

**Swine Production and Marketing
Trends and Patterns
(33 Counties in Ohio)**

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Swine Production and Marketing Trends and Patterns (33 Counties in Ohio)

THOMAS S. SCHLENKER and E. DEAN BALDWIN¹

INTRODUCTION

The production and marketing of hogs is in a transitional state. The number of swine production units is decreasing, but each unit is more specialized and is increasing in size. Local and direct marketing are being substituted for centralized marketing. Packers are moving from centralized markets to production centers. Livestock and processed meats move by truck rather than by rail. Meat products became more storable with the introduction of freezers. Individual farmers and farm organizations are performing some of the marketing functions previously performed by centralized and local markets. Hedging became an option, and in conjunction with this change, marketing agencies and processors began offering forward contracts.

During the 1940's and 1950's, elaborate regional research efforts were undertaken to understand and explain forthcoming changes (1, 11). Although these efforts represent high quality work, there are two shortcomings of these studies. First, by the standards considered normal in 1978, little change was yet evident in the 1950's. Secondly, no subsequent study on so comprehensive a scale recorded the changes which have occurred during the past 20 years.

In the past decade, several studies reported impending changes and current production and marketing trends for individual states or areas within states (4, 7, 9, 12). Revealing as these and other reports are, they have limited value for Ohio's swine producers and marketing agencies. Differences in the structure of markets, production densities, and processor procurement policies may result in unique marketing options for many Ohio swine producers.

OBJECTIVES

Since swine marketing changes in Ohio have not been reported in the last decade, the objectives of this study are to:

- Describe present Ohio production trends.
- Examine the relationships between price changes and production and marketing trends.
- Describe the marketing channels and strategies available to producers and report the ad-

vantages and disadvantages of cash marketings, hedging, and forward contracting strategies.

The data analyzed in this report should help swine production and marketing personnel to better understand the changing production and marketing environment in Ohio.

METHODOLOGY

To analyze present Ohio production trends, secondary data from the Statistical Reporting Service (SRS) and the Bureau of Census were reviewed. Marketing data were collected from a population of swine producers located in a 33-county area in Ohio (Figure 1). Since this area sold 75.5% of all slaughter hogs sold in Ohio in 1974 (14, p. 29), the marketing trends of this area should be representative of the marketing habits and trends of most Ohio swine producers.

All farms in the survey area which annually sold more than 150 head of hogs were sent questionnaires in 1975. Approximately one-third of those producing less than 150 head were also included in this survey. The data from the latter group were expanded to be consistent with the data from the larger production units.

All production and marketing data were developed from 315 questionnaires, which comprised 15% of all questionnaires mailed to farmers living in the 33-county area. Although the questionnaires were

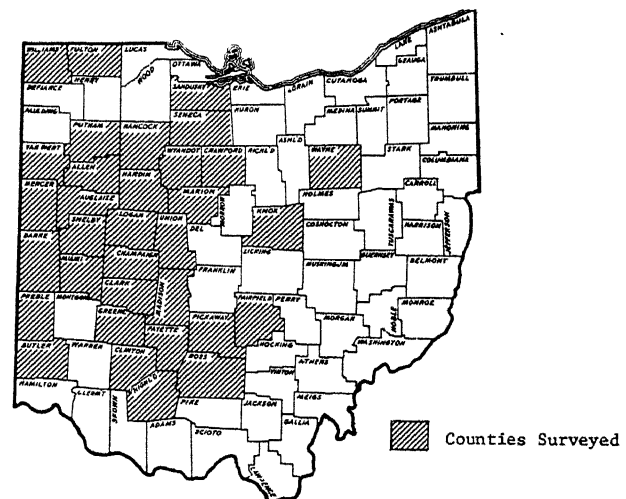


FIG. 1.—Ohio counties in which hog producers were surveyed.

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not a random sample, the data from this survey are compatible with similar data published by the federal government and a private organization (5, 15, 17, 18). The number of reported responses varies from the number of questionnaires due to non-responses and the expansion factor. Expansion of the sample to the total population results in the number of producers reported in each table to be greater than the number of usable questionnaires.

SWINE PRODUCTION

Although the population of producers was difficult to identify and randomly sample, the aggregated production data were analogous to data assembled by the Statistical Reporting Service (SRS) and the Census Bureau (15, 17, 18). The SRS report indicated that 91% of the swine producers (those with less than 1,000 head) marketed 62% of the hogs, while 9% (those with more than 1,000 head) marketed 38% of the hogs. Comparatively, the 33-county survey illustrated that 91% of the producers sold 62.2% of the hogs in 1975 and the largest 9% sold 37.8% of

the total (Table 1). The survey data for calendar year 1970 were also consistent with the production data published in the 1969 Agricultural Census.

PRODUCTION AND CONCENTRATION RATIOS

Secondary statistics accurately reflect changes in the distribution of producers through time. In 1964, the Agricultural Census reported that 40,109 Ohio farms were producing pigs; 81% produced 99 head or fewer, 18% produced 100-499 head, 0.9% produced 500-999 head, and 0.1% produced 1,000 or more head. The 1969 Agricultural Census identified 28,912 swine producers; 68% produced 0-99 head, 29% produced 100-499 head, 2% produced 500-999 head, and less than 1% produced 1,000 or more head (17).

By 1974, the number of producers declined to 19,741 (18). The 1975 statistics from the 33-county survey indicated that 41% of the producers sold 1-155 head, 28% sold 151-450 head, 24% sold 451-1,050 head, and 7% sold 1,051 or more head (Table 2). The trend toward more larger producers and

TABLE 1.—Numbers of Pigs Farrowed, Purchased, and Marketed by Size Classification, 1975.

No. of Hogs Marketed	No. of Producers	Total Slaughter Hogs Marketed	%	No. of Pigs Farrowed	%	No. of Pigs Purchased	%
1-150	165	15,240	9.1	16,332	11.5	1,440	4.1
151-300	67	16,152	9.5	15,472	10.9	2,777	8.1
301-450	46	17,025	10.1	14,430	10.1	2,790	8.2
451-600	47	25,785	15.2	22,745	16.0	2,655	7.8
601-750	24	16,669	9.8	14,249	10.0	2,545	7.5
751-900	17	14,075	8.3	10,060	7.1	3,290	10.0
901-1,050	9	9,280	5.5	5,680	4.0	3,275	9.6
1,051-1,500	16	22,037	13.1	17,947	12.6	5,150	15.1
More than 1,500	12	32,970	19.4	25,325	17.8	10,115	29.6
Total	403	169,503	100.0	142,240	100.0	34,037	100.0

SOURCE: Appendix Table 1 and 1975 Ohio Swine Producer Survey.

TABLE 2.—Numbers of Pigs Farrowed, Purchased, and Marketed by Size Classification, 1970.

No. of Hogs Marketed	No. of Producers	Total Slaughter Hogs Marketed	%	No. of Pigs Farrowed	%	No. of Pigs Purchased	%
1-150	129	13,605	10.5	14,205	13.6	1,155	4.3
151-300	67	14,551	11.4	12,590	11.8	2,952	10.8
301-450	44	15,173	11.9	12,253	11.5	1,625	5.9
451-600	45	19,928	15.6	18,795	17.6	3,263	11.9
601-750	20	12,170	9.5	11,028	10.3	1,500	5.5
751-900	15	11,359	8.9	9,131	8.6	1,350	4.9
901-1,050	10	8,390	6.6	4,790	4.5	3,000	10.9
1,051-1,500	13	14,555	11.4	13,486	12.5	6,207	22.7
More than 1,500	11	17,950	14.2	10,380	9.6	6,315	23.1
Total	354	127,681	100.0	106,658	100.0	27,367	100.0

SOURCE: Appendix Table 1 and 1975 Ohio Swine Producer Survey.

fewer total producers appears to be continuing.

The concentration of hogs on farms is increasing. In 1964, 9% of the producers sold 20% of the hogs (17). By 1969, 9% of the producers sold 32% of the hogs (17). The 33-county survey indicated that 9% of the producers produced 32% of the hogs in 1970 and 38% in 1975 (Tables 1 and 2).

Further size classification indicates the pronounced concentration of hogs on farms. Producers

who sold 1-600 head marketed 49.7% of the total in 1970 and 43.9% in 1975; those producers who sold 601-1,200 head marketed 28.9% and 27.8% in the respective years. Producers with more than 1,200 head of hogs sold 21.4% in 1970 and 27.8% in 1975 (Figure 2 and Tables 1 and 2). Statistics from the survey also indicated that the number of hogs marketed per farm is also increasing. In 1970, 360 head were marketed, while in 1975 420 head were mar-

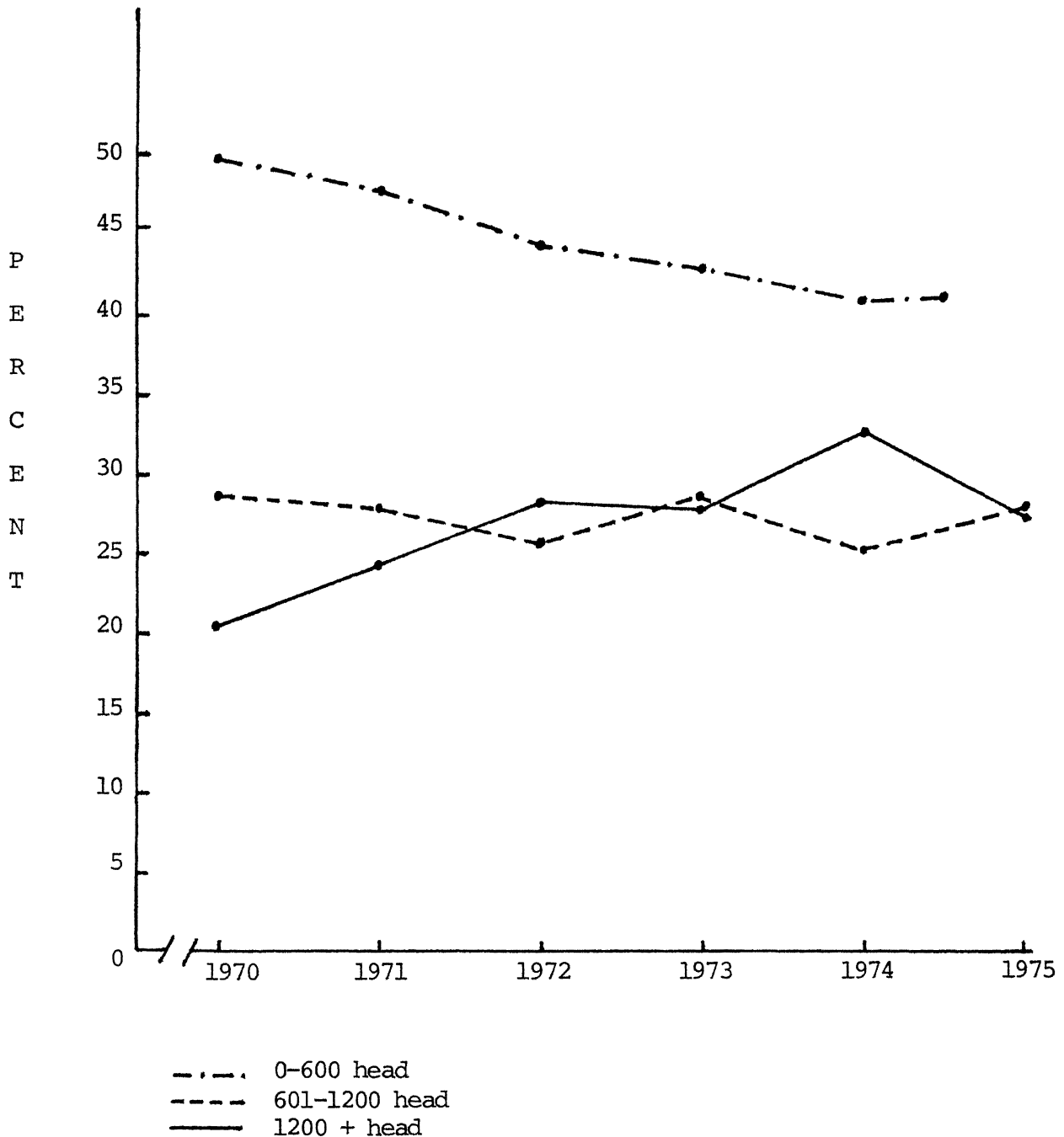


FIG. 2.—Percentage of total hogs marketed by different size producers, 1970-1975.

SOURCE: Appendix Table I.

keted per farm. This indicates an increase of 17% per farm (Tables 1 and 2).

The above trends in the concentration of hogs on farms are also recorded in other publications (15, 17, 18). Unquestionably, the number of swine producers in Ohio is declining. Swine farms are becoming larger and the number of slaughter hogs sold per farm is increasing.

SWINE ENTERPRISE: FARROW TO FINISH AND FEEDING PROGRAMS

Slaughter hog producers may operate either a farrow to finish enterprise, a combination of farrowing and purchasing feeder pigs, and/or a feedlot operation. Between 1970 and 1975, producers purchased 16 to 20% of all slaughter hogs and farrowed the remaining 80 to 84% (Tables 1 and 2). The method of procuring feeder pigs (farrowed vs. purchased) varies annually and by size classification of producers.

In 1970 and 1975, smaller producers (1-600 head) purchased 14 and 13% of the feeder pigs respectively and farrowed the remaining 86 and 87% (Tables 1 and 2). Medium-sized producers (601-1,200 head) purchased 17% in 1970 and 22% in 1975. The large producers (1,201 or more head) purchased 45% in 1970 and 45% in 1975.

Although the trends are mixed, larger producers buy more feeder pigs than smaller producers. The pattern suggests that as producers expand in size, specialization occurs in the feedlot operation rather than in the farrow to finish operation. If this hypothesis is correct, the potential for competitive feeder pig markets may be developing. An alternative may be the establishment of feeder pig cooperatives which provide a continuous supply of pigs to the finishing operations. Numbers of specialized feeder pig firms are increasing in the Midwest; 50 to 75 firms are reportedly operating in Nebraska and equal numbers in Iowa. Representatives from South Dakota estimate that 10-12 firms are in operation, while estimates for Illinois range from 7-10 firms. A small number of these firms (3-5) are currently operating in Ohio (2, p. 1).

The introduction of feeder pig firms in Ohio may be a result of the expansion in the size of the slaughter hog firms. As feeder pig firms increase in size and have time to mature, the slaughter hog producer may attempt to integrate backward into the farrowing operation. This would provide a continuous supply of uniform feeder pigs. Yet the management of this segment of the industry would be under the control of a specialized manager. The above hypothesis is

supported by the following data. Although the large producers (1,051 or more head per farm) purchased approximately 45% of all pigs procured in 1970 and 1975 (Tables 1 and 2), the percentage of pigs purchased by this group relative to their total marketings declined during this same 6-year period. In other words, the percentage of pigs farrowed relative to those marketed increased. Of all marketings in 1970, producers purchased 38.5% and farrowed 61.5% (Table 2). By 1975, they purchased 27.5% and farrowed 72.5% of the total marketings (Table 1) for a decline of 11% in purchases.

MARKETING: SLAUGHTER HOGS

Swine producers adjust production to changes in the price cycle. From 1970 to 1974, the number of slaughter hog marketings increased at a decreasing rate (Figure 3). Between 1974 and 1975, the reported number of marketings declined. These changes in production corresponding to changes in price are consistent with the national hog cycles and suggest that farmers in Ohio adjust output to changes in expected prices (Figures 3 and 4).

Large producers as well as small producers readily react to price change. Producers in all production categories increased production from 1970 to 1973 as prices increased (Figures 3 and 4). Beginning in the fall of 1973 and continuing through 1975, heterogeneous groups of producers changed production differently in response to changes in price. The total number of slaughter hog marketings increased during 1973 and into 1974, but 80% of this increase appeared in the 1,500 head category. Seven different categories of producers decreased production during this same period (Appendix Table I). In 1975, the number of marketings decreased in turn with the decrease in price (Figure 4). Production declined for four categories of producers (Figure 3). Nearly 80% of the total reduction occurred in the 1,500 and more category.

SALES BY MARKETING CHANNELS

During the 1970-75 period, producers marketed hogs via daily markets, auctions, organizational pools, and direct sales to packers on a carcass or live-weight basis. Although many producers have the option to market hogs through different marketing channels, geographic dispersion and lack of marketing experience may limit the producers' marketing options. Thus, the statistics may reflect the availability of marketing facilities and habits rather than the marketing desires of the seller. In any event, these statistics do reflect a difference in the use of the marketing channels by various sized slaughter hog producers.

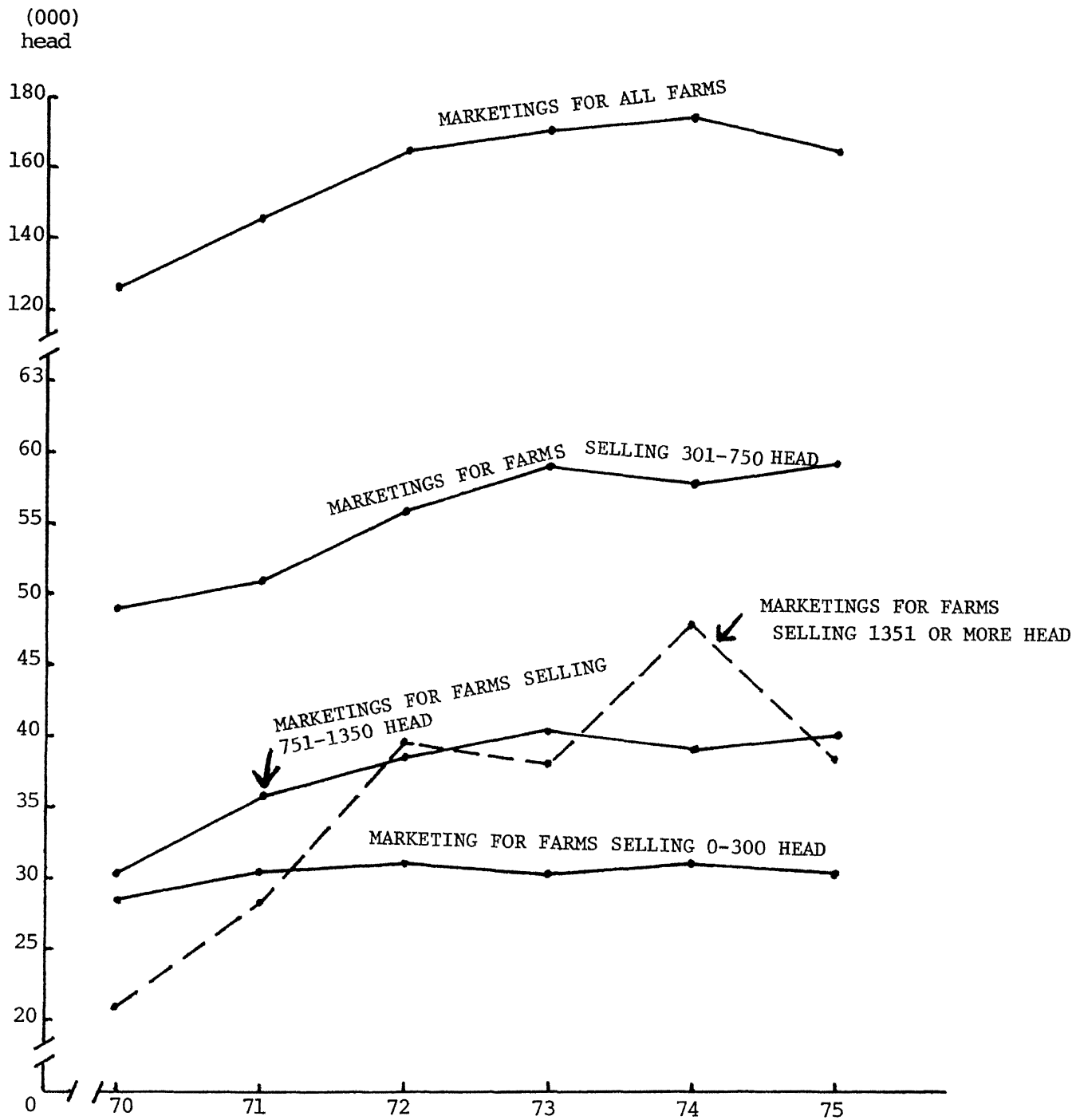


FIG. 3.—Annual marketings as reported by different size classifications of farms.
SOURCE: Appendix Table I.

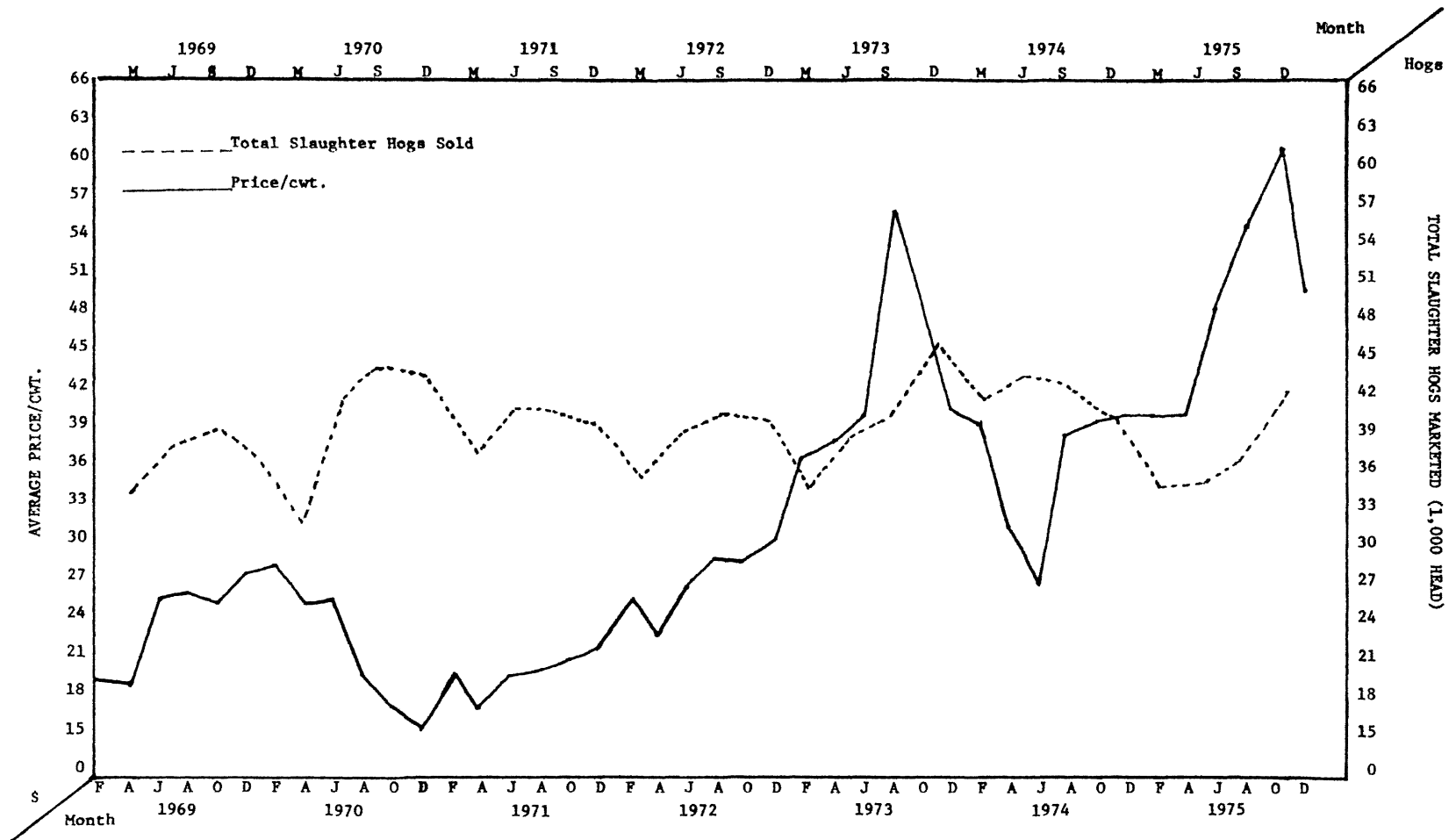


FIG. 4.—Price per cwt. received for slaughter hogs compared to total slaughter hogs marketed (1969-1975).

SOURCE: (14, p. 19).

Daily Markets

A daily market is owned and operated by an independent or a cooperative. The market, which operates daily, negotiates a price with a packer and takes title to the slaughter hogs.

The percentage of hogs marketed through the daily market peaked in 1971 at 73% of the total and steadily declined to 62% of the total in 1975 (Table 3 and Figure 5). This marketing channel was popular with smaller producers; 53% of all receipts origi-

nated from farms producing less than 600 head of hogs annually (Figure 6). Some 24% originated on farms with 601-1,250 head per farm, and 23% originated on farms with more than 1,251 head of hogs.

To date, this marketing channel has been popular for several reasons. A relatively small number of hogs were produced on many farms. Producers could market hogs on a daily basis. Hogs were adequately graded in daily markets, resulting in higher prices for the astute seller.

TABLE 3.—Distribution of Hog Marketings Through Daily Markets by Farms Located in 33 Ohio Counties.

No. of Hogs Produced*		Year					
		1970	1971	1972	1973	1974	1975
0-150	No. of Farms	111	114	120	120	111	111
	Av. No. Sold	77	96	93	93	105	97
151-300	No. of Farms	49	53	56	57	55	52
	Av. No. Sold	201	200	222	228	223	227
301-450	No. of Farms	38	37	37	36	36	36
	Av. No. Sold	332	345	340	353	349	321
451-600	No. of Farms	37	39	40	38	39	37
	Av. No. Sold	547	580	595	621	453	486
601-750	No. of Farms	17	17	19	20	20	21
	Av. No. Sold	535	553	594	662	669	669
751-900	No. of Farms	9	11	10	10	10	10
	Av. No. Sold	807	725	779	808	665	698
901-1,050	No. of Farms	6	6	6	6	6	6
	Av. No. Sold	840	832	880	898	815	797
1,051-1,200	No. of Farms	4	4	5	5	6	4
	Av. No. Sold	1,125	1,100	1,040	1,120	916	1,175
1,201-1,350	No. of Farms	5	6	6	6	6	6
	Av. No. Sold	1,139	1,119	1,106	1,196	1,214	1,132
1,351-1,500	No. of Farms	3	3	3	3	3	3
	Av. No. Sold	916	1,262	1,513	1,452	1,656	1,850
More than 1,500	No. of Farms	4	3	4	4	5	4
	Av. No. Sold	1,300	2,133	2,450	2,225	1,900	2,625

*The number of hogs marketed by size classification may exceed the limits of that size classification. The discrepancy occurs because producers were classified by averaging the number of marketings over a 6-year period. Secondly, producers may sell through more than one marketing channel.

SOURCE: 1975 Hog Survey.

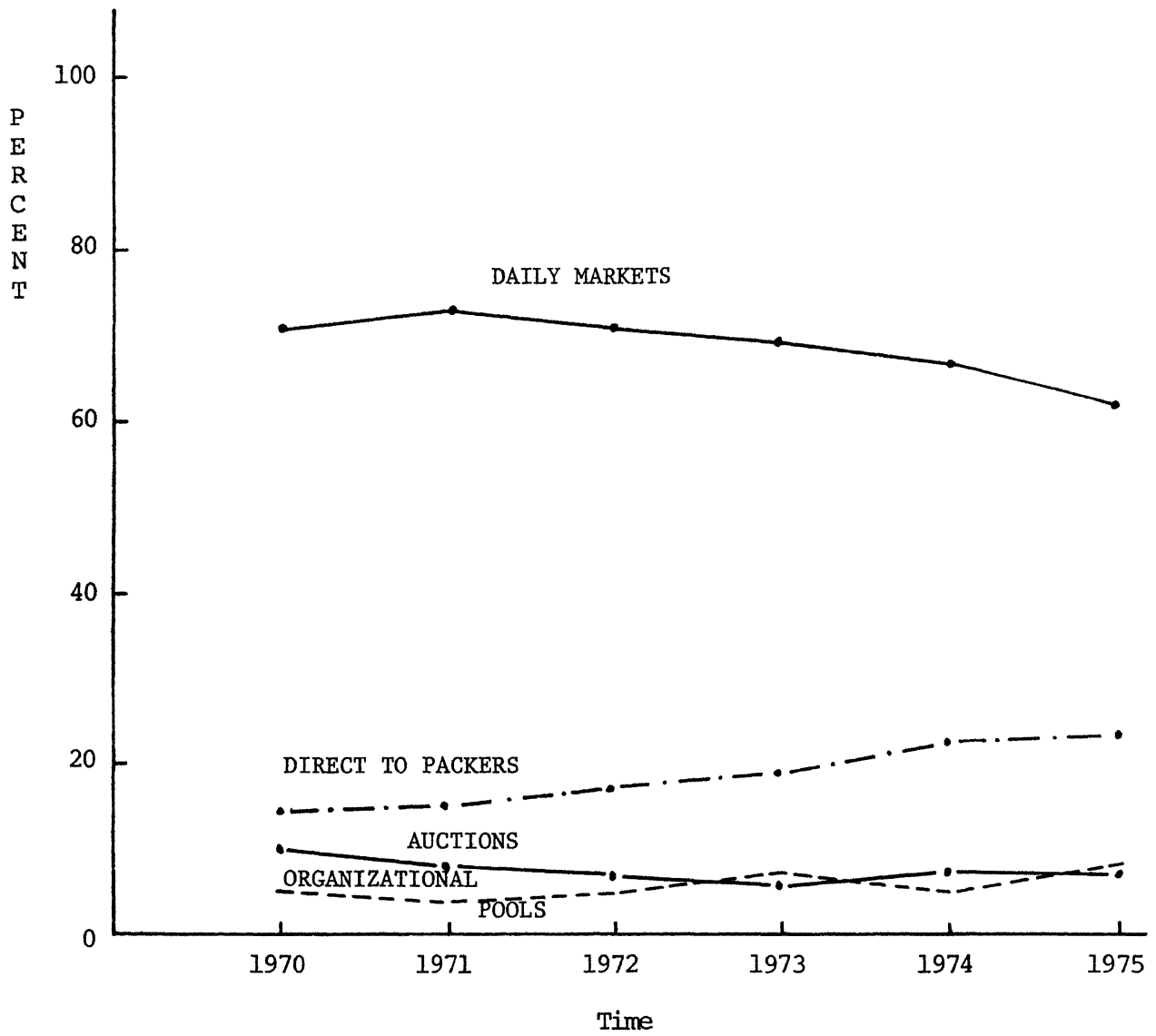


FIG. 5.—Percentage of total marketed via four marketing channels, 1970-1975.

SOURCE: Tables 3-6.

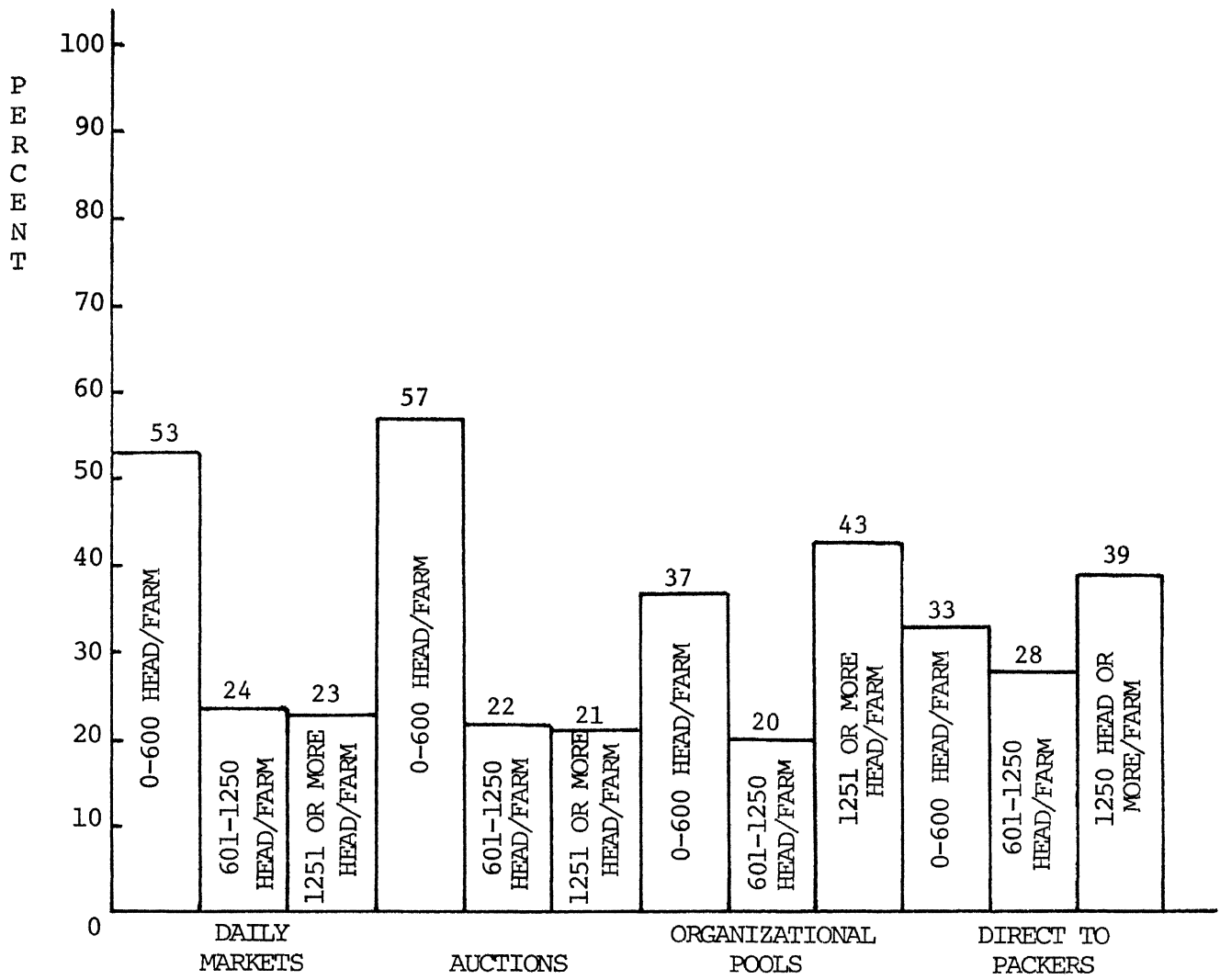


FIG. 6.—Percentage of marketings derived from different classifications of swine farms and by marketing channel, 1970-1976.

SOURCE: Tables 3-6.

Auctions

The number of hogs marketed annually through auctions varied from 1,500 to 12,400 during the 6-year study. These marketings represented 6.8% of the total for the 6-year period. Annual marketings as a percentage of the total declined between 1970 and 1975 (Table 4 and Figure 5). Approximately 57% of the marketings originated on farms producing 1-600 head (Figure 6). Approximately 22 and 21% of the marketings originated on other farms selling 600 to 1,250 head and 1,251 or more head.

All producers reportedly marketed small numbers of hogs via the auction. Between 1970 and 1975, producers marketing 1-600 head merchandised 8% of their total marketings through this channel (Figure 7). Producers with larger volumes of hogs, 600-1,250 and 1,251 or more, respectively, sold 6% and 5% of their marketed hogs via auctions (Figure 7). Producers discount this marketing channel be-

cause hogs are sold on an ungraded basis once a week. The decline in the numbers of buyers also decreases competition and lowers price.

Unless changes occur, the auction will not be a competitive marketing channel. Assuming continual growth in size of operation and concentration of hogs on farms, an auction for hogs may become totally obsolete. Similar trends appear to exist for the entire country as well (5, pp. 140-143). Changes which could improve the competitiveness of this marketing channel include: more frequent sales dates, better grading systems, and more competition among buyers. In the future, many of these problems may be alleviated by the introduction of telesales and/or electronic exchanges for slaughter hogs.²

²Slaughter hog teleauctions were introduced with limited success in Ohio, Virginia, and Illinois.

TABLE 4.—Distribution of Hog Marketings Through Auction by Farms Located in 33 Ohio Counties.

No. of Hogs Produced*		Year					
		1970	1971	1972	1973	1974	1975
0-150	No. of Farms	42	42	45	48	45	54
	Av. No. Sold	54	48	43	46	57	54
151-300	No. of Farms	16	22	19	18	17	16
	Av. No. Sold	104	79	92	78	92	105
301-450	No. of Farms	7	8	8	9	10	10
	Av. No. Sold	95	117	148	149	209	156
451-600	No. of Farms	12	12	12	12	10	14
	Av. No. Sold	131	126	94	85	49	79
601-750	No. of Farms	2	3	3	2	2	3
	Av. No. Sold	188	123	122	113	50	158
751-900	No. of Farms	0	1	1	1	1	1
	Av. No. Sold	0	150	150	150	150	150
901-1,050	No. of Farms	3	3	3	3	3	3
	Av. No. Sold	616	817	816	816	750	750
1,051-1,200	No. of Farms	3	2	2	1	1	1
	Av. No. Sold	1,000	750	600	1,200	1,500	1,500
1,201-1,350	No. of Farms	2	2	2	1	1	1
	Av. No. Sold	504	353	350	480	368	463
1,351-1,500	No. of Farms	0	0	0	0	0	0
	Av. No. Sold	0	0	0	0	0	0
More than 1,500	No. of Farms	0	0	0	0	0	0
	Av. No. Sold	0	0	80	0	0	0

*The number of hogs marketed by size classification may exceed the limits of that size classification. The discrepancy occurs because producers were classified by averaging the number of marketings over a 6-year period. Secondly, producers may sell through more than one marketing channel.

SOURCE: 1975 Hog Survey.

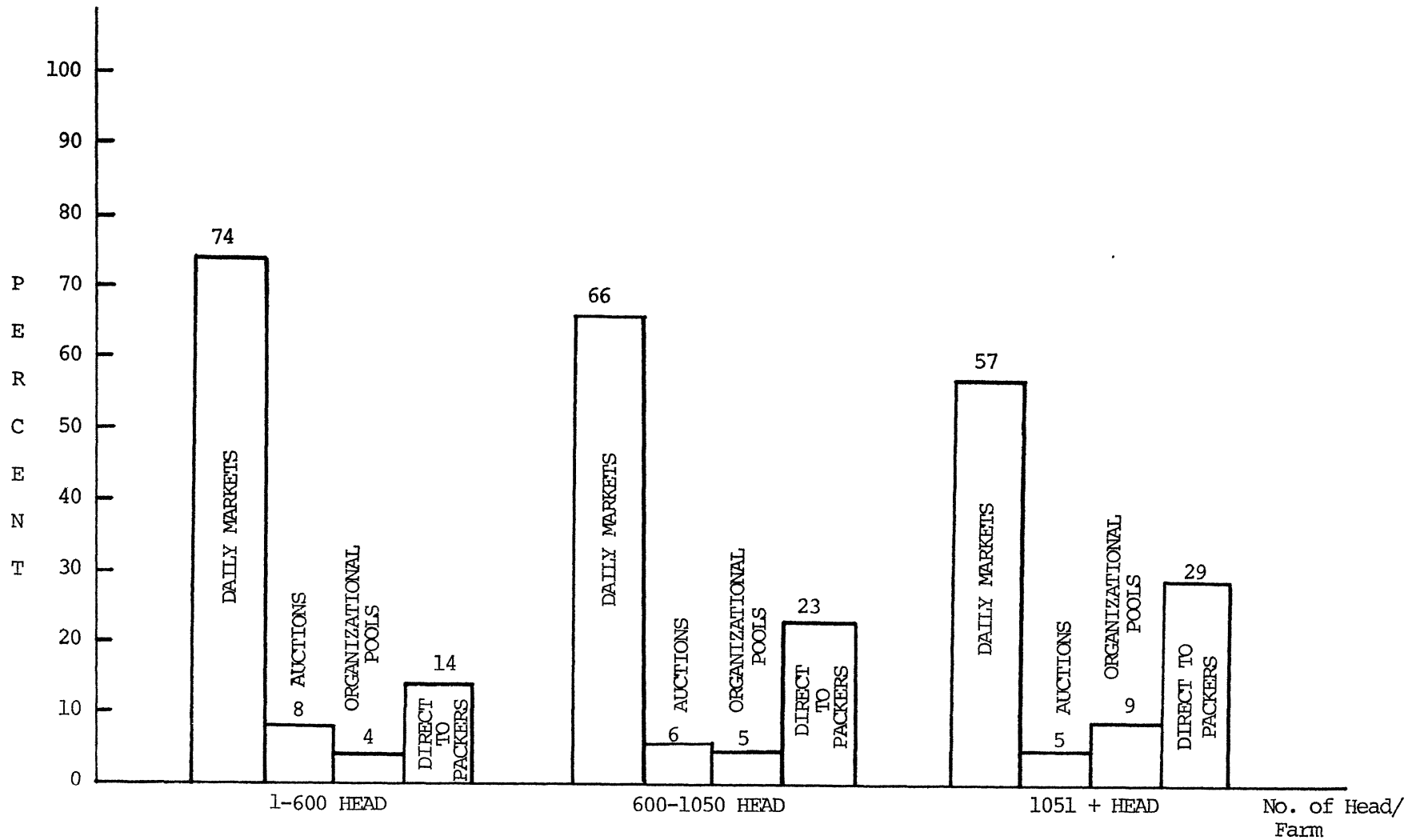


FIG. 7.—Percentages of Hog Marketings by Producers Who Produce 0-600 Head, 601-1,050 Head, and 1,051 or More Head via Four Marketing Channels, 1970-1975.

SOURCE: Tables 3-6.

better informed concerning the advantages and disadvantages. In any event, its popularity will be limited by competition from direct marketing methods and by the unwillingness of producers to sign selling contracts with agents. Many producers prefer to sell their own product and are unsure of the agent's competence.

Direct Sales to Packers

Some producers in most size classifications sold hogs directly to packers (Figure 6). Between 1970 and 1975, the number marketed to packers increased from 18,800 head (14% of the total) to 39,400 head (23% of the total) (Table 6 and Figure 5).

Live-weight sales were more popular with producers selling less than 900 head per year, while carcass weight merchandising was preferred by producers selling more than 900 head annually (Table 6). For producers who marketed 1,500 or more head annually, the number of hogs sold on a carcass basis increased; the number of hogs sold on a live-weight basis decreased.

During the 6-year period, more hogs were sold on a live-weight basis than on the carcass basis (Table

Organizational Pools

A marketing pool is defined as an organized group of sellers who collectively sell slaughter hogs via a selling agent.

The number of hogs marketed through pools more than doubled between 1970 and 1975, increasing from 6,100 head (5% of the total) to 14,000 head (8% of the total) (Table 5 and Figure 5). Both large and small producers were pooling slaughter hogs (Figure 6). By offering large numbers of hogs for sale at one time, sellers from small as well as large production units guarantee a uniform supply of hogs to prospective buyers. This direct marketing method may reduce buying and transportation costs and may increase competition.

The future for marketing pools is uncertain. Although they appear to be most popular with larger producers, these producers may gain many of the same advantages by selling directly to packers. If packing plants are not located in the production area, some pooling may occur to achieve large truckload lots for delivery to the packing plant. Smaller producers may pool more in the future as they become

TABLE 5.—Distribution of Hog Marketings Through Organization Pooling by Farms Located in 33 Ohio Counties.

No. of Hogs Produced*		Year					
		1970	1971	1972	1973	1974	1975
0-150	No. of Farms	3	3	3	3	3	3
	Av. No. Sold	120	120	150	150	160	165
151-300	No. of Farms	7	5	6	7	6	7
	Av. No. Sold	221	250	249	198	177	771
301-450	No. of Farms	1	1	1	2	2	2
	Av. No. Sold	330	330	330	415	365	475
451-600	No. of Farms	0	0	1	1	1	1
	Av. No. Sold	0	0	400	845	500	250
601-750	No. of Farms	2	2	2	2	2	1
	Av. No. Sold	550	400	500	200	50	2,032
751-900	No. of Farms	1	1	1	1	1	1
	Av. No. Sold	900	850	850	1,050	900	750
901-1,050	No. of Farms	0	0	0	0	0	0
	Av. No. Sold	0	0	0	0	0	0
1,051-1,200	No. of Farms	0	0	0	0	0	0
	Av. No. Sold	0	0	0	0	0	0
1,201-1,350	No. of Farms	0	0	0	0	0	0
	Av. No. Sold	0	0	0	0	0	0
1,351-1,500	No. of Farms	0	0	0	0	0	0
	Av. No. Sold	0	0	0	0	0	0
More than 1,500	No. of Farms	1	2	3	4	3	3
	Av. No. Sold	1,900	1,075	1,350	1,562	1,508	1,506

*The number of hogs marketed by size classification may exceed the limits of that size classification. The discrepancy occurs because producers were classified by averaging the number of marketings over a 6-year period. Secondly, producers may sell through more than one marketing channel.

SOURCE: 1975 Hog Survey.

TABLE 6—Distribution of Hog Marketings Direct to Packer by Farmers Located in 33 Ohio Counties.

No. of Hogs Produced*		Live-Weight					
		Year					
		1970	1971	1972	1973	1974	1975
0-150	No. of Farms	6	9	12	12	9	9
	Av. No. Sold	112	55	65	68	114	122
151-300	No. of Farms	5	4	4	5	6	8
	Av. No. Sold	237	277	285	275	297	198
301-450	No. of Farms	3	2	3	5	4	4
	Av. No. Sold	380	446	402	278	393	335
451-600	No. of Farms	5	7	6	6	7	6
	Av. No. Sold	371	354	438	373	342	454
601-750	No. of Farms	3	3	3	3	3	3
	Av. No. Sold	433	475	633	667	539	667
751-900	No. of Farms	4	5	6	7	8	8
	Av. No. Sold	675	650	642	784	800	764
901-1,050	No. of Farms	1	1	1	0	0	0
	Av. No. Sold	400	700	800	0	0	0
1,051-1,200	No. of Farms	0	0	0	0	0	0
	Av. No. Sold	0	0	0	0	0	0
1,201-1,350	No. of Farms	0	0	1	1	1	2
	Av. No. Sold	0	0	1,000	1,500	1,300	800
1,351-1,500	No. of Farms	0	0	0	0	0	0
	Av. No. Sold	0	0	0	0	0	0
More than 1,500	No. of Farms	3	4	3	2	2	2
	Av. No. Sold	1,733	1,511	1,066	1,150	1,150	1,385

No. of Hogs Produced*		Carcass Weight					
		Year					
		1970	1971	1972	1973	1974	1975
0-150	No. of Farms	3	3	6	6	9	9
	Av. No. Sold	225	225	137	162	200	139
151-300	No. of Farms	1	1	2	2	3	3
	Av. No. Sold	4	4	93	118	118	179
301-450	No. of Farms	1	1	2	2	3	3
	Av. No. Sold	25	25	62	238	292	275
451-600	No. of Farms	1	1	1	1	2	2
	Av. No. Sold	191	275	62	400	650	1,150
601-750	No. of Farms	2	2	3	3	1	0
	Av. No. Sold	230	238	117	167	150	0
751-900	No. of Farms	1	1	1	1	0	0
	Av. No. Sold	500	600	700	800	0	0
901-1,050	No. of Farms	0	0	0	1	2	2
	Av. No. Sold	0	0	0	1,100	950	1,150
1,051-1,200	No. of Farms	0	0	0	0	0	0
	Av. No. Sold	0	0	0	0	0	0
1,201-1,350	No. of Farms	0	0	0	0	0	0
	Av. No. Sold	0	0	0	0	0	0
1,351-1,500	No. of Farms	0	0	0	0	0	0
	Av. No. Sold	0	0	0	0	0	0
More than 1,500	No. of Farms	1	1	3	4	4	4
	Av. No. Sold	2,500	2,565	2,385	2,103	2,700	3,249

*The number of hogs marketed by size classification may exceed the limits of that size classification. This discrepancy occurs because producers were classified by averaging the number of marketings over a 6-year period. Secondly, producers may sell through more than one marketing channel.

SOURCE: 1975 Hog Survey.

6). However, the rate of increase in the number of marketings on the carcass basis exceeded the rate of increase in live-weight marketings.

Carcass weight selling and buying may be preferable to producers and packers because prices can be correlated to quality (5, pp. 150-156). Thus packers direct production and maintain a uniform continuous supply of hogs by paying higher prices for higher quality hogs. Producers in turn receive higher prices for good management practices. If the above trend continues, a larger volume of hogs will be sold on the carcass basis than by the live-weight method.

Since there has been a direct relationship between firm size and direct sales to packers (Figure 7), this marketing method will grow in popularity in Ohio and in the nation (5). Producers preferred this channel because hogs were adequately graded, premiums were paid for high quality hogs, marketing costs could be reduced, direct marketing information was available, and there was an increase in buyer competition.

The major limiting factor in the growth of these marketing channels will be the number and location of packers. Many producers are too geographically dispersed to take advantage of this marketing channel.

MARKETING METHODS

Swine producers have had the following marketing options: cash marketing, hedging, forward price contracting, and production contracting. Those who elect the cash marketing method produced hogs and accepted the cash price at time of delivery. These producers accept all risk of price change during the production period. Assuming that correct timing results when purchases or sales decisions occur, maximum profits may be earned. However, because of erratic economic conditions, it is very difficult to predict future prices and profits—thus affecting repayment schedules and production and marketing plans. Since any number of hogs may be marketed via the cash marketing method, producers of all sizes may select this marketing method.

To hedge or forward price contract hogs, a producer must have the capacity to sell either 15,000 lb of hogs (75-200 lb hogs) or 30,000 lb of hogs (150-200 lb hogs) in one time period. A hedge includes the sale of a futures contract (a promise to deliver hogs in some future period) and the acquisition or production of hogs. Normally, a futures contract is offset (bought) when the live hogs are sold.⁸ The cash and futures positions are not comparable until

the hogs achieve the weight and quality characteristics specified in the futures contract. Until then the cash market position is represented by feeder pigs in some stage of transition to the product defined by the futures contract. Hedging, therefore, provides a measure of price protection. However, basis change risk exists and all margin calls must be met. The basis is the difference between a futures price and a cash price. This difference reflects the cost of transportation to delivery points plus the cost of interest and insurance. A margin call is a notice that additional funds are required to keep the futures contract in force. Margin calls may result from a loss in the futures position or from increases in exchange requirements.

A forward contract is an agreement between a hog producer and a buyer. This agreement, which may be signed with a packer or with the operator of a daily market, specifies quality and quantity of hogs, future delivery date, place of delivery, and price. By entering into the contract, the producer fixes a price securing a specified profit or loss. Since the cash price in the cash market continues to fluctuate, this marketing method guarantees a fixed price rather than a maximum price. Correct timing is required to earn maximum prices with this marketing method.

Production contracts may take several forms. At one extreme, the producer may be paid for labor and use of buildings and equipment. All management decisions are controlled by the second party who would assume all price and production risks. At the other extreme, the producer may contract some or all of the inputs, manage the firm, and accept related production and price risks. Between these extremes are many contractual options which distribute responsibility and risks among the parties of the contract.

Cash Marketing

Between 1970 and 1975, most slaughter hogs were sold by the cash marketing method (Table 7). Producers either preferred the cash marketing method to forward contracting and hedging or had inadequate time or willingness to compare and contrast the cash marketing methods with forward contracts and hedges. In either event, producers cited the following advantages of the cash marketing method. This marketing method was uncomplicated, acceptable profits could be earned, higher prices were acquired from cash marketing vs. forward contracts and hedges, prices were expected to increase throughout the feeding period, and finally, multiple quantities and deliveries could be channeled through the cash marketing system (Tables 7, 8, 9, and 10). Many of these findings are consistent with other research results (14).

⁸To complete the contract, live hogs may be delivered to Peoria, Illinois.

TABLE 7.—Total Number of Hogs Marketed by Producers Using Four Different Marketing Strategies, 1970-75.

	Total No. of Hogs Produced and Marketed on Cash Market Only	Total Hogs Marketed Utilizing a Forward Contract or Hedge		Total Marketed Under Other Contracts‡
		Forward Contract*	Hedge†	
1970	127,199	0	136	1,827
1971	137,994	0	843	2,393
1972	152,467	300	3,072	2,276
1973	156,703	3,455	4,735	1,592
1974	153,908	4,000	3,236	5,106
1975	166,338	2,830	2,223	1,578
Total	894,599	10,585	14,245	14,772

*A forward contract is an agreement between a hog producer and a second party who is buying hogs. The agreement usually specifies quality of hogs, future delivery date, number of hogs, place of delivery, and price.

†A hedge is the sale of a futures contract sometime during the production period. Margin money is required and there is always specification of price, place of delivery, quality of hogs, delivery date, and pounds of pork.

‡Other contracts include hogs which were fed under an agreement with a feed dealer or packer.

TABLE 8.—Benefits Respondents Believe Accrue Through Cash Marketing.

Response	Total Respondents	Most Important	percent	
			2nd in Importance	Least Important
Satisfactory profit can be achieved	133	54	30	16
Minimization of losses	44	14	27	59
Assured price	69	41	39	20
Ease of acquiring credit	28	3	21	76
Has aided swine growth	22	0	32	68
Uncomplicated marketing method	174	58	28	14

TABLE 9.—Respondents' Reasons for Not Utilizing Forward Contracting.

Response	Total Respondents	Most Important	percent	
			2nd in Importance	Least Important
Don't fully understand complexities of forward contracting	93	42	39	19
Rather use the cash market to take advantage of higher prices	179	79	11	10
Would like to know more about forward contracting but unable to find someone knowledgeable on the subject	49	12	53	35
Have been advised against its use	26	15	19	64
Do not produce large enough number of hogs to warrant a contract	139	35	42	23
Prefer hedging	24	29	25	46

TABLE 10.—Respondents' Reasons for Not Utilizing Hedging Contracts.

Response	Total Respondents	Most Important	percent	
			2nd in Importance	Least Important
Don't fully understand the complexities of hedging	88	40	38	22
Rather use the cash market to take advantage of high prices	149	62	26	22
Would like to know more about hedging but am unable to find someone knowledgeable in the hedging area	34	12	24	64
Have been advised against its use	21	14	28	58
Don't produce a large enough number of hogs to warrant a contract	127	54	34	12
Prefer forward contract agreements	15	13	20	67

During 1970-75, the cash marketing method returned prices and profits higher than other marketing methods for certain seasons of each year (13, 14). Prices increased during many of the production periods. The cash marketing method by its very nature (a continuous plan, no contracts to sign, no margin money requirements) is relatively simple.

These findings support producers' contentions that this marketing method has advantages. However, the findings do not support the contention that this marketing method always returns the higher price. At times, differences in seasonal trends permit the hedging and forward contracting methods to consistently return higher prices (14). Other risks, such as the risk of default or illiquidity, were not evaluated by these producers or by the previous research efforts. Price swings in the competitive market influence the cash flow stream and also affect the risk of default. Increases in operational debt, consumer debt, and real estate debt demonstrate the need for a predictable, assured repayment schedule. Because of the variability of prices associated with the cash marketing method, repayment schedules may be more difficult to meet and the risk of default may be enhanced. These additional risk variables should be evaluated before any producer rationalizes that this is the best marketing strategy (3).

The role of response to assured price indicates that producers either misunderstood the question, did not totally understand the level of price risk associated with this marketing strategy, or assumed that the question implied assured payment or known price at time of sale (Table 8). Since one of the major disadvantages of this strategy is the inability to accurately identify selling price when production decisions are made, producers should thoroughly understand the impact of this strategy on price risk. The results can influence production plans, marketing plans, and repayment schedules.

Hedging

Producers are reportedly developing hedging marketing programs (Table 7). Between 1970 and 1974, 19 producers (7% of the total number) sold

hogs via the hedging method. A total of 104 hedges, representing 1.5% of all marketings, were initiated. Nineteen producers in the survey had hedged, and 40 producers reported that they were considering the development of a hedging program. Although producers who market different numbers of hogs sometimes use a hedge, the highest concentration of hedging occurred in the 300 to 900 and 1,500 head or more categories (14, p. 39).

The following advantages of hedging were identified by producers: acceptable profits and prices could be achieved, price and planning risks were reduced, credit constraints were lowered, and firm growth was increased (Table 11). The disadvantages of hedging were reportedly: prices were unacceptable relative to the options on the cash market, hedging contracts require too many pounds of pork or too many hogs, and the mechanics and underlying economic principles of the hedging method were complicated.

Because there is a direct correlation between firm size and the use of or desire to understand hedging, this marketing method may become more popular as firm size and concentration of hogs on farms increase. Producers desire more educational materials and programs concerning hedging. Continuous fluctuations in hog prices also stimulate the development of hedging programs. Hedging, as a marketing method, must compete with forward contracting as a method for reducing risks. In the long run, large specialized producers will select the option which provides the best combinations of profit and acceptable risk.

Forward Pricing Contracts

Forward pricing contracts were used by 2.5% of the swine producers, and 1.1% of the total marketings were forward contracts (Table 7). In 1970, the respondents did not report any marketings by forward contracts; by 1975, however, 4,000 head were reportedly sold by this marketing method. Forward contracts were signed by producers who marketed various volumes of hogs (14, p. 39). Since most forward contract agreements require a delivery of

TABLE 11.—Advantages Respondents Realize Through a Hedging Strategy.

Response	Total Respondents	Most Important	percent	
			2nd in Importance	Least Important
Acceptable profit can be achieved	19	63	26	11
Ease of acquiring credit	3	33	0	67
Assured price	15	47	47	7
Planning of swine enterprise is less uncertain	6	34	33	33
Has aided swine enterprise growth	2	0	50	50
Minimization of losses	8	12	38	50

TABLE 12.—Advantages Obtained by Respondents Who Forward Contract.

Response	Total Respondents	Most Important	percent	
			2nd in Importance	Least Important
Acceptable profit can be achieved	6	83	17	0
Ease of obtaining credit	2	50	0	50
Assured price	6	33	50	16
Planning of swine enterprise is less uncertain	2	0	0	100
Has aided swine enterprise growth and expansion	0	0	0	0
Minimization of losses	2	0	100	0

15,000 or 30,000 lb of hogs, producers of smaller numbers were unable to select this marketing method. In the survey, 70 producers reported that they would consider forward contracting for future production (14, p. 39).

The respondents identified three main advantages of the forward contract: acceptable prices could be identified and acceptable profits could be earned, credit was easier to obtain, and price risks were reduced (Table 12). It is interesting to note that producers did not indicate the potential reduction in planning errors or risks which could be associated with the forward contracts.

Producers identified the following disadvantages associated with forward contracting: cash marketing and hedging generated higher prices, the mechanics of forward contracting were complicated, and many producers could not sell 15,000 or 30,000 lb of pork at one time.

The future popularity of this marketing method is difficult to determine. Many respondents desire more educational materials and classes relating to forward contracting. Since large numbers of hogs must be delivered against this contract, increases in firm sizes and concentration of hogs on farms will increase the feasibility of this marketing method. One limiting factor will be the competition of the hedging options.

Production Contracts

Other contracts include all other agreements between feed dealers or packers and the farmer to produce hogs under given conditions. These contracts could be instituted by individuals or groups. During the 6-year period, 2% of the producers signed a production contract. Approximately 1.5% of all hogs were marketed by this method. The pros and cons of this marketing method were not identified by the survey.

Hedging, forward contracts, and production contracts were used on a limited basis. Limited use will continue as long as the cash marketing method returns acceptable price and price risk levels. Tradi-

tionally, the cash marketing method has returned favorable prices relative to the forward contracting methods. Increases in future indebtedness may limit this marketing method. On the other hand, complexities and confusion, unfortunate past experiences, and the belief that the alternative contracting method reduces marketing freedom will enhance the cash marketing method.

Some of the apparent deterrents to the contracting methods may be eliminated by developing sound educational programs and by coordinating the efforts of educators, brokers, packers, marketing institutions, and financial institutions for the development of specific marketing programs for individual farmers. Since financial requirements and cash flows vary among firms and throughout the production line of a specific firm, one marketing method is not categorically superior to all others. By understanding the advantages and disadvantages of each marketing method, a long term marketing program with variable price risks and profit levels may be initiated. The development of a marketing management plan is as important to the economic success of the firm as the painstaking production management plans currently being developed by many specialized hog producers.

MARKETING INFORMATION

Economic data help define expected trends and constitute a valuable tool for the selection of marketing methods (14). Farmers who have hedged or forward contracted hogs were requested to identify the economic parameters used to develop marketing plans. Those who hedged identified the following economic data as important: the hog cycle, current cash prices, futures contract prices, basis, seasonal prices for hogs, seasonality of pork demand, and farrowing intentions (Table 13). Similar responses were identified for the selection of forward contracts (Table 14). Many of these data proved to be significant in judging changes in futures prices (14). Producers should continue to study these and other data for selection of marketing methods.

TABLE 13.—Economic Factors Evaluated by Respondents Who Have Hedged Live Hogs.

Response	Total Respondents	Most Important	percent	
			2nd in Importance	Least Important
Farrowing intentions	9	22	22	54
Hog cycle	12	50	25	25
Seasonality of pork demand	7	29	29	42
Cold storage stocks	7	14	28	58
Current cash price compared to futures price (basis)	15	40	20	40
Seasonal prices for hogs	12	16	50	34
Hog-corn price ratio	7	14	14	72

TABLE 14.—Economic Factors Evaluated by Respondents Before Placing a Forward Contract.

Response	Total Respondents	Most Important	percent	
			2nd in Importance	Least Important
Farrowing intentions	2	0	100	0
Hog cycle	5	40	20	40
Seasonality of pork demand	2	50	0	50
Cold storage stocks	1	0	100	0
Current cash price compared to futures price	7	86	0	14
Seasonal prices for hogs	1	0	0	100
Hog-corn price ratio	2	50	0	50

SUMMARY AND CONCLUSIONS

Swine producers in a 33-county area in Ohio were enumerated. The 1970-75 production and marketing practices were examined. Producers' attitudes, understanding, and use of cash markets, forward contracts, and hedges were reported. Each respondent evaluated the usefulness of marketing information for designing marketing strategies.

The analysis of the secondary and primary production data confirmed that concentration and specialization are occurring. With the increase in volume of hogs per farm, firms appear to be specializing in feeding operations rather than farrowing to finish operations. Continued specialization by farmers in either feeder pig operations or in the slaughter hog feeding enterprise implies improved production efficiencies and lower costs. This contention should materialize because: 1) more specialized buildings may be used, 2) specialization often enhances managerial expertise, and 3) specialization permits economies of scale or economies of mass production. The latter concept means that as firms become larger, unit costs are decreasing.

Specialization also implies that a feeder pig marketing system within the state or nation may be on the horizon. The alternative would be an increase in the number of farrowing firms or cooperatives which would supply a uniform set of pigs to each feedlot operation. The latter would suggest the es-

tablishment of direct marketing channels for feeder pigs.

Additional numbers of specialized firms in conjunction with inflation further imply that producers may become more dependent upon the swine enterprise to meet cash flow needs. These funds may be available from the operation or may be borrowed from a financial institution. Specialization, the increased capital requirements, and erratic prices increase the importance and need for rational marketing plans.

The interrelationships between price changes and marketing trends were also studied. It was concluded that all producers monitor and vary production with changes in prices. Large firms reacted more decisively to changing price signals than the smaller firms. This implies that large volume producers may be more astute students of changing marketing relationships and price signals. Growth in farm size thus does not necessarily signal an end to the hog cycle.

Analysis of marketing trends and patterns indicates that producers market hogs through: 1) daily markets, 2) auctions, 3) organizational pools, and 4) direct sales to packers. At present most slaughter hogs are marketed via the daily market. However, daily marketings as a percentage of total marketings declined during the 6 years. Small numbers of hogs were sold through the auction marketing channel.

The pooling marketing method appears to be gaining some support among all size classifications of producers.

Direct marketings to packers increased throughout the 6-year period. Since there is a direct correlation between increases in the size of hog farms and direct marketing to packers, direct marketing may become more important in the foreseeable future. The major factor limiting rapid expansion of this marketing method in Ohio is the sparseness of packing plants and the geographical dispersement of slaughter hog producers.

Increases in the size of swine farms, farmers' dissatisfaction with the present marketing channels, and the dispersement of packers from production regions may create an environment for the establishment of alternative marketing channels and methods which will move the live hogs directly to the packer. One example may be the establishment of a teleauction or electronic exchange which sells slaughter hogs to packers on a live-weight or carcass basis. Alternatively, a third party may fill truckload orders for packing plants. This marketing agent may provide any or all of the following functions: pricing, sorting, grading, transporting, and weight and payment guarantees to sellers. The advantages of direct selling, quality control, and increased buyer competition must be encompassed in any alternative marketing channel. Thus, change will occur only if there are advantages for both buyers and sellers.

The marketing data indicated that hog producers are continuing to sell hogs via the cash market-

ing method. Hedging and forward contracting were relatively unimportant between 1970 and 1975. It is concluded that many producers did not consider the latter marketing options because they: could not sell 75 or more hogs at one time (the minimum size of a futures contract), were inadequately informed of the advantages and disadvantages of the alternative marketing methods, were satisfied with the price earned from the cash marketing method, and were aware that prices were increasing through the 6-year period. Thus, they preferred to accept more risk to earn higher expected prices.

Hedging and forward contract marketing may gain in popularity among producers. This contention will be true if: 1) hog farmers continue to increase swine numbers; 2) prices wane or begin to fluctuate sharply, causing unexpected losses or profits; and 3) educational efforts are increased. The latter effort should help clarify the methods for hedging and forward contracting and should clarify the advantages and disadvantages of the alternative marketing strategies.

The Ohio hog industry is undergoing dramatic production and marketing changes. Future hog farms will increase in size and more specialization within the hog enterprise will occur. Direct marketing methods will become more popular as the hog producers integrate backward into the farrowing operations and forward into the packer sectors. More sophisticated marketing methods will be employed and more elaborate marketing strategies will be developed.

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APPENDIX TABLE I.—Number and Percent of Producers and Number and Percent of Slaughter Hogs Marketed (1970-75).

No. of Hogs Produced	1970		1971		1972		1973		1974		1975		Total Hogs Marketed 6 Years
	No. Resp.	% Resp.	No. Resp.	% Resp.	No. Resp.	% Resp.	No. Resp.	% Resp.	No. Resp.	% Resp.	No. Resp.	% Resp.	
0-150	129	36.4	162	40.3	168	40.4	168	40.4	168	40.6	165	40.9	92,871
No. of Hogs	13,605	10.7	16,407	11.0	16,242	9.8	16,242	9.0	15,900	8.9	15,240	8.9	9.68
151-300	67	18.9	72	11.0	73	17.5	75	18.1	72	17.4	67	16.7	94,218
No. of Hogs	14,551	11.4	14,593	9.8	16,277	9.8	16,312	9.5	16,333	9.2	16,152	9.6	9.82
301-450	44	12.4	45	11.2	47	11.3	46	11.1	46	11.1	46	11.5	99,320
No. of Hogs	15,173	11.9	16,196	10.9	16,417	9.9	16,780	9.8	17,729	10.0	17,025	10.1	10.35
451-600	45	12.7	49	12.2	49	11.8	48	11.6	48	11.6	46	11.7	145,933
No. of Hogs	19,928	15.7	23,792	16.0	25,571	15.4	25,926	15.2	24,931	14.0	25,785	15.3	15.22
601-750	20	5.6	20	4.9	22	5.3	23	5.6	23	5.6	24	5.9	87,220
No. of Hogs	12,170	9.6	12,522	8.5	14,767	8.9	16,183	9.5	14,909	8.4	16,669	9.9	9.09
751-900	15	4.2	17	4.3	16	3.9	17	4.1	17	4.2	17	4.3	81,276
No. of Hogs	11,359	8.9	12,980	8.8	13,236	7.9	15,515	9.1	14,111	7.9	14,075	8.4	8.48
901-1,050	10	2.8	10	2.5	10	2.5	10	2.4	10	2.5	9	2.3	55,720
No. of Hogs	8,390	6.5	9,340	6.4	9,730	5.9	9,740	5.8	9,240	5.3	9,280	5.4	5.80
1,051-1,200	5	1.4	6	1.5	6	1.5	6	1.4	6	1.5	6	1.4	39,300
No. of Hogs	5,000	3.9	5,900	3.9	6,700	4.1	6,800	3.9	7,000	3.9	7,900	4.6	4.09
1,201-1,350	4	1.2	6	1.5	7	1.7	7	1.6	7	1.4	7	1.7	48,330
No. of Hogs	5,505	4.3	7,418	5.3	8,338	5.0	9,156	5.4	9,056	5.2	8,857	5.2	5.04
1,351-1,500	4	1.2	4	0.9	4	0.9	4	0.9	4	0.9	3	0.7	33,349
No. of Hogs	4,050	3.1	4,986	3.4	6,741	4.0	6,655	3.9	5,369	3.1	5,550	3.2	3.47
1,501 and More	11	3.2	11	2.8	13	3.2	12	2.8	12	2.9	12	2.9	181,695
No. of Hogs	17,950	14.0	23,950	16.2	32,100	19.3	32,200	18.9	42,525	24.1	32,970	19.4	18.95

SOURCE: 1975 Hog Survey.

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Green Springs Crops Research Unit, Green Springs, Sandusky County: 26 acres

Jackson Branch, Jackson, Jackson County: 502 acres

Mahoning County Farm, Canfield: 275 acres

Muck Crops Branch, Willard, Huron County: 15 acres

North Appalachian Experimental Watershed, Coshocton, Coshocton County: 1047 acres (Cooperative with Agricultural Research Service, U. S. Dept. of Agriculture)

Northwestern Branch, Hoytville, Wood County: 247 acres

Pomerene Forest Laboratory, Coshocton County: 227 acres

Southern Branch, Ripley, Brown County: 275 acres

Western Branch, South Charleston, Clark County: 428 acres