

FACTORS AFFECTING NET RETURNS FROM HOG PRODUCTION  
WITH SPECIAL EMPHASIS ON TIME OF MARKETING

By

Roy G. Stout  
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By

Roy G. Stout

APPROVED:

APPROVED:

\_\_\_\_\_  
Director of Graduate Studies

\_\_\_\_\_  
Head of Department

\_\_\_\_\_  
Dean of Agriculture

\_\_\_\_\_  
Major Professor

Date \_\_\_\_\_

Blacksburg, Virginia

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## CHAPTER I

### INTRODUCTION

Farmers are becoming more appreciative and conscious of the fact that "happenings" in the marketing sector of our economy materially affect their farm earnings. Most progressive farmers now realize that irrespective of how cheaply a product is produced maximum net revenue from its production is realized only if the product is also marketed at the most opportune time.

All farm products exhibit a pattern of seasonal price variations. The pattern and amount of seasonal price variation is closely associated with variations in the quantity of product marketed throughout the year and the perishability of the product. Hog prices are not immune from this economic ill; in fact, they are a good example of it. The fact that in recent years hog marketings have tended to be more uniformly distributed is an indication that hog producers are becoming more "market conscious."

Today's successful hog producers must not only study and practice the technical phases of breeding, feeding and management, they must likewise strive to understand and appreciate the factors which affect hog prices. Whether aware of it or not, hog producers (and other producers as well) are constantly making forecasts. They must decide whether to: (1) increase or decrease the size of the hog enterprise, (2) breed and feed for an early or late market, or (3) feed the hogs produced to light,

medium or heavy weights. All of these decisions involve price forecasting. And to a great extent a producer's farm earnings are dependent upon his success as a forecaster. For right or wrong, the producer makes up his mind about probable prices and proceeds accordingly.

#### Statement of the Problem

The over-all problem, then, may be phrased in terms of a question: What factors influence -- and to what extent -- returns from the hog enterprise? This thesis concerns itself mainly with the management decisions involved in attempting to maximize returns from the hog enterprise. Management decisions, quite correctly, include the determination of when to market and what weights of hogs to produce. To maximize returns from the hog enterprise requires consideration of both the revenue and cost functions involved. In other words, profits would be at a maximum when marginal costs of the enterprise were equal to the marginal revenue obtainable. <sup>1/</sup> Feed and all other items of costs must be determined, based on quantity of inputs and their respective prices. Hog prices must be calculated (estimated) according to weights and probable date of marketing in order to compute the market revenue. In addition, some means of estimating and accounting for the error of estimate are involved in the full solution of the problem.

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<sup>1/</sup> The criterion for determining a maximum solution in this problem is not different from that of any other economic problem. The marginal conditions which must be met if profits are maximized can be found in any Economic Analysis textbook.



### Importance of the Problem

Income from hog sales contributed to total farm income on 44,029 Virginia farms in 1949. <sup>1/</sup> These farmers sold 681,563 hogs valued at \$17,471,640; the average Virginia farmer selling hogs sold 15 hogs valued at \$397 per lot.

In 1950, 103,554 farms reported hogs on farms. These farms had a total hog inventory of 887,834 head including 90,387 brood sows. Thus, hog production represents a sizeable share of total livestock production in the state. Northern Virginia (Crop Reporting District 2) and Southeastern Virginia (Crop Reporting District 9) are the two major areas of concentration for commercial hog production. <sup>2/</sup> These two districts combined accounted for nearly 60 per cent of the state's income from hogs, with Southeastern Virginia accounting for more than 33 per cent of the state total. Table 1 and Figure 2 show that most counties in Southeastern Virginia obtain a major share of their livestock income from the sale of hogs. For all counties in the area, on the average, 73.7 per cent of the income from the sale of livestock and livestock products (other than poultry and dairying) is derived from the sale of hogs.

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<sup>1/</sup> 1950 Agricultural Census. Preliminary County releases.

<sup>2/</sup> See Figure 1. This outline map shows the counties included in the various Crop Reporting Districts as used by the Virginia Crop Reporting Service.



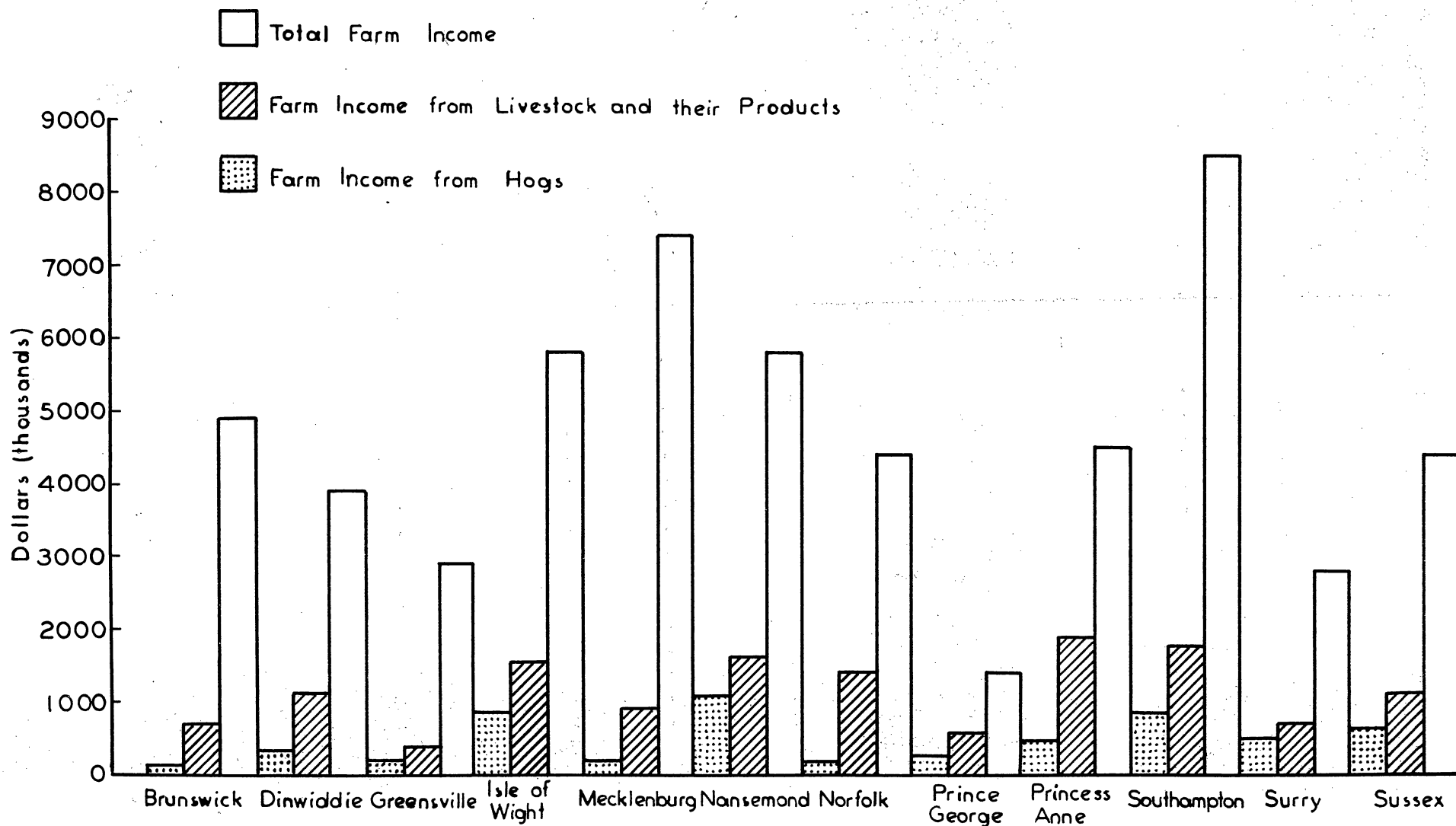


Figure 2.- Total Farm Income, farm income from livestock and livestock products, and farm income from hogs by counties - crop reporting district 9, 1949

Source.- Preliminary county estimates, 1950 Agricultural Census.



Table 1.- Income from Livestock, Hog Sales, Number of Hogs Sold and Number of Farms Selling by Counties in Crop Reporting District 9, 1949

County	Income from Livestock*	Income from Hog Sales	Percent Livestock Income from Hogs Per Cent	Number of Hogs Sold Number	Number of Farms Selling Number
	Dollars	Dollars			
Brunswick	379,813	105,858	27.9	5,449	624
Dinwiddie	535,270	325,590	60.8	11,000	679
Greensville	229,983	175,173	76.2	6,717	436
Isle of Wight	1,019,884	876,053	85.9	25,433	738
Mecklenburg	544,855	148,291	27.2	7,935	803
Nansemond	1,141,219	1,026,472	89.9	30,791	865
Norfolk	354,286	195,765	55.3	6,979	330
Prince George	326,373	241,820	74.1	8,367	365
Princess Anne	730,542	436,371	59.7	13,506	369
Southampton	1,349,065	1,191,104	88.3	37,960	1,308
Surry	565,754	497,428	87.9	15,117	511
Sussex	746,517	621,373	83.2	18,211	706
District total	7,923,561	5,841,298	73.7**	187,465	7,734
Percent of State total	10.2	33.4	22.5***	27.5	17.6

Source of data: Preliminary county estimates, 1950 Agricultural Census.

\* Other than poultry and dairy products

\*\* District average

\*\*\* State average

The main geographic area to which this thesis is directed is South-eastern Virginia for the following reasons: (1) as shown above this is the most concentrated area of commercial hog production in the state, (2) any benefits which may accrue from this thesis would be more beneficial to the total economy (aggregate) because of the number of producers and the size of their operation, and (3) further technological improvements in swine husbandry and feed production would likely lead to an expansion of swine production and marketing in the area. Richmond hog

prices are used in all revenue calculations for it is assumed that Richmond quotations quite accurately reflect the prices paid for hogs at the smaller markets in the area.

### Objectives of the Study

The over-all objective of the study is to analyze certain factors -- and the extent of their influence -- which affect returns to the hog enterprise. The specific objectives of this thesis are: (1) to analyze the price behavior at Richmond for butcher hogs of three weight groups, namely lightweight hogs (180-220 pounds), medium weight hogs (220-270 pounds), and heavy weights (270 pounds and up); (2) to analyze the price relationships between hog prices at Richmond and Chicago; and (3) to determine the most advantageous time of marketing and most profitable weight of hog to produce, farrowed at different times of the year and assuming certain feed consumption data and rate of gain data.

### Methodology and Source of Data

To determine net revenues one must determine total revenue and deduct total cost. Since total revenue is solely the product of the quantity of a given product sold times its unit price, one of the first things which must be determined is the price per unit of product sold. In this thesis the unit of product is pounds of pork and prices are expressed in dollars per hundredweight of hogs (liveweight).

Prices of hogs at Chicago are used because they are readily available in useable form. Hog prices at Chicago were used as an aid in predicting Richmond hog prices for the years prior to 1948 since useable prices were not available from Richmond. In all price data the control years 1942-1946 were omitted for obvious reasons. To make the revenue estimates in Chapter II the 12 year average price of hogs (estimated) at Richmond was used. These price estimates and the details of their derivation are explained in Chapter II.

In making revenue calculations the approximate midpoints of the various weight groups of hogs were chosen. For example, the lightweight hogs (180-220 pounds) are taken as 200 pounds; the medium weight hogs (221-270 pounds) are taken as 250 pounds, and the heavy weight hogs (271 pounds and up) are taken as 300 pounds. In determining the weight of the hogs at a given date the rate of gain reported in Technical Bulletin 894 was used. <sup>1/</sup> Based on these data hogs are assumed to reach 200 pounds at 188 days of age, 250 pounds at 218 days, and 300 pounds at 249 days.

To determine total costs the rather widely accepted procedure of assuming feed costs equal to 75 per cent of total costs was followed. Feed costs were determined by using the physical inputs reported in Technical Bulletin 894. <sup>2/</sup> Feed costs were computed on the basis of prices of feeds prevailing at the time the hogs were marketed. The prices

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<sup>1/</sup> Atkinson, L. Jay and Klein, John W., Feed Consumption and Marketing Weights of Hogs. United States Department of Agriculture, Technical Bulletin No. 894, 1945.

<sup>2/</sup> Ibid.

applied were those reported by the Virginia Crop Reporting Service. The procedures followed in computing costs and determining net revenues are explained in detail as the analysis develops in Chapter III.

Some information obtained from farmers in the statewide survey of livestock farmers conducted by the Virginia Agricultural Experiment Station in March-April of 1951 is used to round-out the analysis.

The specific source of data used is acknowledged wherever it appears in the thesis.

#### Scope and Limitations

The reader must be cautioned that the conclusions from the analysis of the data used in this thesis are based on long time average prices. For any particular year other factors may be of enough importance to outweigh the effect of the factors normally guiding the behavior of the prices of hogs and hog production resources. Also, all feed costs are based on average consumption rates of hogs.

Some error may be present in the analysis due to the use of the estimated prices for Richmond over a long period of time. The use of this estimated price is necessitated because of the heterogeneity of the price quotations at the Richmond market before 1948. Certain adjustments relating to costs of production (daily rate of gain, amount of feed fed, etc.) may be essential before final application of the results of this study can be applied to an individual hog producing operation.

### Review of Literature

There is little information in published literature concerning the optimum weights to sell hogs farrowed at different times of the year. Atkinson and Klein in Technical Bulletin Number 894 determined the increased total value of hogs fed to various heavy weights on a monthly basis using an average of the 1931-1940 Chicago price. <sup>1/</sup> An excellent study of hog prices at Chicago and other markets, Price Differentials for Slaughter Hogs, was conducted by the North Central Livestock Marketing Research Committee. <sup>2/</sup> The behavior of hog price differentials between Chicago and various other markets, mainly in the corn belt region, and price differentials between different weights of hogs on the same markets were studied. They found that the price differential changed frequently between markets. The differential between different weights on the same market had fewer changes than the differential between various markets.

A masters thesis by Bain in 1949 reviewed a large number of experimental results on hog production and discussed some of the more important hog production practices in Southeastern Virginia. <sup>3/</sup> He reported that a

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<sup>1/</sup> Atkinson, L. Jay and Klein, John W., Feed Consumption and Marketing Weights of Hogs. United States Department of Agriculture, Technical Bulletin No. 894, 1945.

<sup>2/</sup> North Central Livestock Marketing Research Committee, Price Differentials for Slaughter Hogs. Iowa State College Agricultural Experiment Station Bulletin No. P93, 1948.

<sup>3/</sup> Bain, H. L., Jr., Proposed Pasture Experiments on the Value of Pasture Production for the Peanut Section of Southeastern Virginia, a masters thesis submitted to the graduate school of Virginia Polytechnic Institute, 1949.



fair breeding program was present, and that about 50 per cent of the boars were purebred. However, he felt that producers in the area were:

- (1) failing to give sows and pigs proper attention at farrowing, and
- (2) not including sufficient mineral supplement in the rations. According to Bain the major feeds used in producing hogs were corn and high protein feeds. Hogs obtained peanuts in the ration only by gleaning the fields after harvest.

#### Definition of Terms

In this thesis certain terms are used with particular meaning to the subject matter. Most of these terms are defined where they are introduced in the body of the thesis.

Only good and choice slaughter hogs (barrows and gilts) are considered in this thesis. The following terms are used to differentiate between weight ranges:

Light weight hogs have an average weight of 200 pounds and may as individuals weigh from 180 to 220 pounds.

Medium weight hogs have an average weight of 250 pounds and may as individuals weigh from 220 to 270 pounds.

Heavy weight hogs may weigh from 270 to 300 pounds but usually refers to hogs weighing 300 pounds.

## CHAPTER II

### ANALYSIS OF HOG PRICES

Profitable pork production requires the planning of a production pattern that will function efficiently and furnish finished hogs for market when hog prices are most favorably related to production costs. In order to make these plans intelligently a knowledge of the behavior of hog prices, particularly seasonal prices, is necessary. It is essential to have an understanding of the fluctuations of hog prices not only at the local markets but also at all major markets which may be expected to influence the level or pattern of hog prices in the local area.

Other major hog markets, although outside the normal supply area, influence the behavior of hog prices at markets within a local area because they are also potential market outlets. For instance, if hog prices at local markets get sufficiently out of line in relation to prices at outside markets -- so that producers could profit by transporting their hogs to the outside markets and if this situation continues to exist -- producers are likely (if they are aware of the condition) to begin selling on these outside markets in order to increase their net returns. Similarly, if the price situation should reverse itself local packers will not buy their supply of hogs at local markets if they can buy hogs at distant markets at prices sufficiently lower to cover transportation, shrinkage, and other costs. Thus hog prices at a given market

usually will not, for any length of time, remain far out of line in relation to other influencing markets.

### Factors Affecting Hog Price Variations

Hog prices vary from year to year, season to season, and from day to day. These price variations are due largely to variations in per capita disposable income, prices of substitute products, and the amount of pork produced and marketed.

Annual Variations.— The relationship between per capita disposable income and average price per hundred pounds of hogs at Chicago is shown in Figure 3. Consumers tend to spend a rather constant percentage of their disposable income for meat products. <sup>1/</sup> From 1930 to 1942, prior to rationing and price controls, the amount of disposable income spent for all meats varied only from 6.4 to 7.3 per cent. The per cent varied from a low of 5.9 per cent in 1945, when per capita disposable income was high and rationing of meat products was in effect, to a high of 10.1 per cent in 1947, following the removal of rationing. Part of this increased percentage in 1947 may have been due to spendings of accumulated savings in addition to current disposable income. Prices of beef and mutton influence the proportion of disposable per capita income spent for meat which may be spent for pork. If the price relationship between

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<sup>1/</sup> Calculated from data in Agricultural Outlook, United States Department of Agriculture, Bureau of Agricultural Economics, 1952.

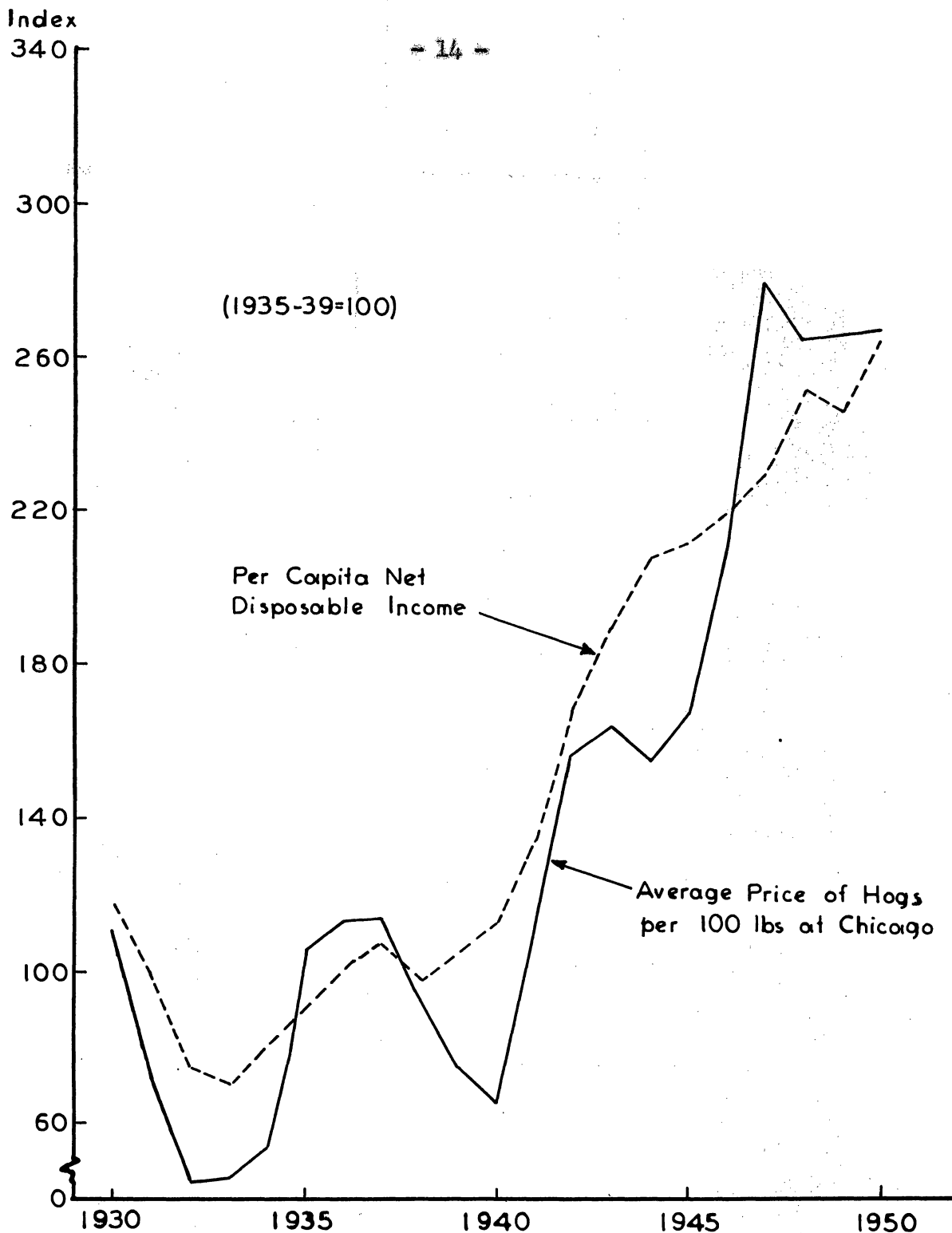


Figure 3.- Relationship of the Average Price of Hogs per 100 Pounds at Chicago to Per Capita Net Disposable Income.

Source.- Livestock Market News-Statistics and Related Data, CS-38, United States Department of Agriculture, PMA, 1949.  
Agricultural Outlook, United States Department of Agriculture, BAE, 1950.

beef, mutton, and pork is such that consumers decide that the utility of their beef and mutton dollar is greater than the utility of their pork dollar, the proportion of their meat dollar going for pork will decrease and the proportion spent for beef and mutton will increase until prices of these three products, in the absence of controls, automatically reach an equilibrium.

Once the proportion of the consumer's disposable income spent for pork has been determined, the price of pork will be largely determined, in the short-run, by variations in quantities of pork marketed.

Seasonal Variation.- Seasonal variations in hog prices are due mainly to changing demand and supply relationships. <sup>1/</sup> The principal conditions influencing this relationship according to Thomsen <sup>2/</sup> are: (1) Changes in demand; changes in business conditions may either greatly increase or decrease the normal seasonal fluctuations of hog prices and often cause reversals in the usual trend. (2) Weather; a severe winter condition extending into early spring may cause the number of pigs saved per litter to be less than usual. In addition some of the pigs saved may be stunted due to the weather and they may mature less rapidly. (3) Corn supplies and price; the size, quality, and price of the corn supply is one of the most important factors causing deviations from the normal price movements.

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- <sup>1/</sup> An excellent discussion of the effect of the corn supply on the weight of hogs marketed can be found in: North Central Livestock Marketing Research Committee, Price Differentials for Slaughter Hogs. Iowa State College Agricultural Experiment Station Bulletin No. P93, 1948, page 90.
- <sup>2/</sup> Thomsen, Fredrick Lundy, Agricultural Prices, First Edition. New York and London: McGraw-Hill Book Company, Inc., 1936, pp. 346-348.

Large corn crops encourage feeding pigs to heavier weights. Low corn prices which usually accompany high corn production tend to make the hog enterprise more profitable and encourage more hogs to be held back for breeding. Smaller market receipts are a result of this breeding expansion. (4) The hog-corn price ratio; if hog-corn price ratios are low in the summer months, producers will be inclined to sell bred sows and gilts before farrowing time. The effect of this tends to intensify seasonal marketings. (5) Storage stocks; about one-fourth to one-third of the dressed hog is sold as fresh pork within a month after the date of slaughter. The remainder goes into cured pork products and lard. The curing of these products requires time. Demand for cured pork products is usually the largest in the summer, while the bulk of hogs are slaughtered in the fall and winter months. Thus, curing and storing of pork products is an important factor in adjusting pork supplies to demand.

In addition to these factors, the distribution of farrowings by months should be considered. The date and concentration of farrowings by months partially controls the marketing date of slaughter hogs. There is a period of about five weeks during which pigs of a given farrowing date may be marketed within a given weight class. The distributions of the per cent of sows farrowing by months during 1948-1950 in Virginia and in Indiana-Illinois are shown in Figure 4. Farrowings in Virginia were more uniformly distributed, both by months and by seasons, than in the eastern corn belt states, Indiana and Illinois. The size of the spring and fall pig crops in Virginia is about equal while the spring crop in Indiana-Illinois is 14 per cent larger than the fall crop.

% of Season's  
Total by Months

- 17 -

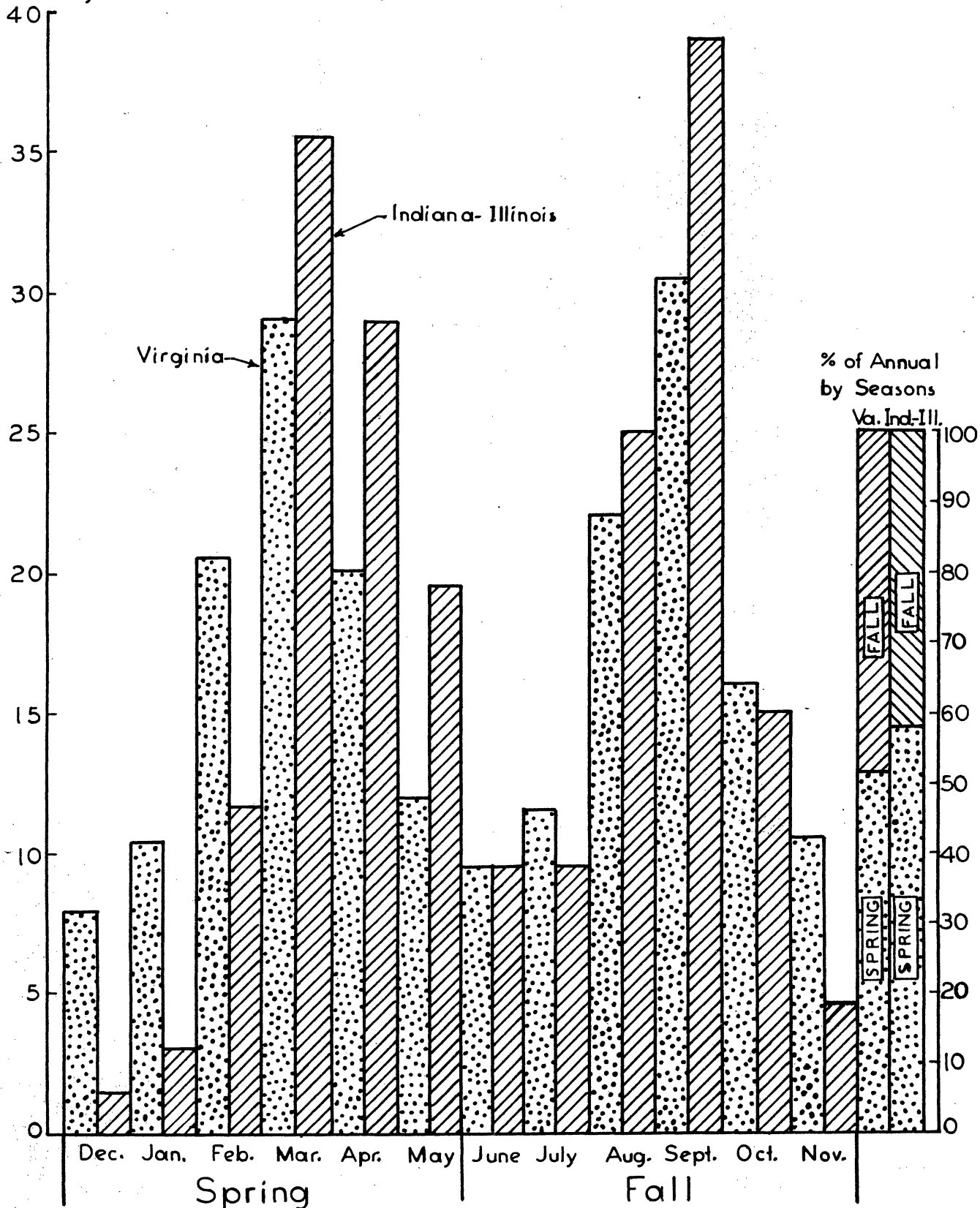


Figure 4.- Percentage distribution of seasons total farrowings by months and of years total by seasons for Virginia and Indiana-Illinois (1948-1950 average)

Source.- Pig Crop Report, United States Department of Agriculture, BAE, June and December, 1948-1950.

Daily Variations.-- The price of hogs at a given market on any particular day will be determined by short-run supply and demand relationships. Total hog production for the year may be high or it may be low but once the supply for the day has been delivered to the market, the price for those hogs will be determined by the volume of hogs on hand at the market and the market demand, represented by the numbers and types of buyers at the market and the amounts they desire to buy. Usually most buyers have a minimum amount that they must buy. But if competition is not sufficient to bid the price high or the run is unusually large, buyers may purchase more hogs than they originally planned to buy. Hog prices may also fluctuate from day to day at certain markets because of the purchasing pattern that packers have developed. Some small slaughtering plants often buy hogs for slaughter only once or twice a week. The presence of these buyers at the market on certain days increases the competition for the available supply. Usually if small slaughterers have planned their plant operations so as to slaughter only on certain days of the week they are willing to bid more sharply in order to obtain their supply on that day rather than wait until the following day. Similarly, many farmers have planned their operations so that they deliver their hogs to the market on certain days of the week. However, as a market becomes adjusted and well established in an area, the days of strongest demand and the days of larger volume tend to coincide. Buyers will then try to buy when the supply is the largest and producers will attempt to market their supply when the demand is the strongest.



### Changes in the General Level of Hog Prices

In recent years hog prices have increased to higher levels from the depths they were in 1934 when the average annual price for hogs received by Virginia farmers was only \$4.63 per hundredweight. Hog prices reached their price peak of \$25.32 in 1948. The average annual price of hogs in 1949 dropped approximately \$6.00 per 100 pounds below the 1948 levels and has remained at approximately that level through 1950. Table 2 shows the average annual prices for hogs received by Virginia farmers from 1934 through 1950.

Table 2.- Estimated Yearly Average Price of Hogs Received by Farmers as of the 15th of the Month, Virginia, 1934-1950

Year	Price per hundred pounds	Year	Price per hundred pounds
1934	\$ 4.63	1943	\$13.38
1935	6.96	1944	13.26
1936	9.30	1945	14.44
1937	9.61	1946	17.93
1938	7.92	1947	24.15
1939	6.72	1948	25.32
1940	5.73	1949	19.48
1941	8.86	1950	19.27
1942	12.68		

Source: Virginia Farm Statistics, State Department of Agriculture Virginia Cooperative Crop Reporting Service, Bulletin No. 15, p. 132. 1949. The prices for the years 1948-1950 were computed from daily averages in Federal-State Market News-Service. Virginia Department of Agriculture, Division of Markets, issued daily.

### Analysis of Hog Prices at Richmond

In recent years Richmond has become one of the major hog markets in the east. Total salable receipts of hogs on the Richmond market have

exceeded those of any other market east of the Ohio River in the past few years. In 1949 more than 290,000 hogs were sold through the Richmond market and during 1950 the total salable receipts exceeded 329,000 head. <sup>1/</sup> However, comparatively little historical hog price information in the form necessary for a detailed price analysis is available for the Richmond market. Although hog price quotations issued by the State Division of Markets are available since 1939, the weight ranges quoted prior to 1948 changed frequently. Because of these frequent and erratic changes in the weight ranges quoted, hog prices prior to 1948 cannot be used in studying their current behavior at Richmond.

Daily Price Variations.- Hog prices at Richmond frequently changed from day to day during the period from June 13, 1949 to December 8, 1950. Fluctuations of daily prices as shown in Figure 5 were very much alike for all three classes of hogs. Very seldom did the price of one group change without a similar change in the other two classes. During the year when hog prices were increasing, most daily changes were upwards. However, occasionally such upward price changes were more than the demand-supply relationship warranted. In such cases, a decline in prices often occurred the following day. When a downward change occurred it usually remained at this lower level for only one or two days. More frequent but smaller changes occurred during the

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<sup>1/</sup> Receipts and Disposition of Livestock at 65 Public Markets. Calendar Year 1949 and 1950, United States Department of Agriculture, Production and Marketing Administration.

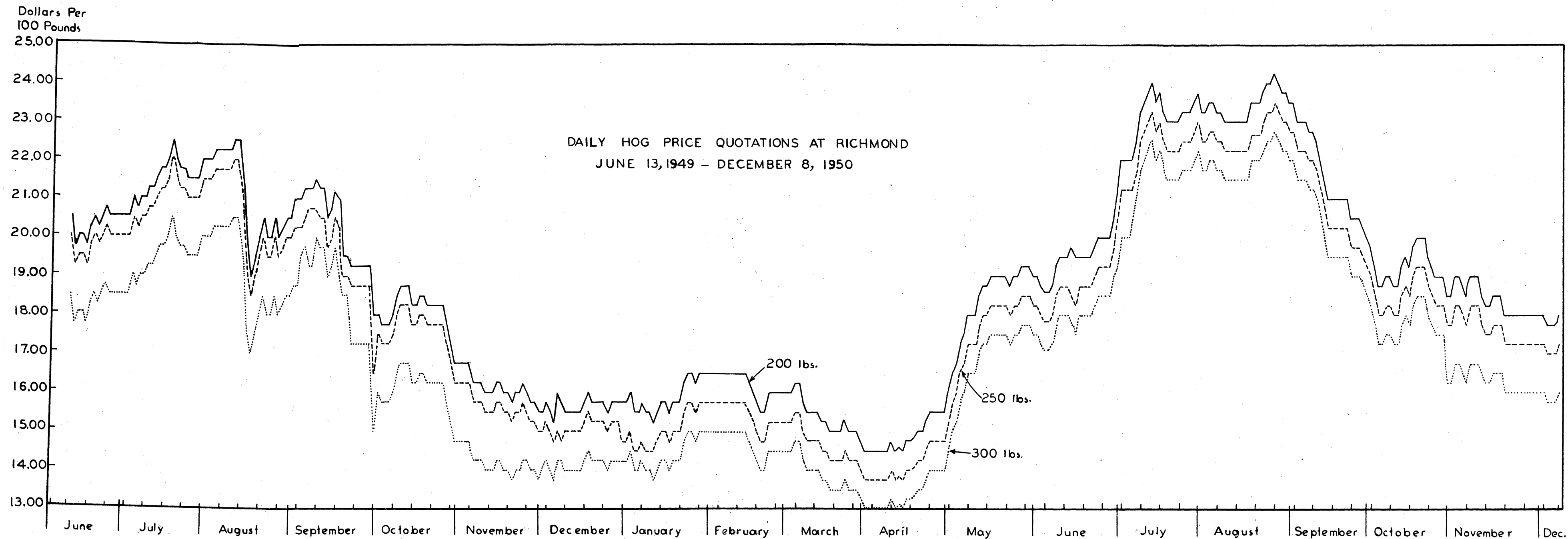


Figure 5. Daily Price Quotations of Three Classes of Slaughter Hogs at Richmond

Source: Appendix Table 5.

time of year when prices were lowest. This was particularly true from October through December.

The frequency of price changes which occurred during the latter part of 1949 and most of 1950 at Richmond is shown in Table 3. Approximately one-third of the time (107-110 of 390 days) prices remained the same for one day only. The number of times the price remained the same for two consecutive days varied from 42 for the 220-270 pound class to 45 for the 270-300 pound class. Seldom did the prices of all three weights of hogs remain the same for three consecutive days or longer.

Table 3.- The Number of Times that the Price for Three Classes of Hogs Remained the same for Various Numbers of Consecutive Days During a Period of 390 Days at Richmond, June, 1949-December 8, 1950

Class of hogs	One day only	Two days	Three days	Four days	Five days	Six days	Seven days or more	Total	Number days in period
180-220	107	43	20	8	8	3	5*	194	390
220-270	110	42	22	8	6	3	5*	196	390
270-300	107	45	20	7	7	3	5*	196	390

\* The longest period without a change was for thirteen days, January 30-February 14, 1950.

Of equal importance to the frequency rate of changes in hog prices is some knowledge of the amount of change in prices. In other words, how much change is likely when hog prices do change? The distribution of the amount of change which occurred when hog prices changed at Richmond during the 390 day period is shown in Table 4. More than

90 per cent of the price changes were in amounts of 50 cents per 100 pounds or less. Average price changes for the light and medium weight hogs were 35 cents per 100 pounds or two cents less than for the heavy weight hogs. Sixty-five per cent of the price changes were in amounts of 25 cents per 100 pounds. Although price changes amounting to \$1.00

Table 4.- Varying Amounts that the Price of Hogs Changed Per Hundredweight during the 390 Day Period, Richmond, June 13, 1949-December 8, 1950

Class of hogs	Number of times the price change was: (dollars)										2.00- Total up number	Average dollars of change
	.10	.15	.25	.50	.75	1.00	1.25	1.50	1.75			
180-220	3	3	126	53	6	0	1	1	1	0	194	.35
220-270	3	3	127	55	5	1	0	0	1	1	196	.35
270-300	3	3	120	51	7	1	3	0	1	1	196	.37

or more per 100 pounds seldom occurred, they occurred twice as often for the heavy weight hogs as for either the medium or light weight hogs. The pattern of price changes for all three weights was approximately the same.

Severe price changes of \$1.00 or more are likely to occur only:

- (1) when market prices break from their high summer level in early fall;
- (2) when the heavy fall run of hogs first begins to hit the market; or,
- (3) when the spring supply drops sharply and the normal summer seasonal price increases begin.

Differences in Daily Price Quotations.-- During the spring and summer of 1950 hog prices at Richmond were higher on Friday than on

other days of the week (Table 5). However, for the year as a whole, little differences existed between prices on different days of the week. The little difference that was present was due to chance because an F-value (test of significance) of less than one was obtained from an analysis of variance for all three classes of hogs. However, by dividing the price pattern into two parts: (1) the period of increasing and higher level of prices from April 1 to August 31, and (2) the period

Table 5.- Average Price of Hogs by Days of the Week, Classes of Hogs, and Different Periods of the Year, Richmond, 1950

Period	Class of hogs	Monday	Tuesday	Wednesday	Thursday	Friday	Number of weeks
<u>Year 1950</u>							
	180-220	18.78	18.79	18.76	18.82	18.86	50
	220-270	18.09	18.08	18.07	18.12	18.14	50
	270-300	17.17	17.15	17.17	17.20	17.23	50
<u>April 1-August 31, 1950</u>							
	180-220	19.92	19.94	19.95	20.08	20.23*	22
	220-270	19.15	19.13	19.14	19.26	19.38*	22
	270-300	18.38	18.36	18.37	18.51	18.64*	22
<u>January 1-March 31 and Sept. 1-December 31, 1950</u>							
	180-220	17.89	17.89	17.84	17.82	17.79	28
	220-270	17.31	17.30	17.28	17.27	17.23	28
	270-300	16.28	16.27	16.25	16.23	16.20	28

\* A significant difference exists between Friday prices and the first three days of the week. The least significant ranges for the three classes at the five per cent level are following the procedure in Duncan, D. B., A Significance Test for Differences between Ranked Treatments in An Analysis of Variance. Virginia Polytechnic Institute Department of Statistics, 1951.

Number of means-	2	3	4	5
180-220	.1745	.1916	.2064	.2196
220-270	.1138	.1249	.1396	.1432
270-300	.1787	.1958	.1996	.2104

of decreasing and lower level of prices for the year from January 1 to March 31, and from September 1 to December 31, a slightly different daily pattern of price differentials emerges. From April 1 until August 31, prices on Friday were nearly always above those for earlier days in the week. The average price on Friday for this period during 1950 was \$20.23 per 100 pounds for 180-220 pound hogs, \$19.38 for 220-270 pound hogs, and \$18.64 per 100 pounds for 270-300 pound hogs. Prices of hogs on Friday ranged from 25 to 31 cents per 100 pounds above Monday and Tuesday prices from April to September. During periods of decreasing prices and/or when hog prices were at lower levels -- indicating larger receipts -- no significant difference existed between daily mean prices.

Seasonal Price Variation.-- Weekly average prices of three weight classes of butcher hogs at Richmond, for the period 1948-1950, are shown in Figure 6. The three year weekly average price for light weight hogs declined from approximately \$21.00 per 100 pounds in January to the year's low of \$17.50 per 100 pounds in the latter part of April. From this seasonal low, prices increased until a peak of about \$25.00 per 100 pounds was reached in early August and remained at this higher level until late September. Prices then declined as the fall marketings started until about the first of December. Prices paid for the heavier weight hogs exhibited the same seasonal price pattern but at lower levels.

Price Differentials between Different Weight Classes at Richmond.-- Hogs weighing 180-220 pounds generally command a price premium of 75 cents per 100 pounds above the 220-270 pound weight class at Richmond (Figure 6). The widest differential between weight classes usually occurs during both

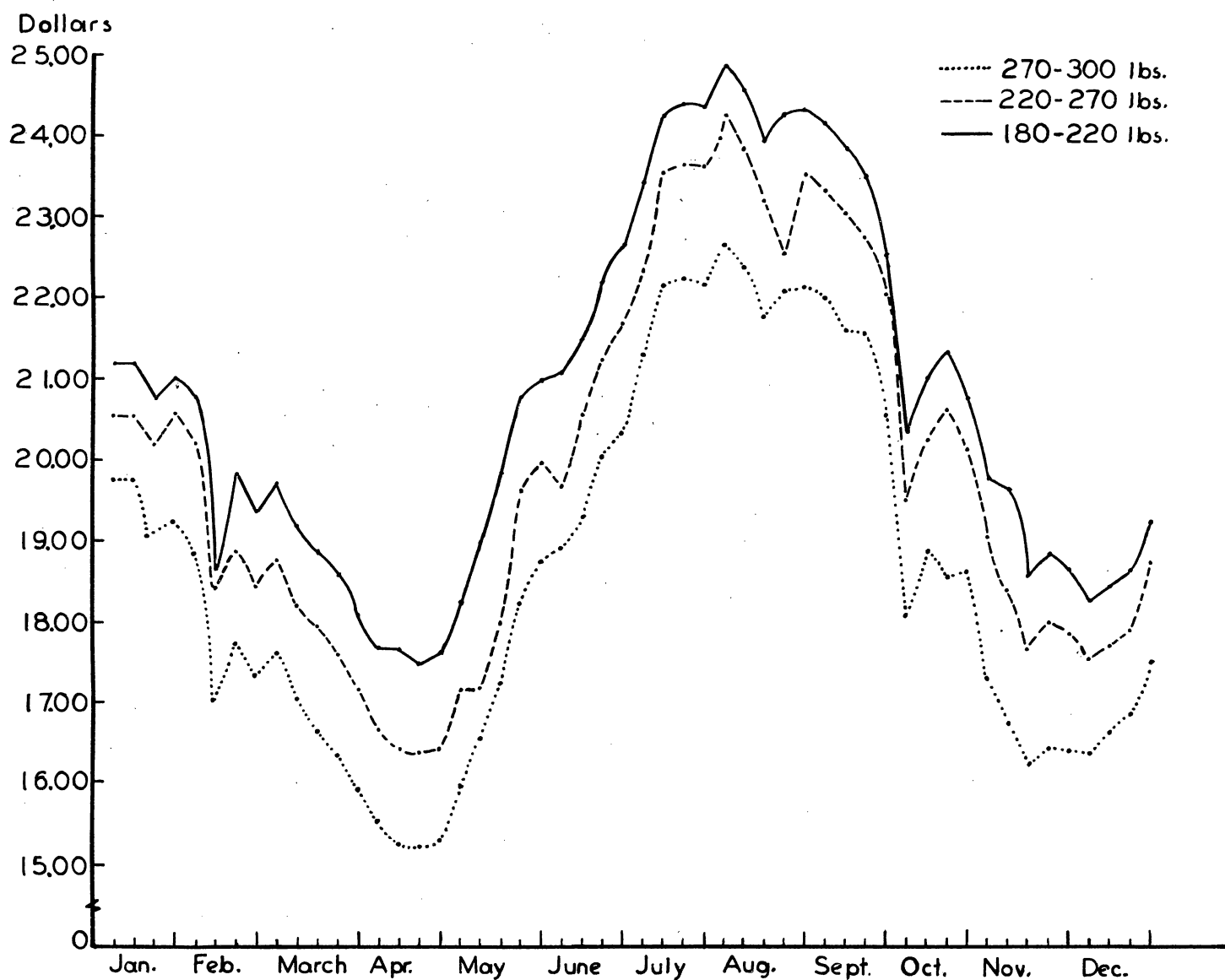


Figure 6.- Weekly average prices paid for three weight classes of good and choice barrows and gilts for the years 1948-1950 at Richmond.

Source.- Appendix Tables 1, 2, and 3.



the seasonal low and seasonal high price periods. During the entire month of April 1950, the price differential between light and medium weight hogs was at least \$1.00 per 100 pounds. The minimum price differential between the two classes occurred during late January and early February. For the three years 1948-1950 the average differential was approximately 50 cents per 100 pounds. The 270-300 pound class of hogs averaged about \$2.00 per 100 pounds below the 180-220 pound class. During April, the latter part of July, August, and early September the 180-220 pound hogs sold for approximately \$2.25 per 100 pounds more than the 270-300 pound hogs.

#### Hog Prices in the Smithfield-Holland Area

Hog prices in the Smithfield-Holland area were approximately the same as those at Richmond from March 1950 to March 1951, as shown in Figure 7. Richmond quotations averaged about 25 cents per 100 pounds above the Smithfield-Holland prices during this period. However, the quotations at Smithfield were for a weight range of 180 to 240 pounds while at Richmond the weight range was from 180 to 220 pounds. Thus, if the price of the 220-240 pound hogs were excluded from the Smithfield quotations they might average slightly higher.

#### Hog Prices at Chicago

Some agricultural specialists maintain that the Chicago market also sets the prices paid for livestock at other markets, while others quite

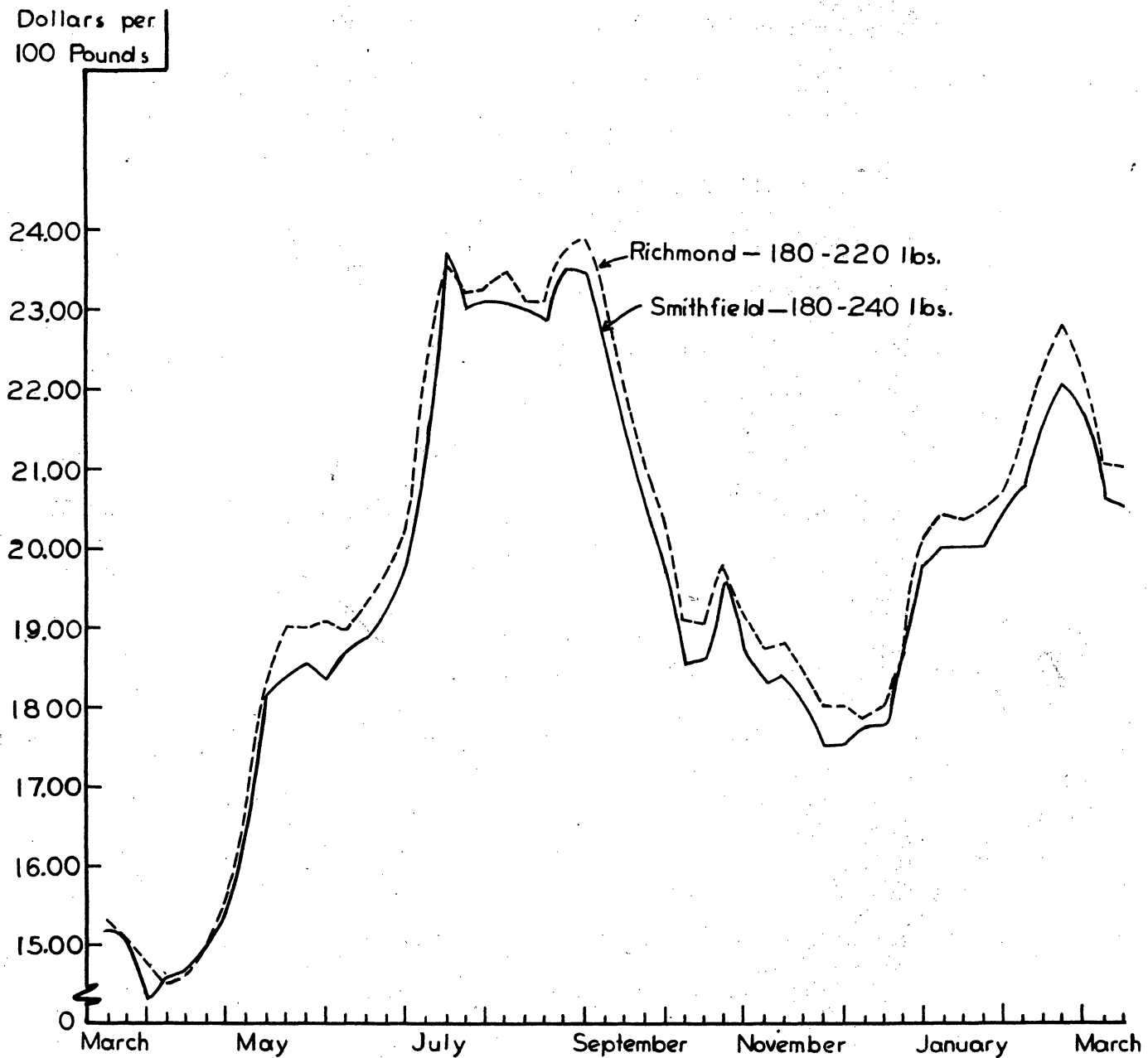


Figure 7.- Relationship of Richmond and Smithfield-Holland top hog prices by weeks (March 1950 - March 1951).

Source.- Appendix Table 5.

convincingly dispute the claim. <sup>1/</sup> It is not intended here to enter into this argument, but rather to analyze the prices of hogs at Chicago and Richmond for recent years when comparable price data from both markets are available. Later in this chapter Chicago prices are used in estimating hog prices at Richmond for years in which Richmond price data are unavailable in useable form.

Three Year Weekly Average Hog Prices.- Weekly average hog prices at Chicago of three weight classes for the years 1948-1950 are shown in Figure 8. The seasonal low and seasonal high prices at both markets were reached at approximately the same time of the year. However, hog prices at Chicago usually exceeded those at Richmond.

The price differentials between the various weights on the same market were the greatest during the seasonal low and seasonal high at both Richmond and Chicago.

Twelve Year Weekly Average Hog Prices.- Weekly average hog prices for a 12 year period (1935-1942 and 1947-1950) at Chicago are shown in Figure 9. <sup>2/</sup> They followed approximately the seasonal pattern of the 1948-1950 averages. However, since these averages included years of low prices as well as years of high prices, the amount of seasonal change in dollars was less for the weekly average prices of the 12 year period than for the 1948-1950 weekly average prices. The seasonal low and seasonal high prices occurred during the same weeks for both periods. Weekly average

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<sup>1/</sup> For an excellent discussion of this argument see Shepherd, Geoffrey S., Marketing Farm Products, Second Edition. Ames, Iowa: The Iowa State College Press, 1947.

<sup>2/</sup> The years 1942-1946 were omitted because of war-time price controls.

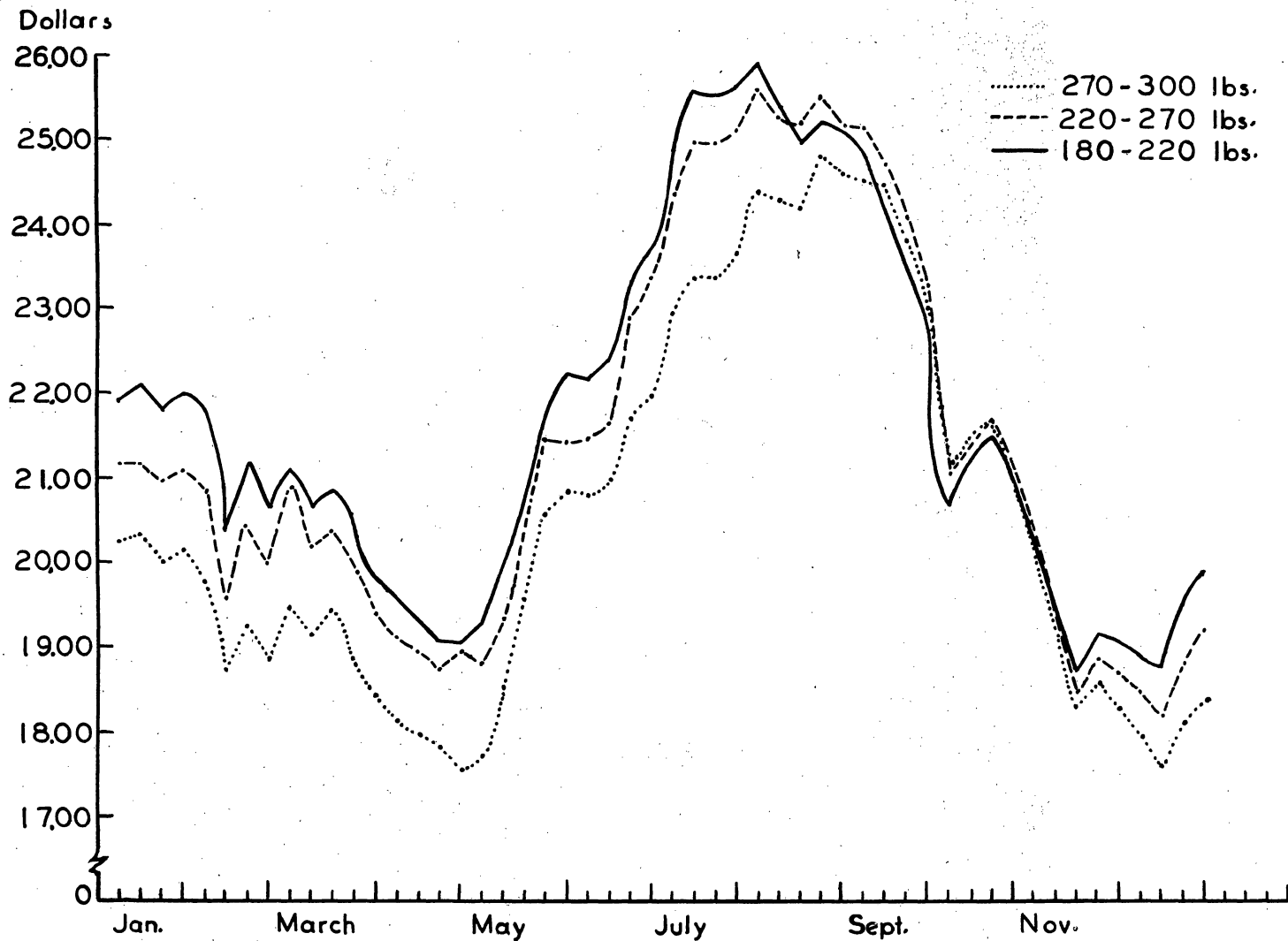


Figure 8.- Weekly average prices paid for three weight classes of good and choice barrows and gilts for the years 1948-1950 at Chicago.

Source.- Appendix Tables 6, 7, and 8.

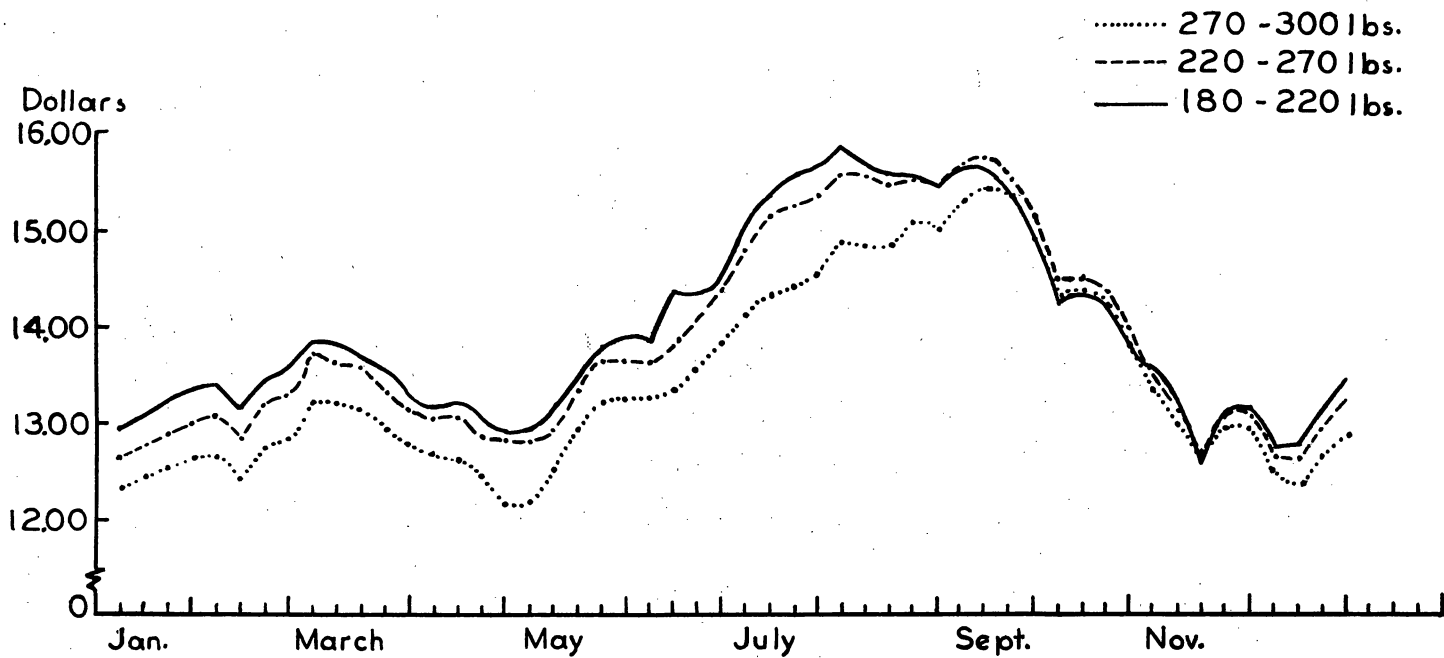


Figure 9.- Weekly average prices paid for three weight classes of good and choice barrows and gilts for the years 1935-1942 and 1947-1950 at Chicago.

Source.- Appendix Tables 6, 7, and 8.

price extremes during the 12 year period varied from a low of \$12.10 per 100 pounds for 270-300 pound hogs in late April to a high of \$15.85 for 180-220 pound hogs in late July.

#### Chicago-Richmond Price Differentials

The ratio of hog prices at Richmond to those at Chicago are shown in Figure 10. The comparisons are between the weekly average prices at the two markets for the three year period 1948-1950 and are expressed in percentages. Prices at Richmond become more favorable as the graphic line denoting the Richmond price approaches 100 per cent. In other words, the nearer the Richmond price line is to the 100 per cent line, the closer are prices at the two markets. When the price line is above the 100 per cent line, hog prices at Richmond are above those at Chicago.

Price Differentials between Richmond and Chicago for Light Weight Hogs.- Light weight hog prices at Richmond during 1948-1950 averaged 96 per cent of Chicago prices. But in April Richmond hog prices averaged only 91 per cent of Chicago prices. This was the largest average price differential that occurred during the season. During September, October, and November prices of hogs at Richmond compared more favorably with Chicago prices than at any other time. The last week of September was the only time when hog prices at Richmond exceeded those at Chicago.

Price Differentials between Richmond and Chicago for Medium Weight Hogs.- Prices of medium weight hogs at Richmond during 1948-1950 averaged 93 per cent of Chicago prices. The widest price differentials occurred

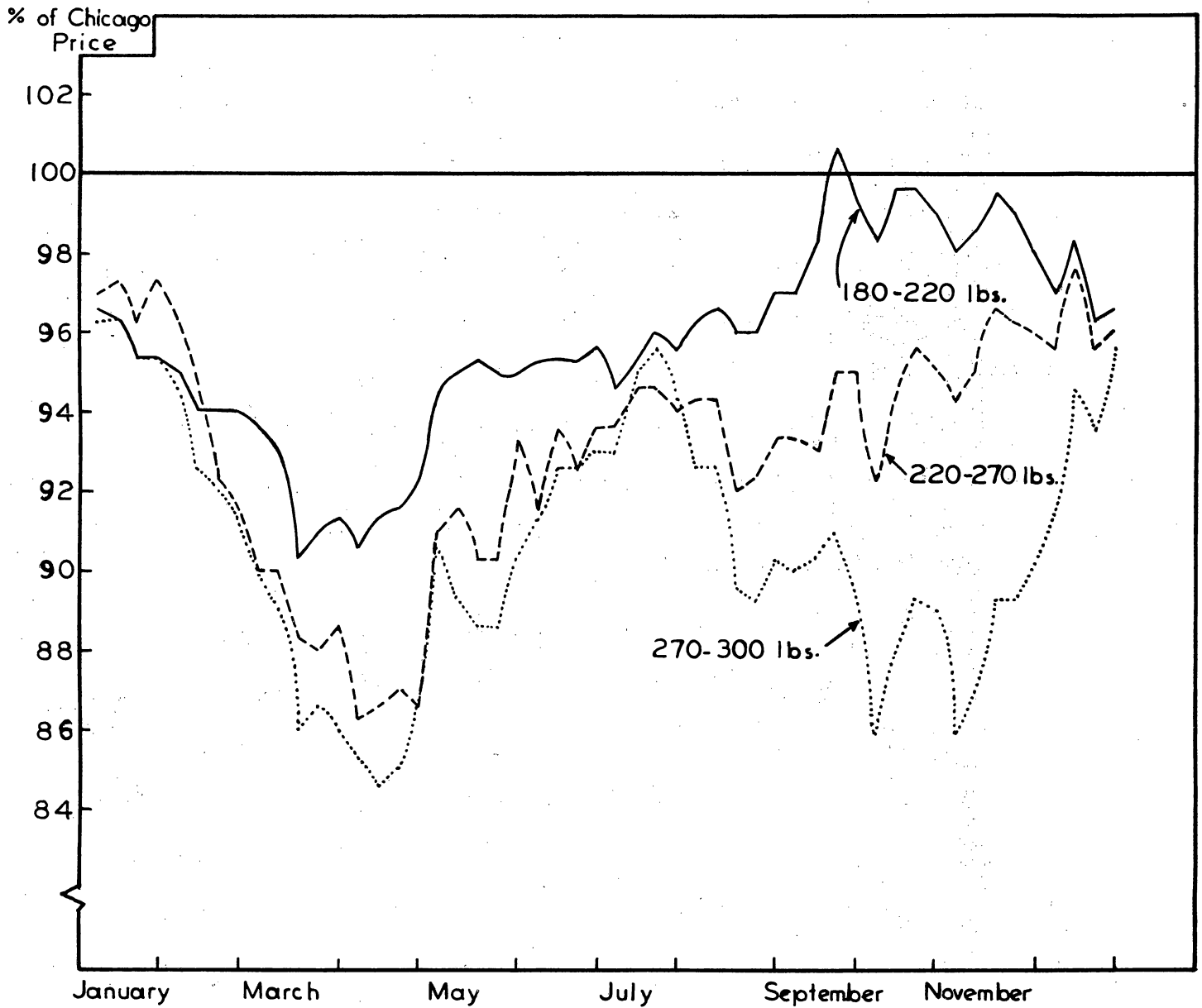


Figure 10.- Richmond hog prices as a per cent of the Chicago prices for the years 1948-1950.

Source.- Computed from Appendix Tables 1, 2, 3, 6, 7, and 8.

during April and early May when Richmond prices averaged only 87 per cent of Chicago prices. The smallest price differential existed in December and January when the Richmond price averaged 96 per cent of the Chicago price.

Price Differentials between Richmond and Chicago for Heavy Weight Hogs.— Prices of heavy weight hogs at Richmond during 1948-1950 averaged 90 per cent of the Chicago prices. The widest differentials in average prices occurred in April and September when Richmond prices averaged 85 and 88 per cent respectively of Chicago prices. The smallest price differentials occurred in December and January when Richmond prices averaged 93 per cent of Chicago prices.

A comparison of actual prices per 100 pounds of liveweight between the two markets is shown in Figures 11, 12, and 13. It is significant to note that the heavier the hogs the larger the price differential and also that the differential is the largest in the spring and early fall.

This seasonality of the price differentials between the two markets is due largely to differences in the seasonality of salable hog receipts at the two markets. Table 6 shows the average number and per cent of marketings by months at Richmond and Chicago for the years 1938-1940 and 1948-1950. Thirty-five per cent of the total salable receipts of hogs at Richmond, during 1948-1950, were handled during March, April, and May, whereas only 22.4 per cent of the total annual salable receipts were marketed at Chicago during the same period. Approximately 34 per cent of the total salable receipts at Chicago arrived during November, December,



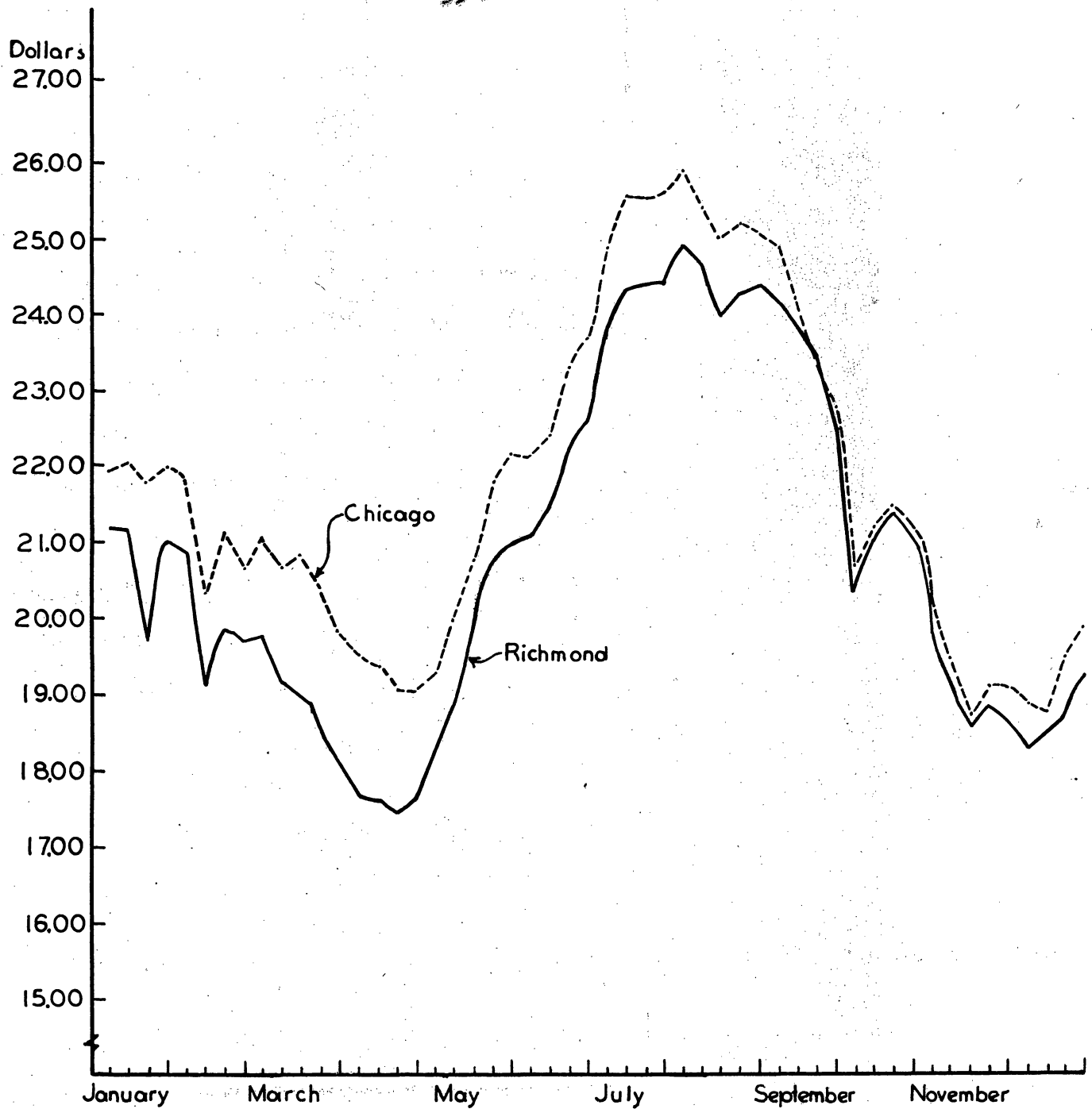


Figure 11.- Weekly average prices paid for good and choice barrows and gilts weighing 180-220 pounds at Richmond and at Chicago for the years 1948-1950.

Source.- Appendix Tables 1 and 6.

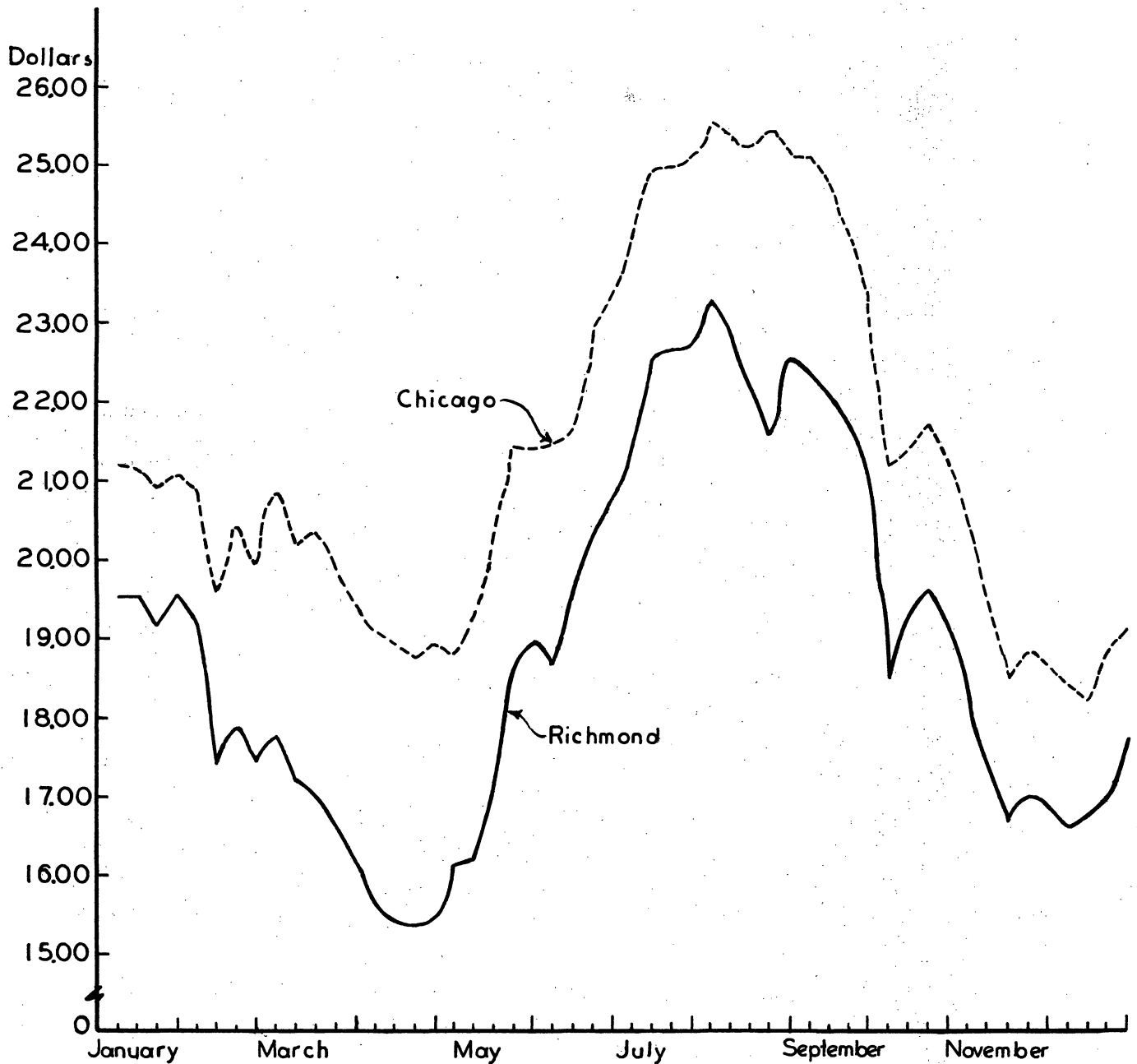


Figure 12.- Weekly average prices paid for good and choice barrows and gilts weighing 220-270 pounds at Richmond and at Chicago for the years 1948-1950.

Source.- Appendix Tables 2 and 7.

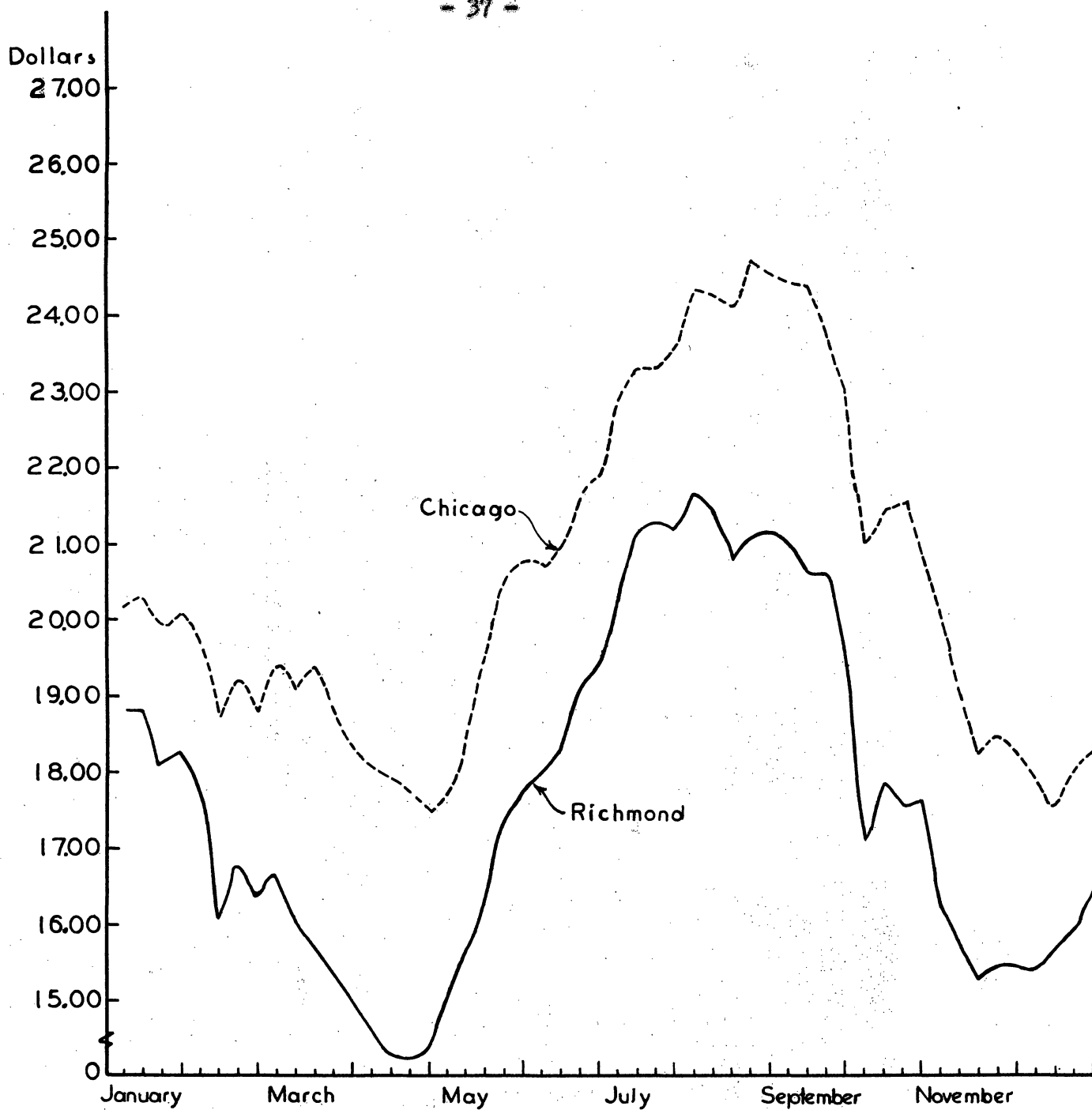


Figure 13.- Weekly average prices paid for good and choice barrows and gilts weighing 270-300 pounds at Richmond and at Chicago for the years 1948-1950.

Source.- Appendix Tables 3 and 8.

Table 6.-Monthly Distribution of Total Salable Hog Receipts at Chicago and Richmond  
1938-1940 and 1948-1950

Month	Chicago				Richmond			
	1938-1940		1948-1950		1938-1940		1948-1950	
	Total number	Per cent of total	Total number	Per cent of total	Total number	Per cent of total	Total number	Per cent of total
January	1,694,305	12.3	856,319	11.5	66,492	10.2	91,146	9.9
February	942,046	6.8	529,674	7.2	63,761	9.8	79,823	8.7
March	1,002,303	7.2	545,812	7.3	72,280	11.1	113,189	12.3
April	929,183	6.7	556,654	7.4	69,566	10.7	102,367	11.1
May	1,070,556	7.8	567,423	7.7	60,740	9.3	97,327	10.6
June	1,091,795	7.9	590,134	7.9	41,734	6.4	74,032	8.0
July	930,178	6.7	528,479	7.2	37,838	5.8	52,298	5.7
August	925,274	6.7	495,669	6.6	35,952	5.5	50,683	5.5
September	885,066	6.6	450,093	6.0	40,292	6.2	66,964	7.2
October	1,190,181	8.6	588,454	7.8	50,745	7.8	59,605	6.5
November	1,398,716	10.7	826,621	11.1	52,186	8.0	66,138	7.2
December	1,600,525	11.6	918,859	12.3	57,942	8.9	67,643	7.3
Total	13,841,647		7,454,201		649,596		921,215	

Source: Receipts and Disposition of Livestock at Public Stockyards, United States Department of Agriculture, Agricultural Marketing Service, A monthly and annual report.

Note: By use of the Chi-Square statistical tests, as outlined in, Snedacor, G. S. Statistical Methods, p. 18, a highly significant difference exists between the seasonal distribution patterns at the two markets.

and January. Whereas only 24.4 per cent of the total annual receipts at Richmond arrived during the same period. Thus, in the spring hog receipts were up at Richmond and lower prices prevailed while at Chicago receipts were down and prices were up. During the late fall the receipts at Chicago were up and the prices were down, while at Richmond the opposite was true. This is illustrated in Figure 14. The per cent that the monthly average Richmond prices were below the Chicago prices are shown for three weight classes along with the Richmond salable hog receipts as a per cent of the Chicago receipts. <sup>1/</sup> Receipts of salable hogs at Richmond are greater relative to Chicago during the spring than in any other season of the year. Also during this period the Richmond prices were lower relative to Chicago prices than at any other time. As the Richmond receipts declined in relation to the Chicago receipts the price of hogs at Richmond increased in relation to Chicago prices. The smallest price differentials occurred in the fall when the receipts were proportionately larger at Chicago than at Richmond.

For a more detailed analysis of the market price differentials additional information is needed relative to the composition of the total receipts by weight classes at the two markets. This information is not available for the Richmond market. However, the composition of the receipts by weight classes at Chicago during 1949 is shown in Figures 15 and 16. Heavy hogs made up a larger portion of the receipts during the

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<sup>1/</sup> The price data shown in Figure 14 is the difference between the Richmond price line and the 100 per cent line shown in Figure 10.

Percent

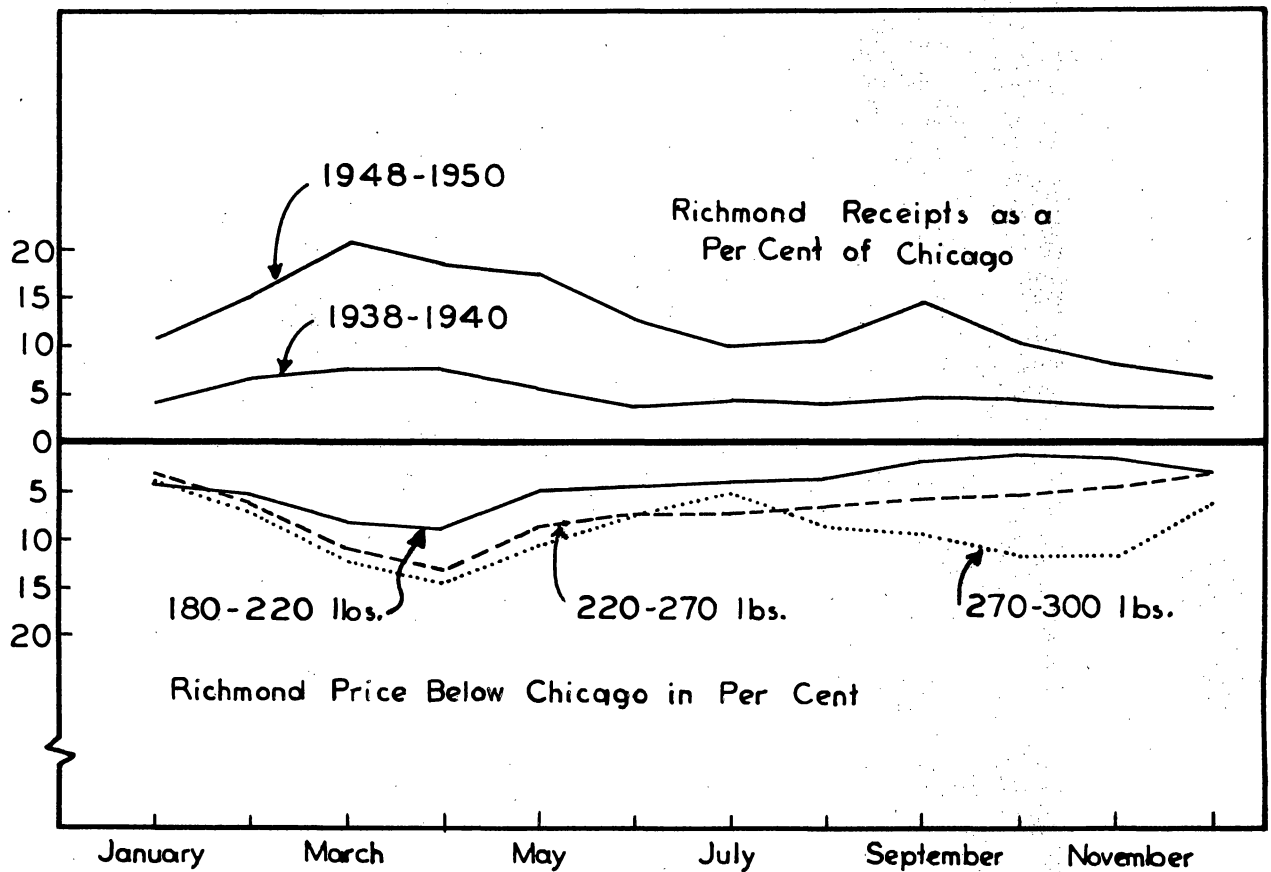


Figure 14.- Distribution of salable hog receipts at Richmond shown as a per cent of the salable receipts at Chicago and hog prices at Richmond shown as per cent below the Chicago prices, by months.

Source.- Receipts and Distribution of Livestock at 65 Public Markets.  
 United States Department of Agriculture, PMA.  
 Appendix Tables 1, 2, 3, 6, 7, and 8.

Figure 15.- Percent of hog run represented by specified weight groups by weeks, Chicago, 1949.

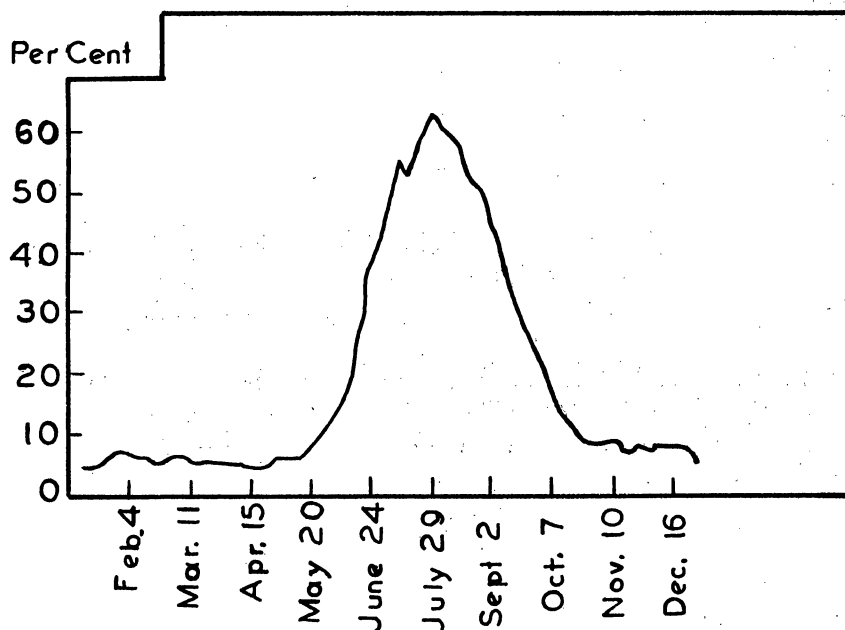
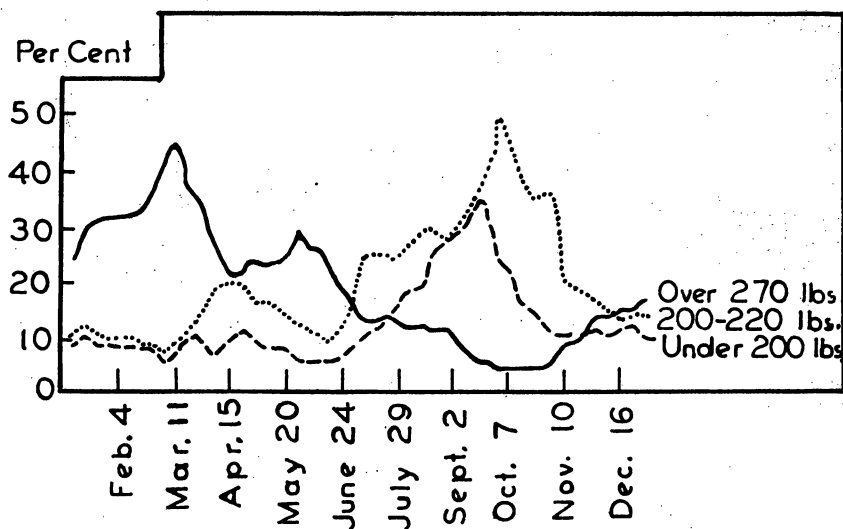


Figure 16.- Per cent of hog run represented by sows by weeks, Chicago, 1949.

Source.- Wills, W. J. "Classes of Hogs as a Factor in Analyzing Market Information," Illinois Farm Economics. University of Illinois, Agricultural Extension Service. May-June 1950. p. 991, Figures 2a and 2c.

spring. Sows dominated the market in the summer months and the lighter hogs made up a larger per cent of the run in the fall.

#### Estimated Weekly Average Hog Prices at Richmond

When constructing a representative average price which takes into account seasonal price variations it is necessary to use price data for a number of recent years in order to prevent any one factor from exerting undue influences on the seasonal averages thus obtained. <sup>1/</sup>

The next chapter presents a discussion of estimated costs and returns in hog production for pigs farrowed at specified dates throughout the year. Weekly average prices were used to compute the gross value of the hogs. Richmond prices were chosen because of the large influence exerted by the Richmond market on hog prices in Southeastern Virginia. Readily convertible data for Southeastern Virginia prices were not available except for the years 1948-1950; such data did not fulfill the requirement of a necessary longer period.

Richmond weekly average prices (12 year average) were estimated on the basis of the average price differentials existing between Richmond and Chicago during 1948-1950. Each 12 year weekly average price at Chicago was multiplied by the per cent that the Richmond price was of Chicago for the same week. For instance, during the first week of April

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<sup>1/</sup> Thomsen, op. cit., p. 254, states, "In general the larger the number of years included the greater the reliability of the seasonal averages."



the Richmond price for light weight hogs averaged 92 per cent of the Chicago price. To compute the estimated price at Richmond for the first week in April the average price at Chicago (12 years) for the first week of April was multiplied by 0.92. The estimated prices at Richmond by weeks for each weight class for the 12 year period are shown in Figure 17. The estimated price extremes varied from \$10.60 per 100 pounds for 270-300 pound hogs in late April to \$15.40 for 180-220 pound hogs in August.

Effect of the General Price Level of Pork Prices  
on the Amount of Seasonal Variation

The amount of seasonal variation in hog prices (in dollars) over a given period, largely depends upon the prevailing level of hog prices. Thomsen presents a method of expressing weekly average prices as a per cent of the period average; this technique eliminates the effect of the general level of hog prices except the within year effect. <sup>1/</sup> This method involves the following computations:

- (1) Sum the weekly prices for corresponding weeks of each year in the time period considered and divide by the number of years. This gives the weekly averages for the 52 weeks of a year.
- (2) Add these weekly averages as computed in (1), then divide this annual total by 52. This gives the period average.
- (3) Divide each of the weekly averages in (1) by the period average computed in (2). This expresses the relationship between the weekly averages and the period average. Multiply this ratio by 100 and the weekly averages are expressed as a per cent of the period average.

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<sup>1/</sup> Thomsen, op. cit., p. 255.

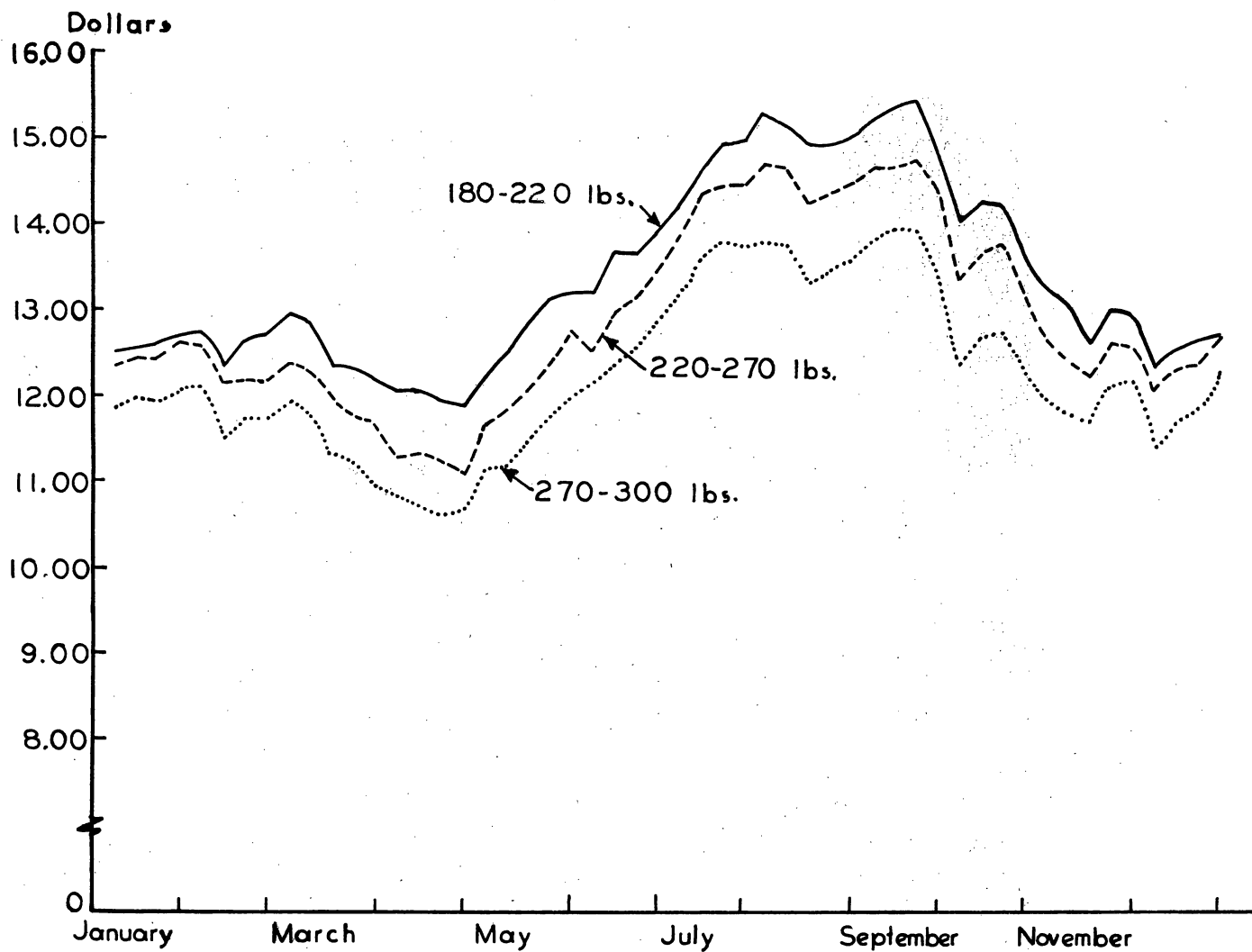


Figure 17.- Estimated Weekly Average Prices Paid for Three Weight Classes of good and choice barrows and gilts for the years 1935-1942 and 1947-1950 at Richmond.

Source.- Appendix Tables 1, 2, and 3.

This procedure may be stated symbolically as  $Y = A \div \frac{B}{52} \times 100$

Where:

Y = the per cent that the average price for a given week is of the period average.

A = the average price for a given week.

B = the sum of the 52 weekly average prices (B/52 is the period average and is a constant throughout the calculations).

Figure 18 shows the weekly average prices as a per cent of the period average by weights for three different levels of hog prices. Inspection of Figure 18 shows that the seasonal price behavior is somewhat similar for all weights. Consequently the following discussion is limited to explaining the seasonal price behavior for light weight hogs.

Low Priced Period.- The period average for the 180-220 pound hogs during 1938-1940 was \$7.27 per 100 pounds. During the first three months prices varied from 100 to 105 per cent of the period average; in April and May the price was slightly below the period average; and prices were slightly above the period average during the summer months. In early September the weekly average price was 16 per cent above the period average.

High Priced Period.- The weekly average prices of 180-220 pound hogs for 1948-1950 remained below the period average of \$21.68 per 100 pounds during most of the first five months. However, from June until late September prices were above the period average. The peak of 20 per cent above the average occurred during early August; from October through December prices were below the period average.

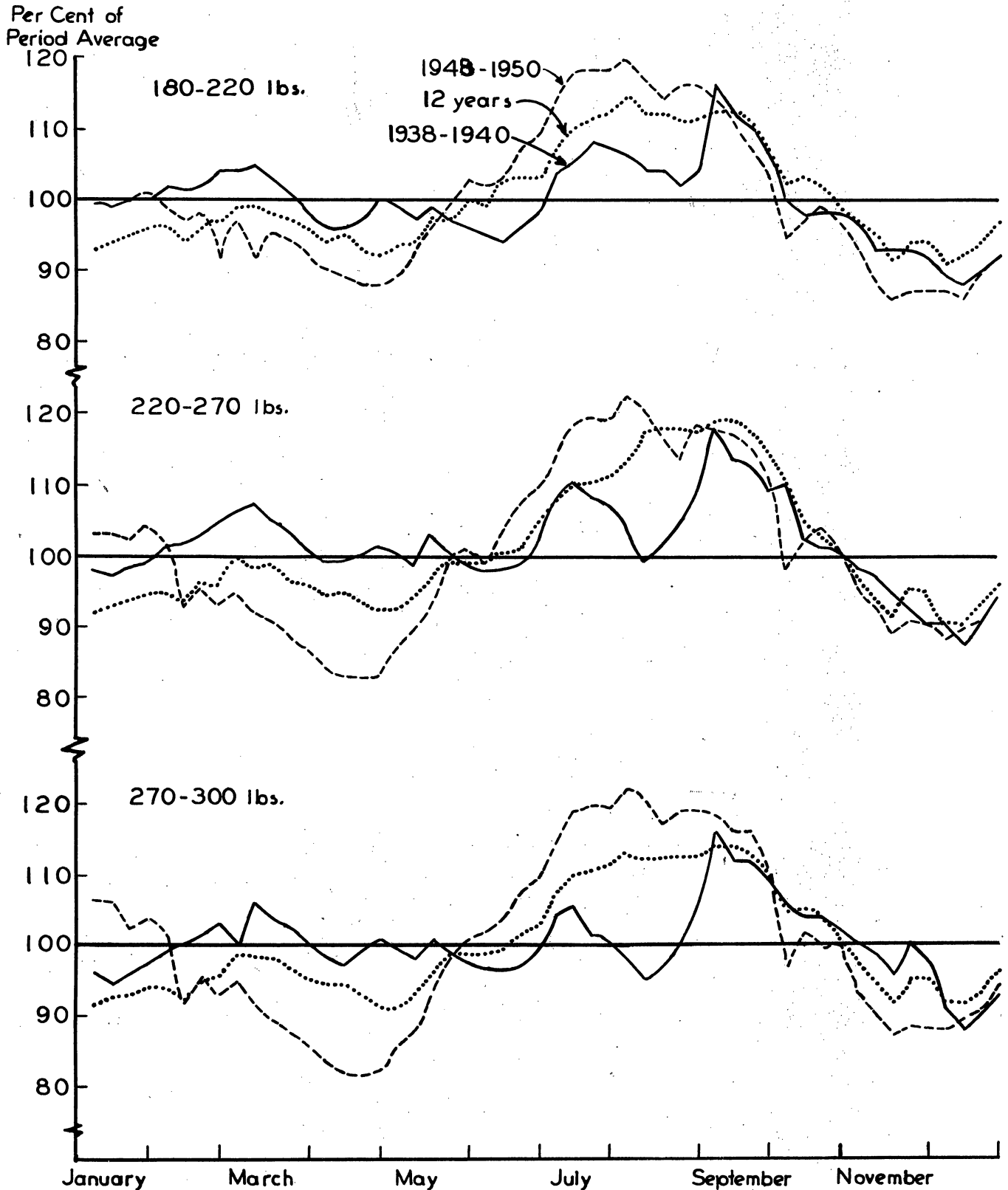


Figure 18.- Weekly average hog prices as a per cent of the mean for three time periods, 1938-1940; 1948-1950; and 1935-1942 and 1947-1950 at Chicago.

Source:- Appendix Tables 6, 7, and 8.

Twelve Year Period Including Levels of High and Low Prices.- The period average for the 12 years (1935-1942 and 1947-1950) of 180-220 pound hogs was \$13.96 per 100 pounds. The 12 year period average was slightly below the mid-point of the low priced period average of \$7.27 and the high priced period average of \$21.68 per 100 pounds. Prices in the 12-year price period exhibited more seasonal variation (in per cent of the period average) than in the low priced period but less than in the high priced period.

#### Stability of Hog Prices

The weekly average prices at Chicago for the 12 years presented in Figure 9 show the position of a week's average prices in relation to any other, but nothing has been said about the probability of this happening. In other words, how many years in 12 could a producer expect the prices of hogs during the first week of August to exceed the prices during the first week in July, or the prices during the last week of December to exceed the prices during the last week of November? If a producer anticipates feeding hogs so that he can take advantage of the seasonal price increases, he should have some knowledge of the behavior of prices by years in order to calculate (anticipate) his probability of success in forecasting short-run price movements.

The relationship of weekly prices of 180-220 pound hogs at Chicago for any month to prices of the corresponding week a month earlier is shown in Table 7. The late spring and summer weeks within the solid

black line are the ones that the analysis in Chapter III showed to be dates when hogs could be profitably fed beyond weights of 200 pounds. For the weeks lying within the inscribed area but above the dotted line the prices were higher than a month earlier only one-third of the time, even though the 12 year average prices were above the prices a month earlier. The prices during the weeks which are inscribed within the area but below the dotted line were higher than the prices a month earlier at least eight of the 12 years.

Table 7.- The Number of Years in 12 in Which Weekly Average Hog Prices at Chicago Were Above the Prices for the Corresponding Weeks a Month Earlier. (1935-1942 and 1947-1950)

Month	Number of Years in 12 in Which Weekly Average Prices Were Above the Corresponding Price of a Month Earlier				Total Number of Times that Weekly Prices Were Above or Below the Price a Month Earlier	
	Week				Number of Weeks	
	First	Second	Third	Fourth	Above	Below
February	8	8	8	8	32	16
March	7	8	6	8	29	19
April	3	4	5	4	18	30
May	4	3	8	9	24	24
June	9	10	9	11	39	9
July	11	12	12	11	46	2
August	10	8	7	5	30	18
September	8	6	8	6	30	18
October	3	3	1	0	7	41
November	0	0	0	1	1	47
December	3	5	7	10	25	23
January	8	9	7	5	29	19

The relationship of one week's average prices to any other for the 12 year period shown in Table 7 may be used by a producer to compare the weekly price relationships of an individual year. If the prices from January to May of the individual year follows the pattern of the 12 year average then this would be a sound basis for deciding to feed hogs, weighing 200 pounds the first of June, an additional 30 days.

### CHAPTER III

#### ESTIMATED COSTS AND RETURNS IN HOG PRODUCTION

Many factors influence the total cost of producing hogs, but feed costs are quantitatively most important. Feed costs alone usually make up 75 to 85 per cent of the total costs. <sup>1/</sup> Other major cost items accounting for the remaining 15 to 25 per cent are: (1) labor, (2) interest and depreciation on investment, buildings, and equipment, (3) rent, (4) insurance against injury and death, (5) veterinary costs, and (6) miscellaneous costs. Thus, the total cost of pork production depends primarily upon the ability of the producer to obtain maximum efficiency from these factors.

Corn is often considered the "basic" hog feed, particularly since more corn is fed to hogs than to any other specie of livestock. However, today's successful commercial hog producers are aware that proteins and minerals should be added to corn in composing a hog ration, for such a ration is more efficient and often less expensive than corn alone. Nutritional research has repeatedly shown that for both physical and economic reasons hog rations should be balanced so as to contain in addition to corn and other grains, certain quantities of proteins, minerals and perhaps limited amounts of antibiotics. The role of antibiotics in animal nutrition is now receiving considerable research attention.

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<sup>1/</sup> Case, H. C. M. and Ross, Robert C., The Place of Hog Production in Corn Belt Farming, University of Illinois, Agricultural Experiment Station Bulletin No. 301, 1927.



Feeding results from several experiments have also shown that feed ingredients commonly used in hog rations do not substitute for each other in fixed or constant ratios. Rather, results from these tests show that the physical rate of substitution of these feeds are generally at a diminishing marginal rate. In other words, if by adding (say) two pounds of soybean meal to an all corn ration it would replace (say) five pounds of corn in the ration and still produce as many pounds of pork as before, the substitution ratio between soybean meal and corn would be 1:2.5. But, if an additional (say) two pounds of soybean meal were added it would not be expected to replace five pounds of corn as the first increment did.

Results from experimental feeding tests have likewise shown that conversion ratio of most feeds (pounds of feed required to produce 100 pounds of pork) declines as the weight of the hog increases. Light weight hogs are more efficient in converting their feed into pork than heavier hogs. For example, more pounds of corn, on the average, are required to put on an additional pound of gain on a hog weighing 250 pounds than on one weighing 200 pounds.

Since feed costs are the most important item affecting total production costs, hog producers should in light of the above mentioned facts attempt to feed the most economical ration consistent with minimum nutritional requirements for keeping the hog healthy and growing. The most economical ration will depend upon the relationship between marginal

(physical) rates of substitution of the various feed ingredients used and the ratio of their prices. 1/

The pounds of feed and feed units required to feed hogs to various weights after weaning, as used in this thesis, are shown in Table 8. 2/ These results were obtained from three published and nine unpublished experiments conducted in Iowa, Indiana, Illinois, Ohio, and Missouri. Results from all of these experiments were combined, analyzed and reported in U.S.D.A. Technical Bulletin Number 894. 3/ More than 800 hogs were included in these experiments. All of these hogs were fed nutritively balanced rations, under dry lot conditions, with corn as the basal feed. All of the hogs were either full-fed or self-fed in these tests.

By using a simultaneous equation method of solution it was found that corn, soybean meal, and tankage could be incorporated in a ration that could vary in protein content from 12.7 to 14.0 per cent and still have the same quantity of both feed units and pounds of feed shown in Table 8. 4/

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- 1/ Figure 26, page 78 shows graphically how corn and protein substitute for each other in the hog ration. A more detailed discussion of this topic may be found on page 76 of this thesis.
  - 2/ A feed unit is determined from the following relationship; one pound of corn equals one feed unit, one pound of soybean meal equals 1.75 feed units, and one pound of tankage equals 2.5 feed units.
  - 3/ Atkinson, L. Jay and Klein, John W., Feed Consumption and Marketing Weights of Hogs, United States Department of Agriculture, Technical Bulletin Number 894, July 1945, pp. 27 and 29.
  - 4/ The assumed analysis of the feeds as reported in Morrison, F. B., Feeds and Feeding, Twentieth Edition. Ithaca, New York: The Morrison Publishing Company, 1947. Appendix Table I, pp. 982, 988 and 990, are: soybean oilmeal 37.5 per cent, tankage 56.4 per cent, and corn 7.1 per cent.

Table 8.-Relationship of Feed Consumed by Hogs after Weaning,  
Measured in Feed Units and Pounds of Feed, to  
Liveweight and Age of Hogs

Liveweight (Pounds)	<u>Feed consumed after weaning</u>		Rate of gain per 100 pounds additional feed units	Age of hogs (days)
	Feed units	Pounds		
35	0	0	0	60
75	172.8	137.5	23.0	107
100	281.8	227.8	22.8	125
150	504.6	419.6	22.0	158
180	643.1	543.1	21.4	180
200	737.7	628.5	20.8	188
225	859.8	740.6	20.2	203
250	986.3	858.1	19.4	218
275	1118.3	982.0	18.5	233
300	1256.3	1112.8	17.7	249

Source: Atkinson, L. Jay and Klein, John W., Feed Consumption and Marketing Weights of Hogs, United States Department of Agriculture, Technical Bulletin Number 894, July, 1945, Table 12, p. 25.

Table 9.-Pounds of Feed Required to Produce 200, 250, and 300 Pound  
Hogs with a 13.43 Per Cent Protein Ration

Kind	200 pound hog (pounds)	250 pound hog (pounds)	300 pound hog (pounds)
Corn	489.0	667.60	865.77
Soybean oilmeal	133.45	182.20	228.13
Tankage	6.10	8.30	18.93

Source: Computed from Table 8 on the basis of the relationship between pounds and feed units.

Figure 19 shows the average rate of gain per day and growth curve for hogs in the previously mentioned experiments. The greatest average daily gain was 1.7 pounds in the 200-210 pound range but gains were only 10 per cent less at 300 pounds. The total feed consumed by the hogs in these feeding trials are shown in Tables 8 and 9 and also in Figure 20. The total feed consumption required to reach designated weights as shown in Figure 20 and the average daily rates of gain shown in Figure 19 were assumed where necessary in making all value computations in this thesis.

#### Cost of Feed Consumed by Different Weights of Hogs

A preliminary step in establishing the most profitable marketing weight for hogs is to establish the quantity and cost of feed consumed per pound of gain or per head. As shown in Table 8 and as previously discussed the quantity of feed required to produce a pound of gain is a curvilinear function of the weight of the hog.

The cost of feed consumed by hogs marketed at different weights and farrowed at different times of the year varies according to the quantity and types of feed consumed and the seasonal variation in the price of feeds. The average monthly farm price of corn in Virginia is given in Table 10. As the new corn crop becomes available in October prices usually decline until they reach the seasonal low in December, and the seasonal peak in prices usually occurs in August and September. Prices of soybean oilmeal and tankage are also shown in Table 10; they tend to follow the same seasonal price pattern as corn.

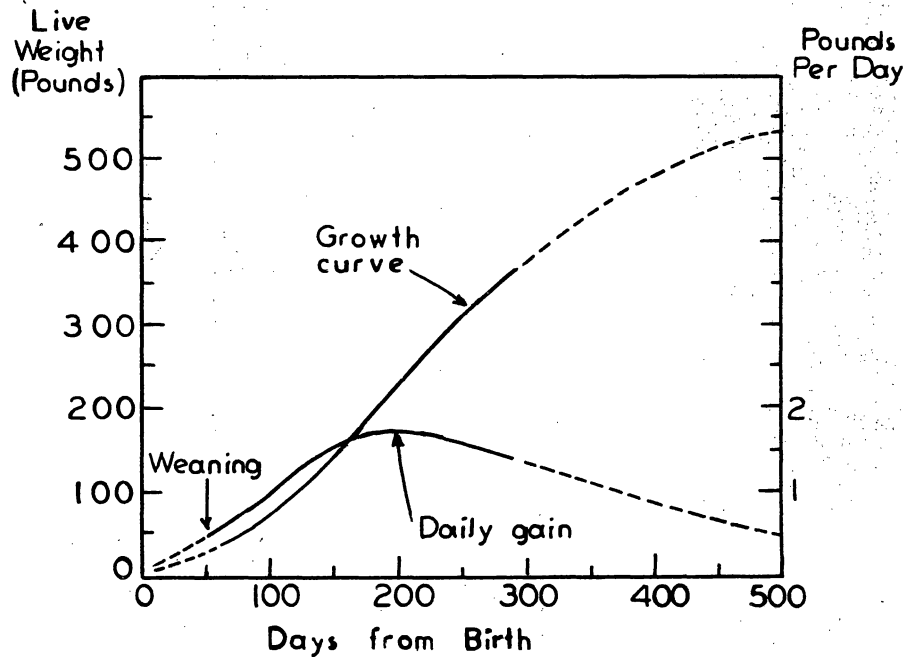


Figure 19.- Growth curve and rate of daily gain of hogs (Based on 813 hogs in 12 experiments).

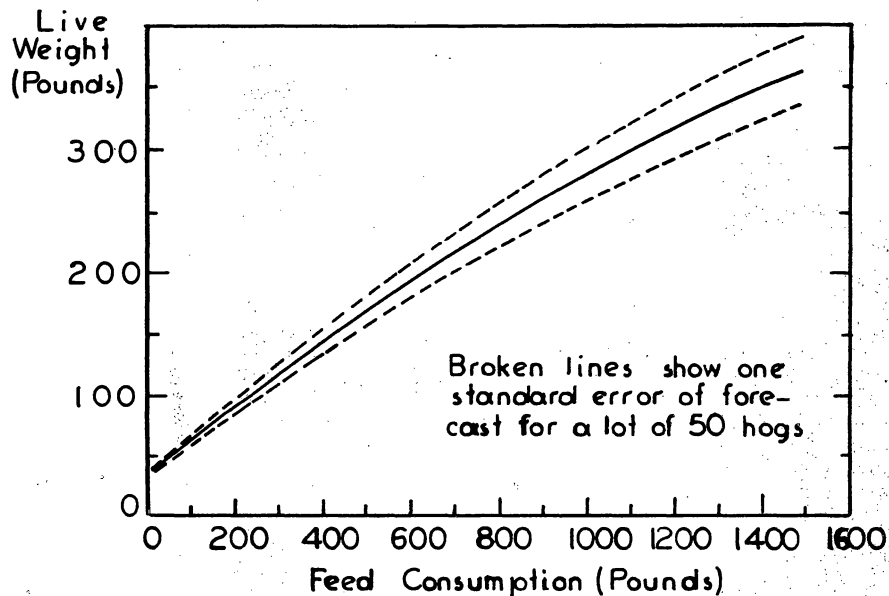


Figure 20.- Feed consumption and gain of hogs after being weaned (Average of 12 experiments involving 813 hogs).

Source.- Atkinson, L. Jay and Klein, John W., Feed Consumption and Marketing Weights of Hogs, United States Department of Agriculture, Technical Bulletin No. 894, 1945. pp. 4-5, Figures 1 and 3.

Table 10.- Monthly Average Farm Price of Corn in Virginia and the Wholesale Price of Soybean Oilmeal and Tankage, (1935-1939 and 1947-1950 Average)

Item	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	Dollars per 100 pounds											
Corn	2.10	2.00	2.08	2.15	2.19	2.26	2.35	2.37	2.39	2.21	2.00	1.98
Soybean												
Oilmeal	2.98	2.84	2.95	3.05	3.11	3.21	3.34	3.37	3.39	3.14	3.84	2.81
Tankage	4.30	4.10	4.26	4.41	4.49	4.94	4.82	4.86	4.90	4.53	4.10	4.06

Source: Virginia Crops and Livestock, Virginia Department of Agriculture Crop Reporting Service, Volumes 19-22, issued monthly.

The average cost of feed consumed by a 200 pound hog, as shown in Figure 21, was calculated by multiplying the average price of the feed (Table 10) at the time the hog was ready for market by the pounds of feed consumed (Table 9). By using the price of the feed at the end of the feeding period rather than at the beginning, the storage costs of the feed are accounted for in the increased price. <sup>1/</sup> Another advantage of using the later price of feed is shown in the estimation of the costs other than feed. The price of the feed in July is higher

<sup>1/</sup> Larson, Adlowe L., Agricultural Marketing. New York: Prentice-Hall, Inc., 1951, pp. 143-144. "Storage is determined by supply and demand conditions, some competitive and some not. If storage of a product is to be carried on regularly, the gains coming to the one storing the goods must compensate him for the costs of storage. If seasonal increases in prices of the commodity stored are not as great as the cost of the storage operations, those carrying on storage operations will not continue to do so. That these conditions do not always exist is well known. In a specific year many may lose by carrying on storage operations while in another year many may gain."

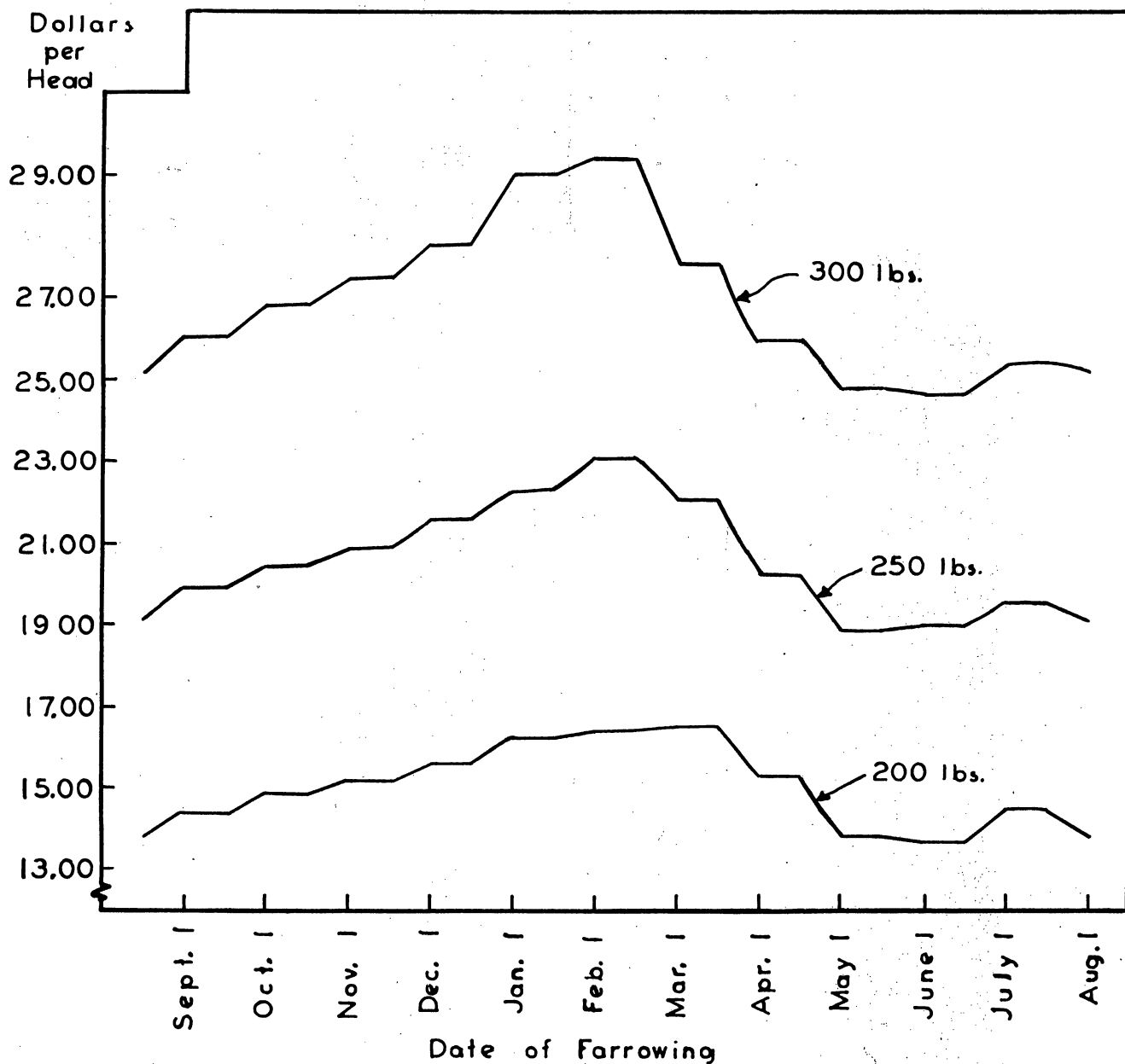


Figure 21.- Average feed costs per head of three weight classes of hogs (based on feed prices at date of marketing).

Source.- Appendix Table 9.

than in January, thus the estimated costs other than feed are higher. But, this appears reasonable since more time and labor must be devoted to caring for hogs during the winter months. The following example illustrates the procedure for determining feed costs.

Estimated Feed Cost of Producing a 200 Pound Hog Farrowed November 1.-

489.0 pounds of corn @ \$2.19 per 100 pounds (May price)	\$10.71
133.45 pounds of soybean oilmeal @ \$3.11 per 100 pounds (May price)	4.15
6.10 pounds of tankage @ \$4.40 per 100 pounds (May price)	0.27
Total feed costs for producing 200 pound hog farrowed November 1	<u>\$15.13</u>

Estimated Feed Cost of Producing a 250 Pound Hog Farrowed November 1.-

Total feed costs of producing a hog to 200 pounds	\$15.13
Additional feed costs to increase the weight to 250 pounds	5.71
178.6 pounds corn @ \$2.26 per 100 pounds (June price)	\$4.04
48.75 pounds soybean oilmeal @ \$3.21 per 100 pounds (June price)	1.56
2.20 pounds tankage @ \$4.63 per 100 pounds (June price)	0.11
Total feed cost of producing a 250 pound hog	<u>\$20.84</u>

Total Costs of Producing Different Weight Hogs

As mentioned previously, feed cost usually comprises 75 to 85 per cent of the total costs of producing hogs. Consequently, if 75 per cent of the total costs is taken as the feed cost then total costs may be determined by dividing feed costs by 0.75. Because a curvilinear relationship exists between liveweight and feed consumed, feed costs comprise a larger portion of total costs as the weight of the hog increases.



Hence, if total costs of producing hogs to 200 and to 300 pounds are computed by this technique, daily costs other than feed costs would be larger for the 300 pound hog than for the 200 pound one. There is no justification for arguing that costs other than feed should be more per day for feeding a 275 pound hog to 300 pounds than for feeding one from 200 to 225 pounds, except for the interest on the increased value of the hog.

The total costs for 200 pound hogs were determined by dividing the feed cost by 0.75. However, a slight modification was made in determining total costs for heavier hogs. Total production costs for the 250 and 300 pound weights were computed in the following manner: (1) total costs less feed costs gives "costs other than feed costs" for the 200 pound hog, (2) by dividing these "other costs" by 188 (age of hog at 200 pounds) the average "other cost" per day is determined, and (3) the cost other than feed for hogs fed to heavier weights was found by multiplying the number of days they would be fed by the average "other cost" per day and adding the interest on the increased value of the hog. This cost plus the feed cost gives the total costs. The following example illustrates the procedure for determining total costs for hogs farrowed November 1.

Estimated Total Cost of Producing a 200 Pound Hog Farrowed November 1.-

Feed cost (May prices)	\$15.13
Costs other than feed (feed cost - total cost)	5.04
Average daily "other costs" ( $\$5.04 \div 188$ )	\$0.027
Total cost ( $\$15.13 \div 0.75$ )	<u>\$20.17</u>

Estimated Total Cost for Producing a 250 Pound Hog Farrowed November 1.-

Feed cost (June prices)		\$20.34
Costs other than feed		5.88
"Other costs" to 200 pounds	\$5.04	
"Other costs from 200 to 250 pounds (30 days @ \$0.027 per day)	0.81	
6 per cent interest on increased value of the hog	0.03	
Total cost		<u>\$26.72</u>

Returns Above Feed Cost

In short-run periods when agricultural production is not returning profits to farmers, they strive to meet their cash costs first. In hog production, producers have already committed themselves to producing in the short-run since they have their breeding herd, buildings, and other costs that are relatively fixed. Attempting to withdraw completely from production would be more costly than producing at a loss because of the nature of these costs. Under such situations, hog producers may elect to continue hog production until more favorable conditions return, as long as they can recover slightly more than their feed costs which are usually the largest cash item of expense. Figure 22 shows the average returns above feed costs for three different weights of hogs farrowed at different times of the year. <sup>1/</sup> Returns above feed costs per head vary less between different weights for the spring pigs than for the fall pigs. The highest returns above feed costs per head

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<sup>1/</sup> Average of 1935-1942 and 1947-1950 estimated hog prices at Richmond, and average of 1935-1939 and 1947-1950 feed prices as of the sale date of the hogs.

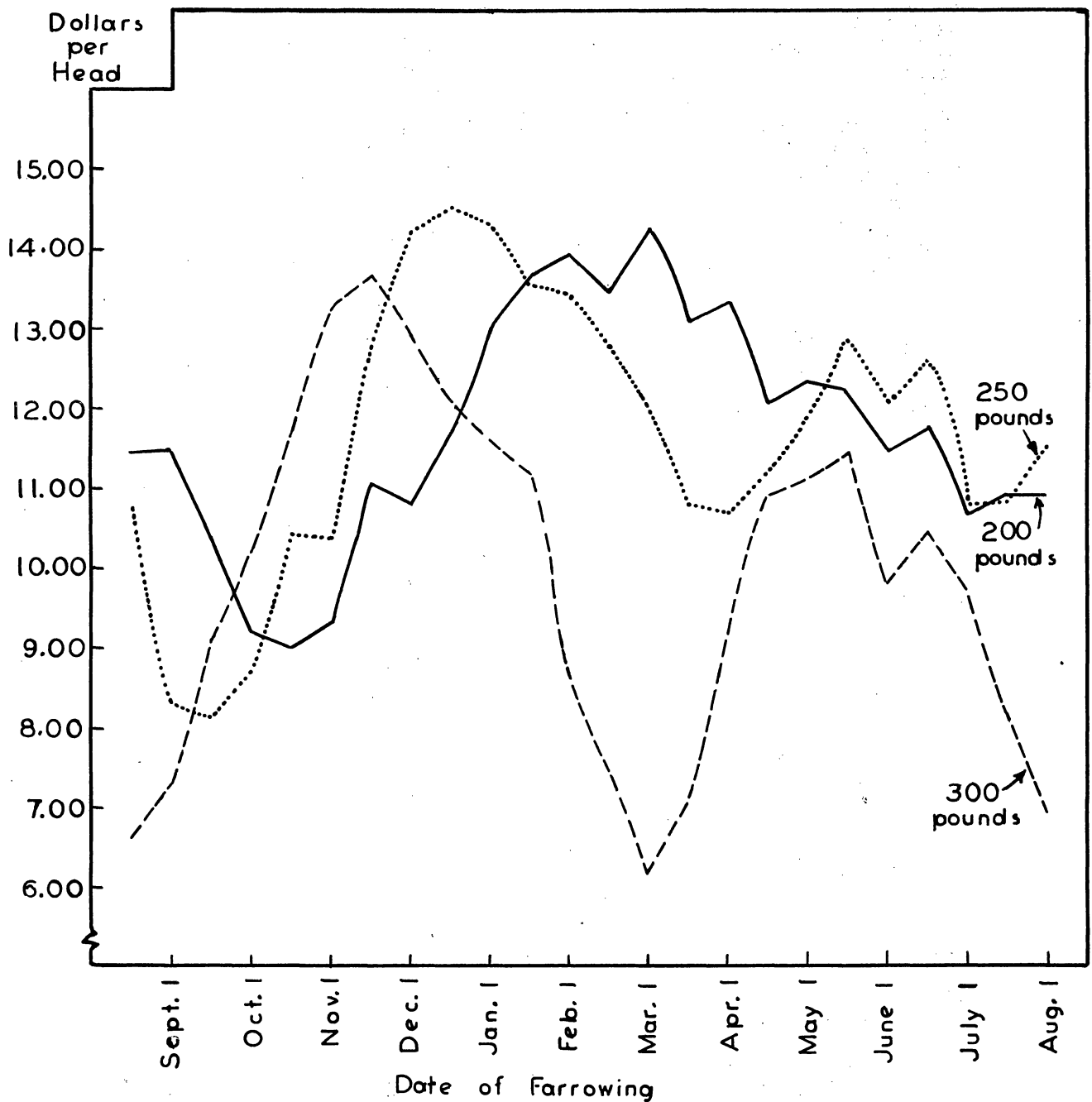


Figure 22.- Estimated average returns above feed costs per head for three weight classes of hogs by designated farrowing dates.

Source.- Appendix Table 9.

were for 250 pound hogs farrowed December 15. Lowest returns above feed costs were for 300 pound hogs farrowed March 1. Variations in returns above feed costs were less for the light weight hogs than for either the medium or heavy weight hogs. Returns above feed cost for 200 pound hogs varied from \$9.00 per head for hogs farrowed October 15 to \$14.30 for hogs farrowed March 1, while returns from the 250 pound hogs varied from \$8.10 per head for September farrowings to \$14.50 for December 15 farrowings. Returns above feed costs for the 300 pound hogs varied from \$6.10 per head for March 1 farrowings to \$13.65 for November 15 farrowings.

#### Net Returns From Different Weight Hogs

From Date of Farrowing.- Estimated net returns per head were most favorable for medium and heavy weight hogs farrowed in the late fall and early winter (Figure 23). Net returns per head were greater for hogs weighing 200 pounds than for heavier hogs throughout the major portion of the year. However, for pigs farrowed between October 1 and January 1, additional net returns could have been obtained by feeding hogs to heavier weights. Pigs farrowed between May 1 and July 1 showed slightly larger net returns for 250 pound weights than for 200 pound weights. Net returns from hogs sold at 200 pounds were lowest when farrowed on October 15 and highest when farrowed on March 1. Pigs farrowed on these dates would have been marketed the following April 20 and September 8, respectively. Highest net returns were realized on

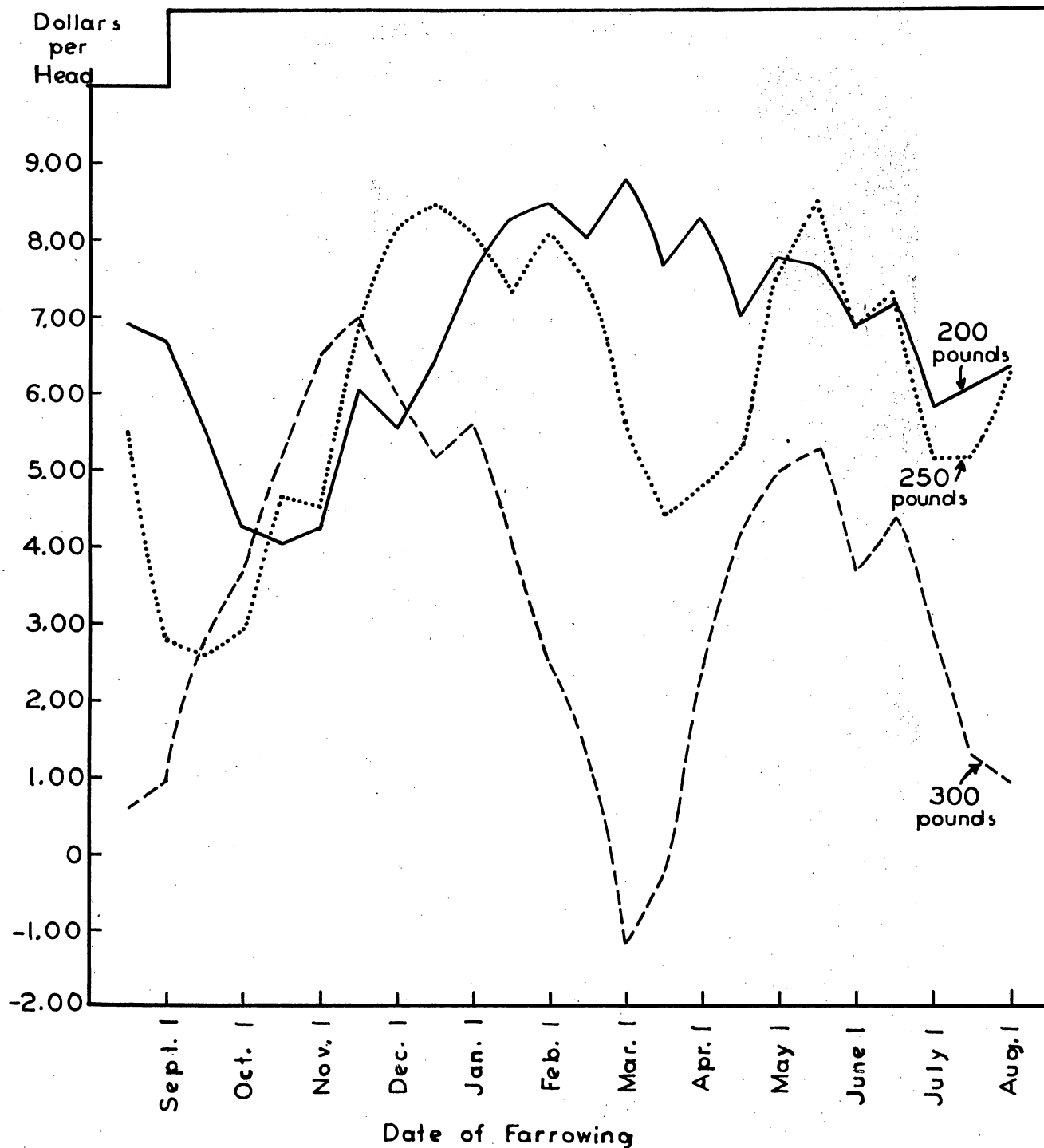


Figure 23.- Estimated average net returns per head for three weight classes of hogs by designated farrowing dates.

Source.- Appendix Table 9.

hogs sold at 250 pound weights if farrowed from November 15 to January 1 and sold between June 22 and August 9. Heavy weight hogs which were farrowed in April showed the least net returns.

When 200 pound hogs are farrowed and fed so as to reach the market when they show the highest net returns per head, net returns to the hog enterprise would be at a maximum and would also be greater than if these hogs had been held and marketed at heavier weights later in the season.

To determine (estimate) when total net returns to the hog enterprise are greatest -- with a fixed feed supply -- the cost of the pig at weaning time must also be considered. This cost is only a small portion of the total cost. However, these weaning costs could be the deciding factor in determining the most profitable marketing weight when estimated net returns between two or more weights are nearly the same. In all calculations and comparisons of estimated net returns from different weights made thus far, weaning costs have not been considered because comparisons have been made on a per head basis rather than an enterprise basis. If producers are interested in maximizing net returns from the hog enterprise instead of from an individual hog, they will want to market their hogs at the weight at which the total net returns to the enterprise are greatest. A given amount of feed will produce only about 80 per cent ( $4/5$ ) as many head of hogs to 250 pounds as it will to 200 pounds. <sup>1/</sup> Assuming a cost of \$3.00 per head

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<sup>1/</sup> See Table 8, page 53.

at weaning, a producer's initial cost would be \$15.00 if he produced five 200 pound hogs but only \$12.00 if he produced four 250 pound hogs. But since this cost is only a small portion of the total cost the final decision as to the most profitable weight must be decided on the basis of total value of all hogs produced minus the total cost including weaning costs incurred in their production.

To illustrate some of the problems confronting a hog producer in determining the most profitable weight to market, the following hypothetical problems are presented.

Problem I. Expected Fixed Feed Supply.- Suppose a producer estimates that his feed supply available for hog feeding will be 60,000 pounds of corn and corn equivalent after harvesting in the fall. At what weight should he plan to market his hogs and how many can he feed?

This 60,000 pounds of feed will produce 81 hogs to 200 pounds, 61 hogs to 250 pounds and 48 hogs to 300 pounds. In this illustration the farrowing dates which show more favorable returns from the medium and heavy weight hogs were deliberately chosen. The net returns (estimated) from feeding all of this feed to hogs until they reach weights of 200 pounds, 250 pounds or 300 pounds are shown in Table 11. Also shown in this table are the net returns from each weight group assuming weaning costs \$3.00, \$4.00 and \$5.00 per head. The effect of the weaning costs on costs per pound of liveweight sold lowers as the weight of the hog increases.

Assuming (1) that the hogs were farrowed on November 15; (2) made the rate of gain on the quantity of feeds consumed as shown in Table 8;

Table 11.-Alternative Weights that can be Produced and Estimated Net Returns  
from Feeding 60,000 pounds of Corn and Corn Equivalent to Hogs Farrowed at Designated Dates

From feeding 35,000 pounds of corn and corn equivalent to hogs farrowed at designated dates									Total value necessary to equal net value of 200 pound class 1/ (dollars)	Price per 100 lbs. necessary to equal net value of 200 lb. class 1/ (dollars)	Amount of necessary increase above 200 pound price
Date of farrowing	Class of hogs (pounds)	Number of hogs	Total pounds of live-weight	Total value (dol-lars)	Total cost from weaning (dol-lars)	Returns			Total value necessary to equal net value of 200 pound class 1/ (dollars)	Price per 100 lbs. necessary to equal net value of 200 lb. class 1/ (dollars)	Amount of necessary increase above 200 pound price
						Initial cost at:					
						\$3.00	\$4.00	\$5.00			
October 15	200	81	16,200	1932.66	1603.80	85.86	4.86	-76.14	1932.66	11.92	-
	250	61	15,250	1881.85	1597.59	101.26	40.26	-20.74	1866.45	12.24	.32
	300	48	14,400	1848.96	1604.64	100.32	52.38	4.32	1834.50	12.74	.82
November 1	200	81	16,200	1979.64	1633.77	102.87	21.87	-59.13	1979.64	12.20	-
	250	61	15,250	1906.25	1631.75	91.50	30.50	-30.50	1917.62	12.57	.37
	300	48	14,400	1956.96	1644.96	168.00	120.00	72.00	1891.83	13.14	.94
November 15	200	81	16,200	2123.82	1633.77	247.05	166.05	85.05	2123.82	13.11	-
	250	61	15,250	2055.70	1631.75	240.95	179.95	118.95	2061.80	13.52	.41
	300	48	14,400	1972.12	1644.96	188.16	140.16	92.16	2036.01	14.14	1.03
December 1	200	81	16,200	2138.40	1687.23	289.17	127.17	46.17	2138.40	13.20	-
	250	61	15,250	2186.85	1687.87	315.98	254.98	193.98	2160.04	14.16	.96
	300	48	14,400	1980.00	1692.48	143.52	95.52	47.52	2125.65	14.76	1.56
December 15	200	81	16,200	2211.33	1687.23	281.07	200.07	119.07	2211.33	13.65	-
	250	61	15,250	2203.32	1687.87	332.45	271.45	210.45	2151.94	14.16	.51
	300	48	14,400	1941.12	1692.48	104.64	56.64	8.64	2117.55	14.71	1.06
January 1	200	81	16,200	2368.44	1753.65	371.79	290.79	209.79	2368.44	14.62	-
	250	61	15,250	2232.60	1742.77	306.83	245.83	184.83	2297.56	15.07	.45
	300	48	14,400	2007.36	1739.04	124.32	76.32	28.32	2254.83	15.66	1.04
May 15	200	81	16,200	2109.24	1492.83	373.41	292.14	211.41	2109.24	13.02	-
	250	61	15,250	1424.96	1417.03	334.89	273.89	212.89	1971.44	12.93	-.09
	300	48	*	*	*	*	*	*	*	*	*

\*Note: Value per head is less than the value for the 200 pound hog.

1/ Initial cost \$3.00 a head.



(3) the hogs were sold when they reached the specified weights; and  
(4) total cost at weaning was \$3.00 per head, the results would have been: (1) if 81 hogs weighing 200 pounds each had been produced, net returns to the enterprise would have been \$247.05, and (2) if 61 hogs weighing 250 pounds each had been produced (from same quantity of feed as above), net returns to the enterprise would have been \$240.95 or \$6.10 less than received for the 200 pound hogs.

But if we assume that weaning costs are \$5.00 per head instead of \$3.00 per head, the resulting net returns to the enterprise would have been: (1) for 81 hogs sold at 200 pounds each, \$85.05, and (2) for 61 hogs sold at 250 pounds each, \$118.95, or \$33.90 greater than for the 200 pound hogs.

Analyzed on an enterprise basis rather than on a per head basis total net returns would have been greater if hogs which were farrowed on October 15, December 1, or December 15 had been marketed at 250 pound weights instead of at 200 pound weights. Hogs farrowed on October 15 and/or November 1 and marketed at 300 pound weights would have brought greater net returns than if marketed at 200 pound weights.

If increased total net returns are to be realized from feeding a given number of hogs to weights heavier than 200 pounds they must be sold at prices sufficiently higher than they would have brought at 200 pounds to off-set the higher production costs incurred in increasing their weight beyond 200 pounds. This could occur only if the general level of hog prices increased seasonally from the date they weighed

200 pounds until they were sold and price relationships between the various weights remained fairly constant.

The necessary price increase to have made it more profitable to market hogs, farrowed on specified dates, at 250 or 300 pound weights instead of at 200 pounds is shown in the extreme right hand column of Table 11. This table shows that hogs farrowed on October 15 must have sold for 82 cents more per 100 pounds when marketed as 300 pound hogs in the last week of June than if they had been sold as 200 pound hogs in the last week of April. The 12 year average price of 200 pound hogs at Richmond in the last week of April was \$11.93 per 100 pounds and the price of 300 pound hogs in the last week in June was \$12.84 per 100 pounds. Thus, the actual difference in price was 91 cents per 100 pounds or nine cents more than necessary to make the two weights equally profitable.

The number of years in which hog prices increased sufficiently to make it more profitable to market hogs at 250 pound weights rather than market them at 200 pound weights is shown in Table 12. In other words, the data shown in Table 12 are the number of individual years during the 12 year period in which the seasonal increase in price was greater than the figures shown in the extreme right hand column of Table 11. In eight of the 12 years hogs farrowed on either December 15 or May 15 could have been sold more profitably at 250 pound weights than at 200 pound weights. However, except for May 15 most other spring farrowed pigs would have shown greater net returns if sold at 200 pounds instead of at 250 pounds.

For this reason all spring farrowing dates other than May 15 were omitted from Tables 11 and 12.

Table 12.- Frequency Distribution of Number of Years in 12 When Seasonal Price Increases Were Favorable for Producing Hogs, Farrowed on Specified Dates, to 250 Pounds.\*

Date of farrowing	Number of years in 12 in which seasonal price increases were sufficient to make production of 250 pound hogs profitable
October 15	4
November 1	7
November 15	4
December 1	5
December 15	8
January 1	6
May 15	8

\* Average of 1935-1942 and 1947-1950 prices at Chicago.

Problem II. Feed Supply and Number of Hogs Are Out of Proportion in Regard to Expected Market Weight.- Suppose a producer decides to feed and market 61 hogs, farrowed December 1, at 250 pounds. Assume that he has 61 hogs on hand at the beginning of the feeding period. What should he do if his corn and corn equivalent supply turns out to be only 50,000 pounds instead of the estimated 60,000 pounds?

Alternative solutions to this problematic situation and the estimated net returns from each are shown in Table 13. Under these assumed conditions the best alternative would have been to produce as many hogs as possible

to 250 pounds and sell the others at weaning age. The producer would not consider selling any of the feed if he wished to receive maximum net returns. An increase of 24 to 53 cents per hundred pounds of feed is realized by feeding hogs rather than selling feed. He would not feed hogs to weights heavier than 250 pounds as his marginal returns from feed would decrease.

Table 13.- Alternative Ways of Utilizing 50,000 Pounds of Corn and Corn Equivalent with 61 Weaning Pigs on Hand

Number Fed	Marketing Weight (Pounds)	Net Returns	Number Sold at Weaning	Value of pigs Sold at Weaning	Total Net Returns	Increased Returns per Pound of Corn by Marketing Through Pork *
61	200	\$156.77	—	—	\$156.77	0.0035**
68***	200	174.76	—	—	174.76	0.0035
51	250	264.18	10	\$30.00	294.18	0.0053
40	300	119.60	21	63.00	182.60	0.0024
42 19	200) 250)	206.36	—	—	206.36	0.0041

\* Determined by dividing net returns from butcher hogs by the number of pounds of feed fed.

\*\* Increased returns per pound for the 45,000 pounds of feed that was fed to the 61 hogs. The additional 5,000 pounds would be sold as grain at no additional increase per pound. The increased net returns per pound of feed for the 50,000 pounds would be 0.0031 cents.

\*\*\* Assuming 7 pigs could be purchased at \$3.00 per head.

### Problem III, An Increase in the Price of Feed During the Feeding

Period.— Assuming that a producer (1) has 60,000 pounds of feed units on hand, (2) has 61 pigs farrowed on December 1, and (3) after due consideration of probable future hog and feed prices has decided to feed the

61 hogs to 250 pounds before selling them: What would be the best alternative for the producer to follow if on April 15 prices of each feed used in the ration increased 65 cents per 100 pounds and "expected" hog prices do not change? 1/

The gross revenue from the sale of the 61 hogs, weighing 250 pounds each, will not be changed when the assumed feed price increases occur. One method of determining if the producer should modify his plans after feed prices increase would be to measure the change in production costs after the price increases occurred. If production costs per 100 pounds of feed fed are not increased more than the estimated additional returns to feed from feeding (based on original feed prices) the producer would gain by continuing to feed the balance of his feed rather than selling it.

The amount of feed consumed, per head, by hogs farrowed on December 1 and their average weight on April 15 when feed prices increased can be obtained from Tables 8 and 9. By April 15 these hogs would weigh approximately 122 pounds each and would have already consumed 289.7 pounds of corn, 79 pounds of soybean oilmeal, and 3.6 pounds of tankage. The total cost of feed consumed, per head, by April 15 would be \$8.80, computed on the basis of the feed prices before they increased. After the feed

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1/ This increase of 65 cents per 100 pounds of feed would be the amount the actual price on April 15 was greater than the expected price on that date causing the producer to also increase his expected July price (when hogs will be ready for market) by 65 cents per 100 pounds.

price increase of 65 cents per 100 pounds has occurred, the total feed costs of producing a hog to 250 pounds would change from the original estimate of \$21.61 to \$24.51 or an increase of \$2.90 per head. This amount of increase per head divided by the total pounds of feed necessary to make each hog weigh 250 pounds would give the increase in cost per pound of feed consumed due to the increase in feed prices. Thus feed costs would be increased an additional 29 cents per 100 pounds ( $\$2.90 \div 986$ ) of feed consumed. If feed prices had not increased, the additional net returns from feeding would have been 53 cents per 100 pounds of feed fed. <sup>1/</sup> Net returns from feeding the feed and marketing it through 250 pound hogs instead of selling it, even after prices increased 65 cents per 100 pounds, would be 24 cents per 100 pounds of feed fed ( $\$0.53 - \$0.29$ ). Therefore, the producer would not modify his original production and marketing plan since it still is his best alternative.

Estimated Net Returns Based on Date of Marketing.— The major factors determining the marketing dates of given weight hogs are (1) date of farrowing, and (2) rate of gain. In the preceding discussions of the most profitable marketing weights a constant rate of gain was assumed for all hogs. Some producers are able to produce a given weight hog in less time than others. By changing the quantity and kind of feed a hog's rate of gain may be slightly modified. It may be advantageous for hogs to be fed heavily during certain times of the year in order to

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<sup>1/</sup> The reader may refer to Table 13 to see how the net return figure of \$0.53 was obtained.

get them to market while hog prices are high. At other times a slower rate of gain may delay the date of marketing until hog prices are expected to be higher.

Figure 24 is an alternative way of illustrating the data shown in Figure 23. However, it shows the marketing dates rather than the dates of farrowing and net differentials for feeding beyond 200 pounds rather than total net returns per head. Hogs which weighed 200 pounds in the period from April 1 until May 20 would have been more profitable if fed to 250 pound weights and marketed at later dates. Hogs weighing 200 pounds early in May would have increased in net value by approximately \$1.20 per head if they had been fed to 300 pounds. Hogs weighing 200 pounds on any date from May 20 to June 5 would have shown greater net returns if they had been marketed at 250 pounds instead of at 200 pounds. Hogs weighing 200 pounds the first of June would have increased in net value by approximately \$2.50 per head if they had been fed to 250 pounds, but hogs weighing 200 pounds on November 20 would have shown an increase of only \$0.90 in net value if they had been fed an additional 30 days. As shown in Figure 24 hogs that reached 200 pounds at other times of the year should have been sold at this weight.

On any given marketing date net returns from hogs weighing 300 pounds were always less than from hogs weighing either 200 or 250 pounds (Figure 25). However, during June and July the net returns for 250 pound hogs were about 50 cents per head higher than the 200 pound hogs and during this same period net returns from 300 pound hogs more closely

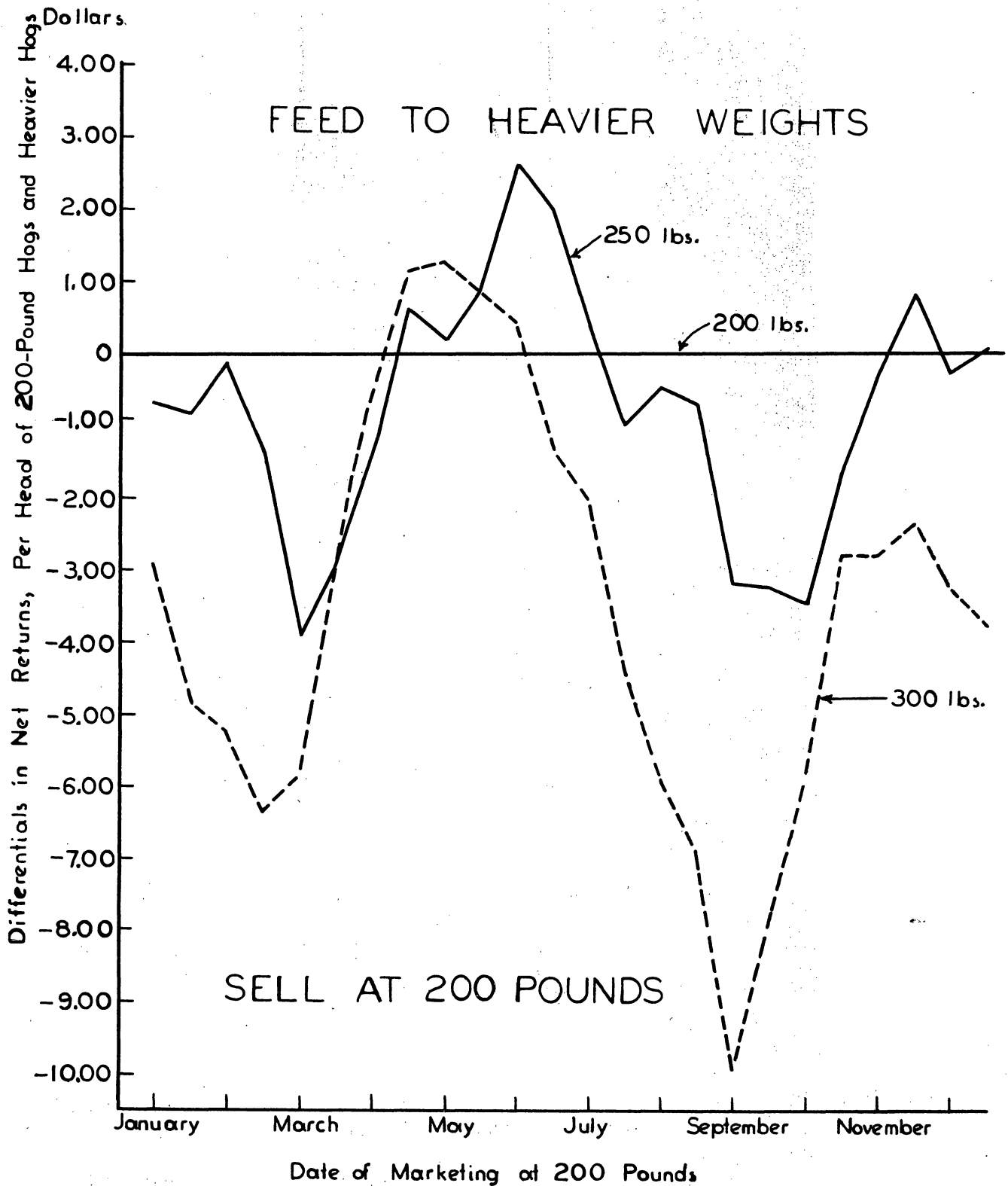


Figure 24.- Difference in net returns per head if 200 pound hogs on hand at designated dates are fed and marketed at 250 or 300 pounds (allowing 30 days for each additional 50 pounds of gain).

Source.- Appendix Table 9.



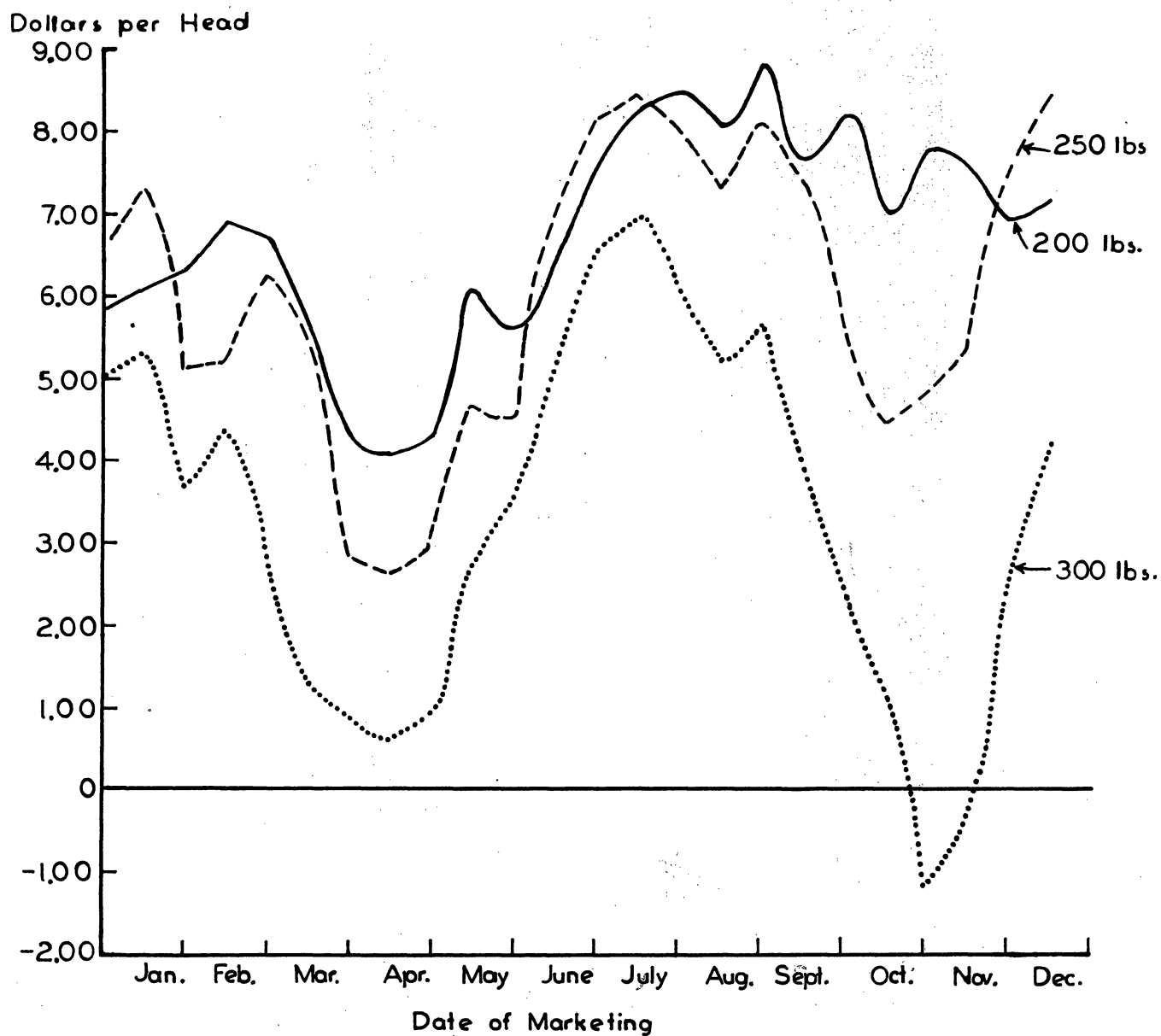


Figure 25.- Estimated average net returns per head for three weight classes of hogs by designated marketing dates.

Source.- Appendix Table 9.

approximated the returns from 200 pound hogs than during any other time of the year. Net returns from both light and medium hogs were the lowest in April, amounting to only \$4.00 and \$2.50 per head respectively. The highest net returns from 200 pound hogs were obtained when marketed in July, August, and September. The seasonal peak of approximately \$9.00 per head occurred in September. Net losses of about \$1.00 per head were incurred from the sale of 300 pound hogs marketed early in November. The comparative net returns from each of the three weight classes of hogs on certain specified marketing dates are shown in Figure 25.

The Effect of Varying Price Relationships between Corn,  
Soybean Oilmeal, and Tankage on Net Returns

Price relationships between corn and high protein feeds (soybean oilmeal and tankage) frequently vary both seasonally and annually. <sup>1/</sup> These variations in price relationships (price ratios) are due largely to the variations in the available supply of the different feeds from time to time.

During World War II the price ratios between feeds were closer than during any other time in the 15 year period (from 1935 to 1950). The average price per 100 pounds of soybean oilmeal for the five year period, 1943-1947, was 1.23 times larger than the price of corn, and during this same period the ratio of the price of 100 pounds of corn to 100 pounds of tankage was 1 to 1.72. <sup>2/</sup> During the years 1935-1939 the average

<sup>1/</sup> Farm price received by Virginia farmers for corn, and wholesale prices paid by Virginia farmers for soybean oilmeal and tankage.

<sup>2/</sup> Virginia Crops and Livestock, State Department of Agriculture, Virginia Cooperative Crop Reporting Service. Volumes 15 and 19.

price ratio of soybean oilmeal and tankage to corn was 1 to 1.3 and 1 to 1.91 respectively. 1/ The nine year average (1935-1939 and 1947-1950) price of soybean oilmeal and tankage was 1.42 and 2.05 times, respectively, greater than the price of corn. 2/

The marginal rate of substitution between corn and protein feeds in producing 100 pounds of pork diminishes as more protein feed is added. The amount of feed required to produce 100 pounds of gain on hogs may be stated mathematically by the formula

$$Y = f (A + B)$$

where Y is total feed

A is the pounds of corn

B is the pounds of protein feed

f is some function of A and B

The rates of substitution of corn for high protein feed are graphically illustrated in Figure 26. 3/ This iso-product curve for producing 100 pounds of pork shows the results of feeding different levels of protein feed to pigs with an initial weight of approximately 125 pounds and feeding them to about 200 pounds. In the experimental feeding trials from which these data were obtained different levels of protein feed varying from 10 to 25 per cent were fed. Higher rates of substitution of protein feed for corn in the fattening ration occurred

1/ Virginia Crops and Livestock, State Department of Agriculture, Virginia Cooperative Crop Reporting Service. Volumes 15 and 19.

2/ Ibid.

3/ Keith, T. C. and Miller, R. C., Levels of Protein for Pigs, Pennsylvania State College, Agricultural Experiment Station Bulletin No. 401, 1940, pp. 4, 6, and 10.

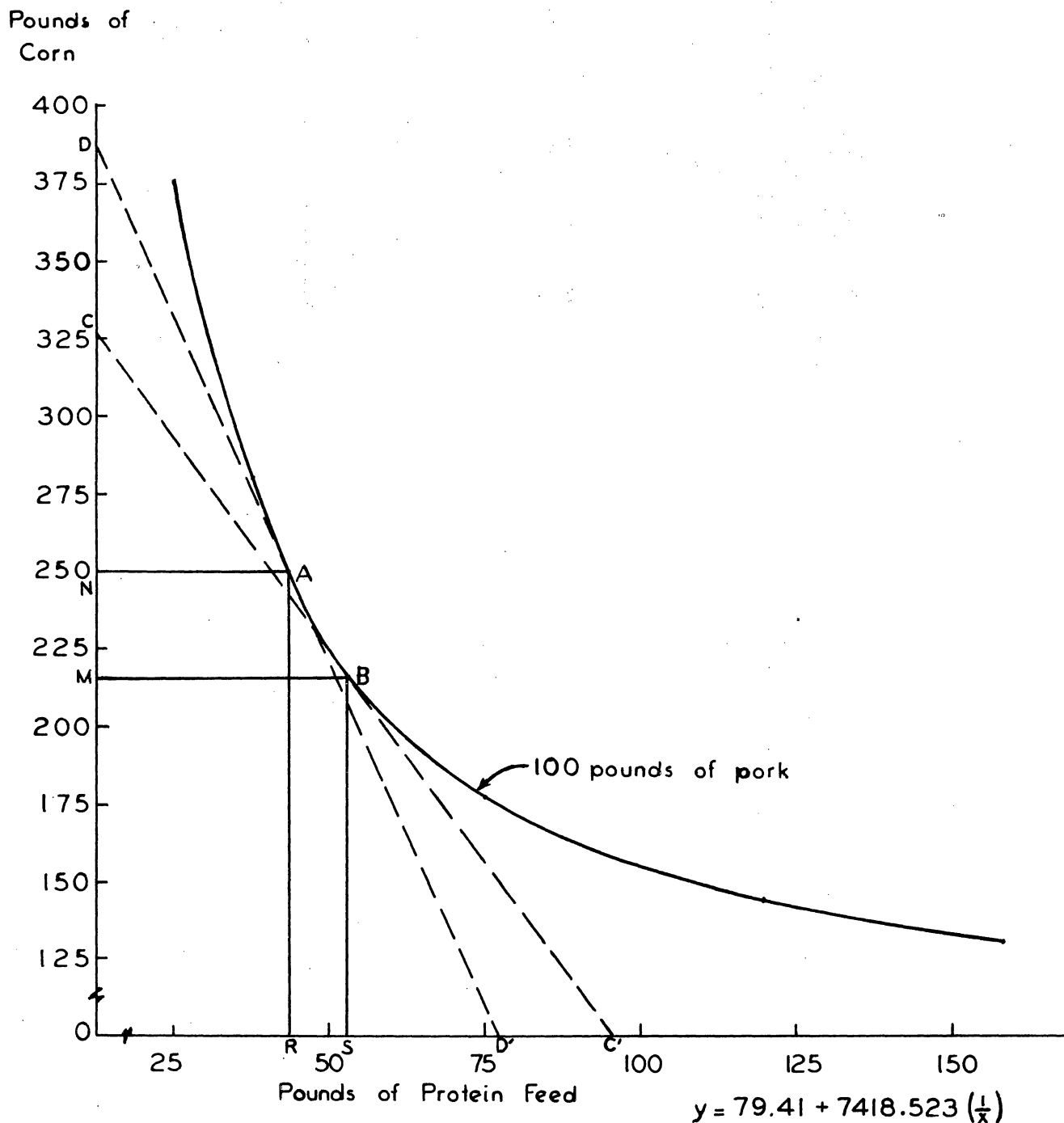


Figure 26.- Estimated rate of substitution of protein for corn for hogs weighing 125-200 pounds, with equilibrium rations under two price ratios.

Source.- Keith, T. C. and Miller, R. C., Levels of Protein for Pigs. Pennsylvania State College, Agricultural Experiment Station Bulletin No. 401, 1940, pp. 4, 6, and 10.

when the ration was low in protein content. For instance, if a ration of 375 pounds of corn and 25 pounds of protein feed (a 10 per cent protein ration) is replaced with a ration composed of 279 pounds of corn and 38 pounds of protein (12 per cent protein ration) the output will be 100 pounds of pork in either case. In this exchange, in going from a 10 to a 12 per cent ration, 13 pounds of high protein feed replaced 96 pounds of corn. But if a 17 per cent protein ration (composed of 176 pounds of corn and 75 pounds of protein feed) is replaced with a 20 per cent protein ration (composed of 145 pounds of corn and 120 pounds of protein feed) 45 pounds of high protein feed would replace only 31 pounds of corn. Thus the marginal rate of substitution of protein feed for corn is only 1 to 0.6889 ( $31 \div 45$ ) in the 20 per cent protein ration, but in a 12 per cent protein ration a much higher substitution rate of 1 to 7.385 ( $96 \div 13$ ) exists. Hence, as the amount of protein feed or corn is increased in the ration its marginal rate of substitution for the other feed diminishes.

The protein content of the total feed consumed by different weight hogs, as shown in Table 8, varies between point A and point B on Figure 26. Point A represents a 12.7 per cent protein ration and point B a 14.0 per cent protein ration. Smaller amounts of corn would be present in the 14.0 per cent ration (Figure 26, point B). This ration would be the optimum combination of corn and high protein feed when the price ratio of corn and protein feed is 1 to 3.04 ( $327 \div 96$ ) which is the same as the marginal rates of substitution at this point. For the 12.7 per cent

ration to be at the point of minimum costs (point A, Figure 26) the price ratio must again equal the marginal rates of substitution of protein for corn which in this case would be 1 to 5.00 ( $387 \div 76$ ).

In Figure 27 the optimum combination (least cost combination) of corn and high protein feed would be at point A where the price ratios are 1 to 2.12, which was the average price ratio between the feeds during the period 1949-1950. This would be approximately a 16.5 per cent protein ration. The optimum combination based on the price ratios of 1 to 1.5 (the average price ratios existing 1935-1939) would be at point B or a ration of 18.3 per cent protein content.

The 13.4 per cent protein ration used in making all feed cost estimates in this thesis composed of the quantity and kinds of feeds shown in Tables 8 and 9 would not have been, on the average, the cheapest ration to feed during the 12 year period considered. The average feed price ratios during this period were such that a higher protein would have been more profitable (would have produced gain at a lower unit cost). For instance, if a 14.0 per cent protein ration (point F, Figure 27) had been fed under the prevailing 1949-1950 average price ratios of 1 to 2.12, pork production costs would have been 15 cents per 100 pounds more than if a 16.5 per cent ration (point A, Figure 27) had been fed. This is illustrated as follows:

A 14 Per Cent Protein (Point F, Figure 27)

215 pounds of corn @ \$1.78 per 100 pounds =	\$3.83
45 pounds of high protein @ \$3.77 per 100 pounds =	1.70
Total cost of producing 100 pounds of pork with marginal rate of substitution of corn for protein feed at 1 to 3.04 and price ratio 1 to 2.12 =	<u>\$5.53</u>

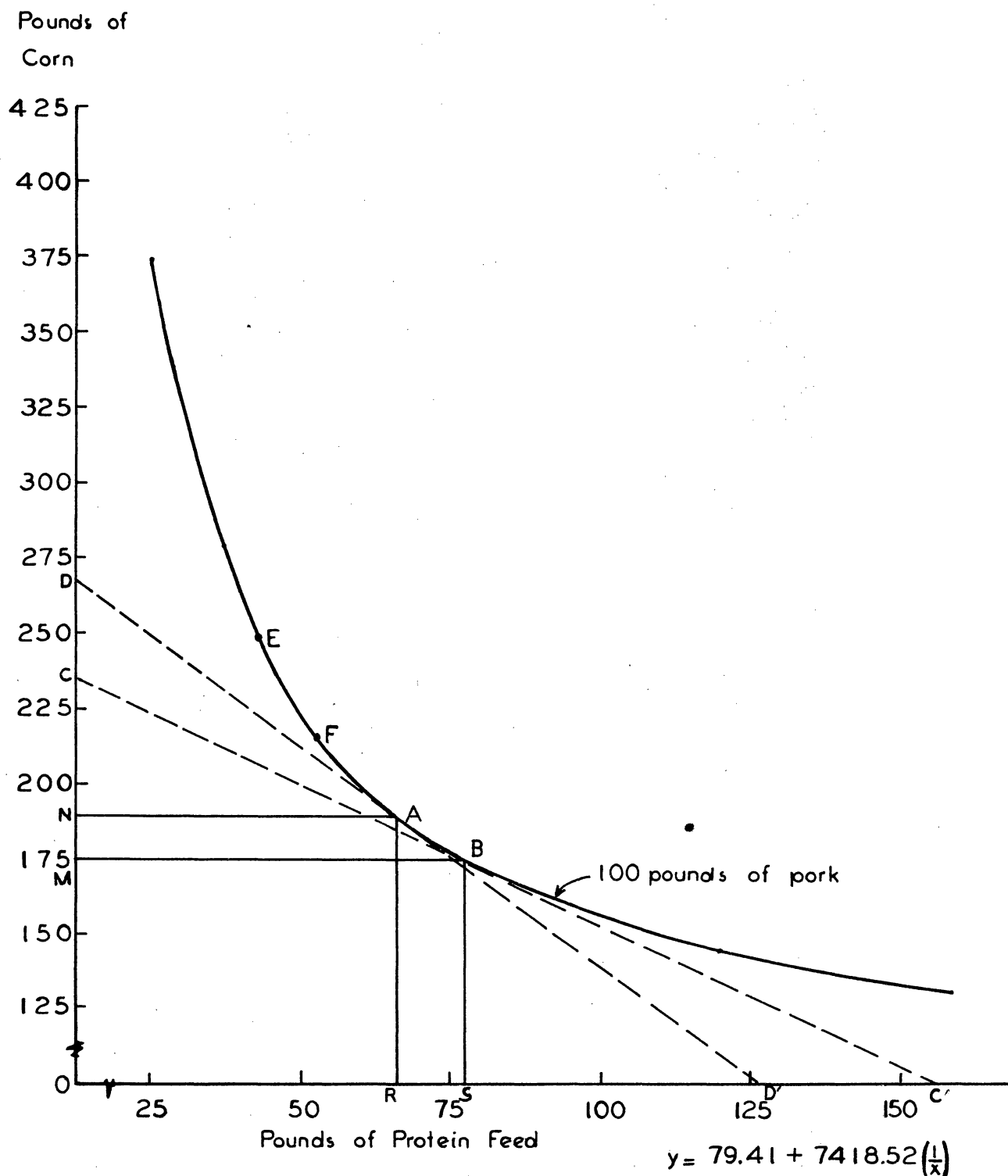


Figure 27.- Estimated rate of substitution of protein for corn for hogs weighing 125-200 pounds, with equilibrium rations under two price ratios.

Source.- Keith, T. C. and Miller, R. C., Levels of Protein for Pigs. Pennsylvania State College, Agricultural Experiment Station Bulletin No. 401, 1940, pp. 4, 6, and 10.

A 16.5 Per Cent Protein (Point A, Figure 27)

190 pounds of corn @ \$1.78 per 100 pounds =	\$3.38
50 pounds of high protein @ \$3.77 per 100 pounds =	2.00
Total cost of producing 100 pounds of pork when marginal rates of substitution is equal to the price ratio at 1 to 2.12 =	<u>\$5.38</u>

$\$5.53 - \$5.38 = \$0.15$  (amount saved per 100 pounds of pork produced by shifting ration so that marginal rate of substitution equals the price ratio.)

The cost of feed for producing 100 pounds of pork by using the 12.7 per cent ration (point E, Figure 27) with the price ratios at 1 to 2.12 would have been \$6.05 or 67 cents per 100 pounds greater than if the minimum cost ration containing 16.5 per cent protein had been fed.

The point of minimum cost is that at which the iso-product curve is tangent to the line representing the price ratios between the two feeds, i.e., when the rate of substitution of one feed for another, expressed on an iso-product curve, has the same slope as the line representing the price ratios. Any new point of tangency which may be caused by a change in the ratio of costs of the two feeds will represent the quantities of the two feeds which will produce 100 pounds of pork at minimum cost. Any deviation from this combination will make the production of a given quantity of pork more costly. Thus, if the price of either corn or protein feed increases in relation to the other less of the more expensive feed should be mixed in the ration.



Relationship of Costs Other Than Feed to the  
Net Returns from 200 and 250 Pound Hogs

Additional net returns can be realized from the hog enterprise by reducing costs other than the cost of feed. The amount of costs other than feed, (1) over-head, (2) labor, and (3) miscellaneous, depends largely upon the managerial ability of the producer. Consequently they may be combined and defined as management costs.

Figure 28 shows the amount of increase in net returns from (1) 81 hogs weighing 200 pounds, and (2) 61 hogs weighing 250 pounds, if management costs are reduced. <sup>1/</sup> For other farrowing dates the position of the lines would change but the slope of the line, which measures the increase in net returns affected by reductions in costs other than feed costs, would remain approximately the same. In this illustration it was assumed that feed costs would remain constant and all cost reductions were made possible only by increasing management efficiency.

If management costs in producing 200 pound hogs are reduced sufficiently to effect an 8.5 per cent decrease in total costs, the net returns would be increased 69 per cent (from point A to C in Figure 28) or \$1.78 per head ( $\$144.80 \div 81$ ). In order to decrease the total cost (\$1687.23) by 8.5 per cent the management costs for producing 81 light weight hogs would have to be reduced 34 per cent. A 31.2 per cent reduction in the cost of management in producing 61 hogs weighing 250

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<sup>1/</sup> Assuming both lots were farrowed on December 1.

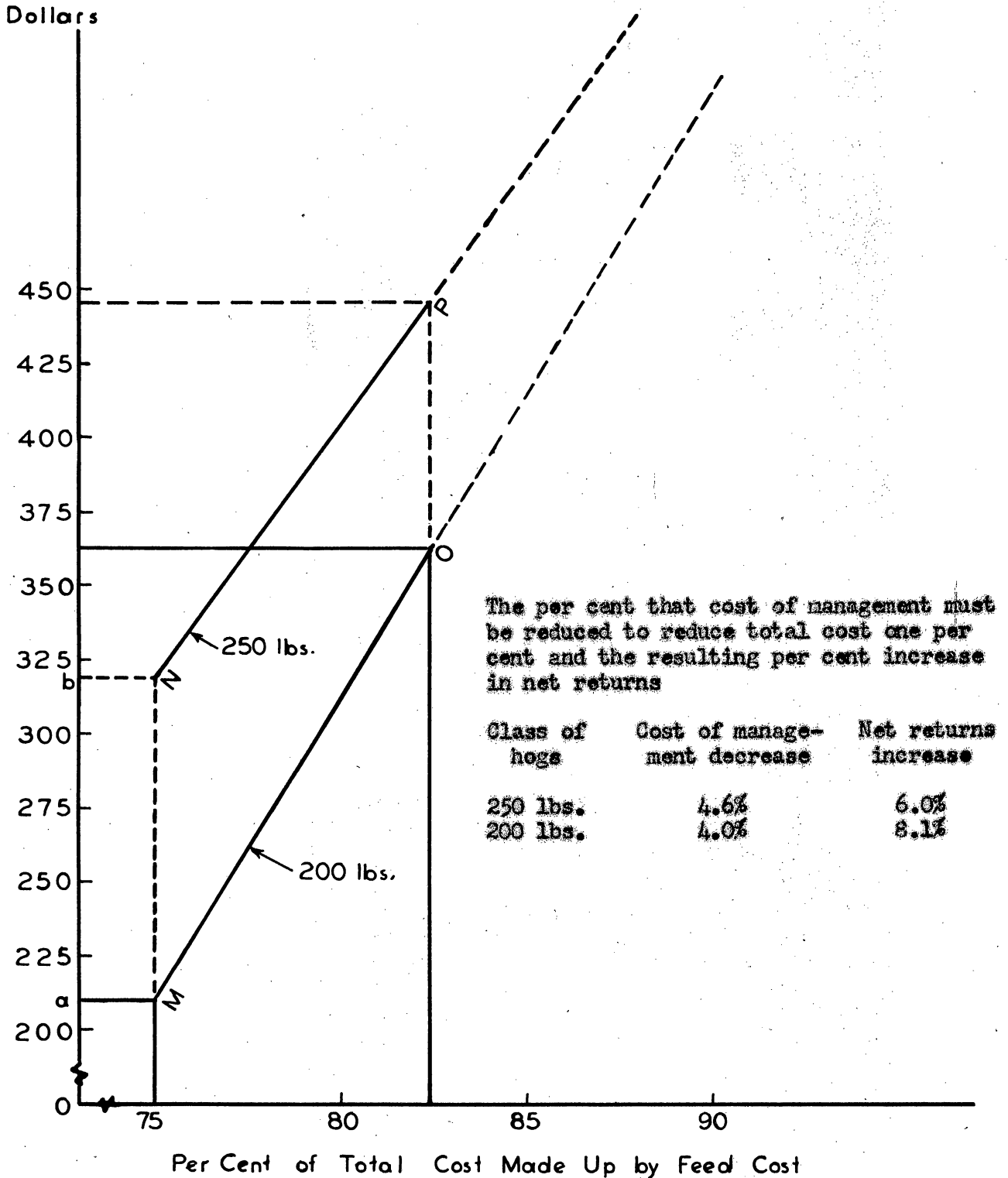


Figure 23.- Relationship of net returns from feeding 60,000 pounds of corn and corn equivalent to 81 and 61 hogs and sold at the respective weights of 200 and 250 pounds to costs other than feed. (Pigs farrowed December 1.)

Source.- Computed from Appendix Table 9.

pounds would decrease total costs 6.9 per cent and increase net returns 40.7 per cent (from point B to D in Figure 28).

Figure 28 is read in the following manner: as feed costs increase as a proportion of total costs (measured along the horizontal axis) net returns to the hog enterprise increase (measured up the vertical axis). The movement would be along line MO for the 200 pound hogs and line NP for the 250 pound hogs.

Economies gained by increased management efficiency will be greater for the 200 pound hogs than for either of the two heavier weights, assuming that the same percentage management efficiency is gained for all three weights of hogs.

Cost of management must be reduced 4 per cent for the 200 pound hogs to obtain a 1 per cent reduction in total cost. However, this 1 per cent decrease in total cost would have increased net returns 8.11 per cent. A reduction of 4.6 per cent in cost of management, for 250 pound hogs, is required to reduce total costs 1 per cent. But, this 1 per cent decrease in total cost of production for the 250 pound hog would have increased net returns only 6.0 per cent.

#### Aggregate Effects of the Analysis

##### Reducing Production Costs by Changing to a More Economical Ration.-

Many times research results may appear insignificant to a small individual producer yet many of these results magnify into an imposing total if considered from the viewpoint of all producers in the economy. For

example, in the previous section it was shown that the price ratio between corn and protein feeds in 1949-1950 were such that production costs for producing a 200 pound hog could have been reduced 15 cents per 100 pounds by shifting from a 14 per cent to a 16.5 per cent protein ration. An individual producer may feel that such a difference is too small to worry about. But if this small reduction had been effected in the production of the 68,446,000 head of hogs averaging 240 pounds per head that were slaughtered in the United States in 1950 the total savings to the hog industry (and the economy) would have amounted to more than 24.6 million dollars. The loss to Virginia producers in 1950 (assuming the same conditions) would have been nearly \$300,000.

Effect of Changing the Marketing Weights of Hogs.- Assuming a static state, thus normal marketings and other influencing factors remain in the same proportion, what would be the aggregate effect of expanding the amount of feed used in Problem I from 60,000 pounds to 6,000,000 pounds? The net returns realized for 250 pound hogs farrowed December 1 would be \$2,681.00 more than the net returns for 200 pound hogs farrowed the same date. However, both consumer and the producer may not realize gains from the production of 250 pound hogs instead of 200 pound hogs.

The 6,000,000 pounds of feed would have produced 1,620,000 pounds of live weight if fed to hogs marketed at 200 pounds. The same amount of feed would have produced only 1,525,000 pounds of live weight if the

hogs had been fed to 250 pound weights. Thus the consumer would be deprived of 95,000 pounds of hogs which could have been butchered and sold through the meat and grocery stores; the producer could have used part of his resources in the production of some other product without reducing total pounds of hog.

To relate the economy's loss from producing 250 pound hogs instead of 200 pound hogs in terms of pounds of pork produced, the relative dressing yield of the two weights of hogs would have to be considered. The dressed carcass weight of the 250 pound hog would be, on the average, three per cent larger than the lighter hog. Thus, by adjusting the total to a carcass weight basis consumers would be deprived of 33,480 pounds of dressed pork. <sup>1/</sup> However, the 250 pound carcass normally contains a higher proportion of fat to lean than a lighter weight carcass; for this reason consumers would likely prefer to have more hogs marketed at approximately 200 pound weights.

In order to adjust the situation to insure the consumer (the economy) the maximum benefits from known pork production technology, the market prices for lighter weight hogs must at all times be sufficiently higher than the prices for heavier hogs to make the production of lighter weight hogs more profitable for the producer.

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<sup>1/</sup> Morrison, F. B., op. cit., pp. 810 gives 86.4 per cent as the average yield "Shippers Style" for 250 pound hogs and 83.4 per cent for 200 pound hogs.

## CHAPTER IV

### SUMMARY AND CONCLUSIONS

#### Summary

The analysis presented in this thesis was directed toward a study of: (1) the behavior of the prices of slaughter hogs at Richmond; (2) the price differential of slaughter hogs between Richmond and Chicago, including differentials between light, medium, and heavy weight hogs; and (3) the most profitable weight to sell hogs farrowed at various times of the year.

Due to the limited amount of data available for analysis certain adjustments and assumptions were necessary in order to develop the analysis. Long-time seasonal average prices of hogs at Richmond were estimated on the basis of the average price differential between Chicago and Richmond market prices during the three year period, 1948-1950. These derived differentials by weeks were applied to weekly average hog prices at Chicago during the 12 year period from 1935 to 1950 -- excluding period 1943-1946 when price controls were effective -- in order to obtain estimates of hog prices at Richmond during the same period. In making this adjustment it was assumed that the average price differential existing between the two markets during this period also existed during the 12 year period.

All estimated costs and net returns calculations were based on the rate of gain and amount of feed consumed as presented in Tables 8 and 9.

This allowed 188, 218, and 249 days for hogs to reach 200, 250, and 300 pounds respectively from the date of farrowing. Total production costs were estimated on the basis of feed cost constituting 75 per cent of the total cost. Feed costs were determined by applying the price of feeds prevailing at the time the hogs reached specified marketing weights. Average monthly prices of feeds for the 10 year period, 1935-1939; 1946-1950, were used in computing feed costs.

These major assumptions have been pointed out to the reader as possible limitations of the findings. However, it is believed that the assumptions made where no experimental or actual data were available are logical and valid.

Hog prices at Richmond were studied in light of their influence upon the prices received for slaughter hogs in Southeastern Virginia, the major hog production area in the state. Hog prices at Richmond varied daily and seasonally during the years 1948-1950. Daily price changes occurred, on the average, 2.5 times per week. The average amount of change was 35 cents per 100 pounds.

Prices of hogs at Richmond, based on the 1948-1950 average, were farther below Chicago prices during the spring months than at any other time of the year. The receipts of hogs at Richmond were the highest in the spring while at Chicago the peak marketing months occurred in the fall. The price differentials between the two markets were smallest in the fall when marketings at Richmond were relatively lower than at Chicago. The 180-220 pound hogs commanded about the same price in the fall at the two markets.

Hog prices at Richmond were at their seasonal low in April, averaging \$17.60 per 100 pounds for 180-220 pound hogs and \$15.25 per 100 pounds for 270-300 pound weights. They reached their seasonal high in August when 180-220 pound hogs averaged \$25.00 per 100 pounds and the 270-300 pound hogs averaged slightly above \$22.00 per 100 pounds. The average price of the 220-270 pound hogs hovered between the price of the light and heavy weight hogs during the year.

The most important factor influencing the most profitable weight of hogs is the date of marketing. Naturally, this date is largely dependent on the date of farrowing. Thus, consideration of probable farrowing and marketing dates is essential before the most profitable weight can be determined. In general late fall farrowed pigs could be profitably fed to 250 or 300 pound weights while pigs farrowed at other times could be more profitably marketed at 200 pound weights.

Seasonal price variations may provide producers with a chance to increase their net returns if they can plan their production in order to sell when hog prices are at higher levels.

Weekly average prices were used to compute a representative seasonal pattern of prices for determining the value of the hogs. During the three years (1948-1950) the Richmond price of 180-220 pound hogs averaged 96 per cent of the Chicago price. Differentials between the two markets varied from a low in April when the average prices at Richmond were only 93 per cent of the Chicago price to the seasonal high in September when prices were approximately the same at both markets. The prices of medium



and heavy weight hogs at Richmond averaged 93 and 90 per cent respectively of prices at Chicago.

Estimated net returns were computed for the three weight classes of hogs farrowed on specified dates throughout the year. The net returns were estimated by computing total costs and subtracting this cost from the estimated gross value of the hogs.

Estimated net returns were favorable to medium and heavy hogs if farrowed between October 15 and January 1. The estimated net returns from 300 pound hogs farrowed October 15 and November 1, respectively, were \$5.09 and \$6.50 per head; the 200 pound hogs showed net returns of \$4.00 and \$4.27 for the same dates. Net returns from hogs farrowed December 1 and December 15 were \$8.18 and \$8.45 per head, on the same dates net returns from 200 pound hogs averaged \$5.57 and \$6.47 per head.

Some nutritive balanced rations may be more economical than others for profitable hog feeding. A comparison of the marginal rates of substitution between corn and high protein feed and the average price ratios between these feeds for 1949-1950 showed that a 16.5 per cent protein ration would have been the minimum cost ration (feed cost per unit produced) during the period.

An equal percentage increase in management efficiency causes a greater increase (in per cent) in net returns from 200 pound hogs than from 250 pound hogs. This was shown in Figure 28 and was discussed on pages 84 and 85.

Reports of hog slaughterings indicate that hog producers in Virginia possibly are unaware of being able to feed light weight hogs to 250 pounds

during the season when hog prices are increasing. The favorable marketing dates for 250 pound hogs are usually in late June, July and August. According to these slaughter reports, the average live-weight of hogs slaughtered during those months of 1950, in Virginia was 207 pounds per head; the United States average for this period was 259 pounds. 1/ The highest average weight of hogs slaughtered in Virginia was 213 pounds in November; the average for the United States during November was 235 pounds per head. The average liveweight per head of hogs sold by a random number of farmers in Southeastern Virginia in 1950 invariably were within the 180-240 pound weight class. 2/

#### Conclusions

On the basis of the available data and the techniques used in the analysis the following conclusions can be made:

1. Hog prices at Richmond were consistently lower than at Chicago for all three weight classes during the period from 1935-1950. The widest price differentials occurred in April and were at the minimum in July, October, and November.
2. The heavier the hogs the wider the price differential between Chicago and Richmond.

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1/ Crops and Markets, United States Department of Agriculture, BAE, Volume 28, 1951, p. 65.

2/ Unpublished data. Department of Agricultural Economics, Virginia Polytechnic Institute.

3. During the period of rapidly rising prices from April 1 until September 1, hog prices were significantly higher on Friday than on earlier days of the week.
4. The most profitable weight to market hogs largely depends on the farrowing and marketing dates.
5. Hogs farrowed between October 15 and January 1 and marketed between May 1 and August 20 could have been profitably fed to 250-300 pounds.
6. Hogs farrowed at dates other than those between October 15 and January 1 would have been profitable when sold at a weight of 200 pounds.
7. To insure the consumer (the economy) the maximum benefits from pork production the price of light weight hogs (180-220) must be high enough at all times to make them the most profitable weight class to market. This was not always the case during the 12 year period considered in this thesis, for in 8 of the 12 years prices increased sufficiently during the season so that hogs farrowed on December 15 and May 15 would have been more profitable if sold at 250 pound weights (220-270 pounds) than if sold at 200 pound weights (180-220 pounds). (See Table 7, page 48; Table 11, page 66; and Table 12, page 69.)
8. Under certain conditions it may be rational to feed a high-cost ration that would give high rates of gain in order to make the hog reach marketable weights when prices would be more favorable.

Likewise it may be desirable to feed a ration which would give a lower rate of daily gain in order to delay the time when the hog reaches marketable weight until hog prices are expected to attain a more favorable level. Good pastures may offer an excellent alternative to produce hogs at substantially lower costs per pound than a protein-grain ration even though average daily rates of gain are lowered. However, results from research directed at answering such questions are indeed limited at this time.

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## APPENDIX

Table 1.-Average Weekly Quotations of 180-220 Pound Hogs at Richmond by Years, 1948-1950 and  
Estimated 12 Year Average (inclusive)  
(dollars per 100 pounds)

<u>Month</u>	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>3 year Average</u>	<u>Estimated 12 year Average</u>
January	26.65	21.20	15.70	21.18	12.50
	26.90	21.10	15.50	21.16	12.59
	26.35	20.25	15.70	19.76	12.60
	26.10	20.65	16.25	21.00	12.71
February	25.40	20.45	16.50	20.78	12.73
	21.60	19.25	16.50	19.12	12.36
	22.90	20.20	16.35	19.82	12.63
	21.95	20.40	15.75	19.70	12.70
March	22.75	20.35	16.00	19.77	12.93
	21.55	20.15	15.85	19.18	12.83
	21.60	19.67	15.30	18.89	12.37
	21.10	19.45	15.05	18.51	12.31
	20.60	18.90	14.75	18.08	12.18
April	20.20	18.35	14.50	17.68	12.04
	20.70	17.60	14.60	17.60	12.07
	20.40	17.10	14.95	17.49	11.93
	20.30	17.00	15.50	17.60	11.90
May	20.45	17.50	16.80	18.25	12.22
	20.85	17.75	18.25	18.88	12.47
	21.90	18.55	19.00	19.82	12.85
	23.60	19.70	19.00	20.70	13.11
	23.20	20.70	19.05	20.98	13.20
June	23.55	20.70	18.95	21.06	13.20
	25.05	20.00	19.35	21.43	13.69
	26.50	20.45	19.65	22.20	13.65
	26.70	20.85	20.35	22.60	13.90

continued-

Table 1.-Average Weekly Quotations of 180-220 Pound Hogs at Richmond by Years, 1948-1950 and  
Estimated 12 Year Average (inclusive)  
(dollars per 100 pounds)

<u>Month</u>	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>3 year Average</u>	<u>Estimated 12 year Average</u>
July	27.30	20.95	22.10	23.78	14.23
	27.75	21.50	23.60	24.28	14.62
	27.95	22.00	23.20	24.38	14.94
	28.20	21.60	23.25	24.35	14.97
August	29.00	22.15	23.45	24.87	15.30
	28.30	22.30	23.10	24.57	15.15
	28.85	19.85	23.10	23.93	14.94
	28.85	20.20	23.75	24.26	14.93
	28.45	20.65	23.85	24.32	15.01
September	28.15	21.15	23.05	24.12	15.22
	28.55	21.05	21.95	23.85	15.39
	29.15	20.35	21.00	23.47	15.44
	27.95	19.25	20.35	22.52	14.81
October	24.00	17.85	19.10	20.32	14.05
	25.40	18.55	19.05	21.00	14.29
	26.00	18.35	19.80	21.35	14.22
	25.05	18.15	19.12	20.92	13.67
November	23.75	16.85	18.75	19.78	13.27
	22.35	16.30	18.80	19.18	13.09
	21.25	16.10	18.40	18.58	12.64
	22.45	16.00	18.00	18.82	13.02
	22.20	15.70	18.00	18.63	12.93
December	21.30	15.65	17.85	18.27	12.37
	21.85	15.50	18.00	18.45	12.56
	21.50	15.80	18.65	18.65	12.67
	21.85	15.70	20.10	19.22	12.71

Source: Federal State Market News Service Virginia Department of Agriculture Division of  
Markets. Issued Daily.

Table 2.-Average Weekly Quotations of 220-270 Pound Hogs at Richmond by Years, 1948-1950 and  
Estimated 12 Year Average (inclusive)  
(dollars per 100 pounds)

<u>Month</u>	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>3 year average</u>	<u>Estimated 12 year average</u>
January	26.40	20.45	14.70	20.52	12.31
	26.65	20.35	14.60	20.53	12.43
	26.10	19.50	14.95	20.18	12.41
	26.35	19.90	15.50	20.58	12.65
February	25.15	19.70	15.75	20.20	12.59
	21.35	18.10	15.75	18.40	12.15
	22.10	18.95	15.60	18.88	12.18
	21.20	19.10	15.00	18.43	12.17
March	22.00	19.10	15.25	18.78	12.35
	20.60	18.90	15.10	18.20	12.25
	20.90	18.41	14.55	17.95	11.95
	20.30	18.20	14.30	17.60	11.75
April	19.90	17.65	14.00	17.18	11.68
	19.10	17.10	13.75	16.65	11.28
	19.20	16.35	13.85	16.43	11.31
	18.90	16.05	14.20	16.38	11.21
May	18.80	15.75	14.75	16.43	11.10
	19.05	16.35	16.05	17.15	11.65
	19.10	16.50	17.50	17.70	11.83
	19.90	17.30	18.20	18.47	12.05
June	22.10	18.45	18.25	19.60	12.34
	21.65	19.90	18.30	19.95	12.74
	20.55	20.20	18.20	19.65	12.50
	23.55	19.50	18.60	20.55	12.95
	25.00	19.75	18.90	21.22	13.11
	25.40	20.00	19.60	21.67	13.48

continued-

Table 2.-Average Weekly Quotations of 220-270 Pound Hogs at Richmond by Years, 1948-1950 and  
Estimated 12 Year Average (inclusive)  
(dollars per 100 pounds)

<u>Month</u>	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>3 year Average</u>	<u>Estimated 12 year Average</u>
July	26.30	20.50	21.35	22.72	13.88
	26.75	21.00	22.85	23.53	14.34
	26.90	21.50	22.45	23.62	14.42
	27.20	21.10	22.50	23.60	14.45
August	28.00	21.60	22.70	24.26	14.71
	27.30	21.80	22.35	23.83	14.64
	27.85	19.35	22.35	23.18	14.24
	27.85	19.70	23.00	23.35	14.35
	27.45	20.05	23.10	23.53	14.48
September	27.15	20.50	22.30	23.32	14.68
	27.55	20.30	21.20	23.02	14.65
	28.15	19.90	20.25	22.77	14.74
	26.95	19.55	19.60	22.03	14.38
October	23.00	17.15	18.35	19.50	13.37
	24.40	18.05	18.30	20.25	13.67
	25.00	17.85	19.05	20.63	13.74
	24.05	17.65	18.40	20.03	13.18
November	22.75	16.35	18.00	19.03	12.64
	21.35	15.80	18.05	18.40	12.42
	20.20	15.60	17.65	17.68	12.22
	21.25	15.50	17.25	18.00	12.63
	21.20	15.20	17.25	17.88	12.58
December	20.30	15.15	17.10	17.52	12.09
	20.85	15.00	17.25	17.70	12.31
	20.50	15.30	17.90	17.90	12.37
	20.65	15.20	19.30	18.72	12.69
Average	23.31	18.40	17.98	19.82	

Source: Federal-State Market News Service, Virginia Department of Agriculture, Division of  
Markets. Issued Daily.

Table 3.-Average Weekly Quotations of 270-300 Pound Hogs at Richmond by Years, 1948-1950 and  
Estimated 12 Year Average (inclusive)  
(dollars per 100 pounds)

<u>Month</u>	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>3 year Average</u>	<u>Estimated 12 year Average</u>
January	24.90	19.20	14.20	19.77	11.86
	25.15	19.10	14.00	19.75	11.97
	24.60	18.25	14.20	19.02	11.93
	24.35	18.65	14.75	19.28	12.07
February	23.65	17.95	15.00	18.87	12.10
	19.85	16.25	15.00	17.03	11.50
	21.15	17.20	14.85	17.73	11.73
	20.20	17.40	14.25	17.31	11.72
March	21.00	17.35	14.50	17.62	11.92
	19.60	17.15	14.35	17.03	11.75
	19.45	16.70	13.80	16.65	11.31
	19.10	16.45	13.55	16.63	11.21
	18.60	15.90	13.25	15.92	10.99
April	18.20	15.35	13.00	15.52	10.82
	18.10	14.60	13.10	15.27	10.71
	18.00	14.20	13.45	15.22	10.61
	17.90	14.00	14.00	15.30	10.67
May	18.00	14.50	15.30	15.93	11.12
	18.05	14.75	16.75	16.52	11.16
	18.90	15.70	17.45	17.33	11.47
	20.60	16.70	17.50	18.27	11.72
	20.20	18.50	17.55	18.75	11.98
June	20.55	18.70	17.45	18.90	12.12
	22.05	18.00	17.85	19.30	12.35
	23.50	18.45	18.15	20.03	12.62
	23.70	18.50	18.75	20.32	12.84

continued-

Table 3 .--Average Weekly Quotations of 270-300 Pound Hogs at Richmond by Years, 1948-1950 and  
Estimated 12 Year Average (inclusive)  
(dollars per 100 pounds)

<u>Month</u>	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>Average</u>	<u>Estimated 12 year average</u>
July	24.25	19.00	20.65	21.30	13.16
	24.75	19.50	22.10	22.12	13.59
	24.95	20.00	21.70	22.22	13.78
	25.20	19.60	21.75	22.18	13.73
August	26.00	20.15	21.85	22.67	13.78
	25.30	20.30	21.60	22.40	13.75
	25.85	17.85	21.60	21.77	13.32
	25.85	18.20	22.20	22.08	13.48
	25.45	18.55	22.35	22.12	13.60
September	25.15	19.30	21.55	22.09	13.80
	25.55	19.55	20.70	21.60	13.94
	26.15	19.10	19.50	21.58	13.93
	24.75	18.05	18.85	20.55	13.40
October	21.00	15.65	17.60	18.08	12.36
	22.40	16.55	17.55	18.83	12.70
	23.00	16.35	18.30	18.55	12.77
	22.05	16.15	17.65	18.62	12.29
November	20.75	14.85	16.40	17.33	11.48
	19.35	14.30	16.60	16.75	11.32
	18.20	14.10	16.40	16.23	11.23
	19.25	14.00	16.00	16.42	11.61
	19.20	14.00	16.00	16.40	11.69
December	18.70	14.10	16.35	16.38	11.43
	19.35	14.00	16.50	16.65	11.70
	19.00	14.30	17.35	16.88	11.86
	19.70	14.20	18.60	17.50	12.30
Average	21.74	16.95	17.13		

Source: Federal-State Market News Service Virginia Department of Agriculture Division of  
Markets. Issued Daily.



Table 4.-Daily Price Quotations for Three Weight Classes of Hogs at  
Richmond, June 13, 1949 - December 8, 1950

Month (1949)	180-220 Pounds	220-270 Pounds	270-300 Pounds
	(dollars per 100 pounds)		
June 13	19.75	19.25	17.75
14	19.75	19.25	17.75
15	20.00	19.50	18.00
16	20.00	19.50	18.00
17	19.75	19.25	17.75
20	20.25	19.75	18.25
21	20.50	20.00	18.50
22	20.25	19.75	18.25
23	20.50	20.00	18.50
24	20.75	20.25	18.75
27	20.50	20.00	18.50
28	20.50	20.00	18.50
29	20.50	20.00	18.50
30	20.50	20.00	18.50
July 1	20.50	20.00	18.50
5	21.00	20.50	19.00
6	20.75	20.25	18.75
7	21.00	20.50	19.00
8	21.00	20.50	19.00
11	21.25	20.75	19.25
12	21.25	20.75	19.25
13	21.50	21.00	19.50
14	21.75	21.25	19.75
15	21.75	21.25	19.75
18	22.00	21.50	20.00
19	22.50	22.00	20.50
20	22.00	21.50	20.00
21	21.75	21.25	19.75
22	21.75	21.25	19.75
25	21.50	21.00	19.50
26	21.50	21.00	19.50
27	21.50	21.00	19.50
28	21.50	21.00	19.50
29	22.00	21.50	20.00
Aug. 1	22.00	21.50	20.00
2	22.00	21.50	20.00
3	22.25	21.75	20.25
4	22.25	21.75	20.25
5	22.25	21.75	20.25
8	22.25	21.75	20.25
9	22.25	21.75	20.25
10	22.50	22.00	20.50
11	22.50	22.00	20.50
12	22.00	21.50	20.00

continued-

Table 4.-Daily Price Quotations for Three Weight Classes of Hogs at  
Richmond,

June 12, 1949 - December 8, 1950

<u>Month</u> (1949)		<u>180-220 Pounds</u>	<u>220-270 Pounds</u>	<u>270-300 Pounds</u>
		(dollars per 100 pounds)		
August	15	21.25	20.75	19.25
	16	19.50	19.00	17.50
	17	19.00	18.50	17.00
	18	19.50	19.00	17.50
	19	20.00	19.50	18.00
	22	20.50	20.00	18.50
	23	20.00	19.50	18.00
	24	20.00	19.50	18.00
	25	20.50	20.00	18.50
	26	20.00	19.50	18.00
	29	20.25	19.75	18.25
	30	20.50	20.00	18.50
	31	20.50	20.00	18.50
September	1	21.00	20.25	18.75
	2	21.00	20.25	18.75
	5	21.00	20.25	18.75
	6	21.00	20.25	19.50
	7	21.25	20.50	19.75
	8	21.25	20.75	19.25
	9	21.25	20.75	19.25
	12	21.50	20.75	20.00
	13	21.25	20.50	19.75
	14	21.25	20.50	19.75
	15	20.50	19.75	19.00
	16	20.75	20.00	19.25
	19	21.25	20.50	19.75
	20	21.00	20.25	19.50
	21	19.50	19.00	18.50
	22	19.50	19.00	18.50
	23	19.25	18.75	17.25
	26	19.25	18.75	17.25
	27	19.25	18.75	17.25
	28	19.25	18.75	17.25
	29	19.25	18.75	17.25
	30	19.25	18.75	17.25
October	3	18.00	16.50	15.00
	4	18.00	17.50	16.00
	5	17.75	17.75	15.75
	6	17.75	17.25	15.75
	7	17.75	17.25	15.75
	10	18.00	17.50	16.00
	11	18.50	18.00	16.50
	12	18.75	18.25	16.75
	13	18.75	18.25	16.75
				16.75

continued-

Table 4.-Daily Price Quotations for Three Weight Classes of Hogs at  
Richmond, June 13, 1949 - December 8, 1950

<u>Month</u> (1949)		<u>180-220 Pounds</u>	<u>220-270 Pounds</u>	<u>270-300 Pounds</u>
		(dollars per 100 pounds)		
October	14	18.75	18.25	16.75
	17	18.25	17.75	16.25
	18	18.25	17.75	16.25
	19	18.50	18.00	16.50
	20	18.50	18.00	16.50
	21	18.25	17.75	16.25
	24	18.25	17.75	16.25
	25	18.25	17.75	16.25
	26	18.25	17.75	16.25
	27	18.25	17.75	16.25
	28	17.75	17.25	15.75
	31	17.25	16.75	15.25
November	1	16.75	16.25	14.75
	2	16.75	16.25	14.75
	3	16.75	16.25	14.75
	4	16.75	16.25	14.75
	7	16.75	16.25	14.75
	8	16.25	15.75	14.25
	9	16.25	15.75	14.25
	10	16.25	15.75	14.25
	11	16.00	15.50	14.00
	14	16.00	15.50	14.00
	15	16.00	15.50	14.00
	16	16.25	15.75	14.25
	17	16.25	15.75	14.25
	18	16.00	15.50	14.00
	21	16.00	15.50	14.00
	22	15.75	15.25	13.75
	23	16.00	15.50	14.00
	24	16.00	15.50	14.00
	25	16.25	15.75	14.25
	28	16.00	15.50	14.25
	29	15.75	15.25	14.00
	30	15.75	15.25	14.00
December	1	15.50	15.00	13.75
	2	15.50	15.00	14.00
	5	15.75	15.25	14.25
	6	15.50	15.00	14.00
	7	15.25	14.75	13.75
	8	16.00	15.50	14.25
	9	15.75	15.25	14.25
	12	15.50	15.00	14.00
	13	15.50	15.00	14.00
	14	15.50	15.00	14.00

continued-

Table 4.-Daily Price Quotations for Three Weight Classes of Hogs at  
Richmond, June 13, 1949 - December 8, 1950

Month (1949)		180-220 Pounds (dollars per 100 pounds)	220-270 Pounds	270-300 Pounds
December	15	15.50	15.00	14.00
	16	15.50	15.00	14.00
	19	15.75	15.25	14.25
	20	16.00	15.50	14.50
	21	15.75	15.25	14.25
	22	15.75	15.25	14.25
	23	none		
	26	15.75	15.25	14.25
	27	15.50	15.00	14.00
	28	15.75	15.25	14.25
	29	15.75	15.25	14.25
	30	15.75	15.25	14.25
(1950)				
January	3	15.75	14.75	14.25
	4	16.00	15.00	14.50
	5	15.50	14.50	14.00
	6	15.50	14.50	14.00
	9	15.75	14.75	14.25
	10	15.50	14.50	14.00
	11	15.50	14.50	14.00
	12	15.25	14.50	13.75
	13	15.50	14.75	14.00
	16	15.75	15.00	14.25
	17	15.75	15.00	14.25
	18	15.50	14.75	14.00
	19	15.75	15.00	14.25
	20	15.75	15.00	14.25
	23	15.75	15.00	14.25
	24	16.25	15.50	14.75
	25	16.50	15.75	15.00
	26	16.50	15.75	15.00
	27	16.25	15.50	14.75
	30	16.50	15.75	15.00
	31	16.50	15.75	15.00
February	1	16.50	15.75	15.00
	2	16.50	15.75	15.00
	3	16.50	15.75	15.00
	6	16.50	15.75	15.00
	7	16.50	15.75	15.00
	8	16.50	15.75	15.00
	9	16.50	15.75	15.00
	10	16.50	15.75	15.00
	13	16.50	15.75	15.00
	14	16.50	15.75	15.00
	15	16.50	15.75	15.00

continued-

Table 4.-Daily Price Quotations for Three Weight Classes of Hogs at  
Richmond, June 13, 1949 - December 8, 1950

<u>Month</u> <u>(1950)</u>		<u>180-220 Pounds</u> <u>(dollars per 100 pounds)</u>	<u>220-270 Pounds</u>	<u>270-300 Pounds</u>
February	16	16.25	15.50	14.75
	17	16.00	15.25	14.50
	20	15.75	15.00	14.25
	21	15.50	14.75	14.00
	22	15.50	14.75	14.00
	23	16.00	15.25	14.50
	24	16.00	15.25	14.50
	27	16.00	15.25	14.50
	28	16.00	15.25	14.50
March	1	16.00	15.25	14.50
	2	16.00	15.25	14.50
	3	16.00	15.25	14.50
	6	16.25	15.50	14.75
	7	16.25	15.50	14.75
	8	15.75	15.00	14.25
	9	15.50	14.75	14.00
	10	15.50	14.75	14.00
	13	15.50	14.75	14.00
	14	15.50	14.75	14.00
	15	15.25	14.50	13.75
	16	15.25	14.50	13.75
	17	15.00	14.25	13.50
	20	15.00	14.25	13.50
	21	15.00	14.25	13.50
	22	15.00	14.25	13.50
	23	15.25	14.50	13.75
	24	15.00	14.25	13.50
	27	15.00	14.25	13.50
	28	15.00	14.25	13.50
	29	14.75	14.00	13.25
	30	14.50	13.75	13.00
	31	14.50	13.75	13.00
April	3	14.50	13.75	13.00
	4	14.50	13.75	13.00
	5	14.50	13.75	13.00
	6	14.50	13.75	13.00
	7	14.50	13.25	13.00
	10	14.75	14.00	13.25
	11	14.50	13.75	13.00
	12	14.60	13.85	13.10
	13	14.50	13.75	13.00
	14	14.75	14.00	13.25
	17	14.75	14.00	13.25
	18	14.85	14.10	13.35

continued-

Table 4.-Daily Price Quotations for Three Weight Classes of Hogs at  
Richmond, June 13, 1949 - December 8, 1950

<u>Month</u>		<u>180-220 Pounds</u>	<u>220-270 Pounds</u>	<u>270-300 Pounds</u>
		(dollars per 100 pounds)		
April	19	15.00	14.25	13.50
	20	15.00	14.25	13.50
	21	15.25	14.50	13.75
	24	15.50	14.75	14.00
	25	15.50	14.75	14.00
	26	15.50	14.75	14.00
	27	15.50	14.75	14.00
	28	15.50	14.75	14.00
May	1	16.00	15.25	14.50
	2	16.50	15.75	15.00
	3	16.75	16.00	15.25
	4	17.25	16.50	15.75
	5	17.50	16.75	16.00
	8	18.00	17.25	16.50
	9	18.00	17.25	16.50
	10	18.00	17.25	16.50
	11	18.50	17.75	17.00
	12	18.75	18.00	17.25
	15	18.75	18.00	17.25
	16	19.00	18.25	17.50
	17	19.00	18.25	17.50
	18	19.00	18.25	17.50
	19	19.00	18.25	17.50
	22	19.00	18.25	17.50
	23	18.75	18.00	17.25
	24	19.00	18.25	17.50
	25	19.00	18.25	17.50
	26	19.25	18.50	17.75
	29	19.25	18.50	17.75
	30	19.25	18.50	17.75
	31	19.00	18.25	17.50
June	1	19.00	18.25	17.50
	2	18.75	18.00	17.25
	5	18.60	17.85	17.10
	6	18.60	17.85	17.10
	7	18.75	18.00	17.25
	8	19.25	18.50	17.75
	9	19.50	18.75	18.00
	12	19.50	18.75	18.00
	13	19.50	18.75	18.00
	14	19.25	18.50	17.75
	15	19.00	18.25	17.50
	16	19.50	18.75	18.00

continued-

Table 4.-Daily Price Quotations for Three Weight Classes of Hogs at  
Richmond, June 13, 1949 - December 8, 1950

<u>Month</u> (1950)		<u>180-220 Pounds</u> (dollars per 100 pounds)	<u>220-270 Pounds</u> (dollars per 100 pounds)	<u>270-300 Pounds</u>
June	19	19.50	18.75	18.00
	20	19.50	18.75	18.00
	21	19.50	18.75	18.00
	22	19.75	19.00	18.25
	23	20.00	19.25	18.50
	26	20.00	19.25	18.50
	27	20.00	19.25	18.50
	28	20.00	19.25	18.50
	29	20.50	19.75	19.00
	30	21.25	20.50	19.25
July	3	22.00	21.25	20.00
	4	22.00	21.25	20.00
	5	22.00	21.25	20.00
	6	22.00	21.25	20.50
	7	22.50	21.75	21.00
	10	23.25	22.50	21.75
	11	23.50	22.75	22.00
	12	23.75	23.00	22.25
	13	24.00	23.25	22.50
	14	23.50	22.75	22.00
	17	23.75	23.00	22.25
	18	23.25	22.50	21.75
	19	23.00	22.25	21.50
	20	23.00	22.25	21.50
	21	23.00	22.25	21.50
	24	23.00	22.25	21.50
	25	23.25	22.50	21.75
	26	23.25	22.50	21.75
	27	23.25	22.50	21.75
August	28	23.50	22.75	22.00
	31	23.75	23.00	22.25
	1	23.25	22.50	21.75
	2	23.25	22.50	21.75
	3	23.50	22.75	22.00
	4	23.50	22.75	22.00
	7	23.25	22.50	21.75
	8	23.25	22.50	21.75
	9	23.00	22.25	21.50
	10	23.00	22.25	21.50
	11	23.00	22.25	21.50
	14	23.00	22.25	21.50
	15	23.00	22.25	21.50
	16	23.00	22.25	21.50
	17	23.00	22.25	21.50

continued-

Table 4.-Daily Price Quotations for Three Weight Classes of Hogs at  
Richmond, June 13, 1949 - December 8, 1950

Month (1950)		180-220 Pounds (dollars per 100 pounds)	220-270 Pounds	270-300 Pounds
August	18	23.50	22.75	22.00
	21	23.50	22.75	22.00
	22	23.50	22.75	22.00
	23	23.75	23.00	22.25
	24	24.00	23.25	22.50
	25	24.00	23.25	22.50
	28	24.25	23.50	22.75
	29	24.00	23.25	22.50
	30	23.75	23.00	22.25
	31	23.75	23.00	22.25
September	1	23.50	22.75	22.00
	4	23.50	22.75	22.00
	5	23.00	22.25	21.50
	6	23.00	22.25	21.50
	7	23.00	22.25	21.50
	8	22.75	22.00	21.25
	11	22.75	22.00	21.25
	12	22.50	21.75	21.00
	13	22.00	21.25	20.50
	14	21.50	20.75	20.00
	15	21.00	20.25	19.50
	18	21.00	20.25	19.50
	19	21.00	20.25	19.50
	20	21.00	20.25	19.50
	21	21.00	20.25	19.50
	22	21.00	20.25	19.50
	25	20.50	19.75	19.00
	26	20.50	19.75	19.00
	27	20.50	19.75	19.00
	28	20.25	19.50	18.75
October	29	20.00	19.25	18.50
	2	19.75	19.00	18.25
	3	19.25	18.50	17.75
	4	18.75	18.00	17.25
	5	18.75	18.00	17.25
	6	19.00	18.25	17.50
	9	19.00	18.25	17.50
	10	18.75	18.00	17.25
	11	18.75	18.00	17.25
	12	19.25	18.50	17.75
	13	19.50	18.75	18.00
	16	19.25	18.50	17.75
	17	19.75	19.00	18.25
	18	20.00	19.25	18.50

continued-



Table 4.-Daily Price Quotations for Three Weight Classes of Hogs at  
Richmond, June 13, 1949 - December 8, 1950

<u>Month</u>		<u>280-220 Pounds</u>	<u>220-270 Pounds</u>	<u>270-300 Pounds</u>
		(dollars per 100 pounds)		
October	19	20.00	19.25	18.50
	20	20.00	19.25	18.50
	23	19.50	18.75	18.00
	24	19.25	18.50	17.75
	25	19.00	18.25	17.50
	26	19.00	18.25	17.50
	27	19.00	18.25	17.50
	30	18.50	17.75	16.25
	31	18.50	17.75	16.25
November	1	19.00	18.25	16.75
	2	19.00	18.25	16.75
	3	18.75	18.00	16.50
	6	18.50	17.75	16.25
	7	19.00	18.25	16.75
	8	19.00	18.25	16.75
	9	19.00	18.25	16.75
	10	18.50	17.75	16.50
	13	18.25	17.50	16.25
	14	18.25	17.50	16.25
	15	18.50	17.75	16.50
	16	18.50	17.75	16.50
	17	18.50	17.75	16.50
	20	18.00	17.25	16.00
	21	18.00	17.25	16.00
	22	18.00	17.25	16.00
	23	18.00	17.25	16.00
	24	18.00	17.25	16.00
	27	18.00	17.25	16.00
	28	18.00	17.25	16.00
	29	18.00	17.25	16.00
	30	18.00	17.25	16.00
December	1	18.00	17.25	16.00
	4	18.00	17.25	16.50
	5	17.75	17.00	16.25
	6	17.75	17.00	16.25
	7	17.75	17.00	16.25
	8	18.00	17.25	16.50

Source: Federal-State Market News Service, Virginia Department of  
Agriculture, Division of Markets. Issued Daily

Table 5.-Weekly Average Hog Prices in the Smithfield Holland Area  
100-240 Pound Hogs.  
(dollars per hundred pounds)

1950					
March	15.18	15.05			
April	14.30	14.55	14.65	14.95	
May	15.40	16.50	18.15	18.50	18.55
June	18.35	18.70	18.85	19.25	
July	19.85	21.30	23.65	23.00	
August	23.05	23.05	23.00	22.85	23.50
September	23.45	22.55	21.45	20.50	
October	19.75	18.55	18.60	19.55	
November	18.65	18.25	18.35	18.00	17.50
December	17.50	17.75	17.75	18.80	19.80
1951					
January	20.50	20.35	20.45	20.70	
February	21.45	22.25	22.80	22.10	
March	21.05	21.00			

Source: Federal-State Market News Service, Virginia Department of  
Agriculture, Division of Markets. Issued Daily.

Table 6.-Average Weekly Quotations of 180-220 Pound Hogs at Chicago by Years, 1935-1942 and 1947-1950  
(inclusive)  
(dollars per 100 pounds)

Month	1935	1936	1937	1938	1939	1940	1941	1942	1947	1948	1949	1950	12 year 1948-1950	
													average	average
January	6.75	9.61	10.50	8.30	7.70	5.78	7.08	11.55	22.24	27.95	21.65	16.21	12.94	21.94
	7.65	9.91	10.38	8.42	7.55	5.58	7.45	11.42	22.49	28.39	21.56	16.10	13.07	22.04
	7.81	9.87	10.29	8.47	7.67	5.72	8.42	11.58	23.45	27.72	21.15	16.53	13.22	21.80
	7.81	10.17	10.06	8.66	7.79	5.53	8.30	11.81	23.98	27.38	21.49	17.09	13.34	21.98
February	7.70	10.08	10.26	8.63	8.00	5.56	8.04	12.42	24.63	26.45	21.21	17.79	13.40	21.82
	8.01	10.42	10.26	8.74	7.92	5.46	8.05	12.66	25.22	23.22	20.26	17.53	13.15	20.34
	8.20	10.82	10.21	8.77	8.10	5.53	7.98	12.91	25.43	24.18	21.37	17.80	13.44	21.12
	8.76	10.63	10.10	9.03	8.32	5.46	7.94	13.03	26.95	23.37	21.36	17.14	13.51	20.62
March	9.23	10.25	10.20	9.42	8.12	5.42	7.78	13.22	29.00	24.22	21.73	17.13	13.81	21.03
	9.56	10.47	10.11	9.62	8.04	5.45	7.75	13.50	28.99	23.28	21.70	17.07	13.80	20.68
	9.32	10.52	10.11	9.56	7.77	5.33	7.80	13.46	28.03	24.19	21.54	16.73	13.70	20.82
	8.83	10.67	10.27	9.32	7.66	5.32	8.04	13.44	27.62	23.31	21.55	16.32	13.53	20.39
	8.95	10.69	10.06	8.94	7.42	5.24	8.06	13.71	27.50	22.45	20.98	16.02	13.34	19.82
April	9.05	10.59	9.96	8.82	7.30	5.04	8.14	14.22	26.65	22.18	20.38	16.01	13.19	19.52
	9.20	10.80	10.13	8.61	7.28	5.24	8.83	14.26	26.26	22.37	19.59	16.10	13.22	19.35
	9.02	10.82	10.14	8.64	7.15	5.64	8.78	14.23	24.52	22.38	18.48	16.40	13.02	19.07
	9.05	10.79	10.15	8.23	7.04	6.28	8.68	14.08	23.32	21.85	18.08	17.15	12.89	19.03
May	9.01	10.55	10.22	8.10	7.04	6.19	8.55	14.00	23.56	21.26	18.49	18.01	12.92	19.25
	9.11	10.14	10.49	8.06	7.07	5.88	8.69	13.98	24.33	21.57	18.70	19.57	13.13	19.95
	9.33	9.49	11.58	8.51	7.07	5.96	8.97	14.10	24.58	23.00	19.34	19.90	13.48	20.74
	9.88	9.71	11.59	8.72	6.85	5.69	9.31	14.35	24.08	24.99	20.44	19.93	13.80	21.79
	9.95	9.94	11.41	8.73	6.76	5.51	9.41	14.28	24.31	24.32	22.04	20.15	13.90	22.17
June	9.86	10.08	11.36	8.92	6.60	5.33	9.40	14.13	24.20	24.50	21.65	20.21	13.85	22.12
	9.72	10.10	11.27	9.10	6.51	5.18	9.68	14.26	24.53	26.10	21.06	19.93	14.37	22.36
	9.51	10.18	11.62	9.10	6.88	5.16	10.07	14.42	25.06	28.10	21.51	20.18	14.32	23.26
	9.42	10.39	11.93	9.06	7.13	5.37	10.71	14.56	24.85	28.62	21.39	21.05	14.54	23.69

continued-

Table 6.-Average Weekly Quotations of 180-220 Pound Hogs at Chicago by Years, 1935-1942 and 1947-1950  
(inclusive)  
(dollars per 100 pounds)

Month	1935	1936	1937	1938	1939	1940	1941	1942	1947	1948	1949	1950	12 year 1948-1950	
													average	average
July	9.59	10.86	12.59	9.51	7.18	6.05	10.62	14.66	24.78	29.48	21.57	23.53	15.04	24.86
	9.92	10.77	12.31	9.96	7.09	6.05	11.08	14.69	25.61	29.65	22.35	24.60	15.34	25.53
	10.29	10.36	12.62	10.00	6.97	6.66	11.58	14.89	26.93	29.56	22.77	24.13	15.56	25.39
	10.72	10.72	12.88	9.98	6.80	6.61	11.60	14.58	27.40	29.93	22.35	24.33	15.66	25.53
	10.90	11.04	13.29	9.64	7.08	6.46	11.46	14.86	28.34	30.58	22.85	24.21	15.89	25.88
August	11.62	10.93	13.40	8.92	6.33	6.38	11.44	15.00	28.05	29.73	22.80	23.60	15.68	25.38
	12.02	11.20	12.73	8.82	6.12	6.49	11.42	15.00	27.99	30.45	20.62	23.81	15.56	24.96
	11.50	11.47	12.03	8.74	6.59	6.76	11.58	14.99	27.44	29.87	20.95	24.66	15.55	25.16
	11.48	11.22	11.53	8.80	6.80	6.91	11.87	14.54	27.48	29.68	21.23	24.26	15.48	25.06
September	11.82	11.19	11.62	9.04	8.51	7.39	11.87	14.42	28.12	29.00	21.79	23.73	15.70	24.84
	11.92	11.08	12.53	9.10	7.84	7.32	12.11	14.17	29.29	29.12	21.46	21.98	15.66	24.18
	11.75	11.49	12.25	8.90	7.95	6.87	11.91	14.89	28.84	29.26	19.85	21.28	15.44	23.46
	11.60	9.94	12.07	8.83	7.51	6.61	11.54	15.14	28.91	28.13	19.40	20.71	14.96	22.74
October	10.85	10.11	11.19	8.45	6.94	6.37	11.88	15.25	29.03	24.58	18.22	19.28	14.29	20.66
	10.95	10.23	11.01	7.80	7.05	6.33	11.01	14.83	29.44	26.03	17.99	19.53	14.35	21.18
	10.63	10.09	10.21	7.56	7.25	6.36	10.52	14.80	29.31	26.28	18.06	20.14	14.27	21.49
	9.97	9.69	9.33	7.95	6.83	6.50	10.18	14.55	27.68	25.70	17.88	19.51	13.81	21.03
November	9.42	9.36	9.52	7.80	6.79	6.29	10.47	14.35	25.77	24.50	17.06	19.12	13.54	20.23
	9.30	9.53	9.09	7.74	6.48	5.99	10.38	14.00	25.51	23.20	16.52	18.65	13.28	19.46
	9.45	9.48	8.35	7.65	6.16	6.22	10.18	13.80	24.95	21.87	16.01	18.20	12.69	18.69
	9.53	9.47	7.98	strike	5.84	6.12	10.06	13.45	24.89	23.25	16.02	18.07	13.15	19.11
	9.67	9.47	8.45	strike	5.61	6.08	10.07	13.40	25.11	23.08	15.93	18.20	13.19	19.07
December	9.78	9.69	8.27	7.42	5.60	6.05	10.06	13.48	26.12	22.44	15.82	18.31	12.75	18.86
	9.66	9.91	8.02	7.34	5.37	6.06	10.70	14.00	26.10	22.03	15.80	18.37	12.78	18.73
	9.49	9.95	8.24	7.53	5.73	6.18	11.18	14.60	26.74	22.25	16.35	19.72	13.16	19.44
	9.82	10.17	8.30	7.74	5.88	6.27	11.20	14.50	28.41	22.45	16.21	20.84	13.49	19.83
Average	9.70	10.35	10.66	8.84	7.06	5.93	9.79	13.97	26.21	25.57	19.93	19.55	13.96	21.68

Source: Livestock Market News United States Department of Agriculture, Production and Marketing Administration, Livestock Branch. Issued Weekly.

Table 7.-Average Weekly Quotations of 220-270 Pound Hogs at Chicago by Years, 1935-1942 and 1947-1950  
(inclusive)  
(dollars per 100 pounds)

Month	1935	1936	1937	1938	1939	1940	1941	1942	1947	1948	1949	1950	12 year average	1948-1950 average
January	7.70	9.32	10.53	7.96	7.22	5.55	7.01	11.41	22.13	27.73	20.35	15.39	12.69	21.16
	8.01	9.83	10.40	7.85	7.20	5.42	7.37	11.32	22.34	27.88	20.41	15.27	12.78	21.18
	7.88	9.87	10.29	7.85	7.39	5.56	8.31	11.53	23.21	27.15	20.08	15.59	12.89	20.94
	7.96	10.10	10.08	8.16	7.48	5.30	8.27	11.73	23.72	26.81	20.15	16.29	13.00	21.08
February	7.87	10.05	10.27	8.22	7.76	5.38	8.02	12.39	24.31	25.55	20.09	16.98	13.07	20.87
	8.13	10.31	10.26	8.40	7.75	5.27	7.98	12.64	25.50	22.35	19.38	16.76	12.89	19.49
	8.36	10.74	10.24	8.34	8.02	5.33	7.92	12.84	25.28	23.33	20.60	17.37	13.20	20.43
	8.90	10.58	10.15	8.78	8.12	5.23	7.98	12.99	26.76	22.46	20.58	16.95	13.29	19.99
March	9.34	10.11	10.25	9.30	7.92	5.24	7.76	13.25	28.89	24.40	21.10	17.07	13.72	20.86
	9.65	10.17	10.21	9.52	7.84	5.32	7.75	13.52	28.78	22.38	21.07	17.09	13.61	20.18
	9.38	10.33	10.23	9.42	7.54	5.22	7.76	13.51	27.83	23.54	20.97	16.60	13.53	20.37
	8.88	10.50	10.35	9.18	7.48	5.26	7.93	13.54	27.36	22.45	21.05	16.25	13.35	19.92
	9.02	10.53	10.23	8.81	7.27	5.22	7.87	13.80	27.24	21.70	20.43	16.00	13.18	19.38
April	9.06	10.57	10.24	8.66	7.22	5.03	8.01	14.32	26.45	21.35	19.87	16.06	13.07	19.09
	9.15	10.75	10.03	8.42	7.16	5.22	8.77	14.35	26.01	21.51	19.15	16.17	13.06	18.94
	8.98	10.80	10.18	8.46	7.07	5.63	8.67	14.31	24.29	21.40	18.41	16.44	12.89	18.75
	9.07	10.71	10.17	8.12	6.96	6.31	8.27	14.15	23.00	21.52	18.04	17.18	12.82	18.91
May	9.09	10.44	10.26	8.04	7.00	6.17	8.54	14.06	23.59	20.01	18.37	18.01	12.80	18.79
	9.05	9.97	10.53	7.98	7.02	5.85	8.67	14.03	23.93	19.88	18.57	19.51	12.92	19.32
	9.29	9.42	11.63	8.46	7.01	5.93	8.97	14.13	24.10	22.26	19.21	19.81	13.35	20.43
	9.93	9.66	11.65	8.68	6.77	5.67	9.33	14.35	23.60	24.23	20.35	19.82	13.67	21.47
	10.00	9.88	11.44	8.66	6.68	5.50	9.41	14.27	23.81	23.34	21.78	19.08	13.65	21.40
June	9.89	10.00	11.37	8.86	6.46	5.31	9.40	14.15	23.84	23.08	21.34	19.95	13.64	21.46
	9.77	10.03	11.28	9.02	6.42	5.18	9.68	14.27	24.57	25.75	20.59	19.51	13.84	21.62
	9.56	10.10	11.63	9.00	6.82	5.14	10.08	14.42	24.59	27.71	21.06	19.84	14.16	22.87
	9.36	10.40	11.91	8.90	7.15	5.37	10.72	14.54	24.79	28.18	20.78	20.72	14.40	23.23

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Table 7.—Average Weekly Quotations of 220-270 Pound Hogs at Chicago by Years, 1935-1942 and 1947-1950  
(inclusive)  
(dollars per 100 pounds)

Month	1935	1936	1937	1938	1939	1940	1941	1942	1947	1948	1949	1950	12 year average	1948-1950 average
July	9.40	10.72	12.50	9.30	7.33	6.08	10.63	14.61	24.41	28.89	20.90	23.15	14.83	24.31
	9.75	10.50	12.12	9.73	6.94	6.66	11.10	14.65	25.57	29.05	21.64	24.19	15.16	24.96
	10.04	10.26	12.31	9.54	6.76	6.56	11.51	14.83	26.34	28.86	22.28	23.61	15.24	24.92
	10.44	10.63	12.54	9.62	6.70	6.39	11.46	14.53	26.89	29.26	22.13	23.90	15.37	25.09
August	10.60	10.86	13.03	9.34	6.46	6.30	11.27	14.75	27.87	30.05	22.69	23.92	15.60	25.55
	11.41	10.89	13.02	8.68	6.19	6.46	11.33	14.90	27.47	29.42	22.84	23.59	15.52	25.28
	11.70	11.20	12.44	8.72	6.09	6.65	11.28	14.90	27.47	30.47	20.90	24.00	15.49	25.12
	11.32	11.48	11.93	8.70	6.50	6.86	11.38	14.90	27.27	30.13	21.27	24.84	15.55	25.41
September	11.34	11.18	11.52	8.82	6.82	7.39	11.69	14.56	27.43	29.26	21.51	24.71	15.52	25.16
	11.70	11.19	11.53	9.10	8.55	7.32	11.74	14.50	28.03	29.31	22.14	23.62	15.73	25.02
	11.80	11.00	12.41	9.19	7.92	6.93	12.03	14.36	29.31	29.42	21.96	22.70	15.75	24.69
	11.66	10.52	12.22	9.06	8.02	6.73	11.91	15.03	29.07	29.62	20.60	21.82	15.52	24.01
October	11.52	10.13	12.05	8.98	7.57	6.55	11.60	15.32	28.34	28.38	20.19	21.09	15.14	23.22
	10.73	10.26	11.12	8.64	7.04	6.52	11.33	15.51	29.25	25.03	18.74	19.71	14.49	21.16
	10.81	10.35	10.94	7.96	7.17	6.49	11.19	15.01	29.60	26.22	18.33	19.90	14.50	21.38
	10.41	10.24	10.14	7.68	7.35	6.60	10.66	14.93	29.53	26.37	18.28	20.29	14.37	21.65
November	9.92	9.83	9.28	8.03	6.90	6.40	10.30	14.71	27.94	25.73	17.94	19.51	13.87	21.06
	9.41	9.43	9.48	7.82	6.84	6.11	10.51	14.52	26.04	24.52	17.08	19.08	13.40	20.23
	9.29	9.60	9.01	7.78	6.47	6.32	10.42	14.11	25.68	23.15	16.50	18.53	13.07	19.33
	9.41	9.65	8.32	7.68	6.11	6.20	10.24	13.87	25.01	21.61	15.78	17.97	12.65	18.45
December	9.53	9.63	7.96	strike	5.78	6.20	10.29	13.54	24.91	22.91	15.70	17.86	13.12	18.82
	9.70	9.71	8.36	strike	5.52	6.14	10.08	13.48	25.15	22.50	15.50	17.96	13.10	18.65
	9.80	9.93	8.02	7.38	5.51	6.18	10.02	13.57	26.16	21.86	15.31	18.08	12.65	18.42
	9.71	10.09	7.74	7.12	5.20	6.20	10.63	14.08	26.14	21.06	15.19	18.14	12.61	18.13
Average	9.47	10.09	7.93	7.25	5.48	6.28	11.08	14.68	26.67	21.24	15.59	19.47	12.94	18.77
	9.60	10.26	7.90	7.41	5.50	6.84	11.09	14.50	28.22	21.44	15.45	20.51	13.24	19.17
Average	9.69	10.28	10.61	8.20	6.95	5.98	9.76	14.00	26.07	25.14	19.62	19.38	13.80	

Source: Livestock Market News, United States Department of Agriculture, Production and Marketing Administration, Livestock Branch. Issued Weekly.

Table 8.-Average Weekly Quotations of 270-300 Pound Hogs at Chicago by Years, 1935-1942 and 1947-1950  
(inclusive)  
(dollars per 100 pounds)

Month	1935	1936	1937	1938	1939	1940	1941	1942	1947	1948	1949	1950	12 year average	1948-1950 average
January	7.72	9.14	10.47	7.66	7.00	5.29	6.89	11.20	21.76	26.98	19.12	14.59	12.32	20.23
	8.03	9.74	10.38	7.45	7.00	5.18	7.22	11.14	22.06	27.08	19.35	14.50	12.43	20.31
	7.90	9.80	10.25	7.44	7.18	5.30	8.06	11.43	22.82	26.22	18.95	14.83	12.52	20.00
	7.97	10.01	10.03	7.74	7.40	5.08	8.06	11.67	23.22	25.88	18.95	15.55	12.63	20.13
February	7.88	9.95	10.23	7.90	7.57	5.16	7.85	12.29	23.73	24.32	18.82	16.24	12.66	19.74
	8.13	10.18	10.21	8.15	7.56	5.02	7.78	12.50	24.42	20.75	18.28	16.08	12.42	18.70
	8.36	10.61	10.20	8.06	7.86	5.04	7.68	12.72	24.80	21.65	19.45	16.58	12.75	19.23
	8.91	10.47	10.08	8.52	7.93	4.92	7.66	12.87	26.31	20.50	19.59	16.37	12.84	18.82
March	9.35	9.88	10.21	9.12	7.70	4.96	7.54	13.19	28.59	21.85	20.02	16.58	13.25	19.48
	9.64	9.94	10.17	9.41	7.62	5.00	7.53	13.49	28.32	20.58	20.02	16.74	13.20	19.11
	9.36	10.10	10.20	9.30	7.30	4.93	7.54	13.50	27.36	22.08	20.00	16.14	13.15	19.41
	8.84	10.22	10.32	8.99	7.26	5.05	7.67	13.54	26.89	20.62	20.08	15.86	12.94	18.85
April	8.97	10.39	10.18	8.67	7.04	5.06	7.52	13.78	26.52	20.00	19.52	15.74	12.78	18.42
	9.00	10.47	10.21	8.49	7.06	4.90	7.73	14.31	25.69	19.55	18.95	15.81	12.68	18.10
	9.06	10.59	10.00	8.24	7.00	5.07	8.59	14.35	25.18	19.65	18.30	15.94	12.66	17.99
	8.90	10.67	10.14	8.25	6.90	5.48	8.45	14.31	23.34	19.40	17.88	16.18	12.49	17.82
May	8.98	10.59	10.14	7.94	6.76	6.20	8.36	14.14	21.58	18.28	17.42	16.86	12.27	17.52
	9.01	10.22	10.21	7.88	6.78	5.99	8.40	14.05	21.62	17.70	17.84	17.56	12.27	17.70
	9.04	9.66	10.49	7.85	6.81	5.68	8.56	14.02	22.58	18.32	18.08	18.96	12.50	18.52
	9.18	9.20	11.58	8.32	6.79	5.76	8.92	14.12	22.80	20.65	18.76	19.36	12.95	19.59
June	9.85	9.44	11.61	8.58	6.54	5.44	9.33	14.30	22.10	22.40	19.88	19.34	13.23	20.54
	9.90	9.75	11.37	8.54	6.44	5.31	9.41	14.22	22.16	21.44	21.16	19.49	13.27	20.70
	9.75	9.89	11.31	8.77	6.20	5.12	9.30	14.06	22.78	22.30	20.52	19.23	13.27	20.68
	9.54	9.87	11.20	8.86	6.11	5.00	9.56	14.22	22.88	24.55	19.66	18.58	13.34	20.93
	9.29	9.92	11.55	8.75	6.42	4.96	9.97	14.34	23.25	26.30	19.92	18.86	13.63	21.69
	9.07	10.25	11.80	8.62	6.85	5.22	10.64	14.37	22.98	26.78	19.55	19.54	13.81	21.96

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Table 8.-Average Weekly Quotations of 270-300 Pound Hogs at Chicago by Years, 1935-1942 and 1947-1950  
(inclusive)  
(dollars per 100 pounds)

Month	1935	1936	1937	1938	1939	1940	1941	1942	1947	1948	1949	1950	12 year average	1948-1950 average
July	9.06	10.52	12.24	8.94	6.86	5.86	10.49	14.45	22.59	27.34	19.47	21.95	14.15	22.92
	9.38	10.12	11.74	9.23	6.28	6.35	10.95	14.44	23.28	27.08	20.05	22.85	14.31	23.33
	9.74	9.86	12.00	8.79	6.04	6.18	11.24	14.59	24.45	26.95	20.80	22.22	14.41	23.32
	10.12	10.24	12.22	8.92	5.94	5.98	10.96	14.26	25.10	27.48	20.97	22.52	14.56	23.64
August	10.40	10.48	12.64	8.68	5.78	5.88	10.80	14.44	26.28	28.45	21.80	22.88	14.88	24.38
	11.20	10.59	12.64	8.15	5.48	6.06	10.84	14.59	25.82	28.22	22.10	22.52	14.85	24.28
	11.65	10.94	12.17	8.28	5.50	6.21	10.80	14.64	25.78	29.22	20.18	23.12	14.87	24.17
	11.28	11.21	11.74	8.32	6.12	6.37	10.87	14.67	26.28	29.40	20.75	24.15	15.10	24.77
September	11.32	10.87	11.32	8.50	6.47	6.98	11.22	14.38	26.02	28.60	20.95	24.12	15.06	24.56
	11.71	10.91	11.31	8.92	8.22	6.92	11.26	14.41	26.97	28.78	21.52	23.16	15.34	24.49
	11.63	10.71	12.17	8.90	7.71	6.62	11.65	14.30	28.42	29.12	21.55	22.55	15.44	24.41
	11.39	10.28	12.04	8.84	7.83	6.54	11.66	15.04	28.70	29.20	20.48	21.68	15.31	23.79
October	11.26	9.99	11.83	8.82	7.39	6.48	11.48	15.34	28.08	27.82	20.08	20.96	14.96	22.99
	10.58	10.15	10.83	8.50	6.92	6.50	11.26	15.54	29.12	24.72	18.60	19.69	14.37	21.00
	10.76	10.22	10.65	7.93	7.10	6.45	11.12	15.04	29.58	26.10	18.32	19.88	14.43	21.43
	10.41	10.41	9.86	7.64	7.30	6.54	10.62	14.96	29.50	26.22	18.22	20.23	14.30	21.56
November	9.74	9.76	9.07	7.92	6.86	6.40	10.30	14.74	27.91	25.58	17.94	19.48	13.81	21.00
	9.24	9.38	9.29	7.81	6.80	6.12	10.46	14.56	26.01	24.40	17.06	19.06	13.35	20.17
	9.18	9.54	8.91	7.74	6.42	6.33	10.40	14.14	25.65	22.88	16.46	18.43	13.01	19.26
	9.34	9.61	8.24	7.66	6.02	6.20	10.23	13.92	25.00	21.25	15.62	17.86	12.58	18.24
December	9.47	9.59	7.88	strike	5.62	6.19	10.31	13.57	24.90	22.44	15.39	17.67	13.00	18.50
	9.64	9.67	8.24	strike	5.34	6.14	10.06	13.51	25.10	21.88	15.08	17.76	12.95	18.24
	9.77	9.90	7.78	7.37	5.30	6.18	9.94	13.58	26.12	21.18	14.85	17.80	12.48	17.94
	9.68	10.07	7.50	7.02	5.02	6.18	10.49	14.11	26.10	19.95	14.76	17.86	12.37	17.52
Average	9.37	10.08	7.66	7.11	5.24	6.24	10.97	14.70	26.53	20.08	14.98	19.16	12.67	18.07
	9.34	10.23	7.57	7.18	5.32	6.72	10.94	14.48	27.73	20.25	14.68	20.01	12.87	18.31

Source: Livestock Market News United States Department of Agriculture. Production and Marketing Administration, Livestock Branch. Issued Weekly.



Table 9.--Value of Good and Choice Hogs, Total Costs, Feed Costs, Returns Above Feed Costs, and Net Returns per Head from Weaning, by Two Week Periods and by Weight Classes for Designated Farrowing Time and Marketed at Different Weights, Twelve Year Average, 1935-1942 and 1947-1950 (inclusive)

Date of farrowing	Item	Marketing at Weight of		
		200 Pounds	250 Pounds	300 Pounds
August 15	Date	February 19	March 21	April 21
	Total Value	\$ 25.26	\$ 29.87	\$ 31.83
	Total cost	18.34	24.38	31.22
	Feed cost	13.82	19.12	25.20
	Returns above feed cost	11.44	10.75	6.63
	Net returns	6.92	5.49	.61
September 1	Date	March 6	April 5	May 7
	Total value	\$ 25.86	\$ 28.20	\$ 33.36
	Total cost	19.16	25.42	32.44
	Feed cost	14.37	19.85	26.04
	Returns above feed cost	11.49	8.35	7.32
	Net returns	6.70	2.78	.92
September 15	Date	March 21	April 20	May 22
	Total value	\$ 24.74	\$ 28.02	\$ 35.16
	Total cost	19.16	25.42	32.44
	Feed cost	14.37	19.85	26.04
	Returns above feed cost	10.37	8.17	9.12
	Net returns	5.58	2.60	2.72
October 1	Date	April 5	May 6	June 6
	Total value	\$ 24.08	\$ 29.12	\$ 37.05
	Total cost	19.80	26.19	33.43
	Feed cost	14.85	20.43	26.82
	Returns above feed cost	9.23	8.69	10.23
	Net returns	4.28	2.93	3.62
October 15	Date	April 20	May 21	June 22
	Total value	\$ 23.86	\$ 30.85	\$ 38.52
	Total cost	19.80	26.19	33.43
	Feed cost	14.85	20.43	26.82
	Returns above feed cost	9.01	10.42	11.70
	Net returns	4.06	4.66	5.09
November 1	Date	May 6	June 6	July 6
	Total value	\$ 24.44	\$ 31.25	\$ 40.77
	Total cost	20.17	26.75	34.27
	Feed cost	15.13	20.89	27.54
	Returns above feed cost	9.31	10.36	13.23
	Net returns	4.27	4.50	6.50

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Table 9.-Value of Good and Choice Hogs, Total cost, Feed Costs, Returns Above Feed Costs, and Net Returns per Head from Weaning, by Two Week Periods and by Weight Classes for Designated Farrowing Time and Marketed at Different Weights, Twelve Year Average,

1935-1942 and 1947-1950 (inclusive)

Date of farrowing	Item	Marketed at Weight of		
		200 Pounds	250 Pounds	300 Pounds
November 15	Date	May 21	June 21	July 23
	Total value	\$ 26.22	\$ 33.70	\$ 41.19
	Total costs	20.17	26.75	34.27
	Feed costs	15.13	20.89	27.54
	Returns above feed costs	11.09	12.81	13.65
	Net returns	6.05	6.95	6.92
December 1	Date	June 6	July 7	August 8
	Total value	\$ 26.40	\$ 35.85	\$ 41.25
	Total costs	20.83	27.67	35.26
	Feed costs	15.62	21.61	28.31
	Returns above feed costs	10.78	14.24	12.94
	Net returns	5.57	8.18	5.99
December 15	Date	June 21	July 22	August 23
	Total value	\$ 27.30	\$ 36.12	\$ 40.44
	Total costs	20.83	27.67	35.26
	Feed costs	15.62	21.61	28.31
	Returns above feed costs	11.68	14.51	12.13
	Net returns	6.47	8.45	5.18
January 1	Date	July 7	August 7	September 8
	Total value	\$ 29.24	\$ 36.60	\$ 41.82
	Total costs	21.65	28.57	36.23
	Feed costs	16.24	22.28	29.02
	Returns above feed costs	13.00	14.32	12.80
	Net returns	7.59	8.03	5.59
January 15	Date	July 22	August 22	September 23
	Total value	\$ 29.94	\$ 35.87	\$ 40.20
	Total costs	21.65	28.57	36.23
	Feed costs	16.24	22.28	29.02
	Returns above feed costs	13.70	13.59	11.18
	Net returns	8.29	7.30	3.97
February 1	Date	August 7	September 7	October 8
	Total value	\$ 30.30	\$ 36.62	\$ 38.10
	Total costs	21.84	28.59	25.66
	Feed costs	16.38	23.15	29.40
	Returns above feed costs	13.92	13.47	8.70
	Net returns	8.46	8.03	2.44

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Table 9.-Value of Good and Choice Hogs, Total Costs, Feed Costs, Returns Above Feed Costs, and Net Returns per Head from Weaning, by Two Week Periods and by Weight Classes for Designated Farrowing Time and Marketed at Different Weights, Twelve Year Average,  
1935-1942 and 1947-1950 (inclusive)

Date of farrowing	Item	Marketing at Weight of		
		200 Pounds	250 Pounds	300 Pounds
February 15	Date	August 22	September 22	October 23
	Total value	\$ 29.86	\$ 35.95	\$ 36.87
	Total costs	21.84	28.59	25.66
	Feed costs	16.38	23.15	29.40
	Returns above feed costs	13.48	12.80	7.47
	Net returns	8.02	7.36	1.21
March 1	Date	September 7	October 7	November 8
	Total value	\$ 30.78	\$ 34.17	\$ 33.96
	Total costs	22.01	28.54	35.13
	Feed costs	16.51	22.14	27.79
	Returns above feed costs	14.27	12.03	6.17
	Net returns	8.77	5.63	-1.17
March 15	Date	September 22	October 22	November 23
	Total value	\$ 29.62	\$ 32.95	\$ 34.83
	Total costs	22.01	28.54	35.13
	Feed costs	16.51	22.14	27.79
	Returns above feed costs	13.11	10.81	7.04
	Net returns	7.61	4.41	-7.30
April 1	Date	October 7	November 7	December 8
	Total value	\$ 28.58	\$ 31.05	\$ 35.10
	Total costs	20.36	26.28	32.74
	Feed costs	15.27	20.37	25.97
	Returns above feed costs	13.31	10.68	9.13
	Net returns	8.22	4.77	2.36
April 15	Date	October 22	November 22	December 23
	Total value	\$ 27.34	\$ 31.57	\$ 36.90
	Total costs	20.36	26.28	32.74
	Feed costs	15.27	20.37	25.97
	Returns above feed costs	12.07	11.20	10.93
	Net returns	6.98	5.29	4.16
May 1	Date	November 7	December 7	January 7
	Total value	\$ 26.18	\$ 30.77	\$ 35.91
	Total costs	18.43	23.23	30.93
	Feed costs	13.82	18.87	24.80
	Returns above feed costs	12.36	11.90	11.11
	Net returns	7.75	7.54	4.98

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Table 9.--Value of Good and Choice Hogs, Total Costs, Feed Costs, Returns Above Feed Costs, and Net Returns per Head from Weaning, by Two Week Periods and by Weight Classes for Designated Farrowing Time and Marketed at Different Weights, Twelve Year Average,

1935-1942 and 1947-1950 (inclusive)

Date of farrowing	Item	Marketing at Weight of		
		200 Pounds	250 Pounds	300 Pounds
May	15 Date	November 22	December 22	January 22
	Total value	\$ 26.04	\$ 31.72	\$ 36.21
	Total costs	18.43	23.23	30.93
	Feed costs	13.82	18.87	24.80
	Returns above feed costs	12.22	12.85	11.41
	Net returns	7.61	8.49	5.28
June	1 Date	December 7	January 6	February 6
	Total value	\$ 25.12	\$ 31.07	\$ 34.50
	Total costs	18.24	24.35	30.80
	Feed costs	13.68	19.03	24.68
	Returns above feed costs	11.44	12.04	9.82
	Net returns	6.88	6.72	3.70
June	15 Date	December 22	January 21	February 21
	Total value	\$ 25.42	\$ 31.62	\$ 35.16
	Total costs	18.24	24.35	30.80
	Feed costs	13.68	19.03	24.68
	Returns above feed costs	11.74	12.59	10.48
	Net returns	7.18	7.27	4.36
July	1 Date	January 6	February 5	March 8
	Total value	\$ 25.18	\$ 30.37	\$ 35.25
	Total costs	19.35	25.24	32.33
	Feed costs	14.51	19.60	25.48
	Returns above feed costs	10.67	10.77	9.77
	Net returns	5.83	5.13	2.92
July	15 Date	January 21	February 20	March 23
	Total value	\$ 25.42	\$ 30.42	\$ 33.63
	Total costs	19.35	25.24	32.33
	Feed costs	14.51	19.60	25.48
	Returns above feed costs	10.91	10.82	8.15
	Net returns	6.07	5.18	1.30
August	1 Date	February 5	March 7	April 7
	Total value	\$ 24.72	\$ 30.62	\$ 32.13
	Total costs	18.34	24.38	31.22
	Feed costs	13.82	19.12	25.20
	Returns above feed costs	10.90	11.50	6.93
	Net returns	6.38	6.24	.91

Source: Computed from Price Data and Estimated Costs.

Table 10: Analysis of Variance of Daily Mean Prices of Days of the Week for the Year 1950 (180-220 pounds)

<u>Source of Variation</u>	<u>d./f.</u>	<u>S. S.</u>	<u>M. S.</u>
Total	249	2,072.9307	
Between Weeks	49	2,057.1918	41.9835
Between Days	4	.2973	.07432
Error	196	15.4416	.07878

Table 11: Analysis of Variance of the Daily Mean Prices by Days of the Week for the Period from September to December and January to April 1950. (180-220 pounds)

<u>Source of Variation</u>	<u>d./f.</u>	<u>S. S.</u>	<u>M. S.</u>
Total	139	645.9775	
Between Weeks	27	638.03940	23.6303
Between Days	4	.1908	.0477
Error	108	7.9361	.0735

Table 12: Analysis of Variance of the Daily Mean Prices by Days of the Week for the Period from September to April 1950. (180-220 pounds)

<u>Source of Variation</u>	<u>d./f.</u>	<u>S. S.</u>	<u>M. S.</u>
Total	109	1,129.0180	
Between Weeks	21	1,121.0850	53.4214
Between Days	4	1.39902	.3498 *
Error	84	6.5340	.0778

\* Significant at the five per cent level.

Table 13: Analysis of Variance of Daily Mean Prices by Days of the Week for the Year 1950. (220-270 Pounds)

<u>Source of Variation</u>	<u>d./f.</u>	<u>S. S.</u>	<u>M. S.</u>
Total	259	2,124.056	
Between Weeks	51	2,101.890	41.213
Between Days	4	.190	.0475
Error	204	21.976	.1077

Table 14: Analysis of Variance of Daily Mean Prices by Days of the Week for the Period from September to December and January to April 1950. (220-270 Pounds)

<u>Source of Variation</u>	<u>d./f.</u>	<u>S. S.</u>	<u>M. S.</u>
Total	149	769.613	
Between Weeks	29	253.9060	35.996
Between Days	4	0.1039	.0259
Error	106	15.6031	.1472

Table 15: Analysis of Variance of Daily Mean Prices by Days of the Week for the Period from April to September 1950. (220-270 Pounds)

<u>Source of Variation</u>	<u>d./f.</u>	<u>S. S.</u>	<u>M. S.</u>
Total	109	1,120.8035	
Between Weeks	21	1,113.7450	53.0355
Between Days	4	4.2650	1.0663 **
Error	84	2.7935	.0333

\*\*Significant at the one per cent level.

Table 16: Analysis of Variance of Daily Mean Prices by Days of the Weeks for 1950. (270-300 Pounds)

<u>Source of Variation</u>	<u>d./f.</u>	<u>S. S.</u>	<u>M. S.</u>
Total	259	2,089.247	
Between Weeks	51	2,073.600	40.6588
Between Days	4	0.25	.0625
Error	204	15.497	.0760

Table 17: Analysis of Variance of Daily Mean Prices by Days of the Week for the Period from September to December and January to April 1950. (270-300 Pounds)

<u>Source of Variation</u>	<u>d./f.</u>	<u>S. S.</u>	<u>M. S.</u>
Total	149	674.4705	
Between Weeks	29	666.078	22.9682
Between Days	4	0.108	.0270
Error	116	8.2845	.0714

Table 18: Analysis of Variance of Daily Mean Prices by Days of the Week for the Period from April to September 1950. (270-300 Pounds)

<u>Source of Variation</u>	<u>d./f.</u>	<u>S. S.</u>	<u>M. S.</u>
Total	109	1,105.467	
Between Weeks	21	1,098.7710	52.3224
Between Days	4	1.275	.3188 *
Error	84	5.4210	.0645

\*\* Significant at the one per cent level.