



Large Volume Hog Production in the U.S.

A 1975 Survey

SR 114
12/75/2.5M

University of Missouri-Columbia
Agricultural Experiment Station

Large Volume Hog Production in the U.S.

A 1975 Survey

By V. James Rhodes and Glenn Grimes*

Department of Agricultural Economics

INTRODUCTION

Numerous large volume hog producers are known to exist. Detailed accounts of various specific operations appear in the trade press periodically. However, little has been known about the total picture—how many large producers, their volume, rate of growth, production and marketing practices, etc. Such information is of obvious interest to a wide range of people: input suppliers; market agencies; extension educators; hog producers; and policy-makers concerned about the structure of agriculture.

This publication reports a second attempt to develop an overall perspective of large scale hog production. The first attempt, reported last year in University of Missouri Extension Special Report 165,¹ was based on a 1974 survey of 141 large producers in 14 major hog states. This report is based on a 1975 survey using a different and larger list of producers. While many results are quite similar to the previous report, more large producers were found and data were obtained for the first time on numerous production and marketing practices.

SOURCE OF DATA

Hog Farm Management, a monthly magazine, agreed to survey producers on its mailing list who claim to market 5,000 or more hogs annually. A jointly designed questionnaire, (see Appendix) was mailed to that list. After two mailings, 320 usable replies were obtained. A one in five random sample of 100 non-respondents were then telephoned by Miller Agricultural Research, a sister organization of the magazine. Of these 100 producers, 95 were interviewed.

The data are composed of two parts: a mail survey of 320 operations to which is added a phone sample survey magnified five times to account for the sampling rate. The telephone survey was shorter and omitted questions on production practices and some other areas.

Technically, the results are a sample of a population of large volume producers on the mailing list of a trade magazine, not a sample of the U.S. population of such producers, since such a list was not available and probably does not exist.

While it is thought to be a fairly good sample of the population of U.S. producers, there is no statistical measure of how good it is. It would be amazing if *all* large

*The authors acknowledge gratefully the cooperation of *Hog Farm Management*, Minneapolis, in obtaining the data for this study.

¹A 1974 Survey of Large-Scale Hog Production in the U.S. by V. James Rhodes, Robert M. Finley, and Glenn Grimes.

volume producers in the U.S. were on the mailing list of any given trade magazine. Thus, this is a second and much more complete approximation of the U.S. picture, but it is still an approximation. The research costs to do a population enumeration or even a probability sample survey of the U.S. are prohibitive for an organization like the University, given the absence of any complete list of large volume producers.

Any measure of a segment of producers based on their size encounters boundary problems. Those on the magazine list reported they had annual marketings of 5,000 head, so that became the cut-off rather than the 4,000 head boundary used in the first survey. Data was obtained on marketings for 1973 and 1974 and expected marketings in 1975. Any operation was included as large volume if marketings equalled or exceeded 5,000 in *any one* of those three years. If that criterion had had to be met for *all* three years, the sample would have been reduced about one-fourth.

NUMBER AND SIZE OF OPERATION AND VOLUME OF MARKETINGS

An estimated total of 550 large volume producers marketed almost 5 million hogs in 1974 and expected to market 5½ million in 1975 (Table 1). These marketings in 1974 included 4,105,000 slaughter hogs, 585,000 feeder pigs, and 153,000 head sold as breeding stock. The total slaughter hogs comprised about 5.1 percent of U.S. slaughter in 1974. More impressive is the fact the planned marketing of 4,582,000 slaughter hogs in 1975 will constitute more than 6 percent of the reduced U.S. slaughter.

While a majority of these operations were fairly close to the 5,000 head size in marketings, there were many that were much larger including 56 in 1974 that marketed 15,000 head or more and several that marketed more than 50,000 head (Table 2). The smaller producers, which comprised one-half the units, marketed less than 30 percent of the total group's marketings.

Table 1. Marketings of Large-Volume Hog Producers

	<u>Total volume (head)</u>	<u>Number Operators Reporting</u>	<u>Average Size of Marketings</u>
1975	5,488,000	549	9,997
1974	4,843,000	541	8,952
1973	4,072,000	507	8,031

Notes: (a) Of the 550 operations, one failed to report planned marketings for 1975, and larger numbers did not report for earlier years either because of personal preferences or, more often, their non-existence at that time.

(b) Planned marketings for 1975 were projected as of March, or April, 1975 when the survey was taken.

Table 2. 1974 Marketings by Size of Operation

<u>Size Group</u>	<u>No. Operations</u>	<u>Percentage of Operations</u>	<u>Percentage Marketed</u>	<u>Average Marketings Per Operation</u>
Less than 7,000 head	277	51.2%	28.8%	5,040
7,000 to 14,999	208	38.4	40.9	9,531
15,000 and more	<u>56</u>	<u>10.4</u>	<u>30.3</u>	26,148
	541	100.0	100.0	

ORGANIZATIONAL TYPES

Corporations were the most frequent organizational type; individual proprietorships and partnerships ranked second and third (Table 3).

Another classification by type indicates the role of the new farrowing corporations and cooperatives and also the extent of hog production by agribusiness companies (Table 4). A narrow definition of an agribusiness company was used which involved the concept that the primary business of the company was not agricultural production. The primary business of the agribusiness companies was usually the manufacture or sale of feed, seed, or breeding stock. Several were meat packers.

Information from other sources indicates there are many more large scale feeder pig farrowing organizations in the U.S. than were found in this survey. This survey found such farrowing organizations in 11 states with the largest numbers in Iowa, Nebraska, Illinois, Colorado, and Kansas.

The corporate type of farrowing organization apparently is more popular than the cooperative type. The cooperative form is noteworthy because it is one of the few instances in which U.S. farmers *produce* cooperatively.

Table 3. Legal-Economic Organizational Types

<u>Type</u>	<u>Number</u>	<u>Percentage</u>
Corporate	219	39.0
Sub-Chapter S	(109)	(19.8)
Regular	(96)	(17.5)
Cooperative	(14)	(2.5)
Individual proprietorship	181	32.9
Partnership	123	22.4
Undetermined (likely corporate)	<u>27</u>	<u>4.9</u>
	550	100.0

Table 4. Types of Organizations: Another Classification

	<u>Number</u>	<u>Percentage</u>
Individual proprietorship	181	32.9%
Partnership	123	22.4
Feeder pig farrowing corporation	22	4.0
Feeder pig farrowing cooperative	14	2.5
Family corporation	94	17.1
Agribusiness company	50	9.1
Farm corporation	63	11.5
Other (state institutions, etc.)	3	0.5
	<u>550</u>	<u>100.0</u>

Notes: (a) A "farm corporation" is a residual classification for those non-family corporations which are not agribusiness companies nor feeder pig corporations. (b) About half of the "family corporations" were Subchapter S organizations. (c) All except one of the feeder pig corporations were Subchapter S. (d) See questions 1, 1a., & 1b. in the Schedule reproduced in the appendix.

LOCATION

Large volume units are not nearly as concentrated in the Corn Belt as is total hog production.² Producers were found in 35 states and in all regions (Table 5). In 1974, the two combined North Central regions had 54.3 percent of the operations and 46.1 percent of the marketings. Operations were sufficiently large in the Southeast that it led in marketings although not in the number of operations.

Sampling error becomes quite large for subclassifications as small as states. Therefore, estimates are provided for only the seven leading states which included about three-fifths of the operations and of the marketings (Table 6). These state estimates are subject to considerable error. Large volume operations were also found in Minnesota, Missouri³, North and South Dakota, Ohio, Michigan, Wisconsin, Rhode Island, Pennsylvania, Delaware, Maryland, Virginia, South Carolina, Georgia, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Oklahoma, Idaho, New Mexico, Colorado, Arizona, Utah, Washington, Oregon, and California.

²Usually about 80 percent of the nations' hogs are produced in the North Central Region.

³On the basis of extra investigation in Missouri, it is estimated there are at least 11 units.

Table 5. Regional Distribution of Large Scale Units, 1974

Region	Operations		Percentage of Marketings
	Number	Percentage	
West North Central	153	27.6	23.1
East North Central*	141	26.7	22.6
Southeast	117	21.4	28.6
South Central	75	12.8	11.7
West	64	11.5	14.0

*These regions have the usual boundaries used by USDA except that four operations in Pennsylvania and Rhode Island are included in ENC rather than designating the Northeast as a separate region.

Table 6. Estimates of Large-Volume Operations in Leading States, 1974

State	No. Operations	Marketings (000 head)
North Carolina	78	923
Illinois	75	544
Kansas	46	428
Iowa	46	295
Nebraska	33	224
Indiana	32	221
Texas	31	328
Totals	341	2,963

Note: These estimates pertain only to the *Hog Farm Management* mailing list. It is known, for example, that feeder pig farrowing units in Iowa, Nebraska, and Kansas are under-reported--because of sampling error and/or absence from mailing lists.

FARROWING

Farrowing was reported by 79.9 percent of the operations. Total farrowings, at 3,372,000 head, were 69.6 percent of total marketings.⁴ The percentage farrowed fell drastically in the largest size operations (Table 7). This decline was due principally to the large disparity between the average numbers farrowed and marketed in the largest size class; the proportion of units farrowing was much the same by size classes (Table 7). The number farrowed in all operations ranged from 300 to 35,000 head.

The two southern regions had the smallest percentages of operations which farrowed all hogs marketed: 51.3 percent Southeast; 57.3 percent South Central; 74.5 percent East North Central; 77.2 percent West North Central; and 84.4 percent West.

⁴Farrowings in an absolute sense are underestimated because the interview procedure made no provision for death loss and equated farrowings of a non-purchaser of feeder pigs with marketings.

The feeder pig organizations were the only organizational types in which farrowings equaled 100 percent of marketings. Farrowing as a proportion of marketings was: agribusiness companies 54 percent; partnerships 64 percent; individuals 69 percent; farm corporation 78 percent; and family corporations 81 percent.

SLAUGHTER HOGS, FEEDER PIGS, AND BREEDING STOCK

Feeder pig sales of 585,000 head in 1974 were 12.0 percent of marketings. Feeder pig purchases of 1,471,000 head were 30.4 percent of marketings. Breeding stock sales of 153,000 head were 3.2 percent of marketings. Sales of both feeder pigs and breeding stock rose from 1973 to 1975 as percentage shares of total marketings (Table 8). Average sales per operation were much smaller of feeder pigs and especially of breeding stock than of slaughter hogs, and the number of units selling pigs and breeding stock were fewer (Table 9).

Sales of slaughter hogs, feeder pigs and breeding stock and purchases of feeder pigs differed considerably by organizational type (Tables 10 and 11). There were important differences in the number of operations of a particular type which sold any feeder pigs or breeder stock and also in the average numbers sold (Table 11). Individual proprietorships were the largest sellers of feeder pigs while agribusiness companies were by far the smallest (Table 10). Partnerships were the largest purchasers of feeder pigs. Family corporations were very big in the sale of breeding stock compared to their sales of slaughter hogs and their sales and purchases of feeder pigs. Partnerships and agribusiness companies were largest in average size sales of slaughter hogs and all hogs (Table 11).

There were pronounced regional differences. While marketing 43 percent of the slaughter hogs and purchasing 27 percent of the feeder pigs, the two North Central Regions sold 68 percent of the breeding stock and 56 percent of the feeder pigs (Table 12). The Southeast Region was the big purchaser of feeder pigs (Table 12). The Southeast had by far the largest average size producers of slaughter hogs and all hogs; their total marketings led all regions in those two categories (Table 9).

The "product mix" varied by size. The middle-size group (7,000 to 14,999) marketed a majority of the breeding stock; and along with the smaller-size group it marketed almost all the feeder pigs (Table 13). The largest-size group marketed one-third of the slaughter hogs, one-fifth of the breeding stock, one-sixteenth of the feeder pigs, but purchased one-half of the feeder pigs.

GROWTH

Large volume operations are presumably growing in both number and average size. Unfortunately, the benchmark data is lacking to be very confident about either. Since this kind of survey deals with present survivors, it provides little evidence as to how many operations existed at any previous date or as to their size distribution.

Some of these operations date back before 1900, while others began in 1974. About 55 percent began after 1964. About 25 to 35 of these operations have begun each year since 1964.

The proportions of newer operations starting after 1964 is lower in the two North Central Regions and higher in the West and Southeast than the national average. The feeder pig farrowing organizations are quite new. Most farm corporations have begun since 1964 while 58 percent of the partnerships and of the family corporations began in an earlier period. It should be cautioned that an operation may be organized

differently now than when it began. For example, many of the family corporations and partnerships may have begun as individual proprietorships.

Most of these firms have grown over time, Of those providing data on marketings for 1965 and 1973, more than 90 percent had grown during that period (Table 14). Average growth per unit per year, 1965-75, was 685. This figure falls to 553, however, if the growth of six very large units is excluded. The percentage growing from 1973 to 1974 was smaller but still a majority. Likewise, a small majority projected further growth from 1974-75.

Relatively new operations begin smaller in size than older operations, but they tend to grow faster for a few years. It also appears operations are recently beginning at larger average sizes than was true of those beginning before 1965, or even before 1970 (Table 15). The rapid growth of the smaller operations is also shown in Table 16. The growth among the largest firms, despite its unevenness, indicates a ceiling on size of operation has not been reached.

Table 7. Farrowing by Size Group of Marketings, 1974

Marketing Size Group	Totals (000 head)		Percentage (2) of (1)	Average Size of Operation		Percentage (4) of (3)	Percentage of Operations Doing any Farrowing
	(1) Marketed	(2) Farrowed		(3) Marketed	(4) Farrowed		
Less than 7,000	1,396	1,071	76.7%	5,040	4,868	96.6%	79.4%
7,000 to 14,999	1,983	1,592	80.3%	9,531	9,150	96.0%	83.7%
15,000 and more	1,464	709	48.5%	26,148	16,500	63.1%	76.8%
	<u>4,843</u>	<u>3,372</u>					

Table 8. Growth in Marketings of Slaughter Hogs, Feeder Pigs, and Breeding Stock, 1973-75

	Marketings (000 Head)			Percentage of Total Marketings		
	Slaughter Hogs	Feeder Pigs	Breeding Stock	Slaughter Hogs	Feeder Pigs	Breeding Stock
1973	3,550	411	110	87.2%	10.1%	2.7%
1974	4,105	585	153	84.8	12.0	3.2
1975	4,582	715	191	83.5	13.0	3.5

Note: 1975 data are planned marketings

Table 9. Total and Average Marketings, 1974, of Slaughter Hogs, Feeder Pigs, and Breeding Stock by Region

Regions	Total Marketings (000) head				Average Per Unit Marketing			
	Slaughter Hogs	Feeder Pigs	Breeding Stock	All Hogs	Slaughter Hogs	Feeder Pigs	Breeding Stock	All Hogs
WNC	863	196	60	1,120	6,851	3,847	1,207	7,465
ENC	919	133	44	1,095	6,608	3,788	891	7,765
SE	1,235	134	18	1,387	12,350	4,312	499	11,852
SC	487	48	28	563	7,611	4,777	872	8,040
W	601	75	3	679	10,920	3,952	203	10,774

Note: Averages are computed on the basis of those operations actually marketing slaughter hogs or breeding stock, etc.

Table 10. Distribution of Marketings and Purchases by Type of Operation, 1974

Type Operation	Marketings			Purchases
	Slaughter Hogs	Breeding Stock	Feeder Pigs	Feeder Pigs
Individual	28.0%	23.7%	32.4%	28.8%
Partnership	31.6	21.0	11.7	35.7
F.P. Cooperative	0.1	0.8	15.3	----
F.P. Corporation	0.3	0.6	19.0	----
Family Corporation	16.1	28.5	3.1	9.5
Agribusiness Company	13.7	17.3	0.5	18.4
Farm Corporation	9.6	8.1	17.7	7.6
Other	0.6	----	0.3	----
	100.0	100.0	100.0	100.0

Table 11. Average Marketing, 1974, of Slaughter Hogs, Feeder Pigs and Breeding Stock by Organizational Type

Organizational Type	Average Marketed per Operation Marketing				Number of Operations Marketing			
	Slaughter Hogs	Feeder Pigs	Breeding Stock	All Hogs	Slaughter Hogs	Feeder Pigs	Breeding Stock	All Hogs
Individual	7,427	3,636	755	7,821	155	52	48	176
Partnership	11,271	2,634	502	11,356	115	26	64	123
F. P. Farrowing Cooperative	2,500	6,390	139	6,657	1	14	9	14
F. P. Farrowing Corporation	1,409	5,839	218	6,155	8	19	4	20
Family Corporation	7,195	2,629	1,893	7,783	92	7	23	93
Agribusiness Company	11,270	1,560	1,658	11,863	50	2	16	50
Farm Corporation	6,587	4,154	689	8,249	60	25	18	62
Other	7,633	2,000	-----	8,300	3	1	--	3

Table 12. Distribution of Marketings and Purchases by Region, 1974

Region	Marketings			Purchases of Feeder Pigs
	Slaughter Hogs	Breeding Stock	Feeder Pigs	
WNC	21.0%	39.5%	33.5%	14.5%
ENC	22.4	28.6	22.7	22.2
SE	30.1	11.7	22.8	42.4
SC	11.8	18.2	8.2	10.7
W	14.7	2.0	12.8	10.2
	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

Table 13. Distribution of Marketings and Purchases by Size Class, 1974

Size Class	Marketings			Purchases
	Slaughter	Breeding	Feeder	Feeder
	Hogs	Stock	Pigs	Pigs
Less than 7,000	26.6%	19.7%	47.0%	21.1%
7,000 to 14,999	39.4	60.6	46.5	26.6
15,000 and more	34.0	19.7	6.5	51.3
	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

Table 14. Percentage of Operations Changing Marketings From Year to Year

	Marketings in Later Year Compared to Earlier Year*			
	Larger	Same	Smaller	Total
1965/73	92.3%	4.1%	3.6%	100.0%
1973/74	63.1	17.2	19.7	100.0
1974/75**	60.9	22.9	16.2	100.0

*All marketings rounded to hundreds for comparison.

**Anticipated 1975 marketings.

Table 15. Growth Rate of Operations and Date Begun

Date Begun	Marketings				
	Average Size			Average Growth	
	1973	1974	1975	1973-74	1974-75
Before 1965	7,551	8,187	8,961	636	774
1965-67	8,000	9,098	9,899	1,098	801
1968-70	6,647	7,663	8,773	1,016	1,110
1971-73	6,319	8,219	9,716	1,900	1,497

Note: (a) These means omit those few firms marketing 50,000 or more head because of their distortion. They also omit firms not providing data for all three years. (b) The 1975 marketings and growth are projections.

Table 16. Size and Growth Rate of Marketings

1973 Size	Average Size			Average Growth	
	1973	1974	1975 ^a	1973-74	1974-75 ^a
< 5,000	3,280	5,262	6,671	1,902	1,409
5,000-6,999	5,547	6,182	6,792	635	610
7,000-9,999	8,100	8,820	9,615	720	795
10,000-14,999	11,020	11,845	12,969	825	851
15,000 and more	25,335	27,151	28,317	1,816	1,166

Notes: (a) Projected rather than observed.
 (b) Table omits firms not providing data for all 3 years.

PERCEIVED ADVANTAGES AND DISADVANTAGES

Operators were asked the major advantages and disadvantages to a large operation. Many operators gave two or more answers to each question while some gave no reply. These questions were restricted to the mail survey with 320 schedules. There were 282 mentions of advantages and 286 of disadvantages.

One set of advantages emphasized economic efficiency, specialized labor and/or management, volume permits use of better breeding stock, etc. (Table 17). Another set of advantages emphasized pricing advantages—which may or may not reflect economic efficiency. Pricing advantages were mentioned more often and labor and capital efficiency were mentioned less often by the larger operations.

Disadvantages centered around disease, risk, and the high levels of management and capital required (Table 18). Mentions of high levels of management increased with size of operations while mentions of high risk declined with size of operation. Disease was mentioned relatively more frequently in the West North Central Region than in other regions.

MARKETING CHANNELS OF SLAUGHTER HOGS

Almost four out of five slaughter hogs were sold at the packing plant door; 14.5 percent went to local buyers and 5.8 percent went through terminals (Table 19).

The channel used was related strongly to size of production unit and to region. Those units over 15,000 marketed 96.1 percent direct to the packing plant. The proportions to local buyers and terminals increased as size of operation declined. Terminals received about 10 percent in the two North Central Regions but less than 3 percent elsewhere. Local buyers (independent dealers, cooperatives, packer buying stations) received 23 percent in the West North Central Region and 35 percent in the East North Central but less than 5 percent elsewhere.

Usage of a marketing channel was frequently all or none as shown by the percentages of operations making:

<i>Sole use</i>	<i>Zero use</i>	
47.2%	30.3%	packer door
10.6%	70.3%	local buyer
4.1%	85.0%	terminal market

An eventual massive shift in U.S. hog production into these large units would have a large impact upon market channels. For example, 17.3 percent of the slaughter hogs in the U.S. in 1973 went through terminals⁵ contrasted with the 5.8 percent for 1974 in this group of large operations. Moreover, 12.4 percent of U.S. hogs went through auctions⁵ contrasted with about 1 percent in this group.

Table 17. Advantages Perceived by Large-Volume Operators

<u>Percentage of 320 Units Mentioning</u>	<u>Advantage</u>
33.4%	I. <u>Economic efficiency:</u>
10.3	Labor and capital utilization
1.9	Specialized labor and management
1.3	Feed efficiency
	Volume permits use of better building stock
28.4	II. <u>Pricing and Other Advantage:</u>
3.4	Better prices in buying and selling
0.6	Constant cash flow
8.1	Volume permits use of futures market
0.6	Other advantages
	No advantages of size

Table 18. Disadvantages Perceived by Large-Volume Operators

<u>Percentage of 320 Units Mentioning</u>	<u>Disadvantage</u>
23.4%	Disease
20.0	Labor Availability and Quality
12.5	High Level of Management Required
8.1	High Risk
7.8	Large Capital Requirements
4.7	High Fixed Costs
3.4	Pollution Control
0.6	People Management
8.8	Other Disadvantages

⁵Table 3, *Packers and Stockyards Resume*, USDA, Washington, December 1974.

Table 19. Marketing Channels of Slaughter Hogs

<u>Size of Operation</u>	<u>Packing Plant</u>	<u>Buying Point</u>	<u>Terminal</u>	<u>Other</u>	<u>Total</u>
Less than 7,000	58.7%	28.1	12.9%	0.3%	100.0%
7,000-14,999	74.7	18.0	6.6	0.7	100.0
15,000 and more	96.1	1.3	----	2.6	100.0
All operations	78.4	14.5	5.8	1.3	100.0

Note: Data available only from mail sample of 320.

PRICING METHODS OF SLAUGHTER HOGS

About four-fifths of hogs were sold by live weight and one-fifth by carcass weight (Table 20). This one-fifth by carcass weight was much higher than the national average of 5.8 percent,⁶ indicating large volume operators were more inclined toward this method than were smaller operators. The two Southern Regions made the least use of carcass basis pricing (Table 20). Among types of organizations, partnerships sold almost 95 percent live weight contrasted to 71 percent for individuals and 70 to 75 percent for most other types.

Most prices were determined at time of sale rather than by previous contract (Table 20). Larger operations appeared to use contracts even less than the smaller operations within the group.

Operations were even more inclined to make sole use of one pricing method than one marketing channel. The percentages making sole use of a method were: live weight at time of sale 57.5; live weight with previous contract 1.8; carcass weight at time of sale 11.4; carcass weight with previous contract 0.2; and other methods 0.2 for a total of 71.1 making sole use of a pricing method.

HEDGING

Most operations did no hedging in the futures market of their hog production. Those 20.9 percent which did hedge generally hedged one-third or less of their production, but three of the 320 operators said that they hedged 100 percent. Total volume hedged was 166,000 head or 7.4 percent of this group's marketings. Hedging volume was greater among individuals and agribusinesses than other types of organizations.

FEEDER PIGS: MARKETING, PROCUREMENT, AND CONTRACTING

As already noted, these large operations sold 585,000 feeder pigs and purchased 1,471,000. Channel data were reported on 514,000 head sold and 1,418,000 head purchased. The usage of channels varied greatly between purchases and sales. Large volume sellers usually sold direct to other farmers while large volume purchasers

⁶Table 2, *Packers and Stockyards Resume*, USDA, Washington, December 1974.

Table 20. Pricing Methods of Slaughter Hogs

Region	Percentage Volume by Method				TOTAL
	Live Weight		Carcass Basis		
	Time of Sale	Previous Contract	Time of Sale	Previous Contract	
WNC	61.5%	1.8%	33.3%	2.8%	100.0%
ENC	66.8	8.7	23.3	1.2	100.0
SE	92.7	0.8	6.5	---	100.0
SC	84.9	2.4	12.7	---	100.0
W	75.3	---	23.9	0.8	100.0
Nation	77.0	2.8	19.1	1.0	100.0

largely bought through auctions or dealers (Table 21). Direct placements of 200,000 head by farrowing organizations were an important segment of these direct sales.

Sales channels differed by region. Dealer volume was concentrated almost entirely in the Southeast. Auctions were important only in the Southeast and East North Central.

Purchase channels differed little by regions or size of marketings. Farm corporations and agribusinesses were more reliant on dealers and less on auctions than were other organizations.

Contractual sales of feeder pigs were quite important as they were reported as 200,000 head or 39 percent of all sales. Contractual sales were even more important than reported as only 49 percent of the 200,000 head of feeder pigs sold by farrowing organizations were reported as contractual sales. Twenty of the 36 farrowing organizations either reported zero sold by contract or gave no answer; their confusion was apparently as to whether prearranged deliveries to owners were "contract sales." Thus, total contractual sales were closer to 55 or 60 rather than 39 percent. Contractual sales were reported by 42 operations, including 29 which reported all feeder pigs sold by contract. Contractual sales were highest in the West North Central—the locale of many feeder pig farrowing organizations—and the West.

Contractual purchases were less important than contractual sales. Approximately 98,000 feeder pigs were purchased by contract, involving 24 operations—eight of which purchased all their pigs by contract.

Table 21. Channels of Feeder Pig Movement

Channel	Channel Distribution by Volume of Pigs	
	Purchases	Sales
Producer to producer	30.3%	82.7%
Auctions	43.8	9.3
Dealers	25.0	8.0
Others	0.9	----
	100.0	100.0

Note: Data from 126 sellers and 143 purchasers of feeder pigs covering sales of 514,000 and purchases of 1,418,000 head.

PRODUCTION PRACTICES

Feed Grain Grown. The traditional ties between feed grain and hog production on the same farm have gradually loosened in recent years, although the practice is still common on the typical farm. These operations were not typical in that regard. Feed grains were usually a cash expenditure for these large volume operations. Only 10 percent raised all their feed grains, 51 percent raised none of it, and 22 percent raised half or more but not all of it (Table 22).

The larger the marketings the smaller the portion of feed grains which were grown. Farrowing organizations rarely produced any feed grains while individuals and family corporations produced the most feed grains relative to use.

Operations in the East North Central Region produced the most feed grains and those in the West the least (Table 22).

Table 22. Operations Producing Feed Grains

Percentage of Feed Grain Needs for Hogs Grown on Operation		US	WNC	ENC	SE	SC	W
0%		51.4%	50.3%	26.2%	54.2%	65.4%	87.5%
1-49		17.1	17.1	16.3	26.5	13.3	4.7
50-99		21.5	25.5	35.5	12.0	16.0	4.7
100		<u>10.0</u>	<u>6.5</u>	<u>22.0</u>	<u>6.8</u>	<u>5.3</u>	<u>3.1</u>
		100.0	100.0	100.0	100.0	100.0	100.0

Type of Facilities. More than one type of facility was frequently reported by a given operation; some 472 responses were received from 282 operations in the mail survey. A small majority (57.2 percent) involved some type of total confinement (Table 23). Although the question was addressed to facilities for slaughter hogs, the answers sometimes included other facilities.

The largest operations (15,000+) had higher frequencies of total confinement with natural ventilation, and also dirt lots, than smaller units in the group. The East North Central Region had much higher frequencies of total confinement with environmental control than other regions. Dirt lots were much more frequent in the Southeast and West than in the other regions.

Type of Waste Handling. Liquid manure handling with partial slats was the most frequently reported type of waste handling (Table 24). There were some regional differences (Table 24).

Type of Slatted Floors. Concrete slats led by a big margin. Of the 237 operations specifying type of slats: 205 units (86 percent) reported having concrete; 46 units (19 percent) had wood; 12 units (5 percent) had plastic or fiberglass; 49 units (21 percent) had steel; and 52 units (22 percent) had aluminum. Obviously, numerous units were using more than one type of slat.

Concrete slats led by far in every region except the West where aluminum was used slightly more frequently. Wood slats were used more by the largest marketing size group while steel slats were used less.

Worst Farrowing House Problems. E. Coli scours was clearly the most prevalent problem (Table 25). Baby pig starvation and MMA in sows were the next most troublesome problems.

There were no pronounced regional differences in farrowing house problems. There were some associations with size of operation. E. Coli and crushing baby pigs were less of a problem in the larger size operation. Stillborn pigs seemed more of a problem with the 7,000 to 14,999 group than with either the smaller or larger operators (Table 25).

Management Practices On Arrival of Purchased Feeder Pigs. Almost all operations wormed, a majority sprayed for lice and mange and vaccinated for erysipelas (Table 26). Vaccination for erysipelas was most frequently practiced in the West and least frequently practiced in the Southeast.

Contract with Veterinarians. Only 45 operations (14.4 percent of those answering) said that they had a contractual relation with a veterinarian. Such arrangements seemed less prevalent among smaller operations and in the South.

Employment. The question was: "How many people are employed in the operation of the hog farm (including yourself)?" Since some operations were multiple enterprise, while others were farrowing or feeding out, the employment figures were quite variable. The range reported per operation was one to 26 full-time employees and zero to 21 part-time employees with averages of 4.4 full-time and 1.1 part-time. If two part-time workers are arbitrarily defined as one full-time equivalent (FTE), and compared to marketings, it appears roughly 2,000 hogs were marketed per FTE.

Table 23. Facilities Utilized

Type of Facilities	Utilization	
	No. Operations	% of 282 Units Reporting Any Kind of Facility
Total confinement, environmental control	135	48%
Total confinement, natural ventilation	95	34
Total confinement, env. control, winter; nat. ventilation, summer	40	14
Open front, concrete floor	113	40
Dirt lots, some shelter	82	29
Other	<u>7</u> 472	<u>2</u> 167*

*Percentages total more than 100 because many units reported use of two or more types. Data includes answers from 282 operations in the mail survey.

Table 24. Waste Handling Methods

<u>Waste Handling</u>	<u>Percentage of Operations Reported Utilizing</u>					
	<u>Regions</u>					
	<u>U.S.</u>	<u>WNC</u>	<u>ENC</u>	<u>SE</u>	<u>SC</u>	<u>W</u>
Solid waste	29%	44%	32%	24%	7%	17%
Liquid, total slats	41	29	58	45	30	38
Liquid, partial slats	56	61	43	49	72	68
Other	7	6	1	12	9	8

Notes There were 275 operations answering this question. For example, there were 80 or 29% of these 275 operations which utilized a solid waste handling method in part or all of their operations. Data is from mail survey.

Table 25. Worst Problems in Farrowing House

<u>Problem</u>	<u>Percentage of those Responding Who Rated the Problem as One of Their Two Worst</u>			
	<u>Size Group</u>			
	<u>U.S.</u>	<u><7,000</u>	<u>7,000-14,999</u>	<u>15,000+</u>
E. Coli scours	55.7%	60.8%	52.8%	50.0%
MMAiin sows	24.0	23.7	24.4	23.1
Stillborn pigs	13.0	6.2	19.5	7.7
Baby pig starvation	27.2	26.8	27.6	26.9
Ventilation problem	10.2	13.4	7.3	11.5
Waste disposal	6.9	7.2	7.3	3.8
Crushing baby pigs	19.9	13.4	22.8	30.8
Other	6.9	7.2	8.1	-----

Table 26. Management Practices With Purchased Feeder Pigs

<u>Practice</u>	<u>Number Utilizing the Practice</u>	<u>Percentage of Those Responding Who Utilized the Practice</u>
Worm	79	96.3%
Spray for lice, mange	60	73.2
Vaccinate for erysipelas	46	56.1
Medication	20	24.4
Clip tails	6	7.3
Other	1	1.2

Note: Number responding to question was 82.

COMPARISONS WITH PREVIOUS SURVEY

The two surveys differed in obvious ways: this one covered more operations and obtained data on production practices and other items not covered previously, while omitting coverage of some items included previously. Nevertheless, one would expect that answers to many similar questions would be reasonably similar.

Operations and Size. The two surveys contrast sharply in number of operations and total marketings. This survey reports 507 operations marketing 4.1 million hogs in 1973 compared to 141 marketing 1.5 million in 1973 in the previous survey (PS). Average size of operation in 1973 was 8,031 compared to 10,596 (PS). It is clear this survey found a higher proportion of relatively small operations (less than 7,000 head) and also for 1973 a smaller fraction of marketings by those marketing over 15,000 head (29.3 percent compared to 43.8 percent PS). These differences affect several relationships discussed below.

Type of Organizations. There were small differences between the two surveys. Corporate organizations were proportionately less numerous in this survey (40 percent vs. 47 percent) as were proprietorships (33 percent vs. 35 percent), while partnerships were more numerous (22 percent vs. 16 percent). Cooperatives showed up more frequently this time.

Location. Operations were found in 35 states compared to the 14 states in which the (PS) was confined. This widening of the survey area plus the finding of relatively more operations in the North sharply reduced the dominance of the South (PS).

Farrowings. Again, there are differences. They reflect mainly the larger proportion of smaller operations and the rising number of farrowing organizations. Farrowings were almost 70 percent of marketings compared to 48 percent (PS). However, the percentages doing no farrowings were fairly close (20 vs. 23 PS). There was again evidence that the largest operations (15,000+) farrow a much smaller percentage of marketings than smaller operations. However, the maximum size was 35,000 head farrowed rather than 25,000 (PS).

Marketing of Feeder Pigs and Breeding Stock. Sales of feeder pigs and breeding stock were estimated as 12.0 percent and 3.2 percent, respectively, of total marketings in this survey, compared to a combined total of 9 percent (PS). While some of the difference may be attributed to a more direct inquiry this time, much may be a result of the differing size distribution already commented on.

Age Distribution and Growth. Age distribution was similar except for a more even annual rate of entry after 1964 in this survey.

The general conclusions about growth remain the same. That is: (1) most operations have grown since their inception; (2) a small majority grow in any given year; (3) operations grow relatively faster in their first years than later. While there was some variation between the surveys in the detailed computations of rates of growth, there was one impressive similarity. The 1965-74 growth in marketings of these firms reporting for both years was 176 percent compared to 171 percent for the 1964-73 growth (PS).

Perceived Disadvantages of Size. This question presumably relates somewhat to the previous survey questions on factors inhibiting possible expansion. The perceived disadvantages focus more on problems of disease and the high demands on management.

Marketing Channels and Pricing. Only slight differences were found in channel usage. There was, however, only 3.8 percent of the slaughter hog volume reported as contractual sales for 1974 compared to an indirect estimate of 14.3 percent for 1973 (PS). Since contract sellers in 1973 frequently lost some opportunity profits in a rising market, it is possible contracting declined in 1974.

Hedging of hogs in the futures market in 1974 was reported to be relatively small—21 percent of the operations hedged about 7 percent of total marketings. These figures may clarify the previous survey results showing 49 percent of the operations hedged hogs or grain.

Feed Grain Production. Results are very similar.

Comparative Summary. These comparisons suggest the two surveys in successive years were samples of much the same population with the obvious differences as to relative proportions of small and large units and the larger geographic coverage, which have been discussed.

IMPLICATIONS OF MUCH LARGE-SCALE PRODUCTION

What are the possible implications to the hog industry and to related institutions if a majority of hogs, rather than the present 6 percent or so, were produced by these large volume operations? The following ideas are speculative:

- (1) The seasonal production and price pattern would be modified.
- (2) Response to economic stimuli may be different. While the large fixed capital may restrain output adjustments, specialized producers are likely to make more sophisticated responses more quickly.
- (3) Several possible changes in marketing and pricing patterns:
 - (a) Reduced importance of terminals, auctions and local markets, as most sales would likely be direct to packing plant;
 - (b) Increased proportion of pricing on basis of carcass grade and weight;
 - (c) Objective price reporting will likely be more difficult.
- (4) Feed companies: a shift in demand for feed to premixes rather than complete feeds.
- (5) Financing:
 - (a) Large, specialized units probably have greater fluctuations in cash flow and income when sharp changes in hog and feed prices than traditional units;
 - (b) Credit needs may frequently exceed those presently available, locally.
- (6) Breeding stock: the large orders for initial stocking and continued operation of these large units may benefit the large sellers of breeding stock.
- (7) Farm organizations: large hog producers would likely look increasingly to a commodity organization rather than a general farm organization.
- (8) Education and Consulting: these producers are more likely to look to private consultants, state extension specialists, researchers, and to each other for information than depend on local extension, veterinarians, feed dealers, etc.

If most of these projected effects are correct, then such a structural change in hog production would have considerable impact on the hog industry, associated agribusiness, and public institutions.

SUMMARY

This survey, taken in the spring of 1975, included 550 operations meeting a minimum size of 5,000 head marketed in one or more of the years 1973-75, where 1975 figures are planned marketings. These operations marketed 4,105,000 slaughter hogs, 585,000 feeder pigs and 153,000 head sold as breeding stock in 1974. They planned to increase total marketings by one-half million head in 1975. The 4.1 million slaughter hogs in 1974 were 5.1 percent of U.S. slaughter.

Large volume operations were found in 35 states but a majority were located in North Carolina, Illinois, Kansas, Iowa, Nebraska, Indiana, and Texas. While the West North Central Region led in percentage of operations with 27.6 percent, the Southeast Region led in percentage of marketings with 28.6 percent.

Corporations were the most common type of organization. Agribusiness companies with their primary business outside farming constituted 11.5 percent of the operations. There were 36 feeder pig farrowing corporations and cooperatives.

Farrowings were 70 percent of marketings. About 20 percent of the operations did no farrowing. These large-volume operations purchased almost 1.5 million feeder pigs.

The "product mix" varies by regions. Operations in the two North Central Regions marketed 43 percent of the slaughter hogs, 56 percent of the feeder pigs, and 68 percent of the breeding stock sold by these large volume operations.

These large volume operations have been growing vigorously in average size. For example, the total marketings of the 255 operations supplying marketing data for 1965 and 1974 had grown from 894,000 in 1965 to 2,471,000 head in 1974. A small majority of operations appears to grow in any given year, but over a longer period more than 90 percent of these operations grew in size. Further growth was projected by the group in the spring of 1975 when total U.S. hog production was being cut back sharply.

These operators reported that the chief advantages of large size were efficiency in the use of specialized capital, labor and management, and also market price advantages in buying and selling. They saw their disadvantages to be disease, high risk, capital requirements, and the continual, unending need for alert, high-level management.

The large volume operators differed from the typical ones in marketing most of their slaughter hogs direct to the packing plant, although there were considerable variations among regions. While they used carcass pricing to a much greater extent than the typical operator, they still sold 80 percent on a live weight basis. About 7 percent of their hogs in 1974 were hedged on the futures market.

These large volume operations bought almost three times as many feeder pigs as they sold. This ratio is much greater if one excludes from "sales" the placements of feeder pig farrowing organizations. Procurement channels differed sharply from marketing channels. Most pigs were procured through auctions or dealers while most were marketed direct to other farmers. Direct placement of almost 200,000 head by feeder pig farrowing organizations was a big part of that volume that was marketed direct. Contracting was used more frequently in selling feeder pigs than in buying them.

Operations often have more than one type of production facility. A small majority of the facilities were total confinement although one-fourth of the operations still used some dirt lots. Slats and liquid manure was the prevalent method of waste handling. Various types of slats were in use, but concrete was used most frequently.

E. Coli scours was the most prevalent farrowing house problem.

This survey included many more large producers than a survey reported in 1974. Producers were found in 35 states rather than in the 14 in which the previous survey was confined. The proportion of producers outside the South was larger in this survey. The relative importance of operations exceeding 15,000 head was less in this survey which affected several other results such as the percentage farrowed. Otherwise, the results of the two surveys were reasonably consistent.

These large-volume producers behave enough differently from smaller, traditional producers that their possible growth to be a dominant part of production would have considerable implications for feed suppliers, breeders, financing agencies, market agencies, farm organizations, and educators.

APPENDIX

Hog Farm Management Survey

1. Your operation is an: (check one)
- Individually owned operation
 - Partnership (family or otherwise)
 - Feeder pig cooperative or corporation
 - Family corporation
 - Part of agribusiness company
 - Other, please specify: _____

a. If operation is a CORPORATION, is it a Subchapter S corporation?

Yes No

b. If operation is part of an AGRIBUSINESS COMPANY, what is the primary business of the company? (feed company, packer, etc.)

2. How many hogs and pigs were marketed by this operation in 1973 and 1974; and how many do you plan to market in 1975?

	<u>Market Hogs</u>	<u>Feeder Pigs</u>	<u>Breeding Stock</u>
1973:	_____	_____	_____
1974:	_____	_____	_____
Plans for 1975:	_____	_____	_____

a. How many of those hogs and pigs marketed in 1974 were farrowed on this operation?

b. How many hogs and pigs were marketed from this operation in 1974 with you acting as a dealer or trader?

3. How many hogs did you market from this operation in 1965?

What year did this operation begin selling hogs? (If it goes back more than a generation, please indicate so.) _____

4. What is your current INVENTORY of:

Breeding Stock: _____ Market Hogs: _____

5. Of the feed grain fed to your hogs, what percent is grown on your operation?

_____ %

SLAUGHTER HOG INFORMATION (Skip to next section if you do not sell market hogs)

1. What percent of 1974 slaughter hogs moved to market by the following methods:

Direct to packing plant: _____ %
To local hog buyer; buying station _____ %
To terminal market: _____ %
Other, please specify: _____ %
_____ %

2. Of your 1974 slaughter marketings, what percent were priced:

Live weight at the time of sale: _____ %
Live weight by previous contract: _____ %
Carcass weight at the time of sale: _____ %
Carcass weight by previous contract: _____ %
Other, please specify: _____ %
_____ %

3. What percent of your market hogs were hedged in 1974 directly on the futures market? (Do not include arrangements with packers.)

_____ %

4. What type of facilities are used by this operation for market hogs?

_____ Total confinement, environmental control
_____ Total confinement, natural ventilation
_____ Total confinement, environmental control in winter, natural in summer
_____ Open front, concrete floor
_____ Dirt lots, some shelter
_____ Other, please specify: _____

5. What type of waste handling is employed?

_____ Solid waste, mostly hand labor
_____ Liquid manure, total slatted floors
_____ Liquid manure, partial slats
_____ Other, please specify:

6. If using slatted floors, what type of slats are employed?

_____ Concrete
_____ Wood
_____ Plastic or Fiberglass
_____ Steel
_____ Aluminum
_____ Other, please specify: _____

FEEDER PIG PURCHASES (Skip to next section if you did not purchase feeder pigs in 1974)

1. What percent of the feeder pigs purchased in 1974 were purchased from:

Feeder pig dealers? _____ %
Auction market? _____ %
Direct from producers? _____ %
Other, please specify: _____ %
_____ %
100%

a. What percent of feeder pigs purchased were bought on contract?

_____ %

2. What management practices are routinely followed when pigs arrive at your operation?

Vaccinated for erysipelas _____
Wormed _____
Sprayed for lice, mange _____
Other, specify (vaccination, etc.): _____

FEEDER PIG SALES (Skip to next section if you did not sell feeder pig in 1974)

1. In 1974, what percent of your feeder pigs were sold at:

Feeder pig auction? _____ %
Feeder pig dealers? _____ %
Direct to feeders? _____ %

a. What percent of pigs were sold on contractual arrangement?

_____ %

GENERAL

1. How many people are employed in the operation of this hog farm (including yourself)?

Full time: _____ Part time: _____

2. Do you have a contractual arrangement with a veterinarian?

Yes _____

No _____

3. What do you consider your worst farrowing house problems? (Check two)

_____ E. Coli scours

_____ Ventilation problems

_____ MMA in sows

_____ Waste disposal

_____ Stillborn pigs

_____ Crushing baby pigs

_____ Baby pig starvation

_____ Other, please specify:

4. What are the major advantages to a large operation of this type?

5. What are major disadvantages? _____
