



# pork industry handbook

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Michigan State University Extension

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

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The structure of the hog industry is changing rapidly in terms of the size of the operation and the importance of contract production, but change in location has occurred at a slower rate. In the early 1970s, a farm marketing more than 5,000 hogs a year was a "big operation." By 1990, marketing 50,000 hogs per year was considered a big operation. It is likely that early in the 21st Century a firm may need to market 500,000 hogs to be regarded as big. A few firms may market more than 3 million hogs per year. The shift toward an individual operation (firm) producing on multiple sites, or "farms," underlies the move toward larger operations. In some instances, multiple sites involve contract production.

### Size of Producers

A 1992 survey that we conducted with *Pork* magazine (Table 1) estimated that the 29,650 U.S. operations annually marketing 1,000 or more hogs, marketed 68.9 million hogs in 1991 (78.1% of total commercial slaughter of hogs including culled breeding stock). Most (28,394 or 95.8%) of these operations were non-contractors, referred to as "independents,"

while 1,256 were contractors. The independents' marketings accounted for 80% of the total marketings in this survey.

Nearly 36 million market hogs were produced by independents producing on single farms. Next in size were independents with multi-units on two or more farms producing almost 14 million market hogs in 1991. Contractors produced nearly 14 million head.

The top 2,947 operations (size groups 5, 6, and 8 in Table 1) marketed almost 29 million hogs, or one-third of the nation's hogs. Of the six size groups, size 1 (1,000 to 1,999 head) was the most common with 16,647 operations and almost 18 million market hogs (26% of the survey's hogs and 20% of the national slaughter).

### Magnitude of Contract Production

In 1991, it is estimated that 1,256 contractors marketed 13,732,000 market hogs and 1,848,000, feeder pigs, and seed stock. Survey data (Table 2) on operations marketing 1,000 or more hogs and pigs a year puts those numbers in perspective:

Table 1. Number of U.S. hog operations marketing more than 1000 head by size of operation (1991).

Size of Operation	Number of Operations	Total Marketing (000 Head)	
		Market Hogs	Total Hogs & Pigs
1 (1000-1999)	16,647	17,904	21,998
2 (2000-2999)	6,435	11,686	14,568
3 (3000-4999)	3,621	10,300	12,849
5 (5000-9999)	1,861	8,622	11,858
6 (10,000-49,999)	1,045	11,427	15,964
8 (50,000 plus)	41	8,942	9,950
Total	29,650	68,880	87,188



**Table 2. Survey data on operations marketing 1,000 or more hogs and pigs/year.**

	Number	Market Hogs	Hogs & Pigs
Contractors	1,256	13,732,000	15,580,000
Independents	<u>28,394</u>	<u>55,148,000</u>	<u>71,608,000</u>
Survey estimates	29,650	68,880,000	87,188,000
National slaughter	—	88,169,000	—

Thus contractor-marketed market hogs (MH) in 1991 were 19.9% of the survey total (survey omits those producing less than 1,000 hogs and pigs a year) and 15.6% of U.S. domestic slaughter. A reasonable estimate of the contractor share is 15% to 16%. The similar estimate in the 1988 survey for contract production was 11% to 12%.

Contractors selling 1,000 to 49,999 hogs and/or pigs are classed as small, while larger ones (size 8 in Table 1) are called large or super contractors. The 1,225 small contractors produced and sold almost as many market hogs as the 31 super contractors (Table 3).

**Table 3. Numbers of hogs marketed (MH) by size of contractor.**

	Total MH	MH by Contract	MH in own facilities
Small Contractors	6,804,000	3,049,000	3,755,000
Super Contractors	<u>6,928,000</u>	<u>4,816,000</u>	<u>2,112,000</u>
Total	13,732,000	7,865,000	5,867,000

Most contractors farrow and finish in their own facilities as well as contract additional units. Production in owned facilities has expanded much faster since 1989 than contract production. The smaller contractors produced 44.8% of their market hogs by contract, compared with 69.5% by larger contractors.

By the most narrow definition of contracting (hogs finished by growers), contract production totaled only 7,865,000 or 8.9% of all hog slaughter.

Many contractors separate the farrowing and finishing stages; more contract for finishing than for farrowing. Some buy feeder pigs but many produce them in their own facilities. Some contractors specialize in selling feeder pigs, while others occasionally sell surplus pigs.

### Growth of the Larger Producers

Between 1959 and 1987, the Censuses of Agriculture reported a decrease of farms marketing less than 1,000 hogs/pigs a year from 1,272,000 to 239,000. Meanwhile the number of farms marketing 1,000 head or more increased 15 fold. In fact, the number of farms marketing less than 200 head per year has been declining since 1969. Those under 500 head have declined since 1978, and those under 1,000 head since 1987.

Not every large unit grows and certainly not every year. Almost 55% of the operations of 1,000 plus marketings in the survey marketed more total hogs and pigs in 1991 than in 1990. This varied from 51% of the single-unit independents to 78% of the contractors and from 40% of the producers in the South Atlantic to 67% in the South Central region.

The rate of growth from 1990 to 1991 was strongly related to contracting and to size. The super producers grew much faster than the smaller producers and contractors grew faster than independents of the same size. However, contractors were proportionately much larger than independents so the average marketings of contractors as a group grew nearly three times as fast as those for independents (Table 4).

**Table 4. Percentage growth in hog and pig marketings 1990 to 1991 by class and size (matched sample).\***

Size	Class		
	Independents	Contractors	All Producers
1	6.7%	4.5	6.7%
2	8.8	13.7	9.0
3	7.4	2.9	7.2
5	3.7	7.0	4.1
6	6.9	22.7	11.2
8	23.0	25.3	24.8
All	7.3	20.7	9.5

\*Size categories are the same as in Table 1.

### Location and Size

Hogs typically are produced in areas of high feed grain production. Hogs used to be produced on the farms where their feed was grown; however, that relationship has diminished in recent years. In the 1992 survey, 70% of independents and 46% of contractors attached great importance to the production of grain for their hogs while 12% of the independents and 27% of the contractors produced no feed grains for their hogs.

For the past 30 years, nearly 80% of hog production has been located in the two North Central regions containing the most production of feed grains. Of the 10 leading states in hog production, only North Carolina is outside those regions (Table 5). North Carolina has increased impressively its share of national slaughter hog marketings from 5.2% in 1987 to 7.4% in 1992. That gain was at the expense of all the regions, including the South Atlantic in which North Carolina is located.

**Table 5. Slaughter hog marketings of ten leading states.\***

1992 Rank	State	1992 (000 head)	% of '92 Nat'l Total	% of '87 Nat'l Total
1	Iowa	22,713	24.3	25.0
2	Illinois	9,887	10.6	10.6
3	Minnesota	8,496	9.1	8.6
4	Indiana	7,687	8.2	8.7
5	Nebraska	6,916	7.4	7.6
6	N. Carolina	6,907	7.4	5.2
7	Missouri	5,012	5.4	5.1
8	Ohio	3,340	3.6	4.0
9	S. Dakota	3,307	3.5	3.6
10	Kansas	2,412	2.6	2.8
		<u>76,677</u>	<u>82.1</u>	<u>81.2</u>

\*Note: Data are from pork check-off reports and reflect the state where the hogs were produced. Percentage columns reflect a 1992 total of 93,436,000 and a smaller 1987 total of 79,251,000 head.

The recent location of a few large operations in Colorado and Oklahoma has stimulated speculation that such fringe areas of the Corn Belt will capture future growth.

Large scale operations are proportionately more important outside the two North Central regions. For example, according to the 1987 Census of Agriculture, total marketings by units of 5,000 head or more were 58% of total marketings in North Carolina, 66% in Arkansas, 14% in Illinois, and 10% in Iowa. Approximately one-third of the super-producers (50,000 head or more) are located or headquartered in North Carolina. Since these operations find attractive thinly populated areas with cheap land and labor, their growth is likely to continue to be less represented in the Iowa-Illinois-Indiana corridor than is the current production of smaller operations. Contract production of hogs has been easier to introduce in areas in which farmers have had experience with poultry contracting. Such areas are mainly to the south of the Corn Belt. Considerable numbers of pigs are likely to be farrowed outside the Corn Belt but finished inside, a long-standing practice.

## The Forces Driving Structural Change

The two big changes in the structure of the hog operation are the growth in the size of operations and contract production. The growth in the size of operations includes a shift to indoor production, the growth of the farm unit, and the inclusion of multiple units in a single operation or firm.

Various other events contributed to the changes in structure since 1965. Profitable hog prices during most of 1965-79 and an income tax structure that encouraged the reinvestment of earnings encouraged the adoption of large scale production methods and facilities. Then the farm crisis of the 1980s squeezed out numerous producers and made entry or expansion easier for investor groups and other large producers that had access to capital.

One-half or more of independents surveyed said they would not become contract hog growers under any circumstances. About one-half of those producers are opposed in principle to contract production as being bad for farmers. Contract production by big commercial feed companies and/or packers (vertical integration) has probably been the most feared result of structural change. However, the few current examples of vertical integration have not dominated the shift in structure.

Contract production of hogs involves the following relationships and activities. An owner of feeder pigs engages a producer to take custody of pigs and feed them in the producer's facilities to slaughter weight with feed and health items furnished by the pigs' owner. This producer (grower) receives a set fee per pig received and/or per hog marketed and often some performance incentives. The pigs' owner (contractor) bears all market risks and most of the production risks. See PIH-6, Producing and Marketing Hogs Under Contract.

Alternatively, the owner of breeding stock may engage a grower to produce feeder pigs or to produce farrow-to-finish under the same type of contractual arrangement. Outcomes depend upon the quality of facilities, feed, pigs, contractor supervision, and grower care provided. Such qualities are difficult to specify and are not easily monitored by either party.

Opportunistic behavior by either side can hurt the returns for the other. As owner and major risk-bearer, the contractor makes all the important decisions and often supervises the grower's caretaking as if he were an employee. Some growers find the degree of supervision to be oppressive while others appreciate the training and technical support. Often, growers like to concentrate on production and forget procurement and marketing.

In the 1950s, the early production contracts in hogs followed close behind the early broiler contracts. Many feed companies

offered contracts that by-passed the normal market. Contracting was viewed as a way to gain market share for feed sales or, for the less aggressive, a way to defend market share. A few packers offered contracts to increase slaughter hogs available to them in certain local areas.

In the Corn Belt, these efforts to contract largely subsided within a few years. Most good producers were not interested in a quasi-employee status that did not provide access to profits of the good years of the hog cycle. Farmer acceptance was greater in the South in areas already accustomed to broiler contracts, but success was fairly limited. Many of the large companies lost their enthusiasm for vertical integration in hogs.

Since the early 1970s, the techniques of efficient large-scale production have been developed. Ordinary producers have moved from 30 sows to 100 or more. A new breed of "super-producers" such as National Farms in Nebraska and Colorado, Tyson Foods in Arkansas, Murphy Farms, and Carroll Foods in North Carolina has developed. The combined annual marketings of these four firms are estimated to be more than four million head. Small businessmen, Murphy and Carroll started contracting in the 1970s to utilize better their small feed mills. Murphy and Carroll recognized that hogs were the primary business. Instead of hogs being a marketing outlet for feed, the central mill became an integral part of a large-scale hog production unit.

Today, most large producers and contractors are not in the commercial feed business. Their feed mills are simply a facility essential to producing hogs. Murphy's feed mill technically represents vertical integration, but it is not bypassing the market any more than a 10-sow producer who grinds his own feed on a PTO-mill.

These four firms are major producers of hogs in their own facilities. National Farms does no contracting while the others have supplemented their own resources by contract production. The three contractors have integrated (expanded) horizontally to increase their rate of growth in sales much as McDonald's has done through franchising a majority of its fast food outlets. While contracting expedites their growth, contracting does not appear indispensable to these operations; this new breed can grow strictly on its own. National Farms nearly doubled its capacity in 1990 by adding an operation in Colorado with 16,800 sows. Recently, it built a similar facility in the Texas Panhandle. When Premium Standard found little interest among nearby farmers in becoming contract growers, it built its own facilities to finish the pigs being farrowed by its sows.

In competitive markets, efficient producers will drive out the inefficient. How quickly and completely that process occurs depends on a number of conditions. The more rapidly efficient producers expand, the more rapidly the less efficient are pressured out. If overall demand is static or declining, competitive pressures on the inefficient are greater than when demand is expanding. Likewise, the more readily the less efficient exit, the less the downward pressure of industry expansion on prices and the greater the profit opportunity for the more efficient to continue to expand.

Some highly efficient family producers may limit their expansion because they refuse to hire labor or borrow capital. In the 1992 survey, about 72% of the independent producers (marketing 1,000 head or more per year) claimed that they did not hire full-time non-family labor for their hog operation and within that group, only 14% felt positive about hiring such labor. Another complication is that over time the efficient producers also exit for reasons of age or ill health, a change in interest, or a better opportunity elsewhere.

Independents surveyed about circumstances limiting the expansion of their hog enterprise most frequently mentioned age or health. They also indicated concerns about anticipated low profits,

hassles of hiring labor, and of environmental regulations, and the absence of any family successor. In family farming, the exit of a producer can mean closing the operation because there may be no successor interested or skilled in that specific enterprise. Thus the speed and completeness with which the more efficient family producers take market share away from the less efficient producers tends to be slowed by the fact that many of the more efficient may limit output or may eventually exit rather than expand continually.

The presence of sizable corporations in specialized agricultural production increases the speed and completeness of industry change. Such corporations tend to have goals of much greater production and can ordinarily obtain the capital for faster expansion than the typical family farmer. Their skills and interests usually are not tied to the health and lifetime of a single individual. When such ambitious, well-financed corporations also possess superior efficiency they can more swiftly and persistently increase their market share.

The large differences in current efficiency of hog production probably will be squeezed down in the next 10 years. Differences of \$10 or more per hundredweight (cwt) in average cost of production for a given year between groups of high- and low-cost producers often are reported by record-keeping agencies. Such \$10 differences seem remarkably large compared to an average cost for all producers somewhere near \$40 in most recent years. Many super-producers are reported to be in the top 10% to 25% of the industry in terms of efficient production.

As the more efficient super-producers expand and are joined by other similar firms producing in a fairly static total market for pork, many of the less efficient producers will be squeezed out. To the extent that the least efficient realize their disadvantage, they may cease making substantial capital investments and may drop out before they are forced out. Thus, the expanding efficient corporate producers may find that the combined output of their less efficient competitors is trending downward. Even with a static national demand for pork, such a process could be very profitable for the most efficient because their expansion could be financed by generally profitable hog prices.

Many of today's independent producers feel somewhat threatened by the growth in the 1980s of the new breed of large scale producers. Given the static or slowly expanding demand for pork, it can be argued that each expansion in output of one million hogs by the super-producers will lead to the exit of 2,000 less efficient operations of the 30 to 35 sow size. Many independents recognize that their best defense is to match the efficiencies of the super-producers. Many have not yet developed the information system and the managerial disciplines to match the efficiencies of the more efficient producers.

Larger producers are gaining larger shares because they are, on average, more efficient than a majority of the smaller producers and because their large corporate organization is more conducive to continual expansion. Successful, efficient producers must: (1) have access to and quickly adopt new technology, (2) have access to and use market information, (3) have increased specialization so the first two points are feasible, (4) have access to and use adequate capital, and (5) produce the volume and quality of hogs that attracts packer premiums rather than discounts. These success factors are less available to smaller producers while larger organizations are more likely to obtain them. As already noted, many family operations limit their growth, not wanting to take larger risks or supervise non-family labor or because further expansion seems irrational given the operator's age, poor health and/or lack of a family successor.

What are the weaknesses of the large operations? Clearly,

management is not the limiting factor until operations get many times larger than today's average operation. Community attitudes have kept contractors and other super-producers out of certain communities and even states. Large operators ordinarily avoid areas where they are not welcome, especially if the regulatory authorities are hostile. It is more difficult to sell the contract idea to potential growers in the Midwest and outside those areas that have experienced poultry contracts.

Areas of limited opportunity—poor soils and limited off-farm jobs—tend to attract the larger operations. Large operations make larger targets for concerns and litigation about air and water pollution. Areas of low humidity and low population density are more attractive. Thus far, environmental zoning and other state regulations have been more inconveniences to be maneuvered around than solid barriers. Some shift of hog production from the Corn Belt toward the West and Southwest appears likely.

A more probable factor that will hamper rate of growth of the big producers after the year 2000 is that the differential in efficiency will have been squeezed down so that profit margins for the most efficient are much narrower. Once the engine of growth has less fuel, it will run slower.

## Looking to the Year 2000

Rapid structural adjustments will continue during the 1990s, barring the social erection of some significant national barriers such as environmental or animal welfare regulations. It is widely expected that slaughter weight will approach 290 pounds as leaner genetics and the use of growth enhancers make such weights feasible.

The feed industry is concentrating and big sellers are going direct, bypassing dealers. One consultant predicts only 10-12 major players in feed manufacturing when the shake-out ends. A few of these firms may become deeply involved in contract production and probably all will finance much of their hog feed sales.

Further vertical integration involving packers is expected. Experts argue that pork quality considerations will lead packers to marketing contracts and other contractual coordination that falls short of contract production. Packers presently involved in contract production include Smithfield (East coast), Clougherty (with Boswell Farms on the West coast), Bryan Pack and Tyson Foods (South) and Indiana Packers (Corn Belt). Seaboard Corporation, which owns Farmstead Pack, recently announced plans for a packing plant and contract production in the southern high plains.

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