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## The Structure of the U.S. Pork Industry

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In the early 1970s a farm marketing more than 5,000 hogs a year was a "big operation." By 1990, marketing of 50,000 hogs per year was considered a big operation. We forecast that early in the 21st century a firm will probably have to produce 500,000 hogs to be regarded as big.

The U.S. Agricultural Census provides some landmarks of change. The proportions of "hogs and pigs" sold by farms (places) marketing annually 1,000 head or more were: 34% in 1978, 48% in 1982 and 57.5% in 1987. If the U.S. Census counted business units (involving 2 or more hog farms) rather than farms (places), the growth would be even faster. The Census also indicates the number of farms marketing hogs and pigs fell from 424,000 in 1978 to 315,000 in 1982 and to 239,000 in 1987.

The following estimates of 1988 marketings summarize the current structure of U.S. hog production:

- 61-64% of the marketings were from business units (operations) marketing 1,000 to 50,000 head. This group includes a majority of single units, most of the multiple units, and about 1,000 small contractors. Most operators would probably call themselves family farmers, although some are feed dealers, investors, and others.
- 30-32% of the marketings were from operations marketing fewer than 1,000 head. Some are growers (contractees) but most are independents.
- 6-7% of the marketings were from operations each marketing 50,000 or more head per year. About half of these hogs were contracted. These producers-contractor or independent—are the big firms such as Cargill, Carroll, Dreyfus, Goldkist, Hastings Pork, Murphy, National Farms, Prestage, and Tyson.

### Reasons for Structural Change

Part of the shift toward production in larger units is associated with the postwar growth in the typical commercial farm and the dropping-out of agriculture of many small hog producers. The shift was associated with a growing specialization in farming. It has been generally believed that one can compete better by doing one or two things expertly. As a farmer's corn acreage rose from 160 to 640, or more, the ten-sow enterprise changed from an important income supplement to a nuisance. Undoubtedly, other important factors were the developments in animal technology (production scheduling; health aids; feed additives; and feed, air and manure handling equipment) that permitted efficient, labor-saving, year-round production. There are cost economies of size available to the large units arising from technical efficiencies, cheaper inputs and better prices for hogs.

Until 1979, new technology and rising costs of labor relative to capital facilitated industrialization of hog production. Profitable hog prices during 1965-79 and an income tax structure that encouraged investment of earnings in additional facilities also encouraged the adoption of large-scale production methods and facilities. The farm crisis of the 1980s squeezed out numerous hog producers. Some independents turned to contracting as the only available source of capital for continued hog production.

### Location, Size and Ownership

Typically, hogs are produced where the feed is grown. About 76 to 78% of hog production is located in the North Central (NC) region (the block of North Dakota, Kansas, Michigan, Ohio and the 8 states in between). That percentage has been relatively constant for 30 years or more. However, more than 78% of the smaller producers and less than 78% of the larger

ones are in that region. Pork production has traditionally been associated with large supplies of local feed grains. While that link still holds for most of the country, some large operators in the South are hauling feed several hundred miles. Hence, hog production is minor in the West and in New England but is important in parts of the South. North Carolina, Arkansas and Pennsylvania are the only states outside the North Central region that increased marketings of hogs and pigs by 300,000 or more from the 1982 to the 1987 Census.

The 10 leading states in numbers of hogs and pigs marketed by Census farms of 5,000 head or more in 1987 included two states outside of the North Central Region: North Carolina and Arkansas. Arkansas was the leading state in the percentage (66) of marketing from those large units. The fact that 7 of those 10 leading states also ranked in the top 10 in terms of numeric growth of marketings from 1982-87 reflects a positive relationship of large-scale producers and rate of growth (Table 1). Type of ownership is closely related to size of the unit. Those units below 1000 head in size are mainly individual proprietorships although there are some partnerships and a few family corporations. About half of the larger units are owned by corporations of which nearly one-half are non family corporations or cooperatives. Ownership by corporations rises steadily as the size of the operation increases.

### Class Differentiation

Almost all hogs were once produced by independent producers on single-unit farms. These traditional units are still the large majority of units producing a majority of the market hogs. However, among the operations marketing more than 1,000 head annually, which likely will be the operations dominant in the 1990s, these traditional units will likely lose their dominance. As shown in Table 2, in 1988 the multi-units and the contractors had already become quite important. A multi-unit producer is defined as an independent (noncontracting) who produces hogs on two or more farms. Many operate in facilities purchased or leased from neighbors. While a farmer contractor hires other producers' facilities and labor, a multi-unit operator hires or purchases only the facilities of other producers.

### Contract Production\*

Contract production of hogs is not new. Contract production of broilers swept that industry in the 1950s, and the idea was

tried simultaneously in swine. Attempts at contract production by feed companies or packers in the 60s and 70s never became accepted in the North Central region. However, contract production took hold in the Southeast and has grown to large size. The farm crisis of the 1980s led numerous Midwestern feed companies and dealers as well as well-financed producers and investors to contract production in the North Central region.

Many of the early contractors (those providing feed and pigs or breeding stock to the growers) were producers rather than feed companies or packers. Departures from the broiler model reflected basic differences in the production of pigs vs. chicks.

Total contractor marketings of market hogs in 1988 were 6.8 million head from contract operations and 2.7 million from their own production. This total of 9.5 million head was 10.9% of U.S. slaughter of domestic produced hogs. It is possible that another million head were produced by survey nonrespondents, which would suggest an upper limit of about 12% of U.S. slaughter. While 9.5 million head are a great many hogs, contracting as yet is not a major portion of hog production in the U.S. However, proportions much higher than 12% exist in several states including North Carolina and Arkansas.

Some 87% of the contractors contracted pig finishing, 21% pig production, 15% farrow-to-finish and 3% the production of breeding stock. Obviously, several contracted for two or more types of production. While average contracts were bigger for pig production than for finishing, total contractor volume was larger in finishing; thus, contractors purchased a sizeable volume of feeder pigs.

About 66% of the growers were required to build or modify facilities in order to obtain a contract. Such initial investments were more common for pig production and farrow-to-finish contracts than for finishing. Initial investments to obtain contracts were common for the larger contractors and for East Coast contractors (those contractors have considerable overlap).

Growers reported a large range in the lengths of their contracts, but they averaged 15 months for finishing, 30 for pig production and 49 for farrow-to-finish. These averages are obviously much shorter than the time necessary for depreciating new facilities.

Fewer contractors (31%) than growers (41%) began contracting within two years of the survey. However, 3% of the contractors began in the 1960s and another 6% in the 1970s.

Contractor and grower attitudes toward contracting appeared positive. When asked to rate their satisfaction with contracting on a 6 point scale (6 = extremely satisfied and 1 = not at all

**Table 1. The ten leading states in large-scale hogs and pigs marketings, 1987.**

State	Large scale rank	Hogs and pigs marketed (1000 head)		Large scale marketing as % of all marketings	National rank in growth of marketing 1982-87
		From farms marketing >5000 head	From all farms		
N. Carolina	1	2,992	5,181	58%	1
Iowa	2	2,324	23,484	10	(49)
Nebraska	3	1,781	7,443	24	5
Illinois	4	1,375	9,880	14	6
Indiana	5	1,216	8,025	15	2
Arkansas	6	798	1,211	66	4
Minnesota	7	744	8,073	9	11
Kansas	8	619	2,760	22	(48)
Michigan	9	500	2,216	23	3
S. Dakota	10	440	3,181	14	19

Data from U.S. Agricultural Census of 1987. "Large-scale" is defined here as 1987 marketings of 5000 head or more because the Census doesn't break out larger sizes. The last column is based on computing the absolute growth (loss) in numbers of hogs and pigs between 1982 and 1987. Thus, North Carolina was first with a growth of 1,274,000 head and Iowa ranked 48 with a loss of 317,000 head. Note that growth by state based on changes in USDA inventories for 1982 to 1987 is not very consistent with these Census ranks.

\*Much of this section is drawn directly from V. James Rhodes. *U.S. Contract Production of Hogs*, University of Missouri Agricultural Economics Report No. 1990-1.

**Table 2. Operations marketing 1000 or more head and their marketings by class, 1988.**

Class	Operations		Market hogs (1000 head)
	Number	%	
Single unit	20,400	71.0	33,948
Multi-units	5,668	19.7	16,530
Small contractors	939	3.3	5,335
Large contractors	21	0.1	4,110
Growers	1,434	5.0	2,877
Sow corporation	275	0.9	157
<b>Total</b>	<b>28,737</b>	<b>100.0</b>	<b>60,080*</b>

\*Because grower hogs are also contractor hogs, this total omits the grower hogs.

Source: V. James Rhodes, *U.S. Contract Production of Hogs*, Univ. of Missouri, Agricultural Economics Report No. 1990-1; a report on a national survey sponsored by UMC Ag Exper. Station, *Pork 89* and National Pork Producers Council.

satisfied), growers gave an average score of 4.5 and contractors averaged 4.0. An invitation to growers to complain about major problems with their contractors did not elicit many strong complaints. When asked if they worry about losing their contracts, 78% of the growers said no, and only 2% said they worry a lot.

Independents are much more negative toward production contracting than are the participants—the growers and contractors. When independents were asked if they would consider being growers, one-half checked the strongly negative answer (not under any circumstance).

Of the independents strongly opposed to contracting about one-half were opposed in principle to contract production as being bad for farmers while the other half had more individual business reasons. Thus, about one-fourth of independents were opposed in principle to contract production of hogs.

How viable and permanent is contract hog production? More of the information is positive than negative. Supporting the continued viability of contract hog production are the following data:

1. 9% of the contractors have been contracting 18 yr. or more,
2. plans of all large and most small contractors are to stay in operation at the same or a larger size,
3. contractors expanded production sharply from 1987 to 1988,
4. the contractor-grower relationship appears healthy with lots of expressed satisfaction and few complaints, and
5. contractors claim they are as efficient or more efficient than large independents.

On the negative side is the response of 66% of the growers saying that their contract incomes would not cover the costs of replacing facilities. Are contract fees going to grow larger in the future as the current stock of grower facilities is depleted? Another question relates to high turnover in the ranks of both growers and small contractors. Since those who exit the hog business tend to disappear from lists, we have no reliable way of measuring exits. However, it is possible that many growers view contracting as short-term. In sum, the positive points appear to out-weigh the negative. Contract hog production appears to be a viable operation that will gradually increase its market share in the next few years. It's too early to tell whether contract production will eventually dominate the swine industry.

## Structure of the Production of Breeding Stock

Continuing improvements in breeding stock are essential to the industry. A 1989 survey by National Hog Farmer and Michigan State researchers indicates that 75% of the gilts are self-produced while about 10% are purchased from purebred breeders, 4% from commercial breeders and 10% from corporate suppliers (Dekalb, Farmers Hybrid, Pig Improvement Co., and Babcock Swine). A majority (58%) of boars are said to be purchased from purebred sources, corporate suppliers 23%, commercial breeders 4%, and home raised 15%.

One would expect growth in the size of units selling breeding stock as the size of the buyers grows. Some production specialists are recommending producers purchase F-1 gilts to produce a terminal cross for commercial production. If this is adopted it may add to the growth of larger breeding stock firms.

## Future Structure

Modern facilities and techniques permit the efficient production of large numbers of swine in one place. The trend toward larger size production units will continue. The multiplication of giant units of the size of National Farms may be limited to a relatively few places in less humid and more sparsely populated areas of the country because of the problem of effluent disposal.

The big question is the market share that will be obtained eventually by large firms with numerous locations of the multi-unit and/or contract operations type. Such large firms will be vertically integrated into feed milling, whether the hog business or the feed mills comes first. It is possible that hog slaughter will also become integrated vertically by the largest firms although movement in that direction has been slow. It is anticipated that during the '90s a majority share of hog production will remain in the hands of mainly family producers in units each marketing fewer than 50,000 head.



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