   |                            |       |                                |                                |
| Ham                                                     | 14.0                                        | 20.1              | 13.6                       | 19.4  | 13.2                           | 19.2                           |
| Loin                                                    | 11.6                                        | 16.5              | 11.0                       | 15.9  | 10.9*                          | 15.9                           |
| Belly                                                   | 11.4                                        | 16.3              | 11.1                       | 16.0  | 11.3                           | 16.4                           |
| Shoulder                                                | 10.5                                        | 15.1              | 10.7                       | 16.2  | 10.8                           | 15.6                           |
| Total                                                   | 47.5                                        | 68.0              | 46.4*                      | 67.5* | 46.2*                          | 67.1**                         |
|                                                         |                                             |                   |                            |       |                                |                                |
| Av. percent lean trim                                   | 4.5                                         | 6.4               | 3.8                        | 5.2   | 3.4                            | 5.0                            |
| Av. percent fat trim                                    | 13.2                                        | 18.2              | 14.5                       | 19.7  | 12.8                           | 18.1                           |
|                                                         |                                             |                   |                            |       |                                |                                |
| Av. length of carcass (inches) <sup>d</sup>             | 29.1                                        |                   | 28.4*                      |       | 29.1                           | 28.8                           |
| Av. depth of carcass (inches) <sup>e</sup>              | 13.3                                        |                   | 13.2                       |       | 13.5                           | 13.0                           |
| Av. width of carcass (inches) <sup>f</sup>              | 10.6                                        |                   | 11.1                       |       | 10.9                           | 10.0                           |
| Av. backfat thickness (inches) <sup>g</sup>             | 1.65                                        |                   | 1.57                       |       | 1.58                           | 1.40*                          |
|                                                         |                                             |                   |                            |       |                                |                                |
| Av. firmness of carcass <sup>h</sup>                    | Hard                                        |                   | Hard—                      |       | Med. Hard+                     | Med. Hard                      |
| Av. color of lean <sup>i</sup>                          | Excellent                                   |                   | Excellent                  |       | Excellent—                     | Good                           |

<sup>a</sup>Dressed packer style—head off, hams faced and leaf fat removed.

<sup>b</sup>Based on live weight.

<sup>c</sup>Based on chilled carcass weight.

<sup>d</sup>Measured from the anterior edge of the 1st rib to the anterior edge of the aitch bone.

<sup>e</sup>Measured at the 7th rib (skin to skin).

<sup>f</sup>Measured at the 7th rib (skin to skin).

<sup>g</sup>Average of 3 measurements including the skin at the 1st rib, last rib and last lumbar vertebra.

<sup>h</sup>Firmness grades: Hard, Medium Hard, Medium Soft, Soft and Oily.

<sup>i</sup>Color grades: Excellent, Good Slightly Shady, Shady and Dark.

\*Significant at the 5% level when compared with full feed in drylot.

\*\*Significant at the 1% level when compared with full feed in drylot.

**Backfat thickness** was significantly less in carcasses of pigs fed 60 percent of a full feed of concentrates on pasture as compared with carcasses of full-fed pigs (Tables 6, 7, and 8). Carcasses of pigs fed corn and supplement at an 80 percent level of concentrate intake also had significantly less backfat when compared to carcasses of pigs on full feed (Table 6). Differences in backfat thickness between 80 percent and full feed levels in other experiments (Tables 7 and 8) were not significant.

**The quality of the carcasses** produced by pigs fed 60 percent of a full feed on pasture was somewhat less desirable than the quality found in carcasses of full-fed pigs as shown by lower firmness and color grades. Carcasses of pigs on 80 percent of a full feed were in general quite acceptable as to quality and compared favorably with carcasses from full-fed pigs as to firmness and color grades.

## DISCUSSION

### High-Quality Pasture Substitutes for Concentrates

The results of these experiments confirm the findings of other workers that pastures of high quality—when available in abundant quantity—can substitute for part of the concentrates in the rations of growing and finishing pigs. The greatest savings on full feed were obtained in the protein concentrates which are, generally, the most expensive portion of the ration.

Pigs on a full feed of either corn or grain sorghum and protein supplement required about as much grain per 100 pounds of gain whether in drylot or on pasture (Tables 2, 3, and 4), but about 30.6 percent less protein supplement was fed to pigs on a full feed of corn and supplement on pasture. Pigs receiving 80 percent and 60 percent of full feed of corn and supplement on pasture were fed about 36.9 percent and 43.9 percent less protein supplement, respectively, than pigs on full feed in drylot. Because of limited feeding of concentrates, pigs on 80 percent and 60 percent of full feed on pasture were fed 8.1 percent and 16.8 percent less corn for each 100 pounds of gain, respectively, compared to full feeding in drylot.

Similar savings of concentrates were obtained when pigs were fed grain sorghum and supplement on pasture at various

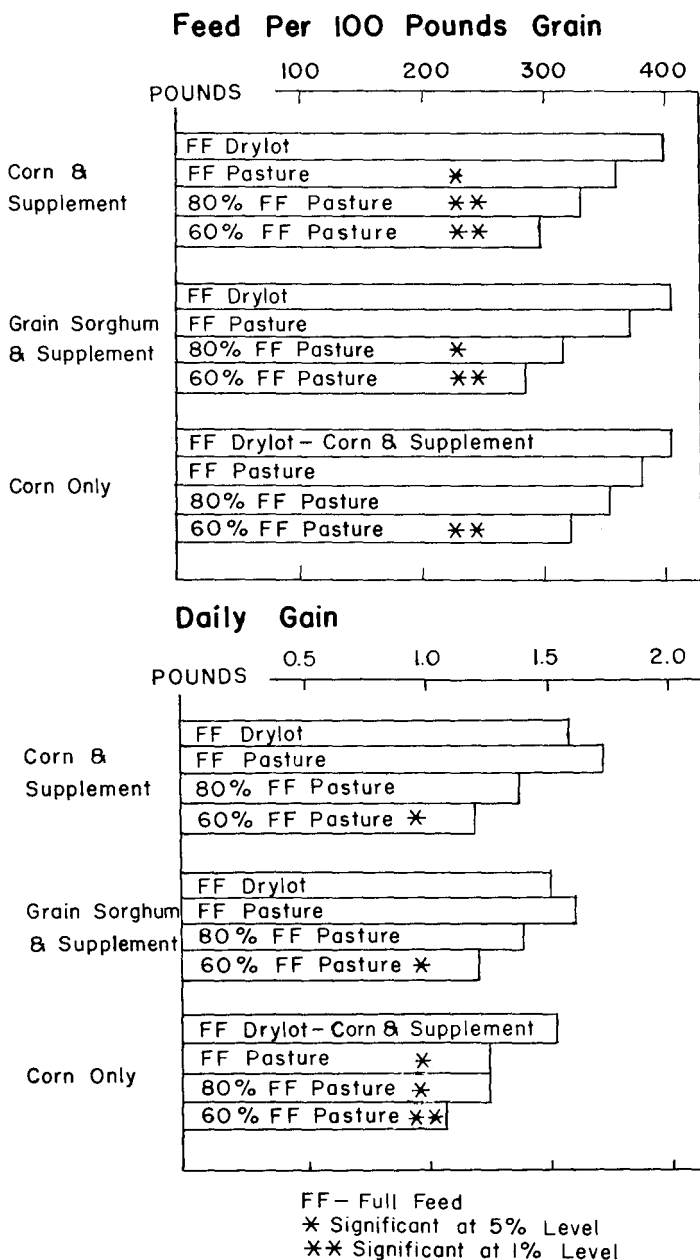


Figure 2. Feed required per 100 pounds of gain and rate of gain for pigs at various levels of concentrate intake while on pasture.

levels. On a practical basis these savings in concentrates required per 100 pounds of gain brought about by reduced levels of concentrate feeding (80 percent and 60 percent) may be offset in part by decreased daily gains, longer time to reach market weight and extra labor required in restricted feeding of the pigs.

In general, carcasses produced by pigs on pasture at 80 percent of full feed were most desirable from the standpoint of overall carcass quality and merit. Carcasses of these pigs compared favorably with carcasses of full-fed pigs with respect to quality factors—including firmness and color—and were superior with respect to desired backfat thickness and percentage of primal cuts.

Leanest carcasses were produced by pigs receiving 60 percent of a full feed of concentrates on pasture, as shown by less backfat, less fat trim and a higher percentage of primal cuts on a carcass basis. However, these carcasses were lacking somewhat in quality as shown by lower firmness and color grades. Dressing percentages were reduced from 1-3 percent for pigs on limited concentrates on pasture—compared with dressing percentages for pigs on full feed in drylot or on pasture. Other workers also have reported 1 to 3 percent lower dressing percentages for restricted feeding compared with full feeding (Winters et al 1949; Lasley and Treble 1951; and Dickerson and Lasley 1951).

### **Savings With Pasture Considerable**

Data were not obtained in these experiments on cost of pastures used by the pigs or expense of extra labor involved in restricted feeding of concentrates. Some idea of pasture costs may be obtained from the observations on acreage of pasture needed for the pigs. At the 60 percent level of full feed, 1 acre of pasture carried, on the average, 12 pigs for a period of about 4 months, and pigs gained from 75 to about 210 pounds (Table 2). This resulted in a savings of 1,536 pounds of concentrates (975 pounds of corn and 561 pounds of protein supplement) compared with full feeding in drylot. Actual savings in costs of production would depend on prices of concentrates, cost of establishing pastures, arranging fencing and the cost of labor for handling pigs on a restricted intake of concentrates.

A practical aspect of restricted feeding of concentrates is related to the time it takes a hog to reach market weight. In general, the more a hog is restricted in concentrates, the longer it

takes him to reach market weight. Thus, if the pigs are to reach market at the usual expected period of peak prices, adjustments in farrowing times would be necessary.

Another factor to be considered in the use of pastures for swine is related to the control of diseases and parasites. Whether pigs are on full feed or limited concentrate intake, disease and parasite control is accomplished more effectively when pigs are raised on pasture and when pasture areas are rotated each year. It is difficult to set a dollar value on this advantage, but it is of real significance in a swine production program.

### **Grain Sorghum vs. Corn**

Comparison of grain sorghum with corn as the major constituents of the ration was made in only two experiments. Under conditions of full feed in drylot, the pigs ate more grain sorghum than corn per 100 pounds of gain. However, the difference was not statistically significant. Pigs fed grain sorghum grew as well as the pigs fed corn, and the carcasses were of comparable quality.

Similar results were obtained with either corn or grain sorghum and protein supplement when pigs were fed limited amounts of these concentrates on pasture. Growth rate, concentrate requirements for 100 pounds of gain and carcass quality were comparable. However, direct comparisons were not made. Grain sorghum was fed in two winter experiments while corn was fed in other experiments, including both summer and winter experiments.

In some experiments, omission of protein supplement from the concentrates of pigs on full feed on pasture reduced the growth rate of the pigs and decreased the desirability of the resulting carcasses. Carcasses of pigs receiving 60 percent of a full feed of corn only on pasture were more desirable than those of pigs on other levels of corn only on pasture. Apparently the amount of protein obtained from the pastures was more nearly adequate as the amount of the concentrates was reduced. These results suggest that the rations of corn only on pasture were too low in protein to provide for maximum development of lean meat, particularly at the full feed level of concentrate intake.

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**APPENDIX TABLES**

Appendix Table 1—Summary of Daily Gains, Daily Feed Consumption, Feed Efficiency and Costs per 100 Pounds Gain—Knoxville, Summer 1949

| Number, Days on Test,<br>Weights, Gains<br>Feeds, Cost of Gain    | Lot Numbers and Treatment                                    |                                                                     |                                                             |                                                                  |                                                                          |                                                                  |                                                                         |                                                                  |
|-------------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------|------------------------------------------------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------|
|                                                                   | 14 + 15<br>Full feed<br>corn +<br>supplement<br>in<br>drylot | 2 + 9<br>Full feed<br>corn +<br>supplement<br>on alfalfa<br>pasture | 1 + 5<br>Full feed<br>corn only<br>on<br>alfalfa<br>pasture | 13 + 16<br>80% full<br>feed corn<br>+<br>supplement<br>in drylot | 7 + 16<br>80% full<br>feed corn +<br>supplement<br>on alfalfa<br>pasture | 4 + 12<br>80% full<br>feed corn<br>only on<br>alfalfa<br>pasture | 6 + 8<br>60% full<br>feed corn +<br>supplement<br>on alfalfa<br>pasture | 3 + 11<br>60% full<br>feed corn<br>only on<br>alfalfa<br>pasture |
| Number of pigs                                                    | 9 <sup>a</sup>                                               | 9 <sup>a</sup>                                                      | 9 <sup>a</sup>                                              | 10                                                               | 10                                                                       | 10                                                               | 10                                                                      | 10                                                               |
| Av. number of animal days                                         | 77.8                                                         | 70.0                                                                | 100.0                                                       | 92.4                                                             | 84.0                                                                     | 97.3                                                             | 106.4                                                                   | 107.8                                                            |
| Av. initial weight, lb.                                           | 78.0                                                         | 79.7                                                                | 79.4                                                        | 79.5                                                             | 78.7                                                                     | 80.1                                                             | 80.0                                                                    | 80.0                                                             |
| Av. final weight, lb.                                             | 198.0                                                        | 205.2                                                               | 191.7                                                       | 208.0                                                            | 198.5                                                                    | 204.9                                                            | 196.8                                                                   | 194.1                                                            |
| Av. daily gain, lb.                                               | 1.54                                                         | 1.79                                                                | 1.12                                                        | 1.39                                                             | 1.43                                                                     | 1.28                                                             | 1.10                                                                    | 1.06                                                             |
| Av. daily feed: <sup>b</sup>                                      |                                                              |                                                                     |                                                             |                                                                  |                                                                          |                                                                  |                                                                         |                                                                  |
| Ground yellow corn, lb.                                           | 5.00                                                         | 5.58                                                                | 4.60                                                        | 3.92                                                             | 4.24                                                                     | 4.84 <sup>c</sup>                                                | 3.26                                                                    | 3.74 <sup>c</sup>                                                |
| Tankage, lb.                                                      | .58                                                          | .44                                                                 | —                                                           | .44                                                              | .33                                                                      | —                                                                | .25                                                                     | —                                                                |
| Soybean oil meal, lb.                                             | .58                                                          | .44                                                                 | —                                                           | .44                                                              | .33                                                                      | —                                                                | .25                                                                     | —                                                                |
| Alfalfa meal, lb.                                                 | .13                                                          | —                                                                   | —                                                           | .10                                                              | —                                                                        | —                                                                | —                                                                       | —                                                                |
| Total, lb.                                                        | 6.29                                                         | 6.46                                                                | 4.60                                                        | 4.90                                                             | 4.90                                                                     | 4.84                                                             | 3.76                                                                    | 3.74                                                             |
| Feed consumed/100 lb. gain                                        |                                                              |                                                                     |                                                             |                                                                  |                                                                          |                                                                  |                                                                         |                                                                  |
| Ground yellow corn, lb.                                           | 325.9                                                        | 311.0                                                               | 410.2                                                       | 282.0                                                            | 297.1                                                                    | 377.6                                                            | 297.1                                                                   | 353.3                                                            |
| Tankage                                                           | 37.2                                                         | 24.5                                                                | —                                                           | 31.6                                                             | 23.0                                                                     | —                                                                | 22.8                                                                    | —                                                                |
| Soybean oil meal, lb.                                             | 37.2                                                         | 24.5                                                                | —                                                           | 31.6                                                             | 23.0                                                                     | —                                                                | 22.8                                                                    | —                                                                |
| Alfalfa meal, lb.                                                 | 8.5                                                          | —                                                                   | —                                                           | 7.2                                                              | —                                                                        | —                                                                | —                                                                       | —                                                                |
| Total, lb.                                                        | 408.8                                                        | 360.0                                                               | 410.2                                                       | 352.4                                                            | 343.1                                                                    | 377.6                                                            | 342.7                                                                   | 353.3                                                            |
| Av. feed cost/100 lb. gain<br>(exclusive of pasture) <sup>d</sup> | \$13.16                                                      | \$11.37                                                             | \$12.10                                                     | \$11.33                                                          | \$10.83                                                                  | \$11.14                                                          | \$10.82                                                                 | \$10.42                                                          |

<sup>a</sup>It was necessary to remove one pig each from lots 5, 9, and 15 early in the experiment.

<sup>b</sup>Self-fed mineral mixture of 50% granulated salt, 25% steamed bone meal and 25% pulverized limestone.

<sup>c</sup>Corn in lots 4, 12, 3, and 11 was fed as whole shelled corn.

<sup>d</sup>Feed prices used: Corn, \$1.65 bushel; tankage, \$98.00 ton; SBOM, \$82.00 ton; and alfalfa meal, \$47.00 ton.

Appendix Table 2—*Summary of Carcass Data—Knoxville, Summer 1949*

| Number, Weights<br>Carcass Measurements<br>and Quality | Lot Numbers and Treatment                                 |                                                                     |                                                                |                                                               |                                                                          |                                                                  |                                                                         |                                                                  |
|--------------------------------------------------------|-----------------------------------------------------------|---------------------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------|
|                                                        | 14 + 15<br>Full feed<br>corn +<br>supplement<br>in drylot | 2 + 9<br>Full feed<br>corn +<br>supplement<br>on alfalfa<br>pasture | 1 + 5<br>Full feed<br>corn only<br>on<br>alfalfa in<br>pasture | 13 + 16<br>80% full<br>feed corn +<br>supplement<br>in drylot | 7 + 10<br>80% full<br>feed corn +<br>supplement<br>on alfalfa<br>pasture | 4 + 12<br>80% full<br>feed corn<br>only on<br>alfalfa<br>pasture | 6 + 8<br>60% full<br>feed corn +<br>supplement<br>on alfalfa<br>pasture | 3 + 11<br>60% full<br>feed corn<br>only on<br>alfalfa<br>pasture |
| Number of pigs .....                                   | 9                                                         | 9                                                                   | 9                                                              | 10                                                            | 10                                                                       | 10                                                               | 10                                                                      | 10                                                               |
| Av. kill weight, lb. ....                              | 197.4                                                     | 204.2                                                               | 191.7                                                          | 208.0                                                         | 198.9                                                                    | 205.0                                                            | 296.8                                                                   | 194.0                                                            |
| Av. chilled carcass<br>wt., lb. ....                   | 134.6                                                     | 139.8                                                               | 129.6                                                          | 137.0                                                         | 132.1                                                                    | 138.9                                                            | 129.3                                                                   | 127.2                                                            |
| Av. dressing percent ...                               | 68.2                                                      | 68.5                                                                | 67.6                                                           | 65.9                                                          | 66.4                                                                     | 67.8                                                             | 65.7                                                                    | 65.5                                                             |
| Mean Percentages Values                                |                                                           |                                                                     |                                                                |                                                               |                                                                          |                                                                  |                                                                         |                                                                  |
| Primal cuts:                                           | L.W. C.W.                                                 | L.W. C.W.                                                           | L.W. C.W.                                                      | L.W. C.W.                                                     | L.W. C.W.                                                                | L.W. C.W.                                                        | L.W. C.W.                                                               | L.W. C.W.                                                        |
| Ham .....                                              | 13.5 19.8                                                 | 12.8 18.8                                                           | 12.8 18.8                                                      | 12.8 19.5                                                     | 13.2 19.8                                                                | 12.5 18.6                                                        | 13.0 19.7                                                               | 12.6 19.2                                                        |
| Loin .....                                             | 11.4 16.7                                                 | 11.2 16.4                                                           | 10.8 16.1                                                      | 11.0 16.6                                                     | 11.0 16.8                                                                | 10.8 16.0                                                        | 10.9 16.6                                                               | 10.4 15.9                                                        |
| Belly .....                                            | 12.1 17.8                                                 | 11.7 17.3                                                           | 11.6 17.1                                                      | 11.0 16.8                                                     | 11.3 17.0                                                                | 12.0 17.7                                                        | 10.6 16.2                                                               | 10.5 16.0                                                        |
| Shoulder .....                                         | 10.2 14.9                                                 | 11.4 15.9                                                           | 10.1 16.3                                                      | 9.6 14.7                                                      | 10.2 15.4                                                                | 10.2 15.0                                                        | 10.9 16.6                                                               | 11.0 16.9                                                        |
| Total .....                                            | 47.2 69.2                                                 | 47.1 68.4                                                           | 45.5 68.3                                                      | 44.4 67.6                                                     | 45.7 69.0                                                                | 45.5 67.3                                                        | 45.4 69.1                                                               | 44.5 68.0                                                        |
| Mean Measurements (inches)                             |                                                           |                                                                     |                                                                |                                                               |                                                                          |                                                                  |                                                                         |                                                                  |
| Length of carcass .....                                | 29.2                                                      | 29.0                                                                | 28.5                                                           | 29.4                                                          | 28.3                                                                     | 29.1                                                             | 29.2                                                                    | 28.9                                                             |
| Depth of carcass .....                                 | 13.0                                                      | 13.4                                                                | 13.0                                                           | 13.4                                                          | 13.1                                                                     | 13.2                                                             | 12.4                                                                    | 13.0                                                             |
| Width of carcass .....                                 | 10.4                                                      | 10.5                                                                | 10.0                                                           | 10.3                                                          | 10.3                                                                     | 10.4                                                             | 9.8                                                                     | 9.8                                                              |
| Backfat thickness .....                                | 1.67                                                      | 1.86                                                                | 1.53                                                           | 1.60                                                          | 1.66                                                                     | 1.67                                                             | 1.43                                                                    | 1.43                                                             |
| Mean Values of Other Carcass Data                      |                                                           |                                                                     |                                                                |                                                               |                                                                          |                                                                  |                                                                         |                                                                  |
| Firmness of carcass ...                                | Hard —                                                    | Hard —                                                              | Med.<br>Hard +                                                 | Hard —                                                        | Hard —                                                                   | Hard                                                             | Med. Hard                                                               | Med.<br>Hard +                                                   |
| Color of lean .....                                    | Excellent                                                 | Excellent                                                           | Excellent                                                      | Excellent —                                                   | Excellent —                                                              | Excellent                                                        | Excellent                                                               | Excellent                                                        |

Appendix Table 3—*Summary of Daily Gains, Daily Feed Consumption, Feed Efficiency and Costs Per 100 Pounds Gain—Columbia, Summer 1949*

| Number, Days on Test, Weights<br>Gains, Feeds and<br>Costs of Gain             | Lot Numbers and Treatment                      |                                                             |                                                                      |                               |                                                                 |                                                                          |                                |                                                                 |                                                                          |                                 |
|--------------------------------------------------------------------------------|------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------------|-------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------|---------------------------------|
|                                                                                | 13 + 14                                        | 1 + 7                                                       | 2 + 8                                                                | Lots<br>1 + 7<br>and<br>2 + 8 | 3 + 9                                                           | 4 + 10                                                                   | Lots<br>3 + 9<br>and<br>4 + 10 | 5 + 11                                                          | 6 + 12                                                                   | Lots<br>5 + 11<br>and<br>6 + 12 |
|                                                                                | Full<br>feed corn<br>+ supplement<br>in drylot | Full<br>feed corn<br>+ supplement<br>on<br>Ladino<br>clover | Full feed<br>corn +<br>supplement<br>on<br>Louisiana<br>white clover |                               | 80% full<br>feed corn<br>+ supplement<br>on<br>Ladino<br>clover | 80% full<br>feed corn<br>+ supplement<br>on<br>Louisiana<br>white clover |                                | 60% full<br>feed corn<br>+ supplement<br>on<br>Ladino<br>clover | 60% full<br>feed corn<br>+ supplement<br>on<br>Louisiana<br>white clover |                                 |
| Number of pigs .....                                                           | 6                                              | 6                                                           | 6                                                                    | 12                            | 6                                                               | 6                                                                        | 12                             | 6                                                               | 6                                                                        | 12                              |
| Av. number of animal days .....                                                | 87.3                                           | 91.7                                                        | 87.3                                                                 | 89.5                          | 91.7                                                            | 104.7                                                                    | 98.0                           | 110.0                                                           | 110.0                                                                    | 110.0                           |
| Av. initial wt., lb. ....                                                      | 81.3                                           | 76.0                                                        | 80.0                                                                 | 78.0                          | 75.7                                                            | 78.3                                                                     | 77.0                           | 78.8                                                            | 81.8                                                                     | 80.3                            |
| Av. final wt., lb. ....                                                        | 218.5                                          | 212.3                                                       | 213.6                                                                | 213.0                         | 209.0                                                           | 214.6                                                                    | 211.8                          | 211.6                                                           | 214.1                                                                    | 212.8                           |
| Av. daily gain, lb. ....                                                       | 1.58                                           | 1.49                                                        | 1.53                                                                 | 1.51                          | 1.45                                                            | 1.30                                                                     | 1.38                           | 1.21                                                            | 1.20                                                                     | 1.21                            |
| Av. daily feed: <sup>a</sup>                                                   |                                                |                                                             |                                                                      |                               |                                                                 |                                                                          |                                |                                                                 |                                                                          |                                 |
| Ground yellow corn, lb. ....                                                   | 5.18                                           | 4.60                                                        | 4.66                                                                 | 4.63                          | 3.72                                                            | 3.88                                                                     | 3.80                           | 2.93                                                            | 2.97                                                                     | 2.95                            |
| Tankage, lb. ....                                                              | .90                                            | .54                                                         | .56                                                                  | .55                           | .44                                                             | .45                                                                      | .44                            | .33                                                             | .33                                                                      | .33                             |
| Soybean oil meal, lb. ....                                                     | .90                                            | .54                                                         | .56                                                                  | .55                           | .44                                                             | .45                                                                      | .44                            | .33                                                             | .33                                                                      | .33                             |
| Alfalfa meal, lb. ....                                                         | .18                                            | —                                                           | —                                                                    | —                             | —                                                               | —                                                                        | —                              | —                                                               | —                                                                        | —                               |
| Total, lb. ....                                                                | 7.16                                           | 5.68                                                        | 5.78                                                                 | 5.73                          | 4.60                                                            | 4.78                                                                     | 4.68                           | 3.69                                                            | 3.63                                                                     | 3.61                            |
| Feed consumed per 100 lb. gain:                                                |                                                |                                                             |                                                                      |                               |                                                                 |                                                                          |                                |                                                                 |                                                                          |                                 |
| Ground yellow corn, lb. ....                                                   | 329.7                                          | 309.8                                                       | 304.5                                                                | 307.2                         | 255.4                                                           | 298.2                                                                    | 276.8                          | 242.8                                                           | 246.7                                                                    | 244.8                           |
| Tankage, lb. ....                                                              | 56.9                                           | 36.3                                                        | 36.9                                                                 | 36.6                          | 30.5                                                            | 34.1                                                                     | 32.3                           | 27.4                                                            | 27.8                                                                     | 27.6                            |
| Soybean oil meal, lb. ....                                                     | 56.9                                           | 36.3                                                        | 36.9                                                                 | 36.6                          | 30.5                                                            | 34.1                                                                     | 32.3                           | 27.4                                                            | 27.8                                                                     | 27.6                            |
| Alfalfa meal, lb. ....                                                         | 11.5                                           | —                                                           | —                                                                    | —                             | —                                                               | —                                                                        | —                              | —                                                               | —                                                                        | —                               |
| Total, lb. ....                                                                | 455.0                                          | 382.4                                                       | 378.3                                                                | 380.4                         | 316.4                                                           | 366.4                                                                    | 341.4                          | 297.6                                                           | 302.3                                                                    | 300.0                           |
| Av. feed cost per 100 lb. of gain<br>(exclusive of pasture) <sup>b</sup> ..... | \$15.11                                        | \$12.41                                                     | \$12.30                                                              | \$12.36                       | \$10.28                                                         | \$11.86                                                                  | \$11.07                        | \$9.63                                                          | \$9.78                                                                   | \$9.71                          |

<sup>a</sup>Self-fed mineral mixture of 50% granulated salt, 25% steamed bone meal and 25% pulverized limestone.

<sup>b</sup>Feed prices used: Corn \$1.65 bushel; tankage, \$98.00 ton; SBOM, \$82.00 ton; and alfalfa meal, \$47.00 ton.

Appendix Table 4—*Summary of Carcass Data—Columbia, Summer 1949*

| Number, Weights<br>Carcass Measurements<br>and Quality | Lot Numbers and Treatment                      |                                                          |                                                                   |                                                              |                                                                       |                                                              |                                                                       |
|--------------------------------------------------------|------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------------|
|                                                        | 13 + 14                                        | 1 + 7                                                    | 2 + 8                                                             | 3 + 9                                                        | 4 + 10                                                                | 5 + 11                                                       | 6 + 12                                                                |
|                                                        | Full feed<br>corn +<br>supplement<br>in drylot | Full feed<br>corn +<br>supplement<br>on Ladino<br>clover | Full feed<br>corn +<br>supplement<br>on Louisiana<br>white clover | 80% full<br>feed corn +<br>supplement<br>on Ladino<br>clover | 80% full<br>feed corn +<br>supplement<br>on Louisiana<br>white clover | 60% full<br>feed corn +<br>supplement<br>on Ladino<br>clover | 60% full<br>feed corn +<br>supplement<br>on Louisiana<br>white clover |
| Number of pigs .....                                   | 6                                              | 6                                                        | 6                                                                 | 6                                                            | 6                                                                     | 6                                                            | 6                                                                     |
| Av. kill weight, lb. ....                              | 218.5                                          | 212.3                                                    | 213.8                                                             | 209.0                                                        | 214.5                                                                 | 211.6                                                        | 214.2                                                                 |
| Av. chilled carcass wt., lb. ....                      | 172.0                                          | 165.9                                                    | 167.8                                                             | 158.8                                                        | 166.0                                                                 | 159.1                                                        | 160.2                                                                 |
| Av. dressing percent <sup>a</sup> .....                | 78.7                                           | 78.1                                                     | 78.5                                                              | 76.0                                                         | 77.4                                                                  | 75.2                                                         | 74.8                                                                  |
| Mean Percentage Values                                 |                                                |                                                          |                                                                   |                                                              |                                                                       |                                                              |                                                                       |
| Primal Cuts:                                           | L.W. C.W.                                      | L.W. C.W.                                                | L.W. C.W.                                                         | L.W. C.W.                                                    | L.W. C.W.                                                             | L.W. C.W.                                                    | L.W. L.W.                                                             |
| Ham .....                                              | 15.5 20.1                                      | 14.9 19.1                                                | 15.0 19.1                                                         | 15.5 20.5                                                    | 15.6 20.2                                                             | 15.7 20.8                                                    | 14.9 19.9                                                             |
| Loin .....                                             | 10.9 14.2                                      | 10.8 13.8                                                | 10.4 13.3                                                         | 11.1 14.6                                                    | 11.1 14.3                                                             | 11.3 15.0                                                    | 10.9 14.6                                                             |
| Belly .....                                            | 9.0 11.5                                       | 9.7 12.5                                                 | 9.7 12.5                                                          | 8.7 11.5                                                     | 9.1 11.8                                                              | 8.7 11.6                                                     | 9.1 12.2                                                              |
| Shoulder .....                                         | 10.0 12.9                                      | 10.1 13.0                                                | 10.3 13.1                                                         | 10.6 13.9                                                    | 10.8 14.0                                                             | 11.0 14.6                                                    | 10.2 13.6                                                             |
| Total .....                                            | 45.4 58.7                                      | 45.5 58.4                                                | 45.4 58.0                                                         | 45.9 60.5                                                    | 46.6 60.3                                                             | 46.7 62.0                                                    | 45.1 60.3                                                             |
| Mean Measurements (inches)                             |                                                |                                                          |                                                                   |                                                              |                                                                       |                                                              |                                                                       |
| Length of carcass .....                                | 29.5                                           | 29.3                                                     | 29.6                                                              | 29.5                                                         | 30.2                                                                  | 30.2                                                         | 29.7                                                                  |
| Carcass depth .....                                    | 13.3                                           | 13.0                                                     | 12.9                                                              | 12.5                                                         | 13.0                                                                  | 12.9                                                         | 13.1                                                                  |
| Carcass width .....                                    | 10.3                                           | 10.6                                                     | 10.7                                                              | 10.1                                                         | 10.5                                                                  | 10.6                                                         | 10.5                                                                  |
| Backfat thickness .....                                | 1.52                                           | 1.51                                                     | 1.42                                                              | 1.29                                                         | 1.29                                                                  | 1.25                                                         | 1.39                                                                  |
| Mean Values of Other Carcass Data                      |                                                |                                                          |                                                                   |                                                              |                                                                       |                                                              |                                                                       |
| Carcass firmness .....                                 | Medium +                                       | Medium +                                                 | Medium                                                            | Medium                                                       | Medium +                                                              | Med. Soft +                                                  | Med.<br>Hard +                                                        |
| Color of lean .....                                    | Excellent —                                    | Excellent —                                              | Excellent —                                                       | Excellent —                                                  | Excellent —                                                           | Good +                                                       | Excell't—                                                             |

<sup>a</sup>Dressed slightly modified shipper style (head on, hams not faced and leaf fat not removed).

Appendix Table 5 — *Summary of Daily Gains, Daily Feed Consumption, Feed Efficiency and Costs Per 100 Pounds Gain — Knoxville, Winter, 1950*

| Number, Days on Test<br>Weights, Gains, Feeds,<br>and Costs of Gain | Lot Numbers and Treatment                      |                                                                          |                                                                                 |                                                                                 |
|---------------------------------------------------------------------|------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
|                                                                     | 1 + 2                                          | 3 + 4                                                                    | 5 + 6                                                                           | 7 + 8                                                                           |
|                                                                     | Full feed<br>corn +<br>supplement<br>in drylot | Full feed corn<br>+ supplement<br>on oats<br>+ crimson<br>clover pasture | 80% full<br>feed corn<br>+ supplement<br>on oats<br>+ crimson<br>clover pasture | 60% full<br>feed corn<br>+ supplement<br>on oats<br>+ crimson<br>clover pasture |
| Number of pigs .....                                                | 6                                              | 6                                                                        | 6                                                                               | 6                                                                               |
| Av. number of animal days .....                                     | 63                                             | 61                                                                       | 74                                                                              | 76                                                                              |
| Av. initial wt., lb. ....                                           | 110.0                                          | 109.7                                                                    | 110.0                                                                           | 109.8                                                                           |
| Av. final wt., lb. ....                                             | 221.7                                          | 221.3                                                                    | 228.7                                                                           | 221.5                                                                           |
| Av. daily gains, lb. ....                                           | 1.77                                           | 1.84                                                                     | 1.61                                                                            | 1.47                                                                            |
| Av. daily feed: <sup>a</sup>                                        |                                                |                                                                          |                                                                                 |                                                                                 |
| Ground yellow corn, lb. ....                                        | 5.89                                           | 6.30                                                                     | 4.41                                                                            | 3.27                                                                            |
| Tankage, lb. ....                                                   | .70                                            | .52                                                                      | .34                                                                             | .25                                                                             |
| Soybean oil meal, lb. ....                                          | .70                                            | .52                                                                      | .34                                                                             | .25                                                                             |
| Alfalfa meal, lb. ....                                              | .14                                            | —                                                                        | —                                                                               | —                                                                               |
| Total, lb. ....                                                     | 7.43                                           | 7.34                                                                     | 5.09                                                                            | 3.77                                                                            |
| Feed consumed per 100 lb. gain:                                     |                                                |                                                                          |                                                                                 |                                                                                 |
| Ground yellow corn, lb. ....                                        | 332.5                                          | 342.1                                                                    | 273.4                                                                           | 221.8                                                                           |
| Tankage, lb. ....                                                   | 39.6                                           | 28.1                                                                     | 21.4                                                                            | 17.1                                                                            |
| Soybean oil meal, lb. ....                                          | 39.6                                           | 28.1                                                                     | 21.4                                                                            | 17.1                                                                            |
| Alfalfa meal, lb. ....                                              | 7.6                                            | —                                                                        | —                                                                               | —                                                                               |
| Total, lb. ....                                                     | 419.3                                          | 398.3                                                                    | 316.2                                                                           | 256.0                                                                           |
| Av. feed cost per 100 lb. of gain:                                  |                                                |                                                                          |                                                                                 |                                                                                 |
| exclusive of pasture) <sup>b</sup> .....                            | \$14.22                                        | 13.26                                                                    | 10.53                                                                           | 8.52                                                                            |

<sup>a</sup>All lots were self-fed a mineral mixture of 50% granulated salt, 25% steamed bone meal and 25% pulverized limestone.

<sup>b</sup>Feed prices used:

|                        |              |
|------------------------|--------------|
| Corn .....             | \$ 62.00 ton |
| Tankage .....          | 110.00 ton   |
| Soybean oil meal ..... | 79.00 ton    |
| Alfalfa meal .....     | 45.00 ton    |

Appendix Table 6—*Summary of Carcass Data, Knoxville—Winter, 1950*

| Number, Weights,<br>Carcass Measurements<br>and Quality | Lot Numbers and Treatment                     |                                                                            |                                                                                |                                                                                |
|---------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
|                                                         | 1 + 2                                         | 3 + 4                                                                      | 7 + 8                                                                          | 5 + 6                                                                          |
|                                                         | Full feed<br>corn + supple-<br>ment in drylot | Full feed<br>corn + supple-<br>ment on oats +<br>crimson clover<br>pasture | 80% full feed<br>corn + supple-<br>ment on oats +<br>crimson clover<br>pasture | 60% full feed<br>corn + supple-<br>ment on oats +<br>crimson clover<br>pasture |
| Number of pigs .....                                    | 5                                             | 6                                                                          | 6                                                                              | 5                                                                              |
| Av. kill weight, lb. ....                               | 220.8                                         | 219.8                                                                      | 228.7                                                                          | 221.4                                                                          |
| Av. chilled carcass wt., lb.                            | 153.6                                         | 153.3                                                                      | 157.1                                                                          | 149.7                                                                          |
| Av. dressing percent .....                              | 69.6                                          | 69.7                                                                       | 68.7                                                                           | 67.6                                                                           |
| Mean Percentage Values                                  |                                               |                                                                            |                                                                                |                                                                                |
| Primal cuts:                                            | L.W. C.W.                                     | L.W. C.W.                                                                  | L.W. C.W.                                                                      | L.W. C.W.                                                                      |
| Ham .....                                               | 13.0 18.7                                     | 12.7 18.3                                                                  | 13.6 19.9                                                                      | 13.5 20.0                                                                      |
| Loin .....                                              | 11.1 16.0                                     | 11.0 15.9                                                                  | 11.3 16.6                                                                      | 11.0 16.3                                                                      |
| Belly .....                                             | 9.8 14.1                                      | 10.1 14.7                                                                  | 10.0 14.7                                                                      | 9.0 13.4                                                                       |
| Shoulder .....                                          | 12.3 17.7                                     | 12.6 18.1                                                                  | 12.2 17.7                                                                      | 13.1 19.2                                                                      |
| Total .....                                             | 46.2 66.5                                     | 46.4 67.0                                                                  | 47.1 68.9                                                                      | 46.6 68.9                                                                      |
| Lean trim .....                                         | 3.3 4.8                                       | 3.4 5.0                                                                    | 4.5 6.6                                                                        | 4.5 6.7                                                                        |
| Fat trim .....                                          | 18.0 25.8                                     | 16.6 24.0                                                                  | 14.0 20.4                                                                      | 13.3 20.0                                                                      |
| Mean Measurements (Inches)                              |                                               |                                                                            |                                                                                |                                                                                |
| Length of carcass .....                                 | 28.8                                          | 29.0                                                                       | 29.8                                                                           | 29.1                                                                           |
| Depth of carcass .....                                  | 14.0                                          | 13.9                                                                       | 13.5                                                                           | 13.6                                                                           |
| Width of carcass .....                                  | 11.0                                          | 11.2                                                                       | 11.3                                                                           | 11.2                                                                           |
| Backfat thickness .....                                 | 1.64                                          | 1.80                                                                       | 1.61                                                                           | 1.55                                                                           |
| Mean Values of Other Carcass Data                       |                                               |                                                                            |                                                                                |                                                                                |
| Firmness of carcass .....                               | Hard                                          | Hard                                                                       | Med. Hard                                                                      | Med. Hard                                                                      |
| Color of lean .....                                     | Excellent                                     | Good                                                                       | Good                                                                           | S. Shady                                                                       |

Appendix Table 7—*Summary of Daily Gains, Daily Feed Consumption, Feed Efficiency and Costs per 100 Pounds Gain—Columbia, Winter 1950*

| Numbers, Days on Test, Weights, Feeds and Costs of Gains       | Lot Numbers and Treatments            |                                                |                                                                   |                                                                  |                      |       |                                                                       |                                                                      |                                                                       |                                                                      |
|----------------------------------------------------------------|---------------------------------------|------------------------------------------------|-------------------------------------------------------------------|------------------------------------------------------------------|----------------------|-------|-----------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------|
|                                                                | 15 + 16                               | 13 + 14                                        | 1 + 2                                                             | 7 + 8                                                            |                      |       | 9 + 10                                                                | 3 + 4                                                                | 5 + 6                                                                 | 11 + 12                                                              |
|                                                                | Full feed corn + supplement in drylot | Full feed grain sorghum + supplement in drylot | Full feed grain sorghum + supplement on Crimson clover + ryegrass | Full feed grain sorghum + supplement on Button clover + ryegrass | Lots 1 + 2 and 7 + 8 |       | 80% full feed grain sorghum + supplement on Crimson clover + ryegrass | 80% full feed grain sorghum + supplement on Button clover + ryegrass | 60% full feed grain sorghum + supplement on Crimson clover + ryegrass | 60% full feed grain sorghum + supplement on Button clover + ryegrass |
|                                                                |                                       |                                                |                                                                   |                                                                  |                      |       |                                                                       |                                                                      |                                                                       |                                                                      |
|                                                                |                                       |                                                |                                                                   |                                                                  |                      |       |                                                                       |                                                                      |                                                                       |                                                                      |
| Number of pigs                                                 | 6                                     | 6                                              | 6                                                                 | 6                                                                | 12                   | 5*    | 6                                                                     | 11                                                                   | 6                                                                     | 12                                                                   |
| Av. number animal days                                         | 109.0                                 | 102.0                                          | 101.3                                                             | 106.0                                                            | 108.7                | 117.6 | 106.0                                                                 | 111.8                                                                | 119.3                                                                 | 126.7                                                                |
| Av. initial wt., lb.                                           | 57.4                                  | 56.8                                           | 57.7                                                              | 56.8                                                             | 57.3                 | 56.5  | 56.7                                                                  | 56.6                                                                 | 57.7                                                                  | 57.0                                                                 |
| Av. final wt., lb.                                             | 223.6                                 | 224.0                                          | 224.1                                                             | 215.7                                                            | 219.9                | 222.5 | 227.2                                                                 | 224.8                                                                | 215.3                                                                 | 212.8                                                                |
| Av. daily gain, lb.                                            | 1.53                                  | 1.63                                           | 1.64                                                              | 1.50                                                             | 1.57                 | 1.41  | 1.61                                                                  | 1.51                                                                 | 1.32                                                                  | 1.23                                                                 |
| Av. daily feed <sup>b</sup>                                    |                                       |                                                |                                                                   |                                                                  |                      |       |                                                                       |                                                                      |                                                                       |                                                                      |
| Ground yellow corn, lb.                                        | 4.41                                  | —                                              | —                                                                 | —                                                                | —                    | —     | —                                                                     | —                                                                    | —                                                                     | —                                                                    |
| Grain sorghum, lb.                                             | —                                     | 5.30                                           | 4.88                                                              | 4.98                                                             | 4.93                 | 3.75  | 3.89                                                                  | 3.82                                                                 | 2.86                                                                  | 2.93                                                                 |
| Tankage                                                        | .67                                   | .67                                            | .43                                                               | .44                                                              | .44                  | .32   | .34                                                                   | .33                                                                  | .24                                                                   | .24                                                                  |
| Soybean oil meal, lb.                                          | .67                                   | .67                                            | .43                                                               | .44                                                              | .44                  | .32   | .34                                                                   | .33                                                                  | .24                                                                   | .24                                                                  |
| Alfalfa meal, lb.                                              | .13                                   | .14                                            | —                                                                 | —                                                                | —                    | —     | —                                                                     | —                                                                    | —                                                                     | —                                                                    |
| Total, lb.                                                     | 5.88                                  | 6.78                                           | 5.74                                                              | 5.86                                                             | 5.81                 | 4.39  | 4.57                                                                  | 4.48                                                                 | 3.34                                                                  | 3.41                                                                 |
| Feed consumed/100 lb. gain                                     |                                       |                                                |                                                                   |                                                                  |                      |       |                                                                       |                                                                      |                                                                       |                                                                      |
| Ground yellow corn, lb.                                        | 288.3                                 | —                                              | —                                                                 | —                                                                | —                    | —     | —                                                                     | —                                                                    | —                                                                     | —                                                                    |
| Grain sorghum, lb.                                             | —                                     | 324.9                                          | 297.4                                                             | 332.5                                                            | 315.0                | 265.9 | 242.1                                                                 | 254.0                                                                | 216.5                                                                 | 238.0                                                                |
| Tankage, lb.                                                   | 43.6                                  | 41.2                                           | 26.4                                                              | 29.2                                                             | 27.8                 | 22.5  | 20.6                                                                  | 21.6                                                                 | 17.9                                                                  | 19.2                                                                 |
| Soybean oil meal, lb.                                          | 43.6                                  | 41.2                                           | 26.4                                                              | 29.2                                                             | 27.8                 | 22.5  | 20.6                                                                  | 21.6                                                                 | 17.9                                                                  | 19.2                                                                 |
| Alfalfa meal, lb.                                              | 8.7                                   | 8.3                                            | —                                                                 | —                                                                | —                    | —     | —                                                                     | —                                                                    | —                                                                     | —                                                                    |
| Total, lb.                                                     | 384.2                                 | 415.6                                          | 350.2                                                             | 390.9                                                            | 370.6                | 310.9 | 283.3                                                                 | 297.2                                                                | 252.3                                                                 | 276.4                                                                |
| Av. feed cost/100 lb. gain (exclusive of pasture) <sup>c</sup> | \$11.57                               | 11.45                                          | 9.28                                                              | 10.35                                                            | 9.82                 | 8.20  | 7.47                                                                  | 7.84                                                                 | 6.63                                                                  | 7.25                                                                 |
|                                                                |                                       |                                                |                                                                   |                                                                  |                      |       |                                                                       |                                                                      |                                                                       | 6.95                                                                 |

\*One pig died in lot 10 early in the experiment.

<sup>b</sup>All lots self-fed a mineral mixture of 50% granulated salt, 25% steamed bone meal and 25% pulverized limestone.

<sup>c</sup>Feed prices used: Corn, \$1.43 bushel; grain sorghum, \$1.29 bushel; tankage, \$110.00 ton; SBOM, \$75.00 ton; and alfalfa meal, \$42.50 ton.

Appendix Table 8—Summary of Carcass Data—Columbia, Winter 1950

| Number, Weights,<br>Carcass Measurements<br>and Quality | Lot Numbers and Treatments            |                                          |                                                             |                                                 |                                                               |                                                     |                                                               |                                                     |
|---------------------------------------------------------|---------------------------------------|------------------------------------------|-------------------------------------------------------------|-------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------|
|                                                         | 15 + 16                               | 13 + 14                                  | 1 + 2                                                       | 7 + 8                                           | 9 + 10                                                        | 3 + 4                                               | 5 + 6                                                         | 11 + 12                                             |
|                                                         | Full feed corn + supplement in drylot | Full feed sorghum + supplement in drylot | Full feed sorghum + supplement on crimson clover & ryegrass | Full feed sorghum + supplement on Button clover | 80% full feed sorghum supplement on crimson clover & ryegrass | 80% full feed sorghum + supplement on Button clover | 60% full feed sorghum supplement on crimson clover & ryegrass | 60% full feed sorghum + supplement on Button clover |
| Number of pigs .....                                    | 6                                     | 4                                        | 5                                                           | 4                                               | 3                                                             | 6                                                   | 6                                                             | 4                                                   |
| Av. kill weight, lb. ....                               | 222.8                                 | 227.5                                    | 226.0                                                       | 210.1                                           | 226.5                                                         | 228.7                                               | 218.2                                                         | 224.2                                               |
| Av. chilled carcass weight, lb. ....                    | 154.5                                 | 158.1                                    | 157.3                                                       | 149.0                                           | 155.3                                                         | 157.2                                               | 146.7                                                         | 145.9                                               |
| Av. dressing percent ..                                 | 69.3                                  | 69.5                                     | 69.6                                                        | 70.9                                            | 68.6                                                          | 68.7                                                | 67.2                                                          | 65.1                                                |
| Mean Percentage Values                                  |                                       |                                          |                                                             |                                                 |                                                               |                                                     |                                                               |                                                     |
| Primal cuts:                                            | L.W. C.W.                             | L.W. C.W.                                | L.W. C.W.                                                   | L.W. C.W.                                       | L.W. C.W.                                                     | L.W. C.W.                                           | L.W. C.W.                                                     | L.W. C.W.                                           |
| Ham .....                                               | 14.9 21.5                             | 14.6 20.9                                | 15.2 21.9                                                   | 15.3 21.7                                       | 14.4 21.1                                                     | 15.0 21.9                                           | 15.3 22.8                                                     | 14.0 21.6                                           |
| Loin .....                                              | 9.7 14.1                              | 9.6 13.9                                 | 9.8 14.1                                                    | 9.6 13.5                                        | 9.6 14.0                                                      | 9.8 14.4                                            | 10.1 15.1                                                     | 9.9 15.2                                            |
| Belly .....                                             | 10.9 15.7                             | 11.2 16.1                                | 11.3 16.0                                                   | 11.4 16.1                                       | 10.9 15.9                                                     | 10.7 15.6                                           | 10.1 15.5                                                     | 9.9 15.3                                            |
| Shoulder .....                                          | 10.0 14.4                             | 10.0 14.5                                | 10.2 14.6                                                   | 10.1 14.3                                       | 9.5 13.8                                                      | 10.2 14.8                                           | 9.9 14.7                                                      | 9.6 14.8                                            |
| Total .....                                             | 45.5 65.7                             | 45.5 65.8                                | 46.5 66.6                                                   | 46.4 65.6                                       | 44.4 64.8                                                     | 45.7 66.7                                           | 45.4 68.1                                                     | 43.4 66.9                                           |
| Lean trim .....                                         | 7.2 10.3                              | 6.9 10.0                                 | 7.4 10.6                                                    | 8.0 11.3                                        | 6.6 9.6                                                       | 7.0 10.1                                            | 7.4 11.1                                                      | 7.0 10.8                                            |
| Fat trim .....                                          | 12.8 18.5                             | 13.2 19.0                                | 12.8 18.2                                                   | 12.6 17.8                                       | 13.4 19.5                                                     | 11.4 16.5                                           | 10.6 15.7                                                     | 10.1 15.6                                           |
| Mean Measurements (Inches)                              |                                       |                                          |                                                             |                                                 |                                                               |                                                     |                                                               |                                                     |
| Length of carcass .....                                 | 30.8                                  | 29.5                                     | 30.6                                                        | 30.0                                            | 29.9                                                          | 31.9                                                | 31.1                                                          | 31.2                                                |
| Depth of carcass .....                                  | 13.7                                  | 14.1                                     | 13.7                                                        | 13.3                                            | 13.0                                                          | 13.6                                                | 12.9                                                          | 13.4                                                |
| Width of carcass .....                                  | 10.7                                  | 11.0                                     | 10.5                                                        | 10.6                                            | 10.4                                                          | 10.2                                                | 10.3                                                          | 10.3                                                |
| Backfat thickness .....                                 | 1.57                                  | 1.69                                     | 1.57                                                        | 1.69                                            | 1.82                                                          | 1.58                                                | 1.35                                                          | 1.41                                                |
| Mean Values of Other Carcass Data                       |                                       |                                          |                                                             |                                                 |                                                               |                                                     |                                                               |                                                     |
| Firmness of carcass ..                                  | Med.<br>Hard                          | Med.<br>Hard                             | Med.<br>Hard                                                | Med.<br>Hard                                    | Hard                                                          | Med.<br>Hard                                        | Med.<br>Hard                                                  | Med.<br>Hard                                        |
| Color of lean .....                                     | Slightly<br>Shady                     | Slightly<br>Shady                        | Excellent                                                   | Good                                            | Good                                                          | Good                                                | Slightly<br>Shady                                             | Slightly<br>Shady                                   |

Appendix Table 9—Summary of Daily Gains, Daily Feed Consumption, Feed Efficiency and Costs  
Per 100 Pounds Gain—Knoxville, Summer 1950

| Number, Weights<br>Carcass Measurements<br>and Quality                         | Lot Numbers and Treatments                     |                                                            |                                                 |                                                                |                                                        |                                                                |                                                        |
|--------------------------------------------------------------------------------|------------------------------------------------|------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------|
|                                                                                | 13 + 14                                        | 11 + 12                                                    | 9 + 10                                          | 7 + 8                                                          | 5 + 6                                                  | 3 + 4                                                          | 1 + 2                                                  |
|                                                                                | Full feed<br>corn +<br>supplement<br>in drylot | Full feed<br>corn +<br>supplement<br>on alfalfa<br>pasture | Full feed<br>corn only<br>on alfalfa<br>pasture | 80% full<br>feed corn +<br>supplement<br>on alfalfa<br>pasture | 80% full<br>feed corn<br>only on<br>alfalfa<br>pasture | 60% full<br>feed corn +<br>supplement<br>on alfalfa<br>pasture | 60% full<br>feed corn<br>only on<br>alfalfa<br>pasture |
| Number of pigs .....                                                           | 6                                              | 6                                                          | 6                                               | 6                                                              | 6                                                      | 6                                                              | 6                                                      |
| Av. number of days to<br>market weight .....                                   | 94.0                                           | 82.7                                                       | 103.3                                           | 112.7                                                          | 122.0                                                  | 136.0                                                          | 136.0                                                  |
| Av. initial weights, lb. ....                                                  | 58.2                                           | 56.0                                                       | 56.7                                            | 56.8                                                           | 56.8                                                   | 56.7                                                           | 56.7                                                   |
| Av. final weight, lb. ....                                                     | 209.3                                          | 205.7                                                      | 206.1                                           | 204.1                                                          | 200.1                                                  | 209.3                                                          | 201.8                                                  |
| Av. daily gain, lb. ....                                                       | 1.61                                           | 1.82                                                       | 1.45                                            | 1.31                                                           | 1.17                                                   | 1.12                                                           | 1.07                                                   |
| Av. daily feed: <sup>a</sup>                                                   |                                                |                                                            |                                                 |                                                                |                                                        |                                                                |                                                        |
| Ground yellow corn, lb. ....                                                   | 4.60                                           | 4.86                                                       | 4.80                                            | 3.72                                                           | 4.03                                                   | 3.00                                                           | 3.37                                                   |
| Tankage, lb. ....                                                              | .55                                            | .44                                                        | —                                               | .34                                                            | —                                                      | .28                                                            | —                                                      |
| Soybean oil meal, lb. ....                                                     | .55                                            | .44                                                        | —                                               | .34                                                            | —                                                      | .28                                                            | —                                                      |
| Alfalfa meal, lb. ....                                                         | .13                                            | —                                                          | —                                               | —                                                              | —                                                      | —                                                              | —                                                      |
| Total, lb. ....                                                                | 5.83                                           | 5.74                                                       | 4.80                                            | 4.40                                                           | 4.03                                                   | 3.55                                                           | 3.37                                                   |
| Av. feed consumed per 100 lb. gain:                                            |                                                |                                                            |                                                 |                                                                |                                                        |                                                                |                                                        |
| Ground yellow corn, lb. ....                                                   | 285.9                                          | 266.8                                                      | 332.1                                           | 283.4                                                          | 343.0                                                  | 267.7                                                          | 316.2                                                  |
| Tankage, lb. ....                                                              | 34.2                                           | 24.4                                                       | —                                               | 26.0                                                           | —                                                      | 24.5                                                           | —                                                      |
| Soybean oil meal, lb. ....                                                     | 34.2                                           | 24.4                                                       | —                                               | 26.0                                                           | —                                                      | 24.5                                                           | —                                                      |
| Alfalfa meal, lb. ....                                                         | 8.2                                            | —                                                          | —                                               | —                                                              | —                                                      | —                                                              | —                                                      |
| Total, lb. ....                                                                | 362.5                                          | 315.6                                                      | 332.1                                           | 335.4                                                          | 343.0                                                  | 316.7                                                          | 316.2                                                  |
| Av. feed cost per 100 lb. of gain<br>(exclusive of pasture) <sup>b</sup> ..... | \$11.36                                        | 9.78                                                       | 9.46                                            | 10.39                                                          | 9.78                                                   | 9.81                                                           | 9.01                                                   |

<sup>a</sup>Self-fed mineral mixture of 50% granulated salt, 25% steamed bone meal and 25% pulverized limestone.

<sup>b</sup>Feed prices used: Corn .....\$ 1.60 bushel  
Tankage ..... 110.00 ton  
SBOM ..... 78.00 ton  
Alfalfa meal ..... 40.00 ton

Appendix Table 10—*Summary of Carcass Data—Knoxville, Summer 1950*

| Number, Weights<br>Carcass Measurements<br>and Quality | Lot Numbers and Treatment                      |                                                            |                                                 |                                                                |                                                        |                                                                |                                                        |
|--------------------------------------------------------|------------------------------------------------|------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------|
|                                                        | 13 + 14                                        | 11 + 12                                                    | 9 + 10                                          | 7 + 8                                                          | 5 + 6                                                  | 3 + 4                                                          | 1 + 2                                                  |
|                                                        | Full feed<br>corn +<br>supplement<br>in drylot | Full feed<br>corn +<br>supplement<br>on alfalfa<br>pasture | Full feed<br>corn only<br>on alfalfa<br>pasture | 80% full<br>feed corn +<br>supplement<br>on alfalfa<br>pasture | 80% full<br>feed corn<br>only on<br>alfalfa<br>pasture | 60% full<br>feed corn +<br>supplement<br>on alfalfa<br>pasture | 60% full<br>feed corn<br>only on<br>alfalfa<br>pasture |
| Number of pigs .....                                   | 3                                              | 4                                                          | 2                                               | 5                                                              | 5                                                      | 5                                                              | 6                                                      |
| Av. kill weight .....                                  | 206.7                                          | 205.0                                                      | 202.5                                           | 206.0                                                          | 200.4                                                  | 211.2                                                          | 201.8                                                  |
| Av. chilled carcass weight .....                       | 140.0                                          | 140.7                                                      | 137.9                                           | 138.5                                                          | 130.5                                                  | 139.5                                                          | 131.1                                                  |
| Av. dressing percent .....                             | 67.7                                           | 68.6                                                       | 68.1                                            | 67.2                                                           | 65.1                                                   | 66.0                                                           | 65.0                                                   |
| Mean Percentage Values                                 |                                                |                                                            |                                                 |                                                                |                                                        |                                                                |                                                        |
| Primal cuts:                                           | L.W. C.W.                                      | L.W. C.W.                                                  | L.W. C.W.                                       | L.W. C.W.                                                      | L.W. C.W.                                              | L.W. C.W.                                                      | L.W. C.W.                                              |
| Ham .....                                              | 14.9 22.1                                      | 13.6 19.8                                                  | 14.2 20.8                                       | 13.9 20.6                                                      | 12.7 19.5                                              | 14.0 21.2                                                      | 13.6 20.9                                              |
| Loin .....                                             | 12.2 18.0                                      | 11.9 17.3                                                  | 11.0 16.2                                       | 11.5 17.1                                                      | 10.9 16.8                                              | 11.3 17.1                                                      | 10.7 16.5                                              |
| Belly .....                                            | 9.4 13.8                                       | 9.6 14.0                                                   | 10.7 15.7                                       | 9.0 13.4                                                       | 9.1 14.0                                               | 8.8 13.3                                                       | 8.5 13.1                                               |
| Shoulder .....                                         | 10.0 14.7                                      | 11.3 16.5                                                  | 9.7 14.2                                        | 10.8 16.1                                                      | 10.4 17.5                                              | 11.2 17.0                                                      | 11.1 17.0                                              |
| Total .....                                            | 46.5 68.6                                      | 46.4 67.6                                                  | 45.6 66.9                                       | 45.2 67.2                                                      | 43.1 67.8                                              | 45.3 68.6                                                      | 43.9 67.5                                              |
| Lean trim .....                                        | 5.2 7.7                                        | 4.5 6.6                                                    | 5.3 7.8                                         | 5.0 7.4                                                        | 4.1 6.3                                                | 5.6 8.5                                                        | 5.3 8.1                                                |
| Fat trim .....                                         | 10.4 15.4                                      | 13.1 19.1                                                  | 12.5 18.4                                       | 11.6 17.3                                                      | 12.2 18.8                                              | 9.1 13.8                                                       | 10.3 15.8                                              |
| Mean Measurements (Inches)                             |                                                |                                                            |                                                 |                                                                |                                                        |                                                                |                                                        |
| Length of carcass .....                                | 29.0                                           | 28.3                                                       | 27.5                                            | 28.5                                                           | 28.2                                                   | 29.2                                                           | 28.3                                                   |
| Depth of carcass .....                                 | 13.5                                           | 13.7                                                       | 13.2                                            | 14.1                                                           | 13.6                                                   | 13.6                                                           | 13.4                                                   |
| Width of carcass .....                                 | 10.8                                           | 10.8                                                       | 11.7                                            | 10.8                                                           | 10.3                                                   | 11.1                                                           | 10.6                                                   |
| Backfat thickness .....                                | 1.53                                           | 1.50                                                       | 1.77                                            | 1.42                                                           | 1.41                                                   | 1.37                                                           | 1.39                                                   |
| Mean Values of Other Carcass Data                      |                                                |                                                            |                                                 |                                                                |                                                        |                                                                |                                                        |
| Firmness of carcass .....                              | Hard                                           | Hard                                                       | Hard —                                          | Hard —                                                         | Med.<br>Hard                                           | Med.<br>Hard                                                   | Med.<br>Hard —                                         |
| Color of lean .....                                    | Excellent —                                    | Excellent                                                  | Excellent                                       | Excellent —                                                    | Excellent —                                            | Good +                                                         | Good +                                                 |

Appendix Table 11—*Summary of Daily Gains, Daily Feed Consumption, Feed Efficiency and Costs per 100 Pounds Gain—Columbia, Summer 1950*

| Number, Days on Test,<br>Weights, Gains, Fields<br>and Costs of Gain | Lot Numbers and Treatment                              |                                                                  |                                                                           |                                |                                                                      |                                                                               |                               |                                                                      |                                                                               |                                |  |
|----------------------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------|----------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------|----------------------------------------------------------------------|-------------------------------------------------------------------------------|--------------------------------|--|
|                                                                      | 13 + 14                                                | 3 + 11                                                           | 6 + 12                                                                    | 5 + 9                          |                                                                      | 2 + 8                                                                         |                               | 1 + 7                                                                |                                                                               | 4 + 10                         |  |
|                                                                      | Full<br>Feed<br>corn +<br>supple-<br>ment in<br>drylot | Full<br>feed<br>corn +<br>supple-<br>ment on<br>Ladino<br>clover | Full<br>feed<br>corn +<br>supple-<br>ment on<br>Louisiana<br>white clover | Lots<br>3+ 11<br>and<br>6 + 12 | 80% full<br>feed<br>corn +<br>supple-<br>ment on<br>Ladino<br>clover | 80% full<br>feed<br>corn +<br>supple-<br>ment on<br>Louisiana<br>white clover | Lots<br>5 + 9<br>and<br>2 + 8 | 60% full<br>feed<br>corn +<br>supple-<br>ment on<br>Ladino<br>clover | 60% full<br>feed<br>corn +<br>supple-<br>ment on<br>Louisiana<br>white clover | Lots<br>1 + 7<br>and<br>4 + 10 |  |
| Number of pigs                                                       | 6                                                      | 6                                                                | 6                                                                         | 12                             | 6                                                                    | 6                                                                             | 12                            | 6                                                                    | 6                                                                             | 12                             |  |
| Av. number of animal days                                            | 98.0                                                   | 88.7                                                             | 88.7                                                                      | 88.7                           | 107.3                                                                | 109.7                                                                         | 108.5                         | 123.7                                                                | 130.7                                                                         | 127.2                          |  |
| Av. initial wt., lb.                                                 | 46.7                                                   | 46.8                                                             | 47.2                                                                      | 47.0                           | 46.8                                                                 | 47.2                                                                          | 47.0                          | 47.3                                                                 | 46.3                                                                          | 46.8                           |  |
| Av. final wt., lb.                                                   | 203.0                                                  | 210.0                                                            | 210.0                                                                     | 210.0                          | 205.0                                                                | 208.9                                                                         | 207.0                         | 208.0                                                                | 213.8                                                                         | 210.9                          |  |
| Av. daily gain, lb.                                                  | 1.60                                                   | 1.84                                                             | 1.84                                                                      | 1.84                           | 1.47                                                                 | 1.47                                                                          | 1.47                          | 1.30                                                                 | 1.28                                                                          | 1.29                           |  |
| Av. daily feed <sup>a</sup>                                          |                                                        |                                                                  |                                                                           |                                |                                                                      |                                                                               |                               |                                                                      |                                                                               |                                |  |
| Ground yellow corn, lb.                                              | 4.08                                                   | 5.39                                                             | 5.58                                                                      | 5.48                           | 3.87                                                                 | 4.03                                                                          | 3.95                          | 3.22                                                                 | 3.25                                                                          | 3.24                           |  |
| Tankage, lb.                                                         | .60                                                    | .56                                                              | .61                                                                       | .58                            | .39                                                                  | .41                                                                           | .40                           | .31                                                                  | .31                                                                           | .31                            |  |
| Soybean oil meal, lb.                                                | .60                                                    | .56                                                              | .61                                                                       | .58                            | .39                                                                  | .41                                                                           | .40                           | .31                                                                  | .31                                                                           | .31                            |  |
| Alfalfa meal, lb.                                                    | .12                                                    | —                                                                | —                                                                         | —                              | —                                                                    | —                                                                             | —                             | —                                                                    | —                                                                             | —                              |  |
| Total, lb.                                                           | 5.40                                                   | 6.51                                                             | 6.80                                                                      | 6.64                           | 4.65                                                                 | 4.85                                                                          | 4.75                          | 3.84                                                                 | 3.87                                                                          | 3.86                           |  |
| Av. feed consumed/100 lb. gain                                       |                                                        |                                                                  |                                                                           |                                |                                                                      |                                                                               |                               |                                                                      |                                                                               |                                |  |
| Ground yellow corn, lb.                                              | 256.0                                                  | 288.5                                                            | 302.3                                                                     | 295.4                          | 263.8                                                                | 273.1                                                                         | 268.4                         | 248.2                                                                | 254.2                                                                         | 251.2                          |  |
| Tankage, lb.                                                         | 37.3                                                   | 30.3                                                             | 32.9                                                                      | 31.6                           | 26.7                                                                 | 27.4                                                                          | 27.1                          | 24.0                                                                 | 24.1                                                                          | 24.1                           |  |
| Soybean oil meal, lb.                                                | 37.3                                                   | 30.3                                                             | 32.9                                                                      | 31.6                           | 26.7                                                                 | 27.4                                                                          | 27.1                          | 24.0                                                                 | 24.1                                                                          | 24.1                           |  |
| Alfalfa meal, lb.                                                    | 7.5                                                    | —                                                                | —                                                                         | —                              | —                                                                    | —                                                                             | —                             | —                                                                    | —                                                                             | —                              |  |
| Total, lb.                                                           | 338.1                                                  | 349.1                                                            | 368.1                                                                     | 358.6                          | 317.2                                                                | 327.9                                                                         | 322.6                         | 296.2                                                                | 302.4                                                                         | 299.4                          |  |
| Feed costs/100 lb. gain<br>(exclusive of pasture) <sup>b</sup>       | \$11.24                                                | 11.37                                                            | 12.02                                                                     | 11.70                          | 10.30                                                                | 10.64                                                                         | 10.48                         | 9.59                                                                 | 9.78                                                                          | 9.69                           |  |

<sup>a</sup>Self-fed a mineral mixture of 50% salt, 25% steamed bone meal and 25% pulverized limestone.

<sup>b</sup>Feed prices: Corn .....\$ 1.65 bushel  
 Tankage ..... 110.00 ton  
 SBOM ..... 79.00 ton  
 Alfalfa meal ..... 45.00 ton

Appendix Table 12—*Summary of Carcass Data—Columbia, Summer 1950*

| Number, Weights,<br>Carcass Measurements<br>and Quality | Lot Numbers and Treatment                      |                                                          |                                                                        |                                                              |                                                                            |                                                              |                                                                            |
|---------------------------------------------------------|------------------------------------------------|----------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------------|
|                                                         | 13 + 14                                        | 3 + 11                                                   | 6 + 12                                                                 | 5 + 9                                                        | 2 + 8                                                                      | 1 + 7                                                        | 4 + 10                                                                     |
|                                                         | Full feed<br>corn +<br>supplement<br>in drylot | Full feed<br>corn +<br>supplement<br>on Ladino<br>clover | Full feed<br>corn +<br>supplement<br>on Louisi-<br>ana white<br>clover | 80% full<br>feed corn +<br>supplement<br>on Ladino<br>clover | 80% full<br>feed corn +<br>supplement<br>on Louisi-<br>ana white<br>clover | 60% full<br>feed corn +<br>supplement<br>on Ladino<br>clover | 60% full<br>feed corn +<br>supplement<br>on Louisi-<br>ana white<br>clover |
| Number of pigs .....                                    | 6                                              | 6                                                        | 6                                                                      | 6                                                            | 6                                                                          | 6                                                            | 6                                                                          |
| Av. kill weight, lb. ....                               | 218.3                                          | 228.0                                                    | 234.7                                                                  | 220.3                                                        | 229.0                                                                      | 220.0                                                        | 224.5                                                                      |
| Av. chilled carcass wt., lb. ....                       | 154.5                                          | 160.3                                                    | 166.8                                                                  | 152.3                                                        | 158.4                                                                      | 152.6                                                        | 158.8                                                                      |
| Av. dressing percent .....                              | 70.8                                           | 70.3                                                     | 71.1                                                                   | 69.1                                                         | 69.2                                                                       | 69.4                                                         | 70.7                                                                       |
| Mean Percentage Values                                  |                                                |                                                          |                                                                        |                                                              |                                                                            |                                                              |                                                                            |
| Primal cuts:                                            | L.W. C.W.                                      | L.W. C.W.                                                | L.W. C.W.                                                              | L.W. C.W.                                                    | L.W. C.W.                                                                  | L.W. C.W.                                                    | L.W. C.W.                                                                  |
| Ham .....                                               | 14.3 20.3                                      | 14.7 20.9                                                | 14.4 20.3                                                              | 15.1 21.8                                                    | 14.5 20.8                                                                  | 14.5 21.0                                                    | 14.6 19.4                                                                  |
| Loin .....                                              | 9.6 13.6                                       | 9.7 13.8                                                 | 9.5 13.4                                                               | 9.8 14.2                                                     | 9.7 14.0                                                                   | 9.9 14.2                                                     | 10.0 14.1                                                                  |
| Belly .....                                             | 11.2 15.8                                      | 10.7 16.6                                                | 12.3 17.3                                                              | 10.9 15.8                                                    | 10.8 15.6                                                                  | 10.7 15.4                                                    | 10.6 15.1                                                                  |
| Shoulder .....                                          | 10.3 14.6                                      | 10.7 15.1                                                | 10.3 14.4                                                              | 10.6 15.4                                                    | 10.5 15.2                                                                  | 10.7 15.4                                                    | 10.7 15.1                                                                  |
| Total .....                                             | 45.4 64.3                                      | 45.8 66.4                                                | 46.5 65.4                                                              | 46.4 67.2                                                    | 45.5 65.6                                                                  | 45.8 66.0                                                    | 46.0 63.7                                                                  |
| Lean trim .....                                         | 6.8 9.6                                        | 6.8 10.0                                                 | 7.8 11.0                                                               | 6.8 9.9                                                      | 7.1 10.3                                                                   | 6.7 9.7                                                      | 7.3 12.2                                                                   |
| Fat trim .....                                          | 12.7 17.9                                      | 13.9 19.8                                                | 13.9 19.5                                                              | 12.5 18.0                                                    | 12.3 17.7                                                                  | 12.9 18.5                                                    | 10.3 17.2                                                                  |
| Mean Measurements (Inches)                              |                                                |                                                          |                                                                        |                                                              |                                                                            |                                                              |                                                                            |
| Length of carcass .....                                 | 29.5                                           | 29.4                                                     | 30.1                                                                   | 29.1                                                         | 30.5                                                                       | 29.6                                                         | 30.0                                                                       |
| Depth of carcass .....                                  | 14.1                                           | 14.0                                                     | 13.9                                                                   | 13.7                                                         | 13.9                                                                       | 13.8                                                         | 14.0                                                                       |
| Width of carcass .....                                  | 11.4                                           | 11.4                                                     | 11.7                                                                   | 11.5                                                         | 12.9                                                                       | 11.0                                                         | 10.9                                                                       |
| Backfat thickness .....                                 | 1.93                                           | 1.97                                                     | 2.01                                                                   | 1.59                                                         | 1.62                                                                       | 1.65                                                         | 1.66                                                                       |
| Mean Values of Other Carcass Data                       |                                                |                                                          |                                                                        |                                                              |                                                                            |                                                              |                                                                            |
| Firmness of carcass .....                               | Med. Hard                                      | Med. Hard —                                              | Med. Hard                                                              | Med. Hard                                                    | Med. Hard —                                                                | Med. Hard                                                    | Med. Hard                                                                  |
| Color of lean .....                                     | Excellent                                      | Excellent —                                              | Excellent—                                                             | Excellent—                                                   | Excellent—                                                                 | Excellent+                                                   | Excell.+                                                                   |

Appendix Table 13 — *Summary of Daily Gains, Daily Feed Consumption, Feed Efficiency and Costs Per 100 Pounds Gain—Knoxville, Winter 1951*

| Number, Days on Test,<br>Weights, Gains, Feeds<br>and Costs of Gain            | Lot Numbers and Treatment                      |                                                                            |                                                                 |                                                                                |                                                                        |                                                                                |                                                                        |
|--------------------------------------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------|
|                                                                                | 13 + 14                                        | 3 + 4                                                                      | 1 + 2                                                           | 7 + 8                                                                          | 5 + 6                                                                  | 11 + 12                                                                        | 9 + 10                                                                 |
|                                                                                | Full feed<br>corn +<br>supplement<br>on drylot | Full feed<br>corn +<br>supplement<br>on crimson<br>clover +<br>winter oats | Full feed<br>corn only<br>on crimson<br>clover +<br>winter oats | 80% full<br>feed corn +<br>supplement<br>on crimson<br>clover +<br>winter oats | 80% full<br>feed<br>corn only<br>on crimson<br>clover +<br>winter oats | 60% full<br>feed corn +<br>supplement<br>on crimson<br>clover +<br>winter oats | 60% full<br>feed<br>corn only<br>on crimson<br>clover +<br>winter oats |
| Number of pigs .....                                                           | 8                                              | 6                                                                          | 6                                                               | 6                                                                              | 6                                                                      | 6                                                                              | 6                                                                      |
| Av. number of animal days .....                                                | 90.0                                           | 85.3                                                                       | 99.3                                                            | 99.3                                                                           | 101.7                                                                  | 101.7                                                                          | 108.5                                                                  |
| Av. initial wt., lb. ....                                                      | 79.0                                           | 79.3                                                                       | 79.8                                                            | 79.8                                                                           | 80.7                                                                   | 80.3                                                                           | 80.3                                                                   |
| Av. final wt., lb. ....                                                        | 210.4                                          | 208.3                                                                      | 203.2                                                           | 215.0                                                                          | 211.8                                                                  | 208.5                                                                          | 203.7                                                                  |
| Av. daily gain, lb. ....                                                       | 1.46                                           | 1.51                                                                       | 1.24                                                            | 1.36                                                                           | 1.29                                                                   | 1.26                                                                           | 1.13                                                                   |
| Av. daily feed: <sup>a</sup>                                                   |                                                |                                                                            |                                                                 |                                                                                |                                                                        |                                                                                |                                                                        |
| Ground yellow corn, lb. ....                                                   | 4.64                                           | 4.70                                                                       | 4.82                                                            | 4.09                                                                           | 4.64                                                                   | 3.05                                                                           | 3.45                                                                   |
| Tankage, lb. ....                                                              | .51                                            | .34                                                                        | —                                                               | .31                                                                            | —                                                                      | .23                                                                            | —                                                                      |
| Soybean oil meal, lb. ....                                                     | .51                                            | .34                                                                        | —                                                               | .31                                                                            | —                                                                      | .23                                                                            | —                                                                      |
| Alfalfa meal, lb. ....                                                         | .12                                            | —                                                                          | —                                                               | —                                                                              | —                                                                      | —                                                                              | —                                                                      |
| Total, lb. ....                                                                | 5.78                                           | 5.38                                                                       | 4.82                                                            | 4.71                                                                           | 4.64                                                                   | 3.51                                                                           | 3.45                                                                   |
| Av. feed consumed per 100 lb. gain:                                            |                                                |                                                                            |                                                                 |                                                                                |                                                                        |                                                                                |                                                                        |
| Ground yellow corn, lb. ....                                                   | 317.7                                          | 310.7                                                                      | 388.4                                                           | 300.2                                                                          | 359.9                                                                  | 241.4                                                                          | 303.6                                                                  |
| Tankage, lb. ....                                                              | 35.2                                           | 22.7                                                                       | —                                                               | 23.1                                                                           | —                                                                      | 18.4                                                                           | —                                                                      |
| Soybean oil meal, lb. ....                                                     | 35.2                                           | 22.7                                                                       | —                                                               | 23.1                                                                           | —                                                                      | 18.4                                                                           | —                                                                      |
| Alfalfa meal, lb. ....                                                         | 8.0                                            | —                                                                          | —                                                               | —                                                                              | —                                                                      | —                                                                              | —                                                                      |
| Total, lb. ....                                                                | 396.1                                          | 356.1                                                                      | 388.4                                                           | 346.4                                                                          | 359.9                                                                  | 278.2                                                                          | 303.6                                                                  |
| Av. feed cost per 100 lb. of gain<br>(exclusive of pasture) <sup>b</sup> ..... | \$14.29                                        | 13.35                                                                      | 13.98                                                           | 13.01                                                                          | 12.96                                                                  | 10.45                                                                          | 10.93                                                                  |

<sup>a</sup>Self-fed mineral mixture of 50% salt, 25% steamed bone meal and 25% pulverized limestone.

<sup>b</sup>Feed prices used: Corn .....\$ 2.01 bushel  
 Tankage ..... 110.00 ton  
 SBOM ..... 81.00 ton  
 Alfalfa meal ..... 45.00 ton

Appendix Table 14—*Summary of Carcass Data—Knoxville, Winter 1951*

| Number, Weights,<br>Carcass Measurements<br>and Quality | Lot Numbers and Treatment                      |                                                                            |                                                                 |                                                                                |                                                                        |                                                                                |                                                                        |
|---------------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------|
|                                                         | 13 + 14                                        | 3 + 4                                                                      | 1 + 2                                                           | 7 + 8                                                                          | 5 + 6                                                                  | 11 + 12                                                                        | 9 + 10                                                                 |
|                                                         | Full feed<br>corn +<br>supplement<br>on drylot | Full feed<br>corn +<br>supplement<br>on crimson<br>clover +<br>winter oats | Full feed<br>corn only<br>on crimson<br>clover +<br>winter oats | 80% full<br>feed corn +<br>supplement<br>on crimson<br>clover +<br>winter oats | 80% full<br>feed<br>corn only<br>on crimson<br>clover +<br>winter oats | 60% full<br>feed corn +<br>supplement<br>on crimson<br>clover +<br>winter oats | 60% full<br>feed<br>corn only<br>on crimson<br>clover +<br>winter oats |
| Number of pigs .....                                    | 4                                              | 3                                                                          | 3                                                               | 5                                                                              | 3                                                                      | 5                                                                              | 5                                                                      |
| Av. kill wt., lb. ....                                  | 208.5                                          | 195.7                                                                      | 192.7                                                           | 204.0                                                                          | 204.3                                                                  | 198.2                                                                          | 197.4                                                                  |
| Av. chilled carcass wt., lb. ....                       | 159.5                                          | 145.8                                                                      | 149.0                                                           | 148.8                                                                          | 151.8                                                                  | 143.0                                                                          | 141.8                                                                  |
| Av. dressing percent .....                              | 76.5                                           | 74.5                                                                       | 77.3                                                            | 73.0                                                                           | 74.3                                                                   | 72.2                                                                           | 71.8                                                                   |
| Mean Percentage Values                                  |                                                |                                                                            |                                                                 |                                                                                |                                                                        |                                                                                |                                                                        |
| Primal cuts:                                            | L.W. C.W.                                      | L.W. C.W.                                                                  | L.W. C.W.                                                       | L.W. C.W.                                                                      | L.W. C.W.                                                              | L.W. C.W.                                                                      | L.W. C.W.                                                              |
| Ham .....                                               | 14.7 19.2                                      | 14.8 19.9                                                                  | 15.6 20.2                                                       | 15.5 21.3                                                                      | 15.5 21.0                                                              | 16.0 22.2                                                                      | 15.8 22.0                                                              |
| Loin .....                                              | 11.1 14.5                                      | 11.3 15.1                                                                  | 11.8 15.3                                                       | 11.1 15.3                                                                      | 11.1 15.0                                                              | 11.8 16.3                                                                      | 12.1 16.8                                                              |
| Belly .....                                             | 11.1 14.5                                      | 11.2 15.0                                                                  | 9.8 12.7                                                        | 9.9 13.5                                                                       | 10.7 14.3                                                              | 9.9 13.7                                                                       | 9.4 13.1                                                               |
| Shoulder .....                                          | 12.3 16.2                                      | 12.9 17.2                                                                  | 13.1 17.0                                                       | 12.6 17.2                                                                      | 12.0 16.1                                                              | 12.3 17.1                                                                      | 12.1 16.8                                                              |
| Total .....                                             | 49.2 64.4                                      | 50.2 67.2                                                                  | 50.3 65.2                                                       | 49.1 67.3                                                                      | 49.3 66.4                                                              | 50.0 69.3                                                                      | 49.4 68.7                                                              |
| Lean trim .....                                         | 3.8 5.0                                        | 3.8 5.1                                                                    | 2.8 3.5                                                         | 2.8 3.8                                                                        | 3.0 4.1                                                                | 3.7 5.2                                                                        | 3.4 4.7                                                                |
| Fat trim .....                                          | 16.0 21.0                                      | 15.4 20.6                                                                  | 15.8 20.5                                                       | 13.7 18.8                                                                      | 13.2 17.7                                                              | 12.4 17.3                                                                      | 12.2 17.0                                                              |
| Mean Measurements (Inches)                              |                                                |                                                                            |                                                                 |                                                                                |                                                                        |                                                                                |                                                                        |
| Length of carcass .....                                 | 29.1                                           | 27.7                                                                       | 28.7                                                            | 28.5                                                                           | 29.7                                                                   | 28.6                                                                           | 28.9                                                                   |
| Depth of carcass .....                                  | 14.0                                           | 13.5                                                                       | 14.0                                                            | 13.8                                                                           | 14.4                                                                   | 13.5                                                                           | 13.3                                                                   |
| Width of carcass .....                                  | 11.1                                           | 11.0                                                                       | 11.0                                                            | 10.8                                                                           | 13.0                                                                   | 10.7                                                                           | 10.3                                                                   |
| Backfat thickness .....                                 | 1.66                                           | 1.59                                                                       | 1.57                                                            | 1.50                                                                           | 1.42                                                                   | 1.40                                                                           | 1.31                                                                   |
| Mean Values of Other Carcass Data                       |                                                |                                                                            |                                                                 |                                                                                |                                                                        |                                                                                |                                                                        |
| Firmness of carcass .....                               | Hard                                           | Hard                                                                       | Hard                                                            | Hard—                                                                          | Med. Hard+                                                             | Med. Hard+                                                                     | Med. Hard—                                                             |
| Color of lean .....                                     | Excellent+                                     | Excellent                                                                  | Excellent                                                       | Excellent—                                                                     | Excellent—                                                             | Good+                                                                          | Good+                                                                  |

Appendix Table 15—*Summary of Daily Gains, Daily Feed Consumption, Feed Efficiency and Costs per 100 Pounds Gain—Columbia, Winter 1951*

| Number, Days on Feed,<br>Weights, Feeds<br>Costs of Gains           | Lot Numbers and Treatment                           |                                                                 |                                                                                            |                                                                                           |                                |                                                                               |                                                                                                  |                                |                                                                                                   |                                                                                                  |                                |
|---------------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------|
|                                                                     | 15 + 16                                             | 13 + 14                                                         | 5 + 9                                                                                      | 3 + 12                                                                                    |                                | 2 + 6                                                                         | 8 + 11                                                                                           |                                | 4 + 7                                                                                             | 1 + 10                                                                                           |                                |
|                                                                     | Full feed<br>corn +<br>supple-<br>ment in<br>drylot | Full feed<br>grain<br>sorghum +<br>supple-<br>ment in<br>drylot | Full feed<br>grain sor-<br>ghum +<br>supple-<br>ment on<br>Crimson<br>clover +<br>ryegrass | Full feed<br>grain sor-<br>ghum +<br>supple-<br>ment on<br>Button<br>clover +<br>ryegrass | Lots<br>5 + 9<br>and<br>3 + 12 | 80% full<br>feed<br>grain<br>sorghum<br>on<br>Crimson<br>clover +<br>ryegrass | 80% full<br>feed<br>grain sor-<br>ghum +<br>supple-<br>ment on<br>Button<br>clover +<br>ryegrass | Lots<br>2 + 6<br>and<br>8 + 11 | 60% full<br>feed<br>grain sor-<br>ghum +<br>supple-<br>ment on<br>Crimson<br>clover +<br>ryegrass | 60% full<br>feed<br>grain sor-<br>ghum +<br>supple-<br>ment on<br>Button<br>clover +<br>ryegrass | Lots<br>4 + 7<br>and<br>1 + 10 |
| Number of pigs .....                                                | 5                                                   | 6                                                               | 6                                                                                          | 6                                                                                         | 12                             | 6                                                                             | 6                                                                                                | 12                             | 6                                                                                                 | 6                                                                                                | 12                             |
| Av. number of animal days .....                                     | 122.2                                               | 130.0                                                           | 106.6                                                                                      | 116.0                                                                                     | 113.7                          | 133.7                                                                         | 133.7                                                                                            | 133.7                          | 153.2                                                                                             | 157.7                                                                                            | 155.4                          |
| Av. initial wt., lb. ....                                           | 45.4                                                | 44.7                                                            | 44.7                                                                                       | 45.0                                                                                      | 44.8                           | 44.7                                                                          | 44.5                                                                                             | 44.6                           | 44.5                                                                                              | 45.0                                                                                             | 44.8                           |
| Av. final wt., lb. ....                                             | 229.1                                               | 228.7                                                           | 222.8                                                                                      | 232.0                                                                                     | 227.4                          | 224.7                                                                         | 227.7                                                                                            | 226.2                          | 223.6                                                                                             | 228.8                                                                                            | 226.2                          |
| Av. daily gain, lb. ....                                            | 1.50                                                | 1.42                                                            | 1.67                                                                                       | 1.61                                                                                      | 1.64                           | 1.35                                                                          | 1.37                                                                                             | 1.36                           | 1.17                                                                                              | 1.17                                                                                             | 1.17                           |
| Av. daily feed <sup>a</sup>                                         |                                                     |                                                                 |                                                                                            |                                                                                           |                                |                                                                               |                                                                                                  |                                |                                                                                                   |                                                                                                  |                                |
| Ground yellow corn, lb. ....                                        | 4.35                                                | —                                                               | —                                                                                          | —                                                                                         | —                              | —                                                                             | —                                                                                                | —                              | —                                                                                                 | —                                                                                                | —                              |
| Grain sorghum, lb. ....                                             | —                                                   | 4.31                                                            | 5.31                                                                                       | 4.83                                                                                      | 5.07                           | 3.80                                                                          | 3.80                                                                                             | 3.80                           | 2.96                                                                                              | 2.95                                                                                             | 2.96                           |
| Tankage, lb. ....                                                   | .59                                                 | .56                                                             | .29                                                                                        | .43                                                                                       | .36                            | .32                                                                           | .32                                                                                              | .32                            | .24                                                                                               | .24                                                                                              | .24                            |
| Soybean oil meal, lb. ....                                          | .59                                                 | .56                                                             | .29                                                                                        | .43                                                                                       | .36                            | .32                                                                           | .32                                                                                              | .32                            | .24                                                                                               | .24                                                                                              | .24                            |
| Alfalfa meal, lb. ....                                              | .12                                                 | .12                                                             | —                                                                                          | —                                                                                         | —                              | —                                                                             | —                                                                                                | —                              | —                                                                                                 | —                                                                                                | —                              |
| Total, lb. ....                                                     | 5.65                                                | 5.55                                                            | 5.89                                                                                       | 5.69                                                                                      | 5.79                           | 4.44                                                                          | 4.44                                                                                             | 4.44                           | 3.44                                                                                              | 3.43                                                                                             | 3.44                           |
| Feed consumed/100 lb. gain                                          |                                                     |                                                                 |                                                                                            |                                                                                           |                                |                                                                               |                                                                                                  |                                |                                                                                                   |                                                                                                  |                                |
| Corn, lb. ....                                                      | 289.6                                               | —                                                               | —                                                                                          | —                                                                                         | —                              | —                                                                             | —                                                                                                | —                              | —                                                                                                 | —                                                                                                | —                              |
| Grain sorghum, lb. ....                                             | —                                                   | 304.7                                                           | 317.8                                                                                      | 299.6                                                                                     | 308.7                          | 282.3                                                                         | 277.1                                                                                            | 279.7                          | 253.2                                                                                             | 252.7                                                                                            | 252.9                          |
| Tankage, lb. ....                                                   | 39.1                                                | 39.7                                                            | 17.6                                                                                       | 26.8                                                                                      | 22.2                           | 23.4                                                                          | 23.0                                                                                             | 23.2                           | 20.9                                                                                              | 20.6                                                                                             | 20.8                           |
| Soybean oil meal, lb. ....                                          | 39.1                                                | 39.7                                                            | 17.6                                                                                       | 26.8                                                                                      | 22.2                           | 23.4                                                                          | 23.0                                                                                             | 23.2                           | 20.9                                                                                              | 20.6                                                                                             | 20.8                           |
| Alfalfa meal, lb. ....                                              | 8.0                                                 | 8.1                                                             | —                                                                                          | —                                                                                         | —                              | —                                                                             | —                                                                                                | —                              | —                                                                                                 | —                                                                                                | —                              |
| Total, lb. ....                                                     | 375.8                                               | 392.2                                                           | 353.0                                                                                      | 353.2                                                                                     | 353.1                          | 329.1                                                                         | 323.1                                                                                            | 326.1                          | 295.0                                                                                             | 293.9                                                                                            | 294.5                          |
| Feed cost/100 lb. gain<br>(exclusive of pasture) <sup>b</sup> ..... | \$12.99                                             | 12.55                                                           | 10.49                                                                                      | 10.91                                                                                     | 10.69                          | 10.09                                                                         | 9.91                                                                                             | 10.00                          | 9.02                                                                                              | 9.00                                                                                             | 9.02                           |

<sup>a</sup>Self-fed a mineral mixture of 50% salt, 25% steamed bone meal and 25% pulverized limestone.

<sup>b</sup>Feed prices used: Corn, \$1.70 bushel; Sorghum, \$1.53 bushel; Tankage, \$118.00 ton; SBOM, \$86.00 ton; and Alfalfa meal, \$45.00 ton.

Appendix Table 16—Summary of Carcass Data—Columbia, Winter 1951

| Number, Weights,<br>Carcass Measurements<br>and Quality | Lot Numbers and Treatment                      |                                                                                      |                                                                                       |                                                                                      |                                                                                         |                                                                                        |                                                                                         |                                                                                        |
|---------------------------------------------------------|------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
|                                                         | 15 + 16                                        | 13 + 14                                                                              | 5 + 9                                                                                 | 3 + 12                                                                               | 2 + 6                                                                                   | 8 + 11                                                                                 | 1 + 10                                                                                  | 4 + 7                                                                                  |
|                                                         | Full feed<br>corn +<br>supplement<br>in drylot | Full feed<br>grain sor-<br>ghum +<br>supplement<br>in drylot<br>clover +<br>ryegrass | Full feed<br>grain sor-<br>ghum +<br>supplement<br>on Crimson<br>clover +<br>ryegrass | Full feed<br>grain sor-<br>ghum +<br>supplement<br>on Button<br>clover +<br>ryegrass | 80% full<br>feed grain<br>sorghum +<br>supplement<br>on Crimson<br>clover +<br>ryegrass | 80% full<br>feed grain<br>sorghum +<br>supplement<br>on Button<br>clover +<br>ryegrass | 60% full<br>feed grain<br>sorghum +<br>supplement<br>on Crimson<br>clover +<br>ryegrass | 60% full<br>feed grain<br>sorghum +<br>supplement<br>on Button<br>clover +<br>ryegrass |
| Number of pigs .....                                    | 4                                              | 5                                                                                    | 6                                                                                     | 5                                                                                    | 5                                                                                       | 5                                                                                      | 5                                                                                       | 4                                                                                      |
| Av. kill wt., lb. ....                                  | 231.4                                          | 230.8                                                                                | 226.6                                                                                 | 237.0                                                                                | 224.2                                                                                   | 227.8                                                                                  | 232.2                                                                                   | 223.3                                                                                  |
| Av. chilled carcass<br>weight, lb. ....                 | 167.8                                          | 164.2                                                                                | 162.2                                                                                 | 167.6                                                                                | 159.2                                                                                   | 161.2                                                                                  | 162.8                                                                                   | 159.8                                                                                  |
| Av. dressing percent ..                                 | 72.5                                           | 71.1                                                                                 | 71.6                                                                                  | 70.7                                                                                 | 71.0                                                                                    | 70.8                                                                                   | 70.1                                                                                    | 71.6                                                                                   |
| Mean Percentage Values                                  |                                                |                                                                                      |                                                                                       |                                                                                      |                                                                                         |                                                                                        |                                                                                         |                                                                                        |
| Primal cuts:                                            | L.W. C.W.                                      | L.W. C.W.                                                                            | L.W. C.W.                                                                             | L.W. C.W.                                                                            | L.W. C.W.                                                                               | L.W. C.W.                                                                              | L.W. C.W.                                                                               | L.W. C.W.                                                                              |
| Ham .....                                               | 14.8 20.3                                      | 14.3 20.0                                                                            | 14.1 19.7                                                                             | 14.1 19.9                                                                            | 14.6 20.5                                                                               | 15.0 21.3                                                                              | 15.0 21.4                                                                               | 15.0 20.9                                                                              |
| Loin .....                                              | 10.3 14.2                                      | 9.8 13.8                                                                             | 9.5 13.2                                                                              | 9.1 12.9                                                                             | 10.0 14.1                                                                               | 10.1 14.3                                                                              | 10.8 15.5                                                                               | 10.9 15.2                                                                              |
| Belly .....                                             | 10.8 15.0                                      | 10.3 14.5                                                                            | 11.8 16.5                                                                             | 11.4 15.6                                                                            | 10.0 14.1                                                                               | 10.1 14.2                                                                              | 9.4 13.5                                                                                | 10.0 13.8                                                                              |
| Shoulder .....                                          | 10.0 13.8                                      | 10.4 14.6                                                                            | 9.3 13.0                                                                              | 9.7 13.7                                                                             | 10.3 14.5                                                                               | 10.6 14.8                                                                              | 10.6 15.1                                                                               | 10.7 14.7                                                                              |
| Total .....                                             | 45.9 63.3                                      | 44.8 62.9                                                                            | 44.7 62.4                                                                             | 44.3 62.1                                                                            | 44.9 63.2                                                                               | 45.8 64.6                                                                              | 45.8 65.5                                                                               | 46.6 64.6                                                                              |
| Lean trim .....                                         | 7.2 9.9                                        | 7.2 10.1                                                                             | 7.5 10.6                                                                              | 6.8 9.7                                                                              | 7.2 10.2                                                                                | 7.4 10.5                                                                               | 7.0 9.8                                                                                 | 6.6 9.1                                                                                |
| Fat trim .....                                          | 14.0 19.3                                      | 14.0 19.6                                                                            | 14.7 20.5                                                                             | 14.5 20.6                                                                            | 12.6 17.3                                                                               | 12.2 17.2                                                                              | 12.3 17.5                                                                               | 12.7 17.5                                                                              |
| Mean Measurements (Inches)                              |                                                |                                                                                      |                                                                                       |                                                                                      |                                                                                         |                                                                                        |                                                                                         |                                                                                        |
| Length of carcass .....                                 | 29.5                                           | 29.3                                                                                 | 29.1                                                                                  | 29.8                                                                                 | 29.8                                                                                    | 29.6                                                                                   | 30.6                                                                                    | 29.9                                                                                   |
| Depth of carcass .....                                  | 14.3                                           | 14.3                                                                                 | 13.8                                                                                  | 14.2                                                                                 | 14.0                                                                                    | 13.0                                                                                   | 11.6                                                                                    | 13.2                                                                                   |
| Width of carcass .....                                  | 10.8                                           | 11.0                                                                                 | 11.6                                                                                  | 11.2                                                                                 | 10.8                                                                                    | 11.4                                                                                   | 11.0                                                                                    | 10.7                                                                                   |
| Backfat thickness .....                                 | 1.66                                           | 1.76                                                                                 | 1.72                                                                                  | 1.73                                                                                 | 1.45                                                                                    | 1.42                                                                                   | 1.51                                                                                    | 1.48                                                                                   |
| Mean Values of Other Carcass Data                       |                                                |                                                                                      |                                                                                       |                                                                                      |                                                                                         |                                                                                        |                                                                                         |                                                                                        |
| Firmness of carcass ..                                  | Med.<br>Hard—                                  | Med.<br>Hard                                                                         | Hard                                                                                  | Hard                                                                                 | Med.<br>Hard                                                                            | Med.<br>Hard+                                                                          | Med.<br>Hard—                                                                           | Med.<br>Hard                                                                           |
| Color of lean .....                                     | Excellent—                                     | Excellent—                                                                           | Excellent—                                                                            | Excellent                                                                            | Excellent—                                                                              | Slightly<br>Shady                                                                      | Excellent—                                                                              | Slightly<br>Shady                                                                      |

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