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Cost Of Producing Hogs In Confinement

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PREFACE

This bulletin contains estimates of costs of producing pork on concrete. As with any other costs study, it should be realized that the cost estimates are based on average prices or prices at a particular time and place and average rates of production. Each producer must adjust the prices and rates of production to his particular conditions.

The system of production described in this bulletin consists of the more efficient systems being followed by many of the larger Mississippi producers who have been producing hogs on concrete for several years. Many of these producers began with facilities designed for seasonal farrowing but have found them inadequate

for the continuous operation being practiced. The facilities described in this bulletin have been designed to fit 50-, 75-, and 100-sow continuous breeding programs.

Because of a shortage of feeder pigs it is generally necessary for the feeder to produce them. This bulletin presents the costs of producing feeder pigs as well as the costs of feeding out pigs to market weights.

It is not intended to imply that other systems of producing hogs are not efficient. The purpose of studying the system presented in this bulletin was to describe an efficient method of producing pork as a major enterprise.

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COST OF PRODUCING HOGS IN CONFINEMENT

By BARNEY H. JACKS and TRAVIS D. PHILLIPS

In the mid-1950's, when a rapid advance in vertical integration in agriculture seemed certain, many people felt that pork production would shift southward and follow the same general pattern as that of broilers. Some felt that the South would become the pork-producing area of the nation. The advent of the pig parlor for confinement feeding helped foster this belief.

Seeing in the combination of new techniques and high pork prices the potential for expanding the feed market, feed dealers promoted confinement feeding. Many Southern producers built pig parlors. Some were soon discouraged by sharp declines in hog prices, increases in disease problems, and the scarcity of feeder pigs. Pork, however, has been produced successfully in confinement by a few producers for many years. The more efficient continue to produce, and new producers continue to enter the field.

Vertical integration, however, has had little effect upon the hog industry in Mississippi. Many feed-mill owners operate pig parlors; some feed dealers finance producers' feed purchases until the hogs are sold; and some producers have arrangements with packers. In the main, though, the hog feeder acts as an independent.

The increase in feeding-out operations has meant an increase in the demand for feeder pigs. Since no ready supply has become available, most feeders are forced to produce their own pigs. To assure a steady flow of market hogs, producers are turning from the traditional seasonal farrowing to a continuous farrowing operation. Since large-scale production of hogs under such methods is a relatively new undertaking for Mississippi producers, they have no experience from which to draw

estimates of management requirements, facilities needed, or cost expectations.

Objectives

The purpose of this study was to describe the organization and the production methods used in the more efficient pig parlor operations in Mississippi and to estimate production costs associated with these methods. Specifically, the objectives were to estimate:

1. Costs of producing feeder pigs under a continuous farrowing program;
2. Costs of feeding hogs to market weights in concrete parlors, with continuous use of facilities; and
3. The profitability of producing hogs by these methods.

For the benefit of those interested in only one phase of production, costs estimates for producing feeder pigs and for feeding out hogs are presented separately in this report. Then, for those interested in both feeder-pig production and feeding-out operations, these costs are combined to provide estimates of total costs of producing market hogs.

Methods of Estimating Costs

Production practices outlined in this publication are those recommended by the Animal Husbandry Department, Mississippi State University, and followed by most of the producers interviewed. Building plans are those recommended by the University's Agricultural Extension Service for seasonal farrowing. Producers are using the plans either as recommended or with modifications. A continuous farrowing system necessitates modifications in the ratio of farrowing stalls to nursing and finishing units if maximum use of the facilities is to be obtained.

Prices of equipment and feed ingredients were obtained from producers and farm supply firms (Appendix Table 1). Labor was charged at one dollar per hour. Building costs per square-foot were obtained from producers and from other studies where similar types of construction were used. (2, 3, 5).¹ Building costs include labor, fencing costs do not. Producers may be able to lower costs by constructing the facilities themselves. Land utilized by the enterprise was valued arbitrarily at \$100 per acre. Value of breeding stock was placed at \$50 for gilts and \$75 for boars. Because of heavier weights it was assumed that the value of animals replaced would offset the costs of new animals.

Feed rations used are those recommended by the Animal Husbandry Department of the University (Appendix Tables 4 and 5). Because of the number of ingredients in the creep ration and the relatively small quantities fed per year, a commercially-prepared creep ration was con-

sidered purchased for purposes of calculating costs.

In calculating annual costs, facilities were depreciated by the straight-line method.² (See Appendix Table 7 for depreciation rates used.) Repairs were charged at 4 percent of the investment in buildings and equipment. Interest at 5 percent was charged on one-half of the original investment in depreciable items and on full inventory value of land and breeding stock.

To provide for differences in enterprise size and levels of efficiency in management likely to be encountered, cost estimates were made for several situations. Production costs were estimated for herds of 50, 75, and 100 sows, farrowing twice annually. Average of 7, 8, and 9 pigs per litter were considered. Finally, to show the effect that feed conversion ratio (Pounds of feed per pound of hog produced) has upon finishing hosts, feed-out costs were estimated for three levels of feed conversion.

Producing Feeder Pigs

Few hog feeders in the South are able to purchase an ample supply of feeder pigs. If feeding operations in the area are to increase appreciably, advances must be made in feeder-pig production. This section of the report is devoted to a discussion of producing feeder pigs under continuous breeding programs.

A continuous breeding not only affords a continuous supply of pigs for sale as feeders or for feeding-out on the producer's farm, but also reduces production costs through wider use of facilities.

Facilities and Management

In 50-sow herds, an average of two sows are farrowed each week. In herds of 75- and 100-sows, the numbers farrowing per week average three and four, respectively. Pregnant sows are brought into a central farrowing house and cleaned up about a week before farrowing. The

farrowing house, equipped with 5' x 8' farrowing stalls and, generally, with a large attic fan for cooling, is normally located adjacent to the nursing area. Sows in the farrowing house are fed, watered, and exercised twice daily in a paved exercise yard, a few at a time.

When pigs are about a week old, the sow and pigs are moved to a paved nursing area. This area is divided into a series of 10' x 24' pens, with the north half of each pen shedded.

Two sows and litters share each nursing pen. Sows are hand-fed a 14% protein ration; young pigs are fed an 18% commercially-mixed creep ration in creep feeders and later switched to self-feeders.

¹Numbers in parentheses refer to references

²Annual depreciation charge for each facility was calculated by dividing the original cost by the number of years the facility is expected to last.

Lactating sows consume an average of 12 pounds of feed daily. With good management, suckling pigs will consume an average of half a pound of 18% ration daily for an average daily gain of .70 pounds. Pigs are weaned after 7 weeks at an average weight of 40 pounds.

One boar is maintained for each 25 sows. Boars and dry sows are kept on native pasture. One-sixth acre of pasture is provided for each sow, and one-fourth acre for each boar. The sow pasture is cross-fenced to facilitate the breeding program and the moving of sows into the farrowing house on schedule. In 50- and 75-sow operations electric cross-fences are so arranged that not more than 6 sows may be pastured in one paddock. In larger operations this maximum may be increased to 12. Ten square feet of shelter is provided per sow. Boars are pastured individually and housed in A-frame sheds.

Boars and dry sows are fed 6 pounds of 14% protein ration daily. Boars are hand-fed, and sows are self-fed. Automatic waterers are used for all animals.

Veterinary practices and number of inoculations vary widely among the producers interviewed. Feeder pigs are cas-

trated, given iron shots, and, generally, vaccinated for cholera and erysipelas.

Other studies indicate that while labor requirements per sow drop sharply as sow numbers are increased to 25, reductions resulting from further increases in herd size are negligible (1, 4, 5). For that reason a 14.2-hour labor requirement was used for operations of all sizes analyzed in this study. Labor requirements per day would average 1.95 for the 50-sow enterprise, 2.92 for the 75-sow enterprise, and 3.89 for the 100-sow enterprise.

Investment

Capital investment in land and facilities for a 50-sow enterprise amounts to \$6,326 (Table 1). Investment in breeding stock brings total capital investment for an enterprise of that size to \$8,976. For a 100-sow enterprise investment totals \$16,382.

These investment figures are based on facility requirements and prices shown in Appendix Tables 1 and 2. They do not include investment in feed-storage facilities, since many producers do not store appreciable quantities of feed. Neither do they include the cost of a complete water

Table 1.—Investment requirements for feeder pig production for selected size enterprises.

Item	Size of enterprise		
	50 sows	75 sows	100 sows
	Dollars		
Land and Facilities:			
Land	750	1,075	1,400
Farrowing house and nursing pens	4,038	5,540	7,043
Pasture sheds	244	366	488
Boar Sheds	90	136	181
Fencing	470	620	734
Water pipe	206	227	248
Feeders	328	492	620
Waterers	182	279	338
Heat lamps	18	24	30
Total land and facilities	6,326	8,759	11,082
Breeding Stock:			
Sows	2,500	3,750	5,000
Boars	150	225	300
Total breeding stock	2,650	3,975	5,300
Total investment	8,976	12,734	16,382
Investment per pig produced ¹	11.22	10.61	10.24

¹Based upon an average production of 8 pigs per litter.

system. In most instances the farm's existing water system will provide the small additional quantities of water needed for the feeder pig enterprise. (Where a feed-out operation is added to the feeder-pig enterprise, a deep well is required.)

Economies in investment as the size of the enterprise is enlarged occur because all facilities need not be increased proportionately to the increase in sow numbers. When weanings per litter average 8 pigs, investment per pig produced annually declines from \$11.22 for the 50-sow enterprise to \$10.24 for enterprises of 100 sows.

Costs

With the facilities and levels of management and costs used in this study, feeder pigs can be produced for \$9.25

per head in a 50-sow enterprise if 8 pigs are saved per litter and for \$9.14 per head in an enterprise twice that size (Table 2). The lower production costs in the larger enterprise result from a reduction in overhead costs per pig.

Annual operating costs (all costs except depreciation and interest on investment) total about \$6,800 for a 50-sow enterprise and \$13,500 for one of 100-sow size. These annual operating costs are based upon input requirements and prices shown in Appendix Tables 1 and 3. If no hired labor is used, yearly cash-outlay requirements can be reduced by about 10 percent and costs per pig by about 90 cents.

The number of pigs saved per litter has considerable effect upon the costs per

Table 2.—Annual costs of producing feeder pigs for selected size enterprises, 8 pigs saved per litter.

Item	Size of enterprise		
	50 sows	75 sows	100 sows
	Dollars		
Investment Costs:			
Depreciation:			
Housing	195.52	271.80	348.62
Equipment	72.96	107.08	133.83
Fencing	23.50	31.03	36.68
Water pipe	13.72	15.12	16.52
Interest on investment	309.40	444.61	577.04
Total	615.10	869.64	1,112.69
Operating Costs:			
Feed:			
Pigs — 18% protein	1,170.00	1,755.00	2,340.00
Sows — 14% protein ¹	3,586.39	5,379.85	7,172.78
Boars — 14% protein ¹	116.62	175.19	233.24
Labor	710.00	1,065.00	1,420.00
Repairs	223.04	307.36	387.28
Veterinary and medicines ²	852.00	1,278.00	1,704.00
Electricity	128.21	192.31	256.41
Total	6,786.26	10,152.71	13,513.71
Total costs	7,401.36	11,022.35	14,626.40
Cost per pig	9.25	9.19	9.14

¹Costs include \$3.00 per ton for grinding and mixing.

²\$1.00 per head for sows, pigs, and boars.

Table 3.—Per-head costs of producing feeder pigs for selected size enterprises and pigs saved per litter.

Pigs saved	Size of enterprise		
	50 sows	75 sows	100 sows
	Dollars		
7	10.18	10.11	10.06
8	9.25	9.19	9.14
9	8.53	8.47	8.42

fig. Data in Table 3 indicate declines of about \$1.64 in per-head production costs

as the number saved per litter is increased from 7 to 9.

Feeding-Out Hogs

Estimates of confinement feeding costs presented in this section are based upon finishing 800, 1200, and 1600 hogs to 200-pound weights. These numbers of hogs equal the annual output of 50-, 75-, and 100-sow feeder-pig enterprises when an average of 8 pigs are saved per litter.

Finishing costs are first estimated for situations where a feed conversion ratio of 3.50 is obtained. Then, estimates of costs associated with feed ratios of 3.75 and 3.25 are presented.

Facilities and Management

Hogs are finished in concrete-floored pens. The floor should have a slope sufficient to facilitate cleaning and to keep it dry. Approximately two-thirds of the pen is roofed for weather protection and to provide shade. Twelve square feet of floor space per hog was allowed.

Finishing pens were designed to accommodate a two-week supply of feeder pigs from the 50- and 75-sow herds, and a one-week output of the 100-sow herd. Since 40-pound pigs should reach 200-pound weights in approximately 100 days, the smaller operation requires a total of eight 12 x 32-foot feeding pens, and the larger, a total of 15. For a 75-sow operation, eight 18 x 32-foot pens are needed. With that number of pens, each pen can be refilled in 15 weeks.

Overhead bulk feed bins which permit the refilling of feeders without handling the feed are provided. Placed above the partitions, one storage bin would serve two pens. The storage bins would hold up to 4 tons of feed and would be refilled every two weeks.

The smaller pens are equipped with 8-hole feeders, the larger ones with 12-hole feeders, to provide one feed-hole for

each four hogs. Double cup automatic waterers are used in all pens, one cup being provided for 16 hogs. In 1600-hog operations, costs can be reduced by placing part of the waterers in the partitions between pens.

Because of the high water-pressure requirements for washing floors, a deep well is needed for the feeding enterprise. The pump should provide at least 600 gallons per hour at a 60-pound pressure. Excess water afforded by this system may be used for other enterprises on the farm.

Most producers include in the water system a spray to provide a light mist for cooling hogs in the hot summer months.

Young feeder pigs are started on a 16-percent protein ration. When hog weights reach 125 pounds, the protein level is dropped to 12 percent. With a 3.50 feed conversion ratio, a 40-125 pound pig will consume 5.25 pounds of feed per day and 1.5 pounds per day. Hogs in the 125-200 pound weight range will consume an average of 5.95 pounds of feed per day with an average daily gain of 1.7 pounds.

Labor requirements obtained from Mississippi producers are similar to those used in a North Carolina study (5). Annual labor requirements were estimated to be 400, 504, and 608 hours for the 800, 1200, and 1600-hog enterprises, respectively. Labor requirements per day would average 1.10 hours for the 800-hog enterprise, 1.38 hours for the 1200-hog enterprise and 1.67 hours per day for the 1600-hog enterprise.

Investment

When based on facility requirements and prices shown in Appendix Tables 1 and 6, investment in facilities for finishing 800 hogs annually totals slightly more

than \$6,000 and averages \$7.52 per hog (Table 4). As the size of the enterprise is increased, investment required per head declines, primarily because the cost of the water system is spread over a larger number of hogs.

Costs

When the cost of feeder pigs is not included, feed costs comprise about 94 percent of the total costs of finishing hogs, if a feed conversion ratio of 3.50 is obtained. Labor is the second most important item. With price levels used in

this study, finishing costs average \$16.18 per head when 800 hogs are finished annually (Table 5). The more intensive use of facilities and labor that results when the size of enterprise is doubled reduces per-head costs by 24 cents.

Since feed is such an important item of cost, considerable savings result from improving the feed conversion ratio. Reducing this ratio from 3.50 to 3.25 cuts costs by about \$1.06 per head (Table 6). Costs are increased by about the same amount if the feed ratio increases to 3.75.

Table 4. Investment requirements for feeding selected numbers of hogs annually.

Item	Number fed annually		
	800	1200	1600
	Dollars		
Land	100	100	100
Finishing pens	3,840	5,760	7,200
Feed storage bins	400	600	800
Feeders	480	704	900
Waterers	136	204	255
Water system ¹	1,062	1,062	1,062
Total	6,018	8,430	10,317
Investment per hog	7.52	7.03	6.45

¹300 ft. of drilling and casing; pump and 120-gallon tank.

Table 5.—Costs of finishing selected numbers of hogs to 200-pound weights with a 3.50 feed conversion ratio.

Item	Number fed annually		
	800	1200	1600
	Dollars		
Investment Costs:			
Depreciation:			
Housing	153.60	230.40	288.00
Equipment	77.60	114.80	147.50
Water system	66.32	66.32	66.32
Interest	152.95	213.25	260.43
Total	450.47	624.77	762.25
Operating Costs:			
Feed	11,847.15	17,773.35	23,694.30
Labor	400.00	504.00	608.00
Repairs	236.72	333.20	408.68
Electricity for pumping water	12.96	19.44	25.92
Total	12,496.83	18,629.99	24,736.90
Total costs	12,947.30	19,254.76	25,499.15
Costs per hog	16.18	16.05	15.94

Table 6.—Per-head costs of feeding hogs to 200-pound weights for selected feed conversion ratios and numbers of hogs fed annually.

Feed conversion ration	Number fed annually		
	800	1200	1600
3.75	17.24	17.10	17.00
3.50	16.18	16.05	15.94
3.25	15.11	14.99	14.88

Investment and Costs In Producing Marketing Hogs

An investment of about \$15,000 is required for an enterprise in which 800 feeder pigs a year are produced and finished to market weights. Annual costs for this enterprise are approximately \$20,000 (Table 7). On a per head basis, this amounts to an investment of \$18.74 and a cost of \$25.44. If the size of the enterprise is doubled, per-head investment declines by \$2.05 and average cost by 36 cents. Total labor requirements per day for the feeder pig operation and the finishing operation would average 3.05 hours for the 800-hog enterprise, 4.30 hours for the 1200-hog enterprise, and 5.56 hours for the 1600-hog enterprise.

The preceding estimates are for situa-

tions where an average of 8 pigs are saved per litter and a feed conversion ratio of 3.50 is obtained in the finishing-out operation. Costs can be reduced appreciably by increasing the number of pigs saved and improving feed efficiency. Data in Table 8 indicate that costs decline by about 90 cents per hundredweight as the number of pigs saved is increased from 7 to 9, and by \$1.06 per hundredweight as the feed conversion ratio drops from 3.75 to 3.25. Thus the alert pork producer can reduce production costs by approximately two dollars per hundredweight through good management. Increasing both herd size and management can reduce production costs by as much as \$2.14 per hundredweight.

Table 7. Investment and costs of producing market hogs: 8 pigs saved per litter, 3.50 feed conversion ratio, selected size enterprise.

Item	50 sows	75 sows	100 sows
	800 feeders	1200 feeders	1600 feeders
	Dollars		
Investment:			
in feeder pig enterprise	8,976	12,734	16,382
in finishing enterprise	6,018	8,430	10,317
Total	14,994	21,164	26,699
per hog produced	18.74	17.64	16.64
Annual Costs:			
of producing feeder pigs	7,401	11,022	14,626
of finishing hogs	12,947	19,255	25,499
Total	20,348	30,277	40,125
per hog produced	25.44	25.23	25.08

Table 8.—Hundredweight costs of market hogs for selected size enterprises, numbers of pigs saved per litter, and feed efficiency.

Pigs saved per litter	50 sows			75 sows			100 sows		
	Feed conversion			Feed conversion			Feed conversion		
	3.75	3.50	3.25	3.75	3.50	3.25	3.75	3.50	3.25
	Dollars per hundredweight								
7	13.76	13.23	12.70	13.64	13.12	12.59	13.56	13.04	12.50
8	13.24	12.72	12.18	13.14	12.62	12.08	13.06	12.54	12.00
9	12.84	12.31	11.78	12.74	12.22	11.69	12.67	12.14	11.62

Profitability

Prices of hogs normally reach their annual high in July or August, then drop sharply during the fall. The year's low is usually reached in late fall or early winter, after which prices rise to a secondary peak about late winter. Prices then decline briefly before a very substantial summer advance begins.

Prices are highest in mid-summer because, with most producers following a seasonal farrowing program, fewer hogs are marketing in the summer. The low winter prices are caused by pig marketing at that time.

The feeder who follows a continuous program markets essentially the same number of hogs each month in the year. By so doing he hits both the high and the low of the market or, in effect, "averages out" the market.

Over the last five years prices of No. 1 & 2 200-220-pound barrows and gilts have averaged \$17.53 per hundred pounds on the Memphis market (Appendix Table 8). With prices at that level, hog production appears profitable over the long pull even for the highest-cost set-up included in this analysis (the 50-sow enterprise with 7 pigs saved per litter and a 3.75 feed conversion ratio). In only 4 months

—October 1959-January 1960—of the 60-month period did prices drop below the \$13.76 production cost. Even for the years that included these low-price months, the annual average prices would have resulted in sizeable average margins above production costs.

For the producer who saves 8 pigs per litter and has a 3.50 feed conversion ratio and finishes 1600 hogs annually at a cost of \$12.54 per hundredweight, the margin would have averaged \$4.99 per hundredweight, or approximately \$10 per head, over the 5-year period. (Transportation and marketing costs would have to be deducted from that margin.) For the year 1958, Memphis prices averaged \$20.69 per hundredweight, \$8.05 above production costs. Sharp price declines in the fall of 1959 reduced the annual price for that year to \$15.26, the lowest in the 5-year period. Yet that average would have allowed the producer with a cost of \$12.54 a gross margin of \$2.72 per hundred pounds. For the producer with top efficiency—9 pigs saved per litter and 3.25 feed ratio—who produces 1800 hogs annually at a cost of \$11.62, margins would have averaged \$9.17 per hundredweight for the high year, \$3.74 for the low year, and \$5.91 over the 5-year period.

Summary

Established producers in Mississippi are producing and finishing hogs in confinement the year around. This study provides estimates of costs of producing feeder pigs and of finishing hogs to market weights when practices of such producers and recommendations of the Animal Husbandry Department of Mississippi State University are followed.

To show the effect of size of operation and level of management on costs the study includes three sets of variable conditions: Pig production costs were estimat-

ed for breeding herds of 50, 75, and 100 sows farrowing twice annually. The number of pigs saved per litter was varied from 7 to 9. Estimates of feed-out costs are based on feed conversion ratios of 3.25, 3.50, and 3.75.

Costs of producing 40-pound feeder pigs ranged from \$10.18 for 7 pigs saved per litter in the 50-sow enterprise to \$8.42 for 9 saved in the 100-sow operation. Costs of finishing a hog from 40 to 200 pounds ranged from \$17.24 when 800 are finished annually at a feed conversion ratio of

3.75 to \$14.88 when 1600 are finished at a feed ratio of 3.25.

When production cost of the feeder pig is included, costs of finishing a pig from a litter of 7 in the 50-sow enterprise average \$13.76 per hundredweight when a 3.75 feed conversion ratio is obtained. Corresponding costs for a hog from a litter of 9 in the 100-sow operation with a feed conversion ratio of 3.25 average \$11.62 per hundredweight.

These data emphasize the importance of management in keeping the litter size high and the feed conversion ratio low. As a result of lower feeder pig costs and larger numbers fed, hundredweight costs of producing a 200-pound hog decline by about 90 cents as the number of pigs saved increases from 7 to 9. Reducing the feed conversion ratio from 3.75 to 3.25 reduces

costs by \$1.06 per hundredweight. Based on the prices used in this study, increasing both herd size and management can reduce production costs by as much as \$2.14 per hundredweight.

At the level of hog prices that has existed over the past five years, confinement production appears highly profitable. Where 8 pigs are saved per litter, feed conversion ratio is 3.50, and 1600 hogs are finished annually, the margin above the \$12.54 production costs would have averaged \$8.05 per hundredweight in 1958, the high year of the period; \$2.72 in 1959, the low year; and \$4.99 over the 5 years. In each of the 5 years there would have been a sizeable profit margin even for the producer whose costs averaged as high as \$13.76.

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Appendix

Appendix Table 1.—Prices of input items Mississippi, 1960.

Item	Unit	Cost per unit
Feed ingredients (used in 12, 14 & 16% ration)	ton	
Ground yellow corn (1.25 per bu.)		\$ 44.60
Soybean meal (44% protein)		57.80
Deflourinated rock phosphate		65.20
Ground limestone		11.60
Trace mineralized salt		55.00
Vitamin and antibiotic mix		¹
Creep ration	ton	130.00
Feed grinding and mixing	ton	3.00
Housing		
Farrowing house and nursing pen	sq. ft.	1.25
Finishing pens	sq. ft.	1.25
Pasture shed	sq. ft.	.678
Boar shed, A-type, equipped	each	45.00
Heat lamps	each	3.00
Feed storage bins		
800 hogs	each	400.00
1200 hogs	each	600.00
1600 hogs	each	800.00
Feeders		
12-hole	each	88.00
8-hole	each	60.00
4-hole	each	36.00
Creep	each	5.00
Waterers, automatic		
Single	each	11.60
Double	each	17.00
Deep-well water system		
Drilling and 4" casing	ft.	1.99
3/4" pipe	ft.	.21
1 H. P. pump equipped with 120-gallon water tank	each	465.23
Fencing		
3" creosote post	each	.70
Barbed wire	roll	8.50
Field wire — 32-inch	roll	18.50
Galvanized wire	roll	5.50
Fence charger	each	28.95
Labor	hr.	1.00
Electricity	KWH	.03
Pumping water (cost of electricity)		
Shallow well	000 gal.	.023
Deep well	000 gal.	.075

¹\$3.45 per ton of feed mixed.

Appendix Table 2.—Facilities required for selected size feeder-pig enterprises.

Item	unit	Number of sows		
		50	75	100
Land				
Farrowing and nursing area	ac.	1	1	1
Pasture	ac.	6.5	9.75	13
Fencing				
Field wire (pasture)	rod	160	233	252
Galvanized wire for cross-fencing	rod	155	304	220
Electric charger	no.	1	1	1
Buildings and pens				
Farrowing house	sq. ft.	330	440	550
Farrowing stalls	no.	6	8	10
Exercise area	sq. ft.	676	676	676
Nursing sheds and pens	no.	8	12	16
Nursing sheds and pens	sq. ft.	2104	3156	4208
Sow pasture sheds:				
10' x 12'	no.	3	4	6
6' x 10'	no.	0	1	0
Boar sheds, equipped 8' x 7½'	no.	2	3	4
Equipment				
Feeders				
in exercise pen (4-hole)	no.	1	1	1
in nursing pens				
4-hole (in half of pens)	no.	4	6	8
Creep (2 in half of pens)	no.	8	12	16
in sow pasture				
4-hole (in fence between)	no.	3	5	6
Automatic waterers				
Single-cup				
in exercise pen	no.	1	1	1
in sow pasture	no.	0	1	6
Double-cup				
in nursing pens	no.	4	6	8
in sow pasture	no.	3	4	0
Water pipe (3/4" galv.)	ft.	712	827	923
Heat lamp	no.	6	8	10

Appendix Table 3. Variable input requirements for selected size feeder-pig enterprises, 8 pigs saved per litter.

Item	Unit	Number of sows		
		50	75	100
Feed				
Pig creep — 18% protein (.50 lbs./day)	tons	9.00	13.50	18.00
Sows — 14% protein (12 lbs./day lactation; 6 lbs./day gestation and dry)	tons	67.35	101.03	134.70
Boars — 14% protein (6 lbs./day)	tons	2.19	3.29	4.38
Labor (14.2 hours per sow per year)	hours	710	1065	1420
Electricity for heating (84 KWH per sow)	KWH	4200	6300	8400
Water (120 gal./pig)	000 gal.	96	144	192

Appendix Table 4. Creep ration, 18% protein.

Ingredients	Pounds
Ground yellow corn	612
Soybean meal (44% protein)	600
Dried whey	200
Dried skim milk	100
Sugar (dextrose)	200
Rolled oats or oat groats	200
Animal fat	40
Steamed bone meal or dicalcium rock phosphate	22
Ground limestone	10 ¹
Trace-mineralized salt ²	10
Vitamin and antibiotic mix ³	6
Total	2000

¹If deflourinated rock phosphate is used, ground limestone should be 6 lbs. per ton.

²Should contain at least 0.5% zinc.

³Three pounds of the vitamin and antibiotic mix to contain Vitamin A, 1.5 million I.U.; Vitamin D, 225,000 I.U.; riboflavin, 1.5 grams; niacin, 10 grams; pantothenic acid, 6 grams; choline, 75 grams; Vitamin B12, 12 milligrams and antibiotic (or combination of antibiotics) 20 grams.

SOURCE: Animal Husbandry Department, Mississippi State University.

Appendix Table 5. Growing and finishing rations.

Ingredients	16% protein	14% protein	12% protein
	Pigs weighing 40-125 lbs.	Breeding stock ¹	Pigs weighing 125-200 lbs.
	(Pounds)	(Pounds)	(Pounds)
Ground yellow corn	1,507	1,629	1,737
Soybean meal (44% protein)	440	330	220
Steamed bone meal or dicalcium phosphate or deflourinated rock phosphate	28	14	18
Ground limestone	12 ²	14 ³	12 ⁴
Trace mineralized salt ⁵	10	10	10
Vitamin and antibiotic mix ⁶	3	3	3
Total	2,000	2,000	2,000

¹This ration is sometimes recommended as the second ration in the feed-out operation for hogs weighing 100-150 pounds.

²Used with deflourinated rock phosphate at a rate of 6 lbs. ground limestone per ton.

³Used with deflourinated rock phosphate at a rate of 12 lbs. ground limestone per ton.

⁴Used with deflourinated rock phosphate at a rate of 8 lbs. ground limestone per ton.

⁵Should contain at least 0.5% zinc.

⁶Three pounds of the vitamin and antibiotic mix to contain vitamin A, 1.5 million I.U.; Vitamin D, 225,000 I.U.; riboflavin, 1.5 grams; niacin, 10 grams; Pantothenic acid, 6 grams; choline, 75 grams; Vitamin B12, 12 milligrams, and antibiotic (or combination of antibiotics), 20 grams.

SOURCE: Animal Husbandry Department, Mississippi State University.

Appendix Table 6. Input requirements for confinement feeding of selected numbers of hogs.

Item	Unit	Number of hogs		
		800	1200	1600
Feeding pens (12' x 32')	no.	8	0	15
Feeding pens (18' x 32')	no.	0	8	0
Floor space in pens (12 sq. ft./hog)	sq. ft.	3072	4608	5760
Feeders (8-hole, 4 hogs/hole)	no.	8	0	15
Feeders (12-hole, 4 hogs/hole)	no.	0	8	0
Waterers (double, 16 hogs/waterer)	no.	8	12	15
Land	ac.	1	1	1
Deep well (600 GPH at 60 PSI, 1 H.P. electric motor)	no.	1	1	1
Feed ¹				
16% protein (40-125 lbs.: 5.25 lb./da.)	tons	117.6	176.4	235.2
12% protein (125-200 lbs.: 5.95 lb./da.)	tons	104.7	157.1	209.4
Labor				
Per hog	hrs.	.50	.42	.38
Total	hrs.	400	504	608
Water (216 gal./hog)	000 gal.	17.8	259.2	345.6

¹Based upon an average feed conversion ratio of 3.50.

Appendix Table 7. Years of expected life and depreciation rates of facilities.

Item	Years of expected life	Annual depreciation rate
	(Number)	(Percent)
Farrowing house and nursing pens	25	4
Feed-out pens and feed storage bins	25	4
Pasture sheds	10	10
Fences	20	5
Feeders	10	10
Creep Feeders	5	20
Waterers	10	10
Deep-well pump and tank	10	10
Water pipe	15	6.67
Heat lamp	1	100

Appendix Table 8.—Barrows and Gilts: Monthly and annual average prices per hundred pounds, Memphis, Tennessee, July 1956 - June 1961.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yr. Av.
	Dollars												
	U. S. No. 1 & 2 — 200-220 lbs.												
1956 ²							16.04	16.45	15.99	15.54	14.73	16.66	15.90 ³
1957 ²	17.80	16.86	17.06	17.74	17.81	19.28	20.43	20.66	19.10	17.07	17.05	18.83	18.31
1958 ²	19.24	20.09	21.34	20.80	22.59	23.12	23.17	21.28	20.52	19.10	18.57	18.43	20.69
1959	17.52	16.08	16.25	16.71	16.88	16.74	14.58	15.01	14.08	13.37	13.30	12.65	15.26
1960	13.30	14.02	15.87	16.44	16.64	17.52	17.88	17.03	16.90	17.70	17.76	17.99	16.59
1961	17.88	18.56	17.85	17.48	17.20	17.41							17.73 ³
5-year average													17.53
	U. S. No. 2 & 3 — 200-220 lbs.												
1959	17.15	15.48	15.57	15.95	16.24	16.13	14.00	14.56	13.61	12.88	12.81	12.08	14.70
1960	12.61	13.50	15.28	15.81	15.92	16.75	17.50	16.46	16.42	17.13	17.20	17.34	15.99
1961	17.28	17.97	17.25	16.89	16.45	16.79							17.10 ³
2½-year average													15.67

¹Based on the mean of daily range of quotations.²Prices for these years are for No. 1, 2 & 3 grades.³36-month average.

SOURCE: Forms LS-214-1, Livestock Division, Agricultural Marketing Service.